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Poultry Fortune

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March 2022

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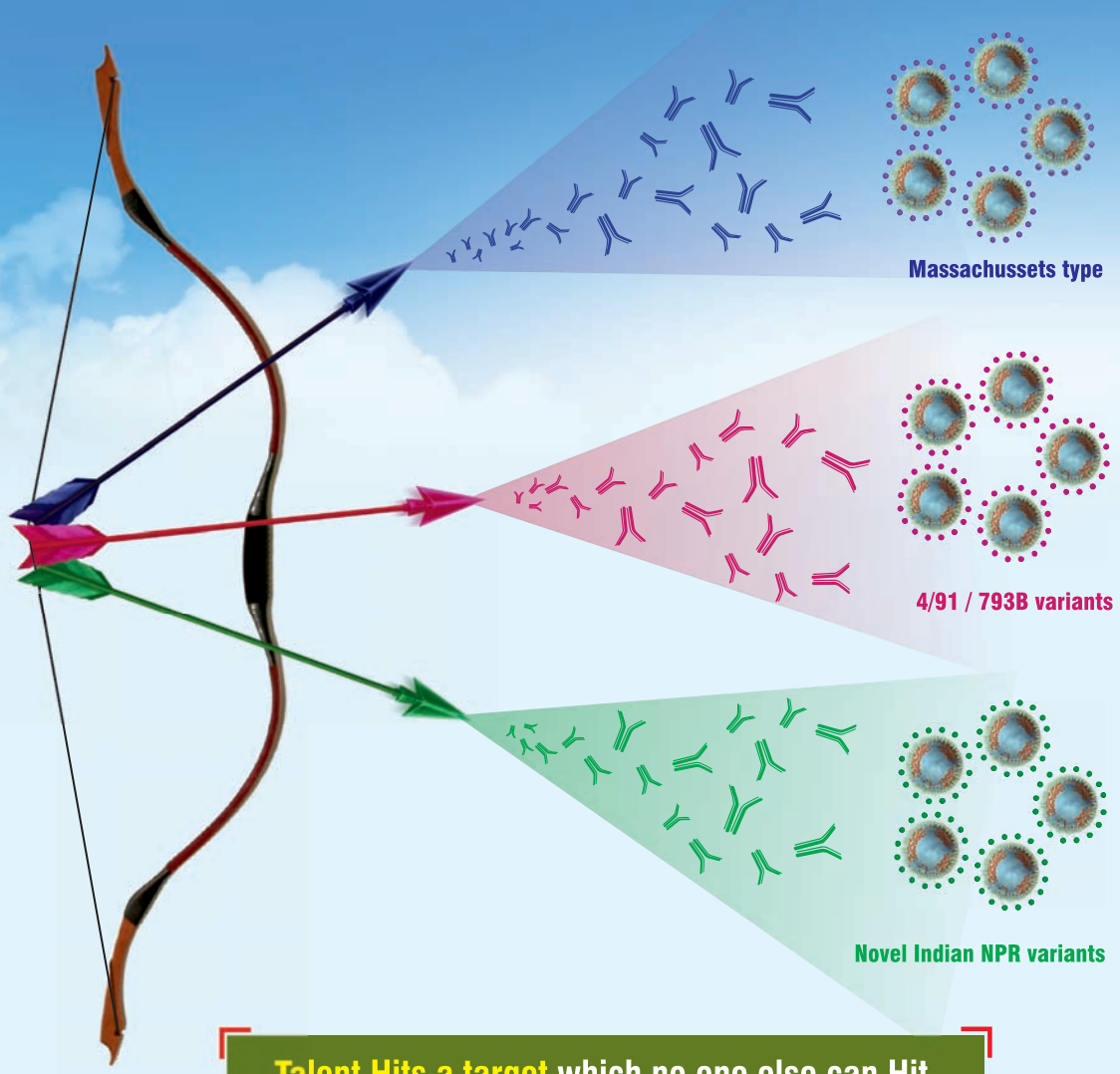

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CONTENTS

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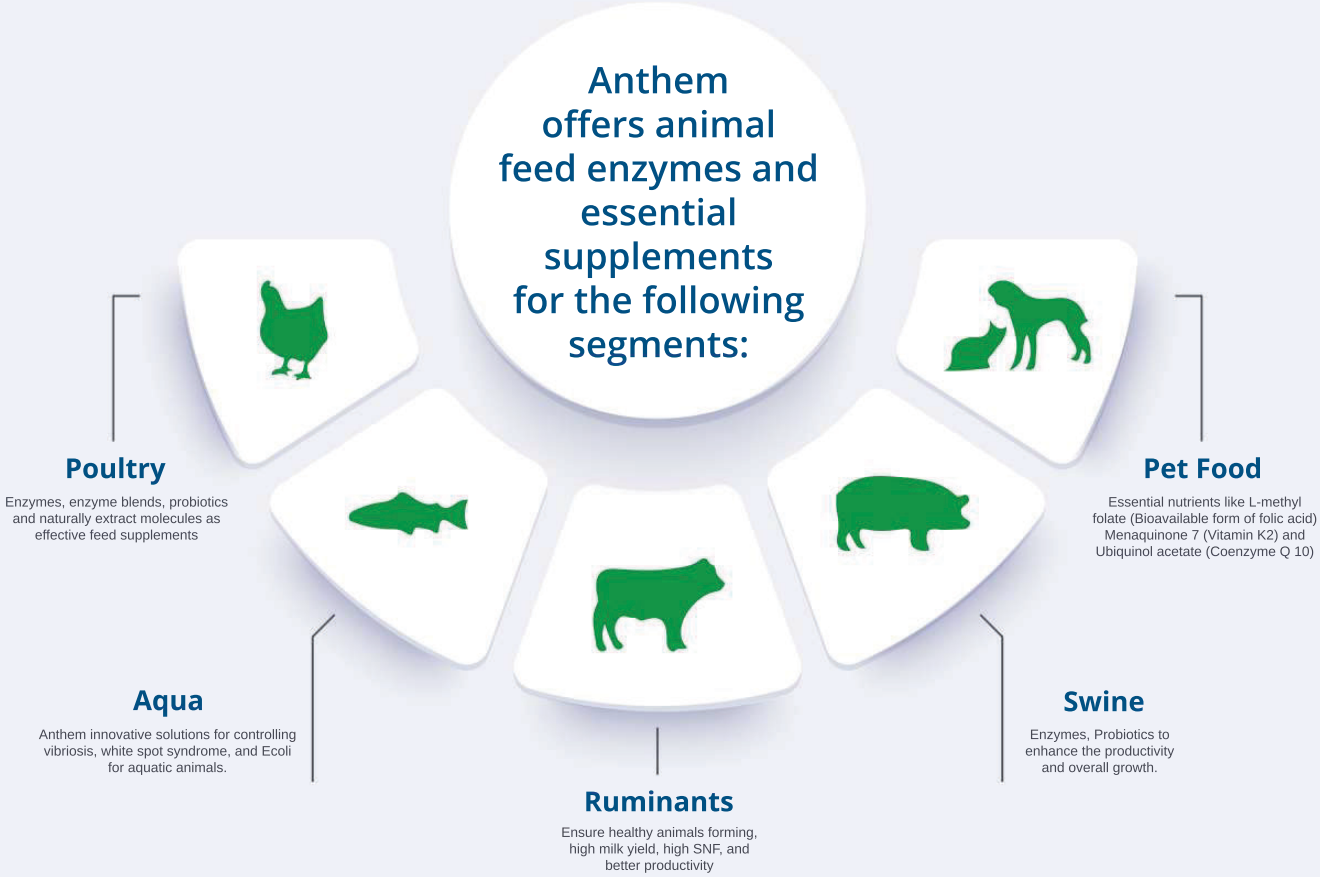

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Govt gives thrust on infrastructure Development for poultry & livestock sector

The benefits of including a protease enzyme in broiler diets are confirmed in numerous published reports. Such research shows that this protease can improve the protein digestibility of a wide range of natural ingredients by 3-7%. Such improvements translate into significant cost savings per ton of feed and are achieved without any compromise on animal performance.

Dear Readers,

The March 2022 issue of ***Poultry Fortune*** is in your hands. In the news section, you may find news about...

Aviagen has recently launched a "Focus" document series, presenting customers with a deep dive into hot topics relevant to their operations and the wider poultry industry. Every series highlights a broad theme, breaking it into subtopics, and each document explores this subtopic in detail. Intended for a broad-spectrum audience benefiting from a deeper level of understanding, the literature is written by Aviagen and industry experts. Each publication builds on knowledge presented in the previous, enabling the overall subject series to unfold in a logical progression.

Aviagen has started the Focus series by zeroing in on a much-discussed theme in the industry today: Antibiotic-free and reduced antibiotic use broiler production, and has released the first two of six documents in the series. Co-written by Aviagen Vice President of Global Technical Operations Dr. Bryan Fancher and accomplished poultry industry veteran Dr. Greg Rosales, the first is entitled, "Antibiotic-Free and Reduced Antibiotic Use in Broiler Production: History, Development and Challenges."

The 2022 Alltech Agri-Food Outlook was released recently highlighting global feed production survey data. The global COVID-19 pandemic has had major impacts on the agri-food sector, contributing to supply chain challenges and accelerating the adoption of new technology and environmental sustainability practices. Dr Mark Lyons, President and CEO of Alltech said that the results within 2022 Alltech Agri-Food Outlook reinforce their confidence and optimism about the future of the agri-food sector. We see the resilience of the agri-food sector against the challenges of COVID-19, disease and supply chain disruption, and even more importantly, there is evidence of growth, modernization and the adoption of more sustainable practices occurring in parallel. The 2022 Alltech Agri-Food Outlook revealed global feed production survey data and trends. Data collected from 11th annual survey estimates world feed production increased by 2.3% to 1.235 billion metric tons. Top 10 countries produce 65% of the world's feed.

Central Poultry Development Organization & Training Institute under Government of India, Ministry of Fisheries, Animal Husbandry & Dairying, a premier Institute located at Hessarghatta, Bengaluru organized a First Online Round Table of startups in poultry sector on February 10.

This event was organized to showcase such startup leaders including Unicorn (valuation of 1 billion USD) and Soonicorns in the sector. The founders invited for the online round table were Mr Abhay Hanjura – *Licious (Unicorn of 2021)*, Mr Shan Kadavil – *Fresh to Home*, Mr Narendra Pasuparthy - *Nandus*, Mr Vignesh Soundararajan / Mr Krishna Prasad – *Delfresh (Suguna Foods)*, Mr Nishanth Chandran - *Tendercuts*, Dr Sanjoy Kumar Das & Mr Sushil Kanujolu - *Fipola*, Mr Abhishek Negi - *Eggoz*, Mr Mahesha – *My Chicken & More* and Mr Harsha – *The Meat Factory*.

Dr Mahesh P.S., Joint Commissioner & Director, CPDO&TI in his opening remarks acknowledged the achievements of startup ecosystem in India touching 88 Unicorns as on date with addition of 44 in the year 2021 and 8 unicorns in just six weeks of 2022. Further he elaborated that digitalization, consumerism, focus on safe food and health would create more demand for protein foods like eggs and chicken in India with a priority preference for safe and certified traceable products. He advised to adopt latest technologies like Block Chain, Artificial Intelligence and Data Mining to capture a pie in the digital India.

Contd on next page

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Poultry Fortune

Our Mission

Poultry Fortune will strive to be the reliable source of information to poultry industry in India.

PF will give its opinion and suggest the industry what is needed in the interest of the stakeholders of the industry.

PF will strive to be The Forum to the Stakeholders of the industry for development and self-regulation.

PF will recognize the efforts and contribution of individuals, institutions and organizations for the development of poultry industry in the country through annual Awards presentation.

PF will strive to maintain quality and standards at all times.

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The startup leaders were posed three questions in the interactive session of the roundtable namely 1. Their startup story, 2. Uniqueness of their business model with message for the budding entrepreneurs, 3. Expectation from the poultry sector or producers of poultry products.

Following the launch of India's first feed label, 'Soy Fed' by Right To Protein, a nationwide public health initiative last year, Shalimar Group, a pioneer in poultry industry has joined the league of adopters after Sneha Group. The voluntary label will feature on the company's Total Foods range of Tandoori Nuggets and will be gradually integrated into all their poultry products. The Soy Fed label was introduced during the National Nutrition Month 2021 with a two-fold objective rooted in empowering consumers to make informed choices and differentiate packaged poultry, meat and fish fed with soy and to help the industry distinguish soy as a quality protein source for animal feed. Mr Sameer Agarwal, Managing Director, Shalimar Corp Ltd said, as a pioneer enterprise engaging in a wide-ranging business of poultry feed milling and animal nutrition providing the customers with the highest quality food choices has always been their top priority.

Right to Protein, ahead of India's third annual Protein Day celebration on February 27 declares 'Food Futurism' as the theme for 2022 as it takes ahead its mission to drive food and especially protein sufficiency in the country through awareness, advocacy and action. 'Food Futurism' as a conversation will bring together nutrition experts, food scientists, biologists among others to help Indians better understand the basic science behind healthy nutrition and its role in food security and protein sufficiency.

Healthy dietary choices are one of the pillars of having a healthy life since they contribute to overall well-being. A well-balanced, protein-rich diet enhances muscle building, acts as an immune booster and lowers the risk of any illness. Chicken is unquestionably the most abundant source of protein, acting as an indomitable sponsor and should be included in the diet 2 to 3 times a week. Chicken has a high protein content. This vitamin is essential for every cell in the body. Protein is required by the body to produce enzymes, hormones and other substances. It also aids in the stability of bones, muscles, tissues, blood and cartilage.

Mr P. V. Somaraju, poultry farmer, one of the founder members and National Vice Chairman of NECC and also one of the promoters and first Director of Agrocorpex India Limited passed away on February 23. Soma Raju was known as an exemplary fierce and articulate bold orator expressing his views overtly which has created confidence in the farming community. He supported Padmasri B V Rao for the establishment of NECC. He had very good command over Telugu which has made poultry farmers to fall in love with his fearless speeches. He used to speak in Telugu even in non-Telugu speaking states during NECC movement with total involvement of heart and soul and this had made the people in the respective states to understand his message and they started supporting the organization – NECC and for its growth. May his soul rest in peace.

In the Articles section – ***Enhancing Protein Digestion,*** *authored by* Dr Koushik De, Director, Technical Services – SCA Novus International discussed that one of the most significant ways of enhancing nutrient digestibility is the use of enzymes. In most practical diets for poultry, the three most expensive nutrients are: Energy, Protein and Phosphorus. Although we have managed to procure successful commercial enzymes that enhance the efficiency with which birds derive energy and phosphorus from their feed, the animal nutrition industry has not been so successful in the case of protein. In truth, early attempts have been more than disappointing for many enzyme producers. There are several reasons for this, including inadequate research and development, difficulties in producing a commercially viable enzyme, and of course, the uphill battle against the naturally high digestibility of most conventional feed ingredients. Birds are already digesting their feed quite well. However, the largest failure must have been the lack of resources and perseverance.

Another article titled **Government Committed for the growth of Poultry & Livestock Sector through Special Funds and Financial Assistance,** authored by Mr Ricky Thaper, Treasurer, Poultry Federation of India said that *government gave thrust on infrastructure development for poultry and livestock sectors in the union budget (2022-23) and specialised schemes and funds to boost poultry industry which plays a critical role in an Indian economy.*

Livestock sector is a critical sub-sector of agriculture in Indian economy. According to the Economic Survey (2021-22) tabled in the parliament recently, the livestock sector consisting of dairy, eggs and meat grew at a Compound Annual Growth Rate (CAGR) of 8.15 per cent. As per the estimates of National Accounts Statistics, 2020, the contribution of the livestock sector in the total Gross Value Added (at constant prices) of agriculture and allied sectors grew from 24.32 per cent in 2014-15 to 29.35 per cent (2019-20). The livestock sector contributed 4.35 per cent of total GVA in 2019 - 20.

Another article titled **Application of In Ovo Technology in Poultry authored by** G. Vignesh and Dr G Srinivasan discussed that Poultry industry is one of the quickest developing sectors in India. Poultry involves a remarkable position in the livestock economy of India by coexistence of intense technology, capital and scale with integrated production, marketing and the others based on the traditional knowledge and practices. The annual growth rate is more than 11% and 8 % in broiler production and egg production respectively. The general development rate of poultry industry is around 7-8% for every annum, most outstanding among all sectors of agriculture. In poultry industry, poultry meat accounts for two third of the value of output and one third by eggs. Poultry industry generates direct employment for more than 3.5 million people and indirect employment for another 3.5 million people in different facets of allied activities. India is the third most noteworthy egg producer and fifth biggest poultry meat producer. This makes poultry part as the quickest developing segment among all livestock sectors. The broilers in India are reared for 35-40 days to a market weight of 1.8 to 2.2 kgs. The feed conversion ratio for modern broilers has been improved considerably through continuous selection programme, precision nutrition by adopting biosecurity measures from 2.2 to 1.6.

Readers are invited to send their views and comments on the news, special feature and articles published in the magazine which would be published under "Readers Column". Time to time, we shall try to update you on various aspects of Poultry sector. Keep reading the magazine Poultry Fortune regularly and update yourself. Wish you all fruitful results in your efforts.

M.A.Nazeer
Editor & Publisher
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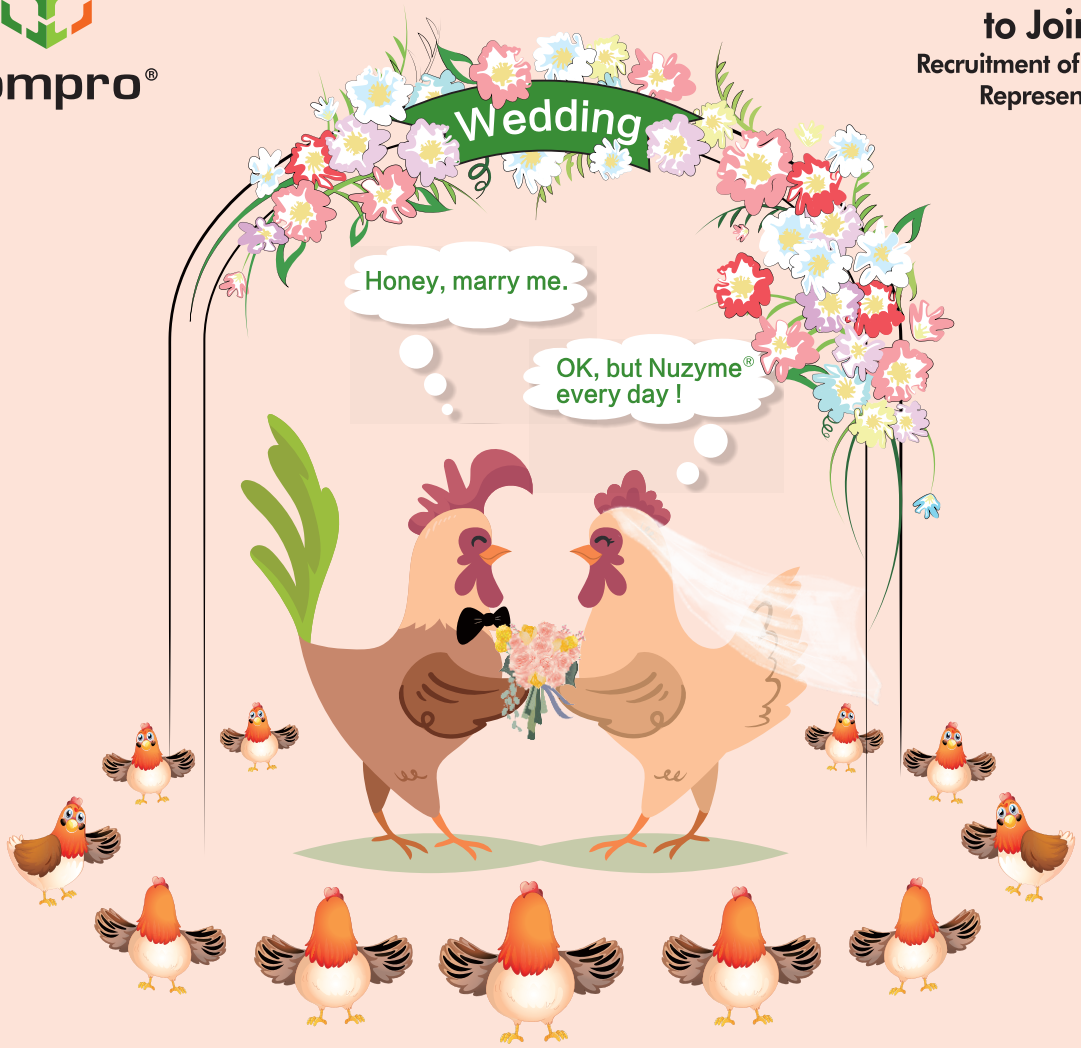

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New Aviagen Document Series Delves into Topical Industry Subjects

January 28: UDUMALPET, India – Aviagen has recently launched a "Focus" document series, presenting customers with a deep dive into hot topics relevant to their operations and the wider poultry industry. Every series highlights a broad theme, breaking it into subtopics, and each document explores this subtopic in detail. Intended for a broad-spectrum audience benefiting from a deeper level of understanding, the literature is written by Aviagen and industry experts. Each publication builds on knowledge presented in the previous, enabling the overall subject series to unfold in a logical progression.

First Focus series: Antibiotic-Free and Reduced Antibiotic Use Broiler Production

Aviagen has started the Focus series by zeroing in on a much-discussed theme in the industry today: Antibiotic-free and reduced antibiotic use broiler production, and has released the first two of six documents in the series.

Co-written by Aviagen Vice President of Global Technical Operations Dr Bryan Fancher and accomplished poultry industry veteran Dr Greg Rosales, the first is entitled, "Antibiotic-Free and Reduced Antibiotic Use in Broiler Production: History, Development and Challenges." The document begins with providing an historical summary of subject background, and then walks the reader through topical highlights, opportunities and challenges, sharing helpful knowledge currently available on this critical issue. Subsequent releases focus on key management practices that must be considered when any broiler production business takes the decision to rear flocks with zero or reduced levels of antibiotics.

"Antibiotic-Free and Reduced Antibiotic Use in Broiler Production: Coccidiosis Prevention" is the second in the series and is co-authored by Dr Colin Adams, Veterinary Health Director – Aviagen UK Limited; Dr Hector Cervantes, Senior Manager, Poultry Veterinary Services, Phibro Animal Health & Adjunct Professor, Department of Population Health, College of Veterinary Medicine, University of Georgia; and Dr Akos Klausz, Director of Global Health Monitoring--Aviagen UK Limited . This publication covers how to minimize the risk of an outbreak of coccidiosis – a serious infection of a bird's intestinal tract – when rearing broilers in an antibiotic-free or reduced-antibiotic production system.

When discussing the launch of the Aviagen Focus series, Dr Fancher remarked, "Aviagen is excited to provide our customers with this innovative Focus series, as it will help them gain deeper insight into critical areas that impact the health, welfare and performance of their broilers and, ultimately the success of their businesses."

In reference to the first topic of the series, Antibiotic-free and Reduced Antibiotic Use in Broiler Production, Dr Fancher also commented that, "Raising animals for meat without or with limited use of antibiotics stimulates a lot of conversation due to changing demands in the marketplace, and also because of some misconceptions that are circulating. The documents will become a key part of our expanding global communications portfolio designed to share the latest developments and best practices, and we look forward to exploring other timely and relevant topics in future Focus series."

The Focus series documents can be found on the Aviagen website (www.aviagen.com), with links to a series of introduction videos, relevant interviews with the authors and audiobook files for the documents.

About Aviagen

Since 1923, Aviagen has been a preferred global poultry breeding company with a mission to help its customers -- the world's chicken meat producers -- supply sustainable, affordable and nutritious protein to their growing communities. Putting into practice its corporate value of "Breeding Sustainability," Aviagen implements efficiencies that make commercial chicken production environmentally and socially responsible and economically beneficial to producers, while at the same time promoting bird performance, health and welfare.

To meet varied market demands, Aviagen offers a full portfolio of breeding stock under the Arbor Acres, Indian River and Ross brand names. The Rowan Range and Specialty Males target slower-growing and other niche market needs. Aviagen is based in Huntsville, Alabama, US., with operations across the UK, Europe, Turkey, Latin America, India, Australia, New Zealand, Africa and the US, and joint ventures in Asia. The company employs close to 8,000 people, and serves customers in 100 countries.

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2022 Alltech Agri - Food Outlook reveals global feed production survey data and trends shaping the future

- *The 2022 Alltech Agri-Food Outlook revealed global feed production survey data and trends. Data collected from 11th annual survey estimates world feed production increased by 2.3% to 1.235 billion metric tons.*
- *Top 10 countries produce 65% of the world's feed.*

LEXINGTON, Ky.: The 2022 Alltech Agri-Food Outlook was released today, highlighting global feed production survey data. The global COVID-19 pandemic has had major impacts on the agri-food sector, contributing to supply chain challenges and accelerating the adoption of new technology and environmental sustainability practices.

"The results within our 2022 Alltech Agri-Food Outlook reinforce our confidence and optimism about the future of the agri-food sector," said Dr Mark Lyons, president and CEO of Alltech. "We see the resilience of the agri-food sector against the challenges of COVID-19, disease and supply chain disruption, and, even more importantly, there is evidence of growth, modernization and the adoption of more sustainable practices occurring in parallel."

The eleventh edition of Alltech's annual feed production survey includes data from more than 140 countries and more than 28,000 feed mills, and based on this data, it is estimated that international feed tonnage has increased by 2.3%, to 1.235 billion metric tons of feed produced in 2021. The top ten feed-producing countries over the past year were China (261.424 mmt), the U.S. (231.538 mmt), Brazil (80.094 mmt), India (44.059 mmt), Mexico (38.857 mmt), Spain (35.580 mmt), Russia (33.000 mmt), Turkey (25.300 mmt), Japan (24.797 mmt) and Germany (24.506 mmt). Altogether, these countries produced 65% of the world's feed production, and they can be viewed as indicators of the trends in agriculture. Additionally, when combined, the feed production of these countries increased by 4.4%, compared to the overall global growth of 2.3%.

Key observations from the survey:

- The country with the largest increase in feed production by tonnage was China by 8.9% to 261.424 mmt. A key trend resulting in this growth was the continuation of the consolidation and modernization of the country's feed industry. Swine farms and feed production have moved from utilizing food waste to contracting with professional feed mills. As a result, commercial feed tonnage increased, driven in particular by the growth and continued modernization of the pig sector.
- Feed production met local expectations in about half of the surveyed countries while falling short of expectations in about 25% of countries due to continued restaurant closures, high raw material prices and/or African swine fever (ASF). The remaining 25% of countries exceeded expectations, mainly due to recovery from COVID-19 lockdowns, including increased exports to re-opening restaurants.
- Over the past year, there has been strong focus on the environment, as governments worldwide have made renewed commitments to reducing their greenhouse gas emissions. In Europe and Asia, government policies have been the main drivers in most markets, whereas in the Americas, the main drivers have been consumers and private industry. In some markets, there's a strong focus on reducing greenhouse gas (GHG) emissions, and in other markets, the focus is more on the expected nitrogen regulations.

Notable species results:

- The **poultry** sector

experienced a slight reduction in **layer** feed tonnage (down 1.4%), whereas broiler feed production increased (by 2.3%).

- The **layer** business has been facing challenges in many countries due to the high costs of raw materials, combined with flat/low retail prices for eggs. Animal welfare concerns are also a driver, as cage-free and free- range production are on the rise in many countries. In Europe, the most significant decreases occurred in Norway, Russia, Ukraine and Poland. Asia-Pacific also saw a decrease, while tonnage in Australia grew by 4%.
- Factors that have aided the **broiler** sector include an increased demand for easy-to-cook proteins as restaurants closed during the pandemic and an affordable protein option, as the prices of other meat proteins increased. China and India accounted for the most significant increases in Asia-Pacific. In Latin America, Peru, Brazil, Paraguay and Mexico contributed significantly to the region's 5% increase.
- **Pig** feed production increased significantly, by 6.6%, which was primarily boosted by Asia-Pacific's recovery from ASF. Japan, South Korea, Malaysia and China demonstrated just such a recovery from ASF, but Indonesia, Myanmar, the Philippines, Thailand and Vietnam continued to feel the impact of the disease. In Europe, countries where ASF is not or is no longer a problem were still impacted by a pork surplus due to a reduced demand from China.
- **Dairy** feed tonnage increased slightly, by 1.9%. Asia-Pacific saw the biggest increase, which is mostly attributed to growth in India. As COVID-19 lockdowns eased around the world, the reopening of the hospitality industry and in-person classroom education helped boost milk consumption overall. In Australia and New Zealand, dairy feed tonnages were down 6.7% and 2.5%, respectively.
- **Beef** feed production shrunk by 1.9% globally. The industry continues to be challenged by GHG regulations and perceptions of environmental and health impacts. European markets are especially focused on reducing GHG emissions in an effort to align with COP26, the EU Green Deal and the FEFAC Feed Sustainability Charter 2030. The U.S. experienced an increased steer and heifer harvest due to carryover from 2020, as well as a record demand for beef exports. Argentina saw a significant reduction due to reduced exports, and high inflation and the devaluation of the local currency are also affecting Argentinians' purchasing power, although export regulations are easing and could impact Argentina's outlook for 2022.
- The **aquaculture** industry continues to grow in many markets and increased by an impressive 3.7%. Recirculating aquaculture systems (RAS) are becoming more prevalent, and consumer demand for fish is on the rise. Markets with ASF challenges saw additional growth due to their reduced pork supply. India saw a significant increase in its aquaculture feed tonnage of 9%; additionally, Indonesia accounted for 10% of Asia-Pacific's growth. In Latin America, Chile, Brazil, Honduras and Ecuador contributed to the regional growth of 5.6%.
- **Pet** feed production had the highest increase among the sectors, with an 8.2% rise in production. This significant increase is largely due to the rise in pet ownership amid the COVID-19 pandemic. While some regions remained flat, there were no reported decreases in any region around the world.

Notable regional results:

- **North America** saw steady growth of 1.9% over the last year, and the U.S. remained the second-largest feed-producing country globally, behind China.
- **Latin America** experienced moderate growth of 0.5%, and Brazil remained the leader in feed production for the region and ranked third overall globally.
- **Europe** saw a decrease of 1.2% in its feed production due to issues such as ASF and high raw material costs, combined with low end-product prices, declines in ruminant feed production and COVID-19-related government regulations.
- **Asia-Pacific** saw the largest regional growth of 5.7% and is home to several of the top 10 feed-producing countries, including China, India and Japan.
- **Africa** saw growth of 2.4%, despite challenges caused by high raw material prices, foot and mouth disease and geopolitical tensions that have impacted the exports of foods of animal origin and caused raw material shortages in some areas.

Alltech works together with feed mills and industry and government entities around the world to compile data and insights to provide an assessment of feed production each year. Compound feed production and prices were collected by Alltech's global sales team and in partnership with local feed associations in the last quarter of 2021. These figures are estimates and are intended to serve as an information resource for industry stakeholders.

To access more data and insights from the 2022 Alltech Agri-Food Outlook, including an interactive global map, visit alltech.com/agri-food-outlook.

CPDO & TI organises First online Round Table of Startups in Poultry Sector on February 10

Central Poultry Development Organization & Training Institute under Government of India, Ministry of Fisheries, Animal Husbandry & Dairying, a premier Institute located at Hessarghatta, Bengaluru organized a First Online Round Table of startups in poultry sector on 10th February 2022.

Poultry sector in India is a techno-commercial sector with contribution of nearly 1.5 lakh crores to the GNP with about 6 million people being employed directly or indirectly. Poultry Farming Practices in India are one of the best in the world. The Science adopted in Genetics, Nutrition, Management and Disease prevention are one among the best in class matching Global Standards. Presently it is estimated that 5 billion broiler population, 250 - 300 million layers and about 4.5 to 5.0 crore broiler breeders are being reared in India. This has established Indian Poultry Sector as one of the best farming activity at a global scale with highly efficient production systems in place. However, poultry products namely egg and meat are being traded as commodities in the traditional market system. The new age companies are entering into poultry sector by adopting technology expertise of brand building and consumer focus approach in re-defining marketing of poultry products.

This event was organized to showcase such startup leaders including Unicorn (valuation of I billion USD) and Soonicorns in the sector. The founders invited for the online round table were, **Mr Abhay Hanjura – *Licious (Unicorn of 2021)*, Mr Shan Kadavil – *Fresh to Home*, Mr Narendra Pasuparthy - *Nandus*, Mr Vignesh Soundararajan / Mr Krishna Prasad – *Delfresh (Suguna Foods)*, Mr Nishanth Chandran - *Tendercuts*, Dr Sanjoy Kumar Das & Mr Sushil Kanujolu - *Fipola*, Mr Abhishek Negi - *Eggoz*, Mr Mahesha – *My Chicken & More*, Mr Harsha – *The Meat Factory*.**

The Online Roundtable started sharp at 10.30 am on 10th February, 2022 by opening remarks from **Dr Mahesh P.S.**, Joint Commissioner & Director, CPDO&TI. In his opening remarks, he acknowledged the achievements of startup ecosystem in India touching 88 Unicorns as on date with addition of 44 in the year 2021 and 8 unicorns in just six weeks of 2022.This startup revolution is recognized at the highest level including Hon'ble President speech at joint session of Parliament, recent speeches of Hon'ble Prime Minister and Finance Minister emphasizing the role of startups to grow and achieve the status of Unicorns, Decacorns and to transform into multinational companies from India.

Further he elaborated that digitalization, consumerism, focus on safe food and health would create more demand for protein foods like eggs and chicken in India with a priority preference for safe and certified traceable products. Hence he advised to adopt latest technologies like Block Chain, Artificial Intelligence and Data Mining to capture a pie in the digital India.

The startup leaders were posed three questions in the interactive session of the roundtable namely 1. Their startup story, 2. Uniqueness of their business model with message for the budding entrepreneurs, 3. Expectation from the poultry sector or producers of poultry products.

Dr Mahesh presented Mr Abhay Hanjura the leader of the group in establishing first Unicorn in D2C(Direct to Consumer) brand in India during the year 2021and congratulated his co-founder Mr Vivek also for achieving such a great milestone in Food Sector.

Mr Abhay Hanjura humbly replied that the status of unicorn is more of a noise than any great achievement from their prospective. He said that this is a collective effort of all present in this round table in achieving recognition from the consumer. He mentioned that a single player cannot change the ecosystem for transforming animal protein consumption in India. He and Vivek started with the excitement to develop a startup similar to "Amul" in Dairy. He mentioned that opportunities are immense in the order of magnitude and depth and said "We can get tired but opportunities never get tired".

To the question of uniqueness of their business model, Abhay made a statement "Idea ka value nahin hotahai" unless consumer has to believe the execution of the claim. Execution is the key variable reflecting the success of organization

THE ORIGINAL ALPHA D3

1980s
Research at University of Georgia

1989
Patent granted for the Alpha D3 metabolite

2010
Alura launches Alpha D3 in poultry

2010
Alura bring Alpha D3 to India

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which inturn drives repeat customers. Licious started in 2015 in just under 15 cities covered to have 2 million customers with a revenue of 1000 crore per year of which 7 cities are just added in the last year. The key message he said is brand development in this category is not a "Spray and Pray" business but needs depth, quality and execution. His message for the budding entrepreneur is "Someone need to find fun in enjoying boring execution on a consistent rate".

His expectation from the poultry sector is to recognize that "We are not competing each other but trying to organize 95% of the unorganized sector in a better way to derive value for both producers and consumers. The questions posed by the investors for both Abhay and Vivek were "What are you trying to do in this category, this will never work", " India will not accept this as a separate category" they proved their assumptions wrong and said, " Our time has come and our time is now". Abhay assured that "Consumerisation by collective efforts of all stakeholders can create more startups and the pie will expand very fast in India.

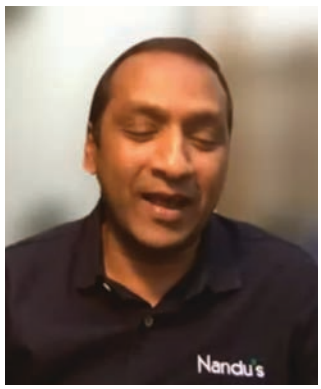
The second founder is Mr Shan Kadavil – Fresh to Home. In his reply acknowledged efforts of Licious and other players in creating ideal ecosystem for startups in India under this category. He also faced the same question by investors that "Do you have enough depth to create a separate vertical of B2C brand in conjuncture with the likes of grocery

brands like BigBasket etc. all over the world there is no separate fish and meat category brand recognized till date. However Shan believed in Indian food habits which are very different than the rest. It is indicated by their success to create as a separate Brand so that people have recognized the likes of Licious, Freshto home, Tendercuts, Fipola as separate brands for Meat category.

He thanked poultry sector having enabled the ecosystem with their hardwork with 50 years of expertise in developing efficient production system of global standards in India. Mr Shan is a serial entrepreneur from 2015, created two companies and exited with so so success. However, he became the CEO of Zinga India, a multibillion dollar gaming company. Here, he had contacted Mr Mathew who developed "Sea to Home. com" a traditional fish exporter from Cochin. Shan developed interest and has to search Mathew to get great quality fish in India. Shan convinced Mathew to meet his gap of scalability from financial standpoint and technology stand point to start a new stratup "Fresh to Home" in 2016.

Fresh to Home today are operating both in India and UAE going close to 1000 crore revenue per year handling 30,000 tons of meat every year with 2 million customers and about 1.5 million orders per month. In his message to the upcoming startups that the need of looking business with "New set of eyes, expertise, technology, differentiated product, find the unmet need". He said that "Me too products" are hard to survive unless they have a value for consumer.

Shan told that this category is fast growing in tier I cities with around 20 billion dollar market and overall 50 billion market in India. Dr Mahesh asked the question of when will you stop burning or losing money, he replied that it's a social service by the beginners in the category like Abhay of Licious and Shan to create a consumer brand which requires huge capital investment by way of marketing and brand building. Further he said that their startup is Ebita profitable in Delhi and Bangalore and yet to reach the revenue threshold in the newer cities which will definitely stand in some time to come.



Next in the lineup in the round table was Mr Narendra Pasuparthy, producer cum startup from Nandus who said that "We being producers endup in a local broken supply chain not getting my price for my product. He got inspired by Madam Anuradha Desai's words to start retailing and to build a brand is essential for getting the price for the product. After returning from US, Naren started this new venture to create a consumer brand which is "Hyper local and Omnichannel". Presently Nandus is operating 55 outlets in Hyderabad and Bangalore. He acknowledged the vision of Sri Kishore Hegde, who has put meat retailing on the map of India with a new outlook of shops way back in 15 to 18 years ago.

In his message to the upcoming startups "Go out and build a brand – Don't be afraid". When he came back, he tookup a second hand processing plant, setup biogas, solar and automation units in poultry production, many felt that he is stuck. He was disgusted for not getting the rate for his product inspite of hard work as an efficient producer. Then he decided to go out to develop a consumer brand by adopting professionalism by inducting experts, technology etc. His message is simple and clear "Let go the Control, delegate and facilitate to develop a scalable organization".

Mr Nishant Chandran, an Engineer graduated out of Bangalore being native of Chennai appreciated the efforts of CPDO&TI in creating such a platform for all the startup founders to meet online on a single platform. He said that this is the best time to transform as India's macro

parameters are highly positive with a growth of 8 – 10 % GDP per year which enables lot of dispensable income in the hands of the consumer. Further he said that consumer spends dispensable income first on food followed by clothes, lifestyle, investment, real estate, cars etc in the order of priority. Among the food, the choice is always meat being the country of 70 to 80% non-vegetarians. He voted for chicken as a priority meat from which more than 100 different dishes are being made and consumers never get bored eating chicken.

Nishant Chandran as a technocrat started a digital payment company and sold to Paris based entrepreneur during which time he used to travel every week to Paris up and down there he got exposed to meat market shops presenting clean and choice of meat. Back in India he mentioned that consumer has only two choices "Small piece or Large piece" and recognized lack of awareness, assortment, grading etc in this category.

"Once an entrepreneur is always an entrepreneur" – This proved right for Nishant to start Tendercuts to solve the greater problem of frontend to create a consumer brand in this category. Presently Tendercuts is an online driven retail model with market leadership in Chennai and Hyderabad and just entered Bangalore. His philosophy is to transform the purchase experience at shops and to convert butchers into meat experts.

In his reply why they started stores first, he said that the opportunity he got in the beginning accidentally was a retail store with 1200 sqft format in which they created 1/3 as front area and 2/3 as storage/processing area. They adopted a distribution model wherein each outlet is like a factory outlet and meat is cut on the order by the consumer over the central model wherein it requires huge capex investment for distribution.

Mr Vignesh Soundararajan, Son of Mr Soundararajan, Chairman and Managing Director, Suguna Foods has established a parent endorsed brand "Delfresh" in this category during last quarter of 2021. Representing delfresh, Sri Krishna Prasad, Vice President Suguna Foods mentioned that Suguna being expert producer and processor wanted to expand as a consumer facing brand in the new ecosystem. Eventhough Suguna is having a revenue of more than 10,000 crores per year. And in his words "Just counting money and losing heavily" Past two years have been a great challenge for poultry producers with escalating costs of inputs of Corn and Soya. They have undertaken a new journey of branding 280+ stores of Suguna with Delfresh with new signage and brand identity and focusing "only offline model as of now".

To the question of supply constraints he replied that way back in 2002, Suguna started its first processing plan with 3500 birds per hour capacity with a total capacity of 6000 birds per hour then in India. However, presently the overall capacity in India is 1.4 lakh birds per hour with maximum utilization of only 70%, rest being idle because of processing alone being not lucrative.

Delfresh has chalked out greater expansion capacity with acquiring two plants in Chandigarh near Ambala and one in Belgaum. They have acquired land in Mandya near Bangalore for a Greenfield processing plant which will be ready in 15 to 16 months. They have identified five places in North, East, Andhra Pradesh, Tamilnadu to make them up and running in next 24 to 36 months. He concluded saying that "Price has to be supportive for sustainability".

Mr Susheel Konagolu and MBA from UK, retail exporter and a third generation sea food exporter had setup brand FIPOLA (Fish – Poultry – Lamb) in 2016 to create a consumer brand in India.

Representing Fipola, Dr Sanjoy Das, Chief Operating Officer narrated their journey to start with 3 shops in Chennai with two concepts, 1. Exclusive Stores and 2. Neighbourhood stores. 9 shops in 2018, 17 in 2020, 61 stores in 2021 and targeted 100 shops by March, 2022. Fipola has a staff strength of 1,200 with 140 crore investment.

Fipola has chosen colour yellow signifying chicken meat and their shops having an architecture of 3 chambers, front being a display area, second for processing, third for consumer interface. Their shops are generally 1500 to 2000 sq.ft. with an investment of 15 to 30 lakhs.

Mr Abhishek Negi, IITian from Kharagpur started his venture in 2017 finding an opportunity of protein deficiency in India and majority of the Indian population being deficient of Vit.D and B12. They wanted to solve the problem of non-availability of quality eggs, packed eggs, graded eggs etc. All four of them IITians without knowledge in poultry setout "Do it ourself" started a 12,000 layer unit in Nalanda, Bihar to learn the entire process. They established a brand Eggoz jus to crete a brand similar to Milk of Amul, Bread of Britannia, Annapurna of ITC, Meat as in Licious and Fresh to Home.

They created an Asset lite model by adoption of artificial intelligence, Machine Learning, IoT platform for the farmers tiedup with Eggoz. They give all the backend and frontend support and buyback the eggs at a premium price. Eggoz presently doing in 11 cities and claiming to be No. 1 in North India and entered Bangalore recently. Abhishek acknowledged the contribution of government namely NABARD in funding their startup (NABARD has funded Tendercuts also).

Mr Mahesha, founder of My Chicken and More established his venture in 2007 by his earlier experiences of working in leading feed sales division and working in leading chicken processing plant. This rich experience and enthusiasm and a commitment to provide healthy, hygienic quality meat with great shopping experience has created 16 outlets in Bangalore with largest outlet being 2400 sq.ft. Mr Mahesha is passionate to work hard with a social responsibility of providing protein food to the Nation. He has set out a target of setting up of 200 outlets by 2025.
Mr Harsha the founder of The Meat Factory established this brand along with his two friends experts in software sector. Mr Harsha having worked

in Godrej Tyson Foods for 6 years has developed the knowledge of providing safe hygienic meat for the consumer. They have setup 6 shops in Bangalore with a mission of providing quality product, hygiene environment and best price with large store space of 2600 sq.ft with a ambience for consumer experience with ice cream lounge, children play area in their shops.

Dr Mahesh P.S., Joint Commissioner & Director, CPDO&TI mentioned that Team CPDO&TI would conduct many such programmes in the coming months. The programme was conducted live on zoom, youtube channel of CPDO&TI along with recordings posted on facebook: cpdoti. bangalore, on youtube: CPDO&TI TRAINING. All are requested to download "Latest App of CPDO&TI" from Google Playstore by typing "CPDO&TI" for Android Version.

Sri S.M. Anwar Basha, Senior faculty of CPDO&TI executed the job of Admin of conducting Online Round Table very effectively. CPDO&TI acknowledges contribution of Mr Santhosh Nandavanam in designing the invite, facilitating Zoom and other support. The other team members of CPDO&TI worked hard in making this programme successful. Team CPDO&TI thank all the viewers participated through Zoom and Youtube. It is also acknowledged that Print Media extends great support by wide coverage of all online events of CPDO&TI across the country.

Antonia Tacconi joins Perstorp in Pivotal Role as Global Product Manager for Gut Health

Perstorp is proud to announce that Dr Antonia Tacconi has joined the Animal Nutrition team as Global Product Manager Gut Health, with effect from 1 February 2022.

Reporting to Jeroen Pos, Vice President of Marketing & Technology for Animal Nutrition, Dr Antonia Tacconi brings technical and commercial expertise to this exciting role.

Aart Mateboer, Executive Vice President for Perstorp Animal Nutrition commented "I am very excited to have Antonia on board. This role requires a mixture of detailed technical knowledge with strategic and commercial awareness, all of which Antonia brings to Perstorp from her experience and career in the animal nutrition industry."

Antonia graduated in 2015 from the University of Natural Resources and Life Sciences with a PhD in Bioanalytics focusing on the detection of antibiotic residues in animal-derived foods. Since then, her career in the international feed additives industry has given her experience of working with various types of feed additives as well as with a range of livestock species.

"This is an exciting time to join Perstorp. I look forward to using my knowledge and experience

to drive product strategy in this expanding focus segment. With the ever-increasing responsibility to produce safe, healthy food for a growing global population in a sustainable way, we have plenty to do. I'm confident that the Perstorp portfolio of gut health products will continue to deliver towards these purposes and that through innovation we will meet the demands of tomorrow." commented Dr Tacconi.

The gut health segment is at the core of Perstorp's strategic direction, and Tacconi's role is pivotal for its success. As an expert and known innovator in the field of esterified organic acids for both gut health and preservation, Perstorp is developing a healthy innovation pipeline to meet the requirements of the future.

Right to Protein Welcomes Shalimar Group as its latest supporter for 'Soy fed', India's first-ever feed label

After Sneha Group in 2021, the Shalimar Group supports the 'Soy Fed' label with its adoption in packaging material to help consumers identify high-quality protein foods

Mumbai, February 25: Following the launch of India's first feed label, 'Soy Fed,' by Right To Protein, a nationwide public health initiative last year, Shalimar Group, a pioneer in the poultry industry, has joined the league of adopters after Sneha Group. The voluntary label will feature on the company's Total Foods range of Tandoori Nuggetsand will be gradually integrated into all their poultry products.

TheSoy Fed labelwas introduced during the National Nutrition Month 2021 with a two-fold objective rooted in empowering consumers to make informed choices and differentiate packaged poultry, meat, and fish fed with soyand to help the industry distinguish soy as a quality protein source for animal feed. Livestock, poultry, or fish that is fed with high-quality soy as its primary protein source is of a better quality as the superior amino acid profile and amino acid digestibility of soybean meal has a tremendous impact on their growth and development, thus benefiting the end consumer.

Mr Sameer Agarwal, Managing Director, Shalimar Corp Ltd said, "As a pioneer enterprise engaging in a wide-ranging business of poultry feed milling and animal nutrition, providing our customers with the highest quality food choices has always been our top priority. We truly believe that the 'Soy Fed' label is going to be a key industry differentiator in aiding awareness about the nutritional benefits of Soy as an animal feed and how that positively impacts the consumer's health. With growing concerns and consciousness around wellbeing people today are relying on trusted brands like us for transparency and we feel this move will further reassure them of our commitment to their evolving needs."

"Protein undeniably is an important requirement not just for human consumption, but also for livestock and aquaculture. Soy feed plays a significant role in the growth and development of animals and helps to define the quality of protein that is consumed by humans. Withpartners such as Shalimar Group and Sneha Group coming on board to adopt the voluntary feed label, we are progressing on our journey to raise awareness about the role of soyas a sustainable source of nutrition. This indeed is yet another step towards ushering in a positive change in the industry.",stated **Jaison John, Lead - India, US Soybean Export Council (USSEC) and Right To Protein supporter.**

The 'Soy Fed' label is now in the process of reaching out to multiple brands in India for its voluntary inclusion on their packaged protein products – meat, poultry, and fish – and helping citizens learn that we are what our food is fed!

In addition, ahead of Protein Day 2022, Right to Protein, in its ongoing efforts to drive food and especially protein sufficiency in the country through awareness, advocacy, and action, has announced 'Food Futurism' as the theme for this year. This educational initiative will bring together nutrition experts, food scientists, biologists, and others to help Indians better understand the basic science behind healthy nutrition and its role in food security and protein sufficiency.

About Right To Protein

Right To Protein is India's first awareness initiative to educate citizens about the importance of adequate protein consumption for better nutrition, health and wellbeing. #RightToProtein initiative aspires to build knowledge of different types of protein sources amongst Indians, especially plant protein, to meet larger nutritional goals. Right To Protein aims to develop an ecosystem of professionals to drive protein awareness and debunk myths and misconceptions about protein as a critical macro-nutrient for human health and of many protein foods sources. The ecosystem will aim to improve the production and consumption quality and consistency of both, plant and animal proteins. Right To Protein is supported by several like-minded Indian and global individuals, academicians, professionals and institutions. The initiative is open for those who would like to join and/or contribute in any capacity, including providing knowledge, technical support or as promotion partners.

P.V. Soma Raju was passes away
Staunch supporter of NECC

Mr P V Somaraju, ex-poultry farmer, was one of the founder members and National Vice Chairman of NECC and also one of the promoters and first Director of Agrocorpex India Limited.

P.V. Soma Raju

Hyderabad: Mr P.V. Soma Raju passed away on February 23. Soma Raju was known as an exemplary fierce and articulate bold orator expressing his views overtly which had created confidence in the farming community. He supported Padmasri late B V Rao without any expectation for establishing and for the growth of poultry industry and NECC. He had very good command over Telugu which has made poultry farmers to fall in love with his fearless speech. He used to speak in Telugu even in non-Telugu speaking states with total involvement of heart and soul and this had made the people in the respective states to understand his message clearly and they started supporting the organization – NECC – for its growth.

But for his tireless efforts the seeds of NECC sown would have not grown a great tree providing shades and protection to lakhs of farmers of the poultry industry. His contribution cannot be forgotten and emulated by anyone. By his departure vacuum created cannot be filled by anyone in future. The present younger generation can remember the yeomen services provided by the departed leader to the poultry industry and follow his footsteps to take the organization NECC and the industry to new heights. May his soul rest in peace. Heartfelt condolences to his bereaved family.

By his friend admirer M B Desai – NECC

P.V. Soma Raju with B.V. Rao and other stakeholders of poultry industry at an occasion.

P.V. Soma Raju with stakeholders of Poultry sector.

A Surgical Strike on Bacteria

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For millions of years, bacteriophages have been hunting down and killing bacteria. **eXolution Bacterphage F** uses a cocktail of these ancient killers to purge disease-causing bacteria in a formulation created specifically for use in poultry.

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Stable:
Thermostable and suitable for Pelleting

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Clostridium Perfringens
Type A, C, B, D, E

Staphylococcus Aureus

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The Alltech ONE Conference (ONE) returns May 22–24 to Lexington, Kentucky

ONE also offers virtual options
Keynote speakers include Mick Ebeling and Paul Polman, renowned for unleashing the power of innovation and leadership for societal benefit

[LEXINGTON, Ky.] – In fewer than 100 days, the Alltech ONE Conference (ONE) will return to Lexington, Kentucky, for a collaborative exploration of the challenges and opportunities in the agri-food industry and beyond. Alltech, a global leader in animal health and nutrition, announced that their 38th annual flagship event will be held May 22-24 both in person and virtually on a first-class platform, with live-streaming and on-demand presentations available to ensure accessibility to everyone, everywhere.

Mick Ebeling

Reflecting the most relevant topics impacting the agri-food industry, the key themes of the discussions held at ONE will include science, sustainability and storytelling.
"The opportunities are abundant for the global agri-food sector to shape the future of our planet," said Dr. Mark Lyons, president and CEO of Alltech. "We can deliver nutrition for all, while fuelling economic vitality and replenishing our Earth's resources. The potential for impact is profound, but it requires a higher level of commitment and collaboration from every one of us. ONE is much more than a gathering; it is an invitation to step forward and share in a vision of promise for our ONE planet."

The Alltech ONE Conference (ONE) returns May 22–24 to Lexington, Kentucky, USA

ONE attendees will derive inspiration from keynote speakers who have unleashed the power of innovation and courageous leadership for positive impact.

Mick Ebeling, founder and CEO of Not Impossible Labs and author of "Not Impossible: The Art and Joy of Doing What Couldn't Be Done," will take the ONE mainstage in person, and his presentation will also be live-streamed for those joining virtually.

Ebeling was recently named by Fortune Magazine as one of the Top 50 World's Greatest Leaders. He is a recipient of the Muhammad Ali Humanitarian of the Year Award and is listed as one of the world's most influential creative people by The Creativity 50s. Ebeling has sparked a movement of pragmatic, inspirational innovation, and as a career producer and filmmaker, he harvests the power of technology and storytelling to change the world.

Presenting virtually is **Paul Polman,** who has been described by the Financial Times as "a standout CEO of the past decade". As CEO of Unilever (2009-2019), he stopped reporting quarterly earnings to focus on a long-term strategy that would successfully double revenues while reducing the company's environmental impact by half.

Prior to joining Unilever, Polman served as CFO and vice president for the Americas at Nestlé and as president for Western Europe at Procter & Gamble. He was a member of the UN Secretary General's High-Level Panel, which developed the Sustainable Development Goals and which he continues to champion, working with global organizations to push the 2030 development agenda.

Paul's new book, "Net Positive," is a call to arms to courageous business leaders, outlining how to build net-positive companies that profit by fixing the world's problems rather than creating them. He serves as the chair of IMAGINE — a social venture dedicated to systems change — and of the Saïd Business School.

Paul Polman

He is vice-chair of the UN Global Compact and is a B Team leader and honorary chair of the International Chamber of Commerce, which he led for two years.

While the world-class keynote speakers at ONE will offer universally valuable insights, the subject- and species-specific tracks will explore emerging opportunities in aquaculture, beef,

crop science, dairy, pig, poultry, equine, health and wellness, business, and brewing and distilling. Confirmed speakers are currently listed on the ONE website, with more to be added.

Virtual attendees of ONE will have access to live-streamed keynotes and pre-recorded track presentations that can be viewed on-demand. For in-person attendees, the ONE experience will extend into beautiful downtown Lexington, Kentucky, with special events, dinners and tours.

To learn more about the Alltech ONE Conference, including how to register, visit one.alltech.com.

Join the conversation across social media with #AlltechONE.

Since 1985, Alltech's annual conference has drawn leaders, innovators and changemakers within agri-food to Lexington, Kentucky. In 2020, Alltech reimagined the event in a virtual format to ensure that its ideas and inspiration could reach everyone, everywhere. Last year, the virtual event drew more than 10,000 people, including over 400 media, from 101 countries.

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

We are a global leader in the animal health industry, producing specialty ingredients, premix supplements, feed and complete feed. Strengthened by more than 40 years of scientific research, we carry forward a legacy of innovation and a unique culture that views challenges through an entrepreneurial lens.

Our more than 5,000 talented team members worldwide share our vision for a Planet of Plenty™.

We believe agriculture has the greatest potential to shape the future of our planet, but it will take all of us working together, led by science, technology and a shared will to make a difference.

Alltech is a private, family-owned company, which allows us to adapt quickly to our customers' needs and maintain focus on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world. For more information, visit alltech.com, or join the conversation on Facebook, Twitter and LinkedIn.

Immune Booster Chicken is the meat of the future recommends Suguna Foods

Mumbai, February 15:
Healthy dietary choices are one of the pillars of having a healthy life since they contribute to overall well-being. A well-balanced, protein-rich diet enhances muscle building, acts as an immune booster, and lowers the risk of any illness. Chicken is unquestionably the most abundant source of protein, acting as an indomitable sponsor, and should be included in the diet 2-3 times each week.

Here are some of the advantages of eating chicken.

Increases Protein Supply
Chicken has a high protein content. This vitamin is essential for every cell in the body. Protein is required by the body to produce enzymes, hormones, and other substances. It also aids in the stability of bones, muscles, tissues, blood, and cartilage.

Enhance Bone Health
Aside from protein, chicken is high in calcium and phosphorus, two nutrients that help keep bones healthy and strong. One can grow strong bones and reduce the chances of arthritis and osteoporosis by consuming adequate calcium in their daily diet

Improves Immunity
Chicken helps to boost immune cells in the body, which helps fight infection and recover from illness. Its protein also includes amino acids that help produce antibodies to combat illness . The Vitamin B5, magnesium, and tryptophan in chicken help to alleviate stress and improve mood.

Commenting on this, ***Nutritionist Ms. Shivangi Tiwari, Breathe Wellbeing*** said, "Protein is a critical nutrient for our immune system. Chicken, being a high-quality protein food, can help to boost immunity. Aside from protein, chicken is also a wonderful source of a range of other nutrients, such as Retinol (an active form of Vitamin A), Vitamin B B3, Vitamin B9, Zinc, and others, all of which aid in immune function. Therefore it's important to include chicken as part of one's daily diet"

Suguna Foods livebirds are available at leading poultry retail stores in the region.

About Suguna Foods:
Suguna is one of the top ten poultry companies in the world. It operates in 18 Indian states and offers a range of poultry products and services. Broiler and layer farming, hatcheries, feed mills, manufacturing plants & vaccines are all part of the fully integrated operations. Suguna supplies live broiler chicken, chilled chicken and value-added eggs. Suguna has developed a chain of modern retail outlets called Delfrez with an aim to provide customers with fresh, safe, and hygienic packed chicken. Hygiene being the most important USP's, these modern retail stores are aesthetically pleasing and offer chicken in different portion sizes which fits the needs of the customers.

‘Food Futurism’ set as the theme for Protein Day, February 2022

As India celebrates Protein Day on February 27 this year, Right To Protein invites everyone to understand the basics of food science, debunk myths around food security to achieve a protein-sufficient future.

Mumbai, January 31: Right to Protein, ahead of India's third annual Protein Day celebration on 27th February, declares ‘Food Futurism’ as the theme for 2022 as it takes ahead its mission to drive food and especially protein sufficiency in the country through awareness, advocacy, and action. ‘Food Futurism’ as a conversation will bring together nutrition experts, food scientists, biologists, among others to help Indians better understand the basic science behind healthy nutrition and its role in food security and protein sufficiency.

The pandemic highlighted the need to “build back better” sustainably. The effects of global warming on agriculture, the inequality in access to food have further necessitated a paradigm shift in how we think about food. Emerging scientific innovations present us with a growing range of opportunities to transform our food and agriculture structures to fulfill the vision of a hunger-free India. Therefore, through this educative initiative, this year, Right to Protein will be initiating informed discussions and dialogues about the role of science and how methods such as genetically engineered foods can have in achieving food security. The discussions will address genuine concerns, misperceptions, and ‘GMO anxiety’ among other topics.

Supporting the effort, **Varun Deshpande, Managing Director of Good Food Institute India (GFI India)** says, “In the face of challenges like climate change and pandemics, India needs a more secure, sustainable, and just food system. Reimagining our protein supply is key to that future. Plant-based foods and other smart protein sources are a generational opportunity to align planetary health stewardship, public health resilience, and economic growth. But to bring delicious, sustainable protein onto plates across the country, we need to invest in science, develop talent, and bridge knowledge gaps. We are glad to support Food Futurism as the theme of Protein Day 2022 to achieve these goals in service of a better future."

Dr. Suresh Itapu, Nutraceutical Expert, Director - NutriTech India, Human Nutrition Consultant – USSEC and Supporter of the Right To Protein initiative said “As with any stream of science, we’ve often looked at different nuances of ‘food science’ with skepticism mainly due to lack of knowledge leading to confusion, overblown fears, and myths. For instance, our concern about GMOs stems from a lack of awareness of how genes function – it is simply a production technique. I believe that Food Futurism as the theme for Protein Day 2022 will help address some of these apprehensions while enhancing our scientific understanding as we collectively deliver on our larger food security and sufficiency goals.”

Since the inception of India’s first Protein Day in 2020, Right To Protein is all set to complete a treble, where like-minded citizens, nutritionists, food industry experts, chefs, and brands will come together to raise awareness and take a step towards making India a protein sufficient country through food science.

About Right To Protein

Right To Protein is India's first awareness initiative to educate citizens about the importance of adequate protein consumption for better nutrition, health, and wellbeing. #RightToProtein initiative aspires to build knowledge of different types of protein sources amongst Indians, especially plant protein, to meet larger nutritional goals. Right To Protein aims to develop an ecosystem of professionals to drive protein awareness and debunk myths and misconceptions about protein as a critical macro-nutrient for human health and of many protein foods sources. The ecosystem will aim to improve the production and consumption quality and consistency of both, plant, and animal proteins. Right To Protein is supported by several like-minded Indian and global individuals, academicians, professionals, and institutions. The initiative is open for those who would like to join and/or contribute in any capacity, including providing knowledge, technical support or as promotion partners. For more information, visit www.righttoprotein.com

Proteon expands its marketing team, Appoints Dr Sachin Ingewar as Regional Sales Director

Mumbai, February 28: In line with its expansion plans, Proteon Pharmaceuticals India, a subsidiary of Proteon Pharmaceuticals S.A. Poland, announced the appointment of Dr Sachin Ingewar as Regional Sales Director for Indian subcontinent and South-East Asia Region. Dr Sachin will drive Proteon's growth strategies across the regions to support poultry industry in achieving safe and sustainable production.

Proteon Pharmaceuticals focuses on precision biology for microbiome protection to improve animal and human health, increasing environmental sustainability and eliminating the unnecessary use of antibiotics.

As a poultry nutritionist with over 20 years of comprehensive experience in sales and marketing, Dr Sachin has been successful in spearheading business in the industry through sustained revenue growth, specifically in the South East Asian markets.

Having a strong technical knowledge and expertise in strategic planning and execution, together with account management focused on precise pre and post-sales efforts, Dr Sachin has been known for improving organisational performance and unlocking new business opportunities through strategic alliances with key decision makers. He is a visionary who drives revenues and rapid growth profitability with focus on building a strong corporate culture. He has completed his Masters in Animal Nutrition with poultry major.

Elaborating on his new role at Proteon Pharmaceuticals, Dr Sachin Ingewar said, "This leadership role at Proteon is to develop our business in bacteriophages in the ISC and SEA and strengthen the presence of Proteon in the region. Our aim is to help poultry, aqua and the ruminant industry to achieve safe and sustainable production. We aim to build awareness about a need to reduce the usage of antibiotics in animal production. All in all, we are here to stay: #CareForAll- environment, humans and animal wellbeing."

Commenting on Dr Sachin's joining, Dr Paolo Doncecchi, Global Sales Director, Proteon Pharmaceuticals, said, "I am excited about this critical addition to our ISC Proteon organization. Dr Sachin will bring market knowledge, business acumen and empathic approach to people. Together, we will bring Proteon to new heights by serving customer needs."

Events & Occasions

Poultry farmer Miryanam Lingappa celebrated the marriage of his brother Gouri Shanker's daughter Sowmya with Srinath at Hyderabad on February 10. All the family members are seen together on the occasion.

Farmers can rely on Venkateshwara Hatcheries for all their requirements

M.R.I Magdum, GM, VHPL addresses Mysore Farmers Association & Krishna Farms Group meet with MPFA Cup 2022 – Cricket Tournament at Mysore in the memory of Krishna Setty and Ramesh Babu.

Mysore: "Once you enter into Poultry Industry, it's difficult to leave it due to the Prosperity and Growth one will achieve. The Credit for it goes to late B.V. Rao's Vision and his Contribution towards to Babcock / B.V.300 layer to suit to Indian climate conditions", said Mr. M.R.I. Magdum, Sir General Manager, Venkateshwara Hatcheries Pvt Ltd here on February 19.

A. Prabhu Prasad, President, MPFA

Dr. G.L. Jain, Dr. Prakash Babu and his team have been putting great efforts to develop B.V.300 layer. Magdum is the head for Karnataka, Tamilnadu, a part of Andhra Pradesh, Maharashtra and Kerala.

Our Vencob Broiler used to take eight weeks(56days) to get 1.5 kg body live weight and now in 35 days Vencob is gaining 2kgs body weight(1.5kg body weight). Again, Dr G.L. Jain, Dr Kolte and his team did great work for making Vencob broiler the preferred breed in the industry, he stated.

M.R.I Magdum GM, VHPL

Magdum advised farmers and integrators the senior executive of UH Group to have Broilers and growers separately both for layers as well as broilers. Do not put them together, he added.

Magdum said, people who work together will grow. We have to work together and ensure that we achieve targeted goal. I spend lot of time for it. Quality comes when we do quality Job and maintain relationship with customers, he told.

We are only producing and not putting any efforts for Marketing of Eggs and Broiler Chicken and I request all farmers to take out time for promotional works. India's per capita eggs consumption is only 75 to 80 eggs whereas its 348 eggs in other countries, he stated.

We see and meet each other only when there are problems, he said.

VHPL assure and do its best for providing best quality layer & Broiler breeds, medicines, vaccines, equipment, beed and we are there to help you farmers for A to Z services. We have research centers for all our products and 45% of products we use in our R&D centre before we release the products into market. Our layer gives 300 plus eggs and the farmers can rely on Venkateshwara Hatcheries for all their requirements in Poultry Farming, Magdum stated.

M.P. Satish Babu, Zonal Chairman, NECC Mysore Zone

Mr Manjesh K. Jhadav, General Manager, Broiler Integration, VHPL, Bangalore and Dr Harsh Kumar Shetty, General Manager, Breeder Sales & Services, VHPL Poultry Fortune Editer Mr M.A. Nazeer address on the occassion.

Mr Pramod Kumar Singh, key Accounts Head Sales Proteon Pharmaceutical segment of Poultry industry is serving farmers and also helping for the promotion of poultry industry in the country.

Mr A. Prabhn Prasad, President, Mysore Poultry Farmers Association in his Welcomed speech thanked all those supported in successfully organizing "MPFA CUP 2022"Crikect

K.K. Rajesh Babu, VP, MPFA

Tournament at Mysore. Mr M.P. Satish Babu, zonal Chairman, NECC Mysore zone and proprietor of Ovobel Foods Ltd. And Mr.K.K. Rajesh Babu, vice president, MPFA, and other office bearers also spoke on the occasion.

Mr. Abhilash Nair Mr. Jinesh of Zens Biotech and other companies of Mysore and other place executives took active part and encouraged the Cricket Tournment.

MPFA and Krishna Farmers Group jointly organized te Cricket Tournment with 12 team, all players from Poultry industry of Karnataka and Tamilnadu states, on 18 and 19 February 2022 at Mysore.

The Winners, Runners and all the teams members were felicitated on the evening of February 19, at the glittering function. They get together was sponsored by Krishna Farmers Group.

About MPFA

Mysore Poultry Farmers Association was formed in 1972 with 10 founder members and now has the strength of 45 farmers. The objectives and activities of the association are:

1. To have a get together of all farmers.
2. To get guidance from Veterinarians.
3. To conduct Technical seminars.
4. To sort out any issues and to get benefits from the government authorities.
5. To promote egg consumption by increasing the consumer awareness.

Mysore region farmers are producing 30 lakh eggs per day, and the average annual egg rate in the year 2021 was Rs 4.63.

Mr K.K. Rajesh Babu, Vice President, Mysore Poultry Farmers Association said that they are conducting egg mela and distributing eggs freely.

At the time of Covid pandemic, we have given around 10 lakh eggs to the Mysore Corporation to distribute to the needy people for immunity development against Covid.

We have to create awareness in the consumers about the

M. A. Nazeer, Editor, Poultry Fortune, addressing farmers event at Mysore

importance of protein and nutritional value of eggs which also has lot of Vitamins.

Mysore had 2 lakh layer population when the assoiciation was formed and now it is about 30 lakhs. On an average each farmer has about one lakh layers.

Support from the Govt

We are not getting any support from local government. We need Mid day meal scheme and also remove GST on feed ingredients, said the vice president.

Broiler farming in Mysore region

Development of *Broiler farming* in Mysore region is good. We are placing 7 to 8 lakh broiler chicks per week.

Feed raw material availability and their prices

Maize is grown in surrounding Mysore and lot of rice mills are there. Broken rice is available in plenty in this area. Soya comes from North Karnataka and Maharashtra. So our feed cost will be less than Namakkal area.

Layer and broiler breeds used in Mysore region

BV300, Lohmann, Hyline and Bovans layers, and Cobb, Ross and Hubbard broiler breeds. Mysore region has about 10 Broiler Integrators.

About 40 representatives of various hatcheries, feed, health & nutrition companies and technical services providers are serving in Mysore region.

As climate in Mysore district is suitable for poultry farming, the development prospects are good.

1. Tournament Winners - Mysore Warriors:

- Chased 56 runs in 8 overs with a loss of 2 wickets.
- Best Batting - Ali with 36 runs in 24 balls.
- Best Bowler – Balu, 2 overs – 13 runs – 2 wickets.

Pramod Kumar Singh, Key Accounts Head Sales, Proteon Pharmaceuticals

2. Runners – Bangalore Blasters:

55 runs in 10 overs with a loss of 6 wickets.

Best Batsman in the final - Santosh – 20 runs

3. Man of the Series:

Aravind : 167 Runs & 4 wickets - Namakkal Roosters.

4. Best Batsman :

Arjun - 190 runs – Mysore Warriors.

5. Best Bowler:

Rajesh – 8 wickets – Mysore Warriors.

6. FINALS:

Man of the Match – Ali, Mysore Warriors

Winner team

Runner team

M.R.I Magdum, General Manager, Venkateshwara Hatcheries Pvt Ltd was felicitated by Mysore Poultry Farmers Association.

Bangalore Blasters Team Players

Kovai Poultry Kings - Team A Players

Hospet Black Panthers Team Players

Mysore Champions Team Players

Holiday Cricketer's Club Team Players

Mysore Warriors Team Players

HK Masters Team Players

Namakkal Super Kings Team Players

Namakkal Roosters Team Players

Tara Sara Kings Team Players

BANGALORE BLASTERS

Avinash.P (Team Owner)
Leo Enterprises

Immanuel.J. (Captain)
Cadila Pharmaceuticals

Imran Ali. I
Vetogen Animal Health

Abbas.A
Hindustan Therapeutics

Santhosh. C
Aminorich Nutrients B.V.

Harikrishna
Vetoquinol

Rajesh Pai
Venky's

Rakesh
Zoetis

Akshay
SS Poultry Farm

Naveen
Venky's

Venkatesh
Mrs Poultry Farm

Kiran
Cargill

Akshay Jagtap
Hithesh Enterprises

Umesh
Sai Enterprises

Jatin
Sriya Farms

Balakrishna
Higrovet Nutritions Pvt Ltd

Rakesh
Lakshmi Venkateshwara PF

HOSPET BLACK PANTHERS

Pulla Reddy (Captain)
Laxmi Agencies

Gopi Krishna
(Vice Captain)
Vetoquinol

Amaranadha Reddy
Ceva

Mahesh Kumar
Huvepharma

Sridhar
Venvet

N Raghavendra
Cp Feed

Hulugappa
Vaccinator

Sai Prasad
Bionnar

Chaitanya
Sri Srinivasa Enterprises

Venkatram Reddy
Provet

A Narendra Kumar
Avichem Life Sciences Pvt Ltd

Bharath
Sri Srinivasa Enterprises

Krishna Reddy
Himalaya

Balaji
Head Coach

Ramakrishna Reddy
Venky's

HOLIDAY CRICKETER'S CLUB

Francis Xavier (Captain)
Sagana Poultry Fortunee

Anand (Vice Captain)
Ravioza Biotech Pvt Ltd

Jegan
Maruthi Breeder & Hatcheries

M. Vimal
Irish Life Solution Pvt Ltd

Anbu
Godrej Agrovet Limited

D. Ashok
Globion India Pvt Ltd

Ramesh
Vaster Life Science

P. Balamurugan
Dsm Animal Nutrition & Health

Siva Kumar
Cadila Pharamceuticals

Elavarsan
Clenofresh

K. Jayakumar
Interface Pharmceuticals

S. Murugasen
Camilin Fine Sciences Ltd

S.Vinoth
Avitec Nutrition Pvt Ltd

M. Vivek
Invetis Life Science

Nagaraj (Team Manager)
Sr Pharma Pvt Ltd

A. John Jerry
Jafa Animal Health

HK MASTERS

Sada Shivan (Captain)
Iris Life Solutions Pvt Ltd

K.Mahesh (Vice Captain)
Sri Srinivasa Enterprises

Narasimha Reddy
Neospark Drugs & Chemicals Pvt Ltd

Raja Ramesh
Alembic

Srikanth
VHL

Hemanth Kumar
Sai Agencies

Rasheed Sab
Zydus Ah

Sai Kiran
Vesper Lab

Nagarjuna
Farmer

Nagireddy
Kemin

Veerayya D B
Hester

Shankar Gowda
Intas

Prabhakar
Goderej

Srinivasa Reddy
Farmer

Prasad Reddy
Vesper Group

Krishna Group Expanding in Karnataka

Mysore: Diverse range of companies supporting the food chain like Animal feed, Animal medicines and technology headed by Mr K.K.Rajesh Babu and Mr Nishank Kaparthy.

Krishna Group was established in 1985. Late K.S.Krishna Shetty the founder of Krishna Group has the Master Degree from Tenesse University in America. After serving in Agricultural Department for more than 3 decades started the venture of Krishna Group along with his sons Mr Ramesh Babu and Mr Rajesh Babu. Late Ramesh Babu was an Engineering Graduate and perceived his M.Tech in Structural Engineering and served in PWD and Irrigation Department. He also served as the President of Mysore Poultry Farmers Association. Vishwa Pragna Education and Housing Society Excellence, Honesty, Vality and services are Krishna Group's principles which helped to shaped and continued to guide a solid growing and fully integrated company.

Krishna Group – A family of Entrepreneurs for the past 4 decades have carried the dream of making a difference to the people and the community. Krishna Group believes in providing the best source of protein to the society. The group ventures to the core valuation of job creation for youth and women empowerment and economic development. Krishna Group has established a solid foundation in Karnataka. Being able to positively impact in neighbouring states as well. With the Group's diverse portfolio the Central policy is to bring the best of technological innovation to the different fields they have ventured into.

The operation of Krishna Group has diversified into many ventures. Krishna Group has the capacity of 550,000 layer birds and 225,000 Brooder and Grower birds. It has 5 lakh Broiler birds with an annual production of 180 million table eggs and 10 million broiler meat.

Krishna farm is an integrated layer poultry unit with its own feed mill and brooding facilities situated at 10 kms from the city of Mysore. The farm covers an area of 55 acres and is split into 3 separate units. Krishna farms aims to make us of good management practices and the latest available technology in the industry to ensure the health of livestock and produce eggs of the highest quality. Current goal is to build a business which will make a significant contribution towards making high quality animal protein at an affordable price. Commercial poultry farm production involves full time labour and is geared towards producing on a sufficient scale for the sale of both eggs and poultry meat.

K.K. Rajesh Babu and his son Nishank Kaparthy

With high biosecurity, vaccination is administered to the birds by injection, water intake, eye drops and spraying, clean and hygienic living quarters and surrounding make eliminate most of the diseases occurrences.

Mr Rajesh Babu said, Poultry has the potential to meet the protein requirements of a nation. Both eggs and broilers are a good source of protein. Poultry helps to augment the income of the rural mass. Thus improve the socio economic status of the rural population. Poultry is one of the most efficient converters of the plant product wastes into animal food that carries protein and minerals which can solve the problem of malnutrition especially in a country like India.

Krishna Farm

Unit 1 started in the year 1994 with the capacity of 60,000 birds. Krishna farm unit 2 was set up in the year 2006 with the capacity of 3 lakh layer birds and 1.8 lakh rearing and brooding birds.

A sophisticated serum and feed analytical lab has been set up in the farm to ensure the quality. In the year 2008 a unique Research and Development farm has been set up to carry out various tests and trials on feed additives and medicines. A total automated feed plant was set up in 2007 with auto batching system with sylos. Recently added second high tech feed plant to cater the layer as well as broiler divisions. The trade mark name for table eggs called egg YZ has been registered to Krishna Group.

Kaparthy Farm came into existence to create high standard poultry with state of the art technology and infrastructure. The year 2007 welcomed this expansion with the strength of 70,000 layers.

KB Farm holds the pride of being the first poultry farm to install 'A' type cages. The farm was set up in the year 1998 with 45,000 layers and 60,000 birds. The unit saw expansion in 2008 with 75,000 layers and 105,000 birds.

Kaparthy Infotech. – Established in the year 2000 Kaparthy has trained over 3000 transcriptionists trained by highly certified professionals. Kaparthy infotech is the leading medical transcription company in Mysore focussed on training transcriptionists. We are pioneers in medical transcription, medical billing and coding, annotation, medical editing and data mining.

A view of Krishna Farms at Mysore

Shivaram Industries. With its inception in 2001, Shivaram Industries is the Animal feed supplement manufacturer in the region. The Industry is established in the Hebbal industrial area, Mysore with a state of the art facility. We, at Shivaram Industries manufacture high quality mineral mixture, vitamin blending, medicines, shell grit and feed concentrate.

Krishna Farm broiler integration. This independent farmer contract structure was credited with not only saving farming operations in what once was a struggling industry, but has actually helped farms thrive. Krishna farm has always recognized collaborated and relied on its relationship with farming communities and stood for the economic viability and independence of family farms. Currently it is actively engaged with that support contract farmers by mitigating economic risk by upto 97% and technology and knowledge transfer. We provide contract farmers the chicken, feed, veterinarian care and technical advice to the poultry farmers by day to day care of the birds at the land and housing where they are raised. Farmers are paid based on their performances in their sector healthiest chicken as per the guidelines in our contract which also strictly prohibits the use of added hormones and steroids.

Krishna Group is currently setting up its own breeding farm and hatchery.

Kaparthy family public Charitable Trust. It is very important that every child reaps the benefits of quality education which has always been pursued as a high price luxury for the unprivileged. Therefore we at Krishna Group give financial aid to various students and blind people in the region. We strive hard to bring out the best in students irrespective of the backgrounds by utilizing all resources at its disposal strengthening our commitment towards creating a better future.

KOVAI POULTRY KINGS - TEAM A

Krishnamoorthy
Sri Amman Enterprises

Nagaraj
Hindusthan Animal Care

Dr Senthilkumar
Jubilant Ingrevia LTD

Vairamuthu
KCM Cargil

Pandian
Vaccinator

Palvannan
DSM

Kannan
Raw Material Supplier

Karuchinakumar
Provet Pharma Pvt Ltd

Manoj
Fidus Nutrients

Aravindhan
Zenmak Animal Health

Antony Maria Rabin
Vetoquinol

Dr Rajendran
Consultant

Kalidas
Aipds

Govindarajan
Provet Pharma Pvt Ltd

Thangaraj
Kemin

MYSORE CHAMPIONS

Kushal (Captain)
Poultry Farmer

Balaji Poultry Farm
Mahesh (Owner)
Poultry Farmer
Vijaya Poultry Farm

Sunil Kumar
ASM, Varsha Group

Rajesh
ASM, Varsha Group

Manjunath
Distributors,
Honna Poultry Service

Satish
ASM, Skylarc

Choudhari
Manager, Shresta Feeds

Jamal
Vaccinator

Rafeeq
Trader, Egg Trader

Beeresh
MR, Hister

Sivaraj
MR, TTK

Nikesh
MR, Venkys

Hemaraj
MR, Venkys

Lakshman
ASM, Alembic

Naveen
ASM, Guybro

MYSORE WARRIORS

Naveen Chand (Captain)
Poultry Farmer,
Kanidurgava Poultry Farm

Kailash (Owner)
Poultry Farmer,
Sapthagiri Farm

Vinod Kumar N
ASM,
Zeus Biotech Pvt Ltd

Balu
ASM, Vetneeds Labs

Ali
ASM,
Natural Remedies Pvt Ltd

Rajesh S
Owner, Maize Trader

Sri Ram
Owner, Trader

Arjun CL
FM, MSD

Sohan P Hegde
Farmer, Soukur Durga Parameshwari Poultry Farm

Harsha R
VHL Executive, VHL

Kumar S
MR Provimi

Subhash N
MR, Alembic Pharmaceutical Ltd

Shashivarnan R
MR, Zenex AH

Karnan R
ASM, Zamira

NAMAKKAL SUPER KINGS

S. Ravi (Captain)
Vesper Pharma India Pvt Ltd

M. Vinoth (Vice Captain)
Sagana Poultry Fortunee

D. Mohammed Raffique
Pharmaxx Animal Health

M. Kandasamy
Uniquevet Therapeutics

Premkumar
Chembond Bioscience Ltd

E. Palanisamy
Huve Pharma Sea (Pune) Pvt Ltd

K. Gopala Krishnan
Godrej Agrovet Limited

K. Senthamizh Selvan
Cadila Pharmceuticals

Ram Sankar
P & Co Poultry Farm

S. Gokul Dharan
P & Co Poultry Farm

Venkatesh
Vaccinator

Netaji
SKM Nutrients

C. Mohanraj
Jubilant Life Science

Arun (Team Manager)
Ceva Polchem Pvt Ltd

Mugunthan
Vetoquinol

S. Suresh Babu
Alivira Animal Health Pvt Ltd

Namakkal Roosters

S. M. Vijabaskaran
Owner,
Adithya Enterprises

V.S.Manivannan(Captain)
Owner,
Vangili Feeds

T.Ranjithkumar
Owner,
Tamilmani Poultry Farm

T.Vijithkumar
Owner,
Tamilmani Poultry Farm

C. Parthiban
Owner,
Chellam Poultry Farm

M.Aravintd
Owner, Pooja Agencies

R.Sarath
Owner,
Sun India Hatcheries

T.Chandru
Owner, Muthu Feeds

T.Gowtham
Owner, Muthu Feeds

M. Murali
Owner,
Sri Krishna Poultry Farm

D. Kowsik
Owner,
Sun Star Poultry Farm

S.Sastikumar
Owner, Ponni Feeds

E. D. Albertsiju
Manager,
Poorani Animal Agro-Med Centre

R.Shiva Shankar
Owner,
Ragupathy Poultry Farm

M.Ramesh
Area Manager, TN & Kerala, Zagro Signgapore Pvt Ltd

Tara Sara Kings

Sridevi P.S. Mohan
(Owner)
Sri Sara Eggfarms

Nivesh Saravanakumar
Rajam Poultry Farm

P.Sivamani
Zenex Animal Health

C.Thamaraiselvan
Zenex Animal Health

S.Aravinth
Zenex Animal Health

N.Boobalsamy
Zenex Animal Health

Ramesh
Vaccinator

S.Elavarasan
Zenex Animal Health

Karthikeyan
Natural Remedies

A.Manivannan
Suguna Foods

Raja
Vaccinator

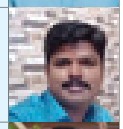
A.Divyenth
Credence Indomechanics

K.Gnanavel
Intas Pharma

S.Muralikrishnan
Zenex Animal Health

R.Aravinthan
Suguna Foods

Kovai Poultry Kings - Team B

Karthik Vamso	
Shanmugan Optima	
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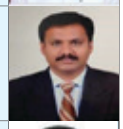
Naveen Irish	
Nandha kumar APC Nutrients	
Prakash Intervet	
Manojkumar Alivira	
Muthukrishnan Biosol Agrovet	
Senthil Vetoquinol	
Prabhu Jubilant Ingrevia LTD	
Gobi RR Animal Health	
Ramesh Aditi Agro	
Ashokkumar Vetline	
Saravanan Maruthi Nutrients	
Mr.Karthik IHC	
Mr.Narashiman Iris	

Vijay Kumar Team

Vijay Kumar T M Team Owner Rajesh P/F	
Manjunath Gaikwad, Capitain Vidhya P/F	
Panduranga Gaikwad Karthik P/F	
K Pradeep Ragava P/F	
Rakshith T N Ramyashree P/F	
Dinesh Medical Rep (Vetaquvinol)	
Ganesh Agency in Distrubuter	
Nagaraj Medical Rep Uttra Impex	
Rayadu Egg Trader	
Rajesh Medical Rep Optima life	
Dr Anadh Singh Docter Skylark	
Chandrashekhar Medical Rep	
Venkatesh Venkatadri P/F	
Suresh Medical Rep (IHTC)	
Suman CT Saraswathi P/F	
Ravi Maize Trader	
B K Nagaraj Venkatesh P/F	

Saving feed cost by reformulating broiler diets with the use of Nutrase BXP 200 TS

Email: amit.patra@nutrex.en

Jesse Stoops

Dr Amit Patra

Geert Van de Mierop

INTRODUCTION

Nutrase BXP 200 TS is a blend of enzymes, containing endo-xylanase, β-glucanase, α-amylase and 6-phytase activities. This multi-enzyme complex is developed for production animals to guarantee an optimal digestibility of feed and supply of nutrients to the intestinal microbiota to improve gut health.

Endo-xylanase and β-glucanase. Arabinoxylans (AX) and β-glucans are important anti-nutritional factors in raw feed ingredients. Their most well know anti-nutritional effect is the increase of viscosity in the intestinal content, making digestion and absorption of nutrients extremely difficult. Also, unfavorable hindgut fermentation is stimulated. The presence of endo-xylanase and β-glucanase in Nutrase BXP 200 TS reduces these anti-nutritional effects of feed ingredients.

α-amylase. Starch is the main energy source in cereals for production animals. During starch digestion, α-amylase and gluco-amylase are produced by the animal and secreted into the small intestines. However, in young animals and during transition periods the endogenous production might be insufficient. In this case, the presence of α-amylase in Nutrase BXP 200 TS will support the animal to digest starch.

6-phytase. Phosphorous (P) is a key element in all known forms of life. In cereal grains, P is mainly stored in the form of phytic acid or phytate. Monogastric animals are unable to utilize P from phytic acid or phytate, as they lack endogenous phytase. Nutrase BXP 200 TS contains a bacterial 6-phytase that releases phosphate from phytic acid or phytate and increases the availability of a whole range of nutrients (e.g. P, Ca, Zn, Fe, Cu).

The aim of this trial is to investigate the effect of Nutrase BXP 200 TS to a corn-based diet with reduced energy, P and Ca matrix values on broiler performance.

MATERIALS AND METHODS

A pen trial was conducted in which Cobb 430Y male broilers were reared in a poultry house (AgriVet, India) for 42 days. A three phase dietary program (starter d0-14, grower d15-28 and finisher d29-42) was used in which all diets were fed *ad libitum*. A total of 180 broilers were randomly allocated to 3 treatments (Table 1) with 6 replicates per treatment (11 birds/pen at the start of trial). The composition of the dietary diets is listed in Table 2. Body weight and feed intake were recorded at weekly intervals. Feed conversion was calculated from the measured weight gain and feed intake. Pen mortality was recorded to correct feed intake.

TABLE 1: DESCRIPTION OF DIETARY TREATMENTS

TREATMENT	DESCRIPTION
Positive control (PC)	Corn-soy-based broiler diet. The diet was formulated according to the nutrition specification of Cobb 430Y without enzyme supplementation
Negative control (NC)	The positive control diet was reformulated to contain approximately 100kcal/kg, 0.14% and 0.12% less apparent metabolizable energy (AME), phosphorous (P) and Calcium (Ca), respectively, without enzyme supplementation
Negative control + Nutrase BXP 200 TS	Negative control diet supplemented with 200 g/ton of feed Nutrase BXP 200 TS

TABLE 2: NUTRIENT COMPOSITION OF THE EXPERIMENTAL DIETS

	STARTER D0-14		GROWER D15-28		FINISHER D29-42	
	PC	NC	PC	NC	PC	NC
Ingredients (g/kg)						
Corn	541.3	566.6	568.5	595.2	583.8	622.9
Soybean meal	301.5	296.6	249.6	228.8	225.4	220.4
Full fat soybean	60.0	36.6	80.0	80.0	80.0	80.0
Meat-bone meal	25.0	25.0	25.0	25.0	25.0	25.0
Rape seed meal	-	25.0	-	24.5	-	-
Rice bran	20.0	20.0	25.0	20.0	25.0	20.0
Soybean oil	15.2	-	18.8	-	30.9	8.2
Dicalcium phosphate	18.4	8.8	16.7	7.3	13.7	4.3
Nutrients (%)						
Crude protein	23.00	23.00	21.00	21.00	20.00	20.00
Calcium	0.90	0.78	0.84	0.72	0.76	0.64
Available P	0.48	0.34	0.45	0.31	0.40	0.26
Lysine	1.28	1.28	1.15	1.15	1.08	1.08
Methionine	0.47	0.62	0.56	0.56	0.54	0.54
AME (kcal/kg)	2900	2800	3000	2900	3100	3000

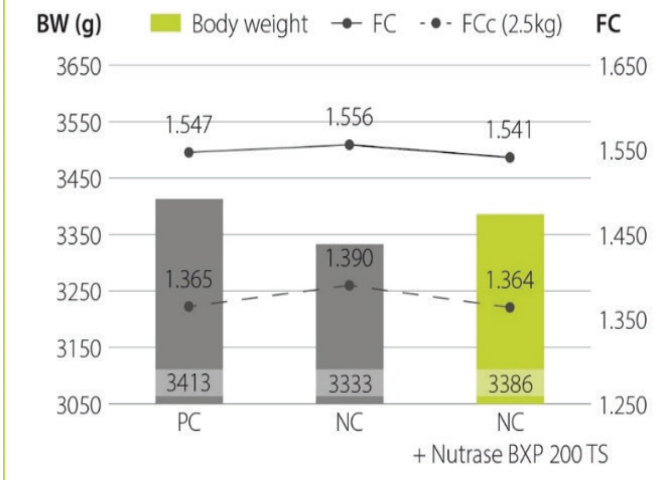
RESULTS

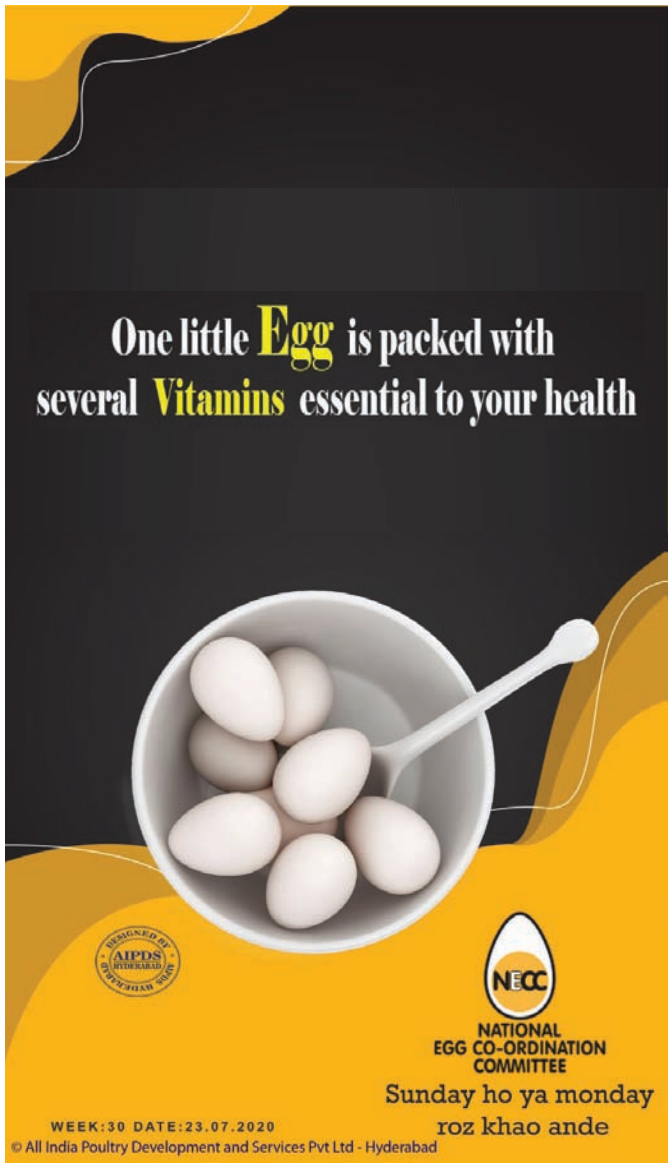
At the end of the trial period (day 42), the birds fed the negative control diet presented the worst results for body weight and feed conversion. The nutrient and energy reductions of the negative control diet effectively reduce broiler growth performance. The supplementation of Nutrase BXP 200 TS resulted in a higher body weight (+ 53g) and improved feed conversion (by 2.6 points) compared with the negative control group. Moreover, the feed conversion of the Nutrase BXP 200 TS group equaled the FC in birds fed the positive control diet.

CONCLUSIONS

The supplementation of Nutrase BXP 200 TS improved the performance of broilers fed diets with reduced nutrient and energy levels. Based on these trial results, Nutrase BXP 200 TS can be supplemented to a corn-based diet with matrix values of 100 kcal AME, 0.14% P and 0.12% Ca without any probable detrimental effect on broiler performance.

PERFORMANCE DAY 1-42





Courtesy: NECC

ENHANCING PROTEIN DIGESTION

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Dr Koushik De
Director, Technical Services - SCA
Novus International

One of the most significant ways of enhancing nutrient digestibility is the use of enzymes. In most practical diets for poultry, the three most expensive nutrients are: energy, protein, and phosphorus. Although we have managed to procure successful commercial enzymes that enhance the efficiency with which birds derive energy and phosphorus from their feed, the animal nutrition industry has not been so successful in the case of protein. In truth, early attempts have been more than disappointing for many enzyme producers.

There are several reasons for this, including inadequate research and development, difficulties in producing a commercially viable enzyme, and of course, the uphill battle against the naturally high digestibility of most conventional feed ingredients. Birds are already digesting their feed quite well! However, the largest failure must have been the lack of resources and perseverance.

Why a protease?

The most obvious question that we must first answer is why poultry diets require such an enzyme. The answer is quite clear when profitability comes into the picture particularly in today's scenario where the raw material prices are sky rocketing. Today, the technology of producing an enzyme has advanced to such a high degree that it makes it economical to use enzymes even under the most unfavorable conditions in terms of feed ingredient prices. For example, the addition of protease enzyme has been shown to reduce feed cost on average by 5%, even after considering the actual cost for the enzyme. In today's tight financial times, a 5% reduction in feed cost alone can be the key to survival for many operations worldwide.

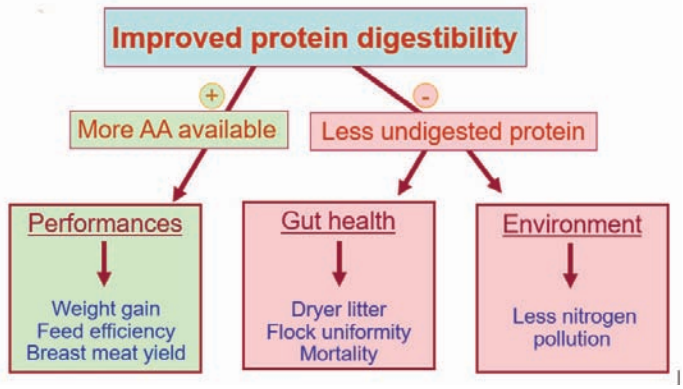
This reduction in feed cost is achieved by means of lowering protein (amino acids) specifications to consider the improved digestibility of protein in natural ingredients. Thus, the inclusion level of soybean meal, one of the main protein-rich ingredients is reduced, and of course, the need to add synthetic amino acids is also reduced significantly. Of course, the exact savings depend on the actual ingredients used and their prices.

Research has also shown that the use of protease enzyme also improves overall animal performance. This is the result of the beneficial effects of a low-protein diet, which minimizes the metabolic strain of excreting surplus nitrogen, with the added benefit of leaving more dietary energy available for growth. This effect is not a new discovery, unique to proteases, but something well known to scientists for many years and applicable to all monogastric species.

Another indirect benefit from the use of a protease that improves protein digestion is that nitrogen excretion in the environment is markedly reduced which is a great advantage for the producers during the winter months. Thus, protease enzyme not only enhances the digestibility of protein, leaving less natural protein undigested, but the low-protein diets used in conjunction with the enzyme are better balanced in terms of amino acids, leaving less surplus to be disposed of through metabolism.

On average, protease enzyme enhances protein & amino acid digestibility by 3-7% and as such it should be expected to reduce nitrogen excretion significantly. Again, these are averages obtained through numerous research trials and field observations in the past ten years of development and use in the field. Actual numbers will differ according to ingredient selection and current dietary protein specifications.

The main reason broiler producers as well as feed producers require a protease enzyme is profitability. Protein raw material prices have shown a sustained upward trend over the last few years. Despite abating a little in the last few months, the general consensus of independent observers is that prices will continue to increase in the future. This is the consequence of consumption exceeding supply on account of demand from emerging economies, and the impact of bio-fuel production on the composition of



harvested areas across the world. A protease which can consistently improve the digestibility of amino acids in such materials, thus reducing their inclusion level in feed while maintaining current levels of animal performance, is therefore economically very attractive.

Direct cost savings at the feed mill, however, are by no means the only reason for considering a protease (*Figure 1*). When a suitably efficacious protease is used, it can be an important contributor to the continued economic viability, sustainability and consumer perception of the broiler industry.

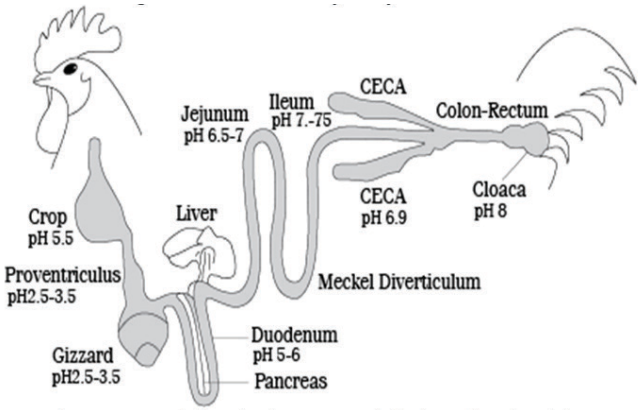
Not all proteases are the same:

For a protease to be successful in feed it should, like any other enzyme, be selected and developed with that specific use in mind. Unfortunately, many of the first proteases entering and, in many cases, still available for use in the feed industry were developed for other purposes. non-specific alkaline proteases initially derived from *Bacillus subtillis* and developed for the detergent industry, with characteristics which render them less effective in feed.

The recent development of unique feed protease specifically selected for application as a feed enzyme, has overcome many of these issues. Unlike most other commercially available proteases, it is produced from a genetically modified strain of *Bacillus licheniformis*. In the selection process, factors such as the ability to degrade many different feed proteins; the need to complement the endogenous protease enzymes; activity after exposure to the low pH conditions of the gizzard and proventriculus; and stability during feed processing were all considered.

pH stability:

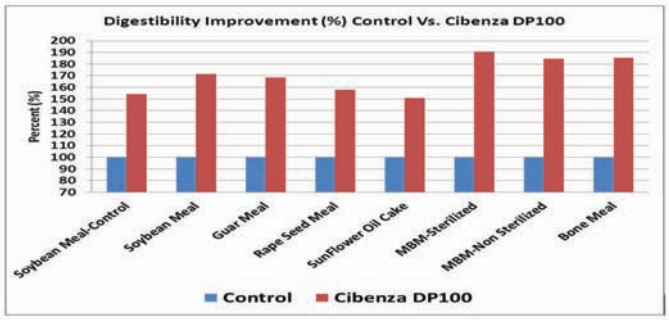
Probably one of the most important criteria for success of a protease in broilers is good stability under low pH conditions found in the bird's stomach. The level of viable enzyme reaching the ileum is thus also limited. In contrast, with Bacillus licheniformis derived protease, stability at low pH is greatly improved, ensuring sufficient enzyme activity in the small intestine to give the desired hydrolytic effect.



For a protease to work successfully, it is essential that it should complement the endogenous enzymes. The bird's stomach and small intestine already produce pepsin and pancreatic proteases, respectively. The exogenous protease must work in synergy with these enzymes to obtain the optimum benefit in all but the very young bird, where endogenous levels may be limiting.

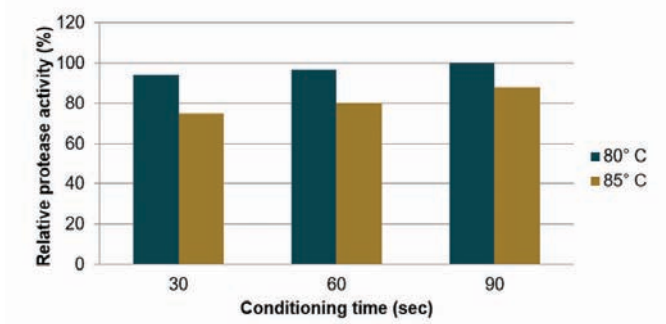
Flexibility of use:

For a protease to be commercially useful it must be possible to use it flexibly in a diverse range of diet types. The ability to improve the digestibility of protein from as wide a range of feed ingredients as possible is therefore important. Protease should have the potential to improve digestibility of protein in a wide range of ingredient sources in vitro. Such improvements should however not just be obtainable in vitro but also in vivo. In vivo, both ileal and faecal amino acid digestibility studies have confirmed the significant improvements in digestibility for a wide range of different raw materials when Protease enzyme is added.



Processing stability

As the conditioning time and temperature during the production of pelleted broiler feeds becomes ever higher and longer to ensure compliance with increasingly stringent food and feed safety requirements, stability of feed enzymes under more extreme conditions is increasingly essential. To this end, for a protease to be successful, thermostability is a must. Protease enzyme is consistently more stable at each of the conditioning times and temperatures tested, demonstrating its superior stability even under more demanding conditions.



Reducing Anti nutritional Factor:

Soybean meal (SBM) is the most important source of dietary protein for poultry it itself contains some antinutritional factors like Trypsin Inhibitor (TI). Although TI is reduced by heat treatment, overheating has a negative impact on protein quality and amino acid digestibility. Exogenous Protease enzymes can improve digestibility of feedstuffs, lower feed costs and improve animal performance. Proteases improve animal performance and nutrient digestibility by decreasing digesta viscosity, improving endogenous enzyme activity and decreasing pancreas

weight (Bedford and Classen, 1993; Bedford and Schulze, 1998; Erdaw et al., 2017a,b; Yan et al., 2017).

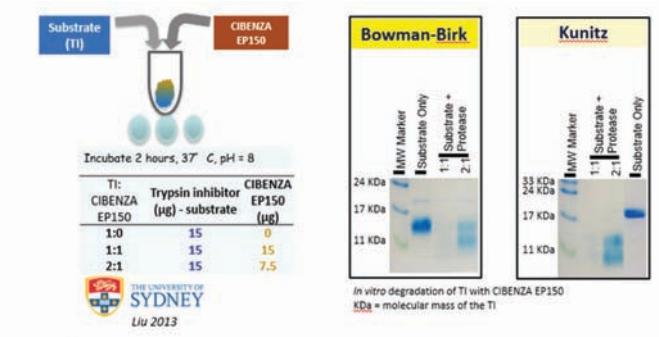
Analytical characteristics of common types of soy protein products

Product type	Unit	Soybean seeds	SBM	Enzyme treated SPC	Alcohol extracted SPC	SPI
Humidity	%	10 - 12	10 - 12	6 - 7	6 - 7	6 - 7
Crude protein	%	33 - 17	42 - 50	55 - 60	63 - 67	>85
Fat	%	17 - 20	0.9 - 3.5	2.5	0.5 - 3.0	0.1 - 1.5
Ash	%	4.5 -5.5	4.5 - 6.5	6.2 - 6.8	4.8 - 6.0	2 - 3.5
Oligosacharides	%	14	15	<1	<3.5	<0.4
Stachyose	%	4 - 4.5	4.5 - 5	<0.3	1 - 3	<0.2
Raffinose	%	0.8 - 1	1 - 1.2	<0.1	<0.2	<0.1
Trypsin inhibitor TIA	mg/g CP	45 - 60	4 - 8	1 - 2	2 - 3	<1
Glycinin	mg/g	150 - 200	40 - 70	<0.1	<0.1	<0.01
β-conglycin	mg/g	50 - 100	10 - 40	<0.1	<0.1	<0.005
Lectins	ppm	50 - 200	50 - 200	<1	<1	<1
Saponins	%	0.5	0.6	0	0	0
Phytic acid bound P	%	0.6	0.6	0.6	0.6	-

SBM = defatted soybean meal; SPC = soy protein concentrate; SPI = soy protein isolate.
Adapted from: Hansen (2003) and Peisker (2001)

The determination in the laboratory of the TI content of SBM and its relationship with AA availability is tedious and time-consuming and provides inconsistent results. Also, the traditional processes of treating SBM can't remove the anti-nutritional factors to a safe level. Therefore, use of exogenous protease is very effective in reducing the deleterious effect of TI in SBM. Liu et al., in 2013 conducted a study wherein they used a protease enzyme (CIBENZA EP150) with different levels of TI and found that protease enzyme was able to destroy almost all trypsin inhibitors (both Bowman-Birk & Kunitz TI) present in soyabean meal (at 1:1 ratio) and destroy substancially even in higher concentración (2:1) of TI as well.

Conclusions:



CIBENZA EP150 can destroy almost all trypsin inhibitors present in soyabean meal (at 1:1 ratio) and destroy substancially even in higher concentración (2:1) of TI as well

The benefits of including a protease enzyme in broiler diets are confirmed in numerous published reports. Such research shows that this protease can improve the protein digestibility of a wide range of natural ingredients by 3-7%. Such improvements translate into significant cost savings per ton of feed and are achieved without any compromise on animal performance.

Government Committed for the growth of Poultry & Livestock Sectors through Special Funds and Financial Assistance

Email: ricky.thaper@ibgroup.co.in

Ricky Thaper,
Treasurer,
Poultry Federation of India.

The government gives thrust on infrastructure development for poultry and livestock sector in the union budget (2022-23) and specialised schemes and funds to boost the poultry industry which plays a critical role in the Indian economy.

Livestock sector is a critical sub-sector of agriculture in the Indian economy. According to the Economic Survey (2021-22) tabled in the parliament recently, the livestock sector consisting of dairy, eggs and meat, grew at a Compound Annual Growth Rate of (CAGR) of 8.15 per cent. As per the estimates of National Accounts Statistics, 2020, the contribution of the livestock sector in the total Gross Value Added (at constant prices) of agriculture and allied sectors grew from 24.32 per cent in 2014-15 to 29.35 per cent (2019-20). The livestock sector contributed 4.35 per cent of total GVA in 2019-20.

According to FAOSTAT data of 2020, India ranks third in egg production and sixth in meat production in the world. India's egg production has increased from 78.48 billion in 2014-15 to 122.11 billion in 2020-21. The per capita availability of eggs is at 91 eggs per annum in 2020-21 (Provisional). Meat production in the country has increased from 6.69 million MT in 2014-15 to 8.80 million MT in 2020-21. According to Basic Animal Husbandry Statistics, 2020 states that India's poultry meat production was 4.34 million MT, contributing almost 50% of the total meat production in 2019-20.

Allocation for Livestock sector in union budget (2022-23):

Keeping in mind the importance of livestock, Union Finance Minister Smt. Nirmala Sitaraman in the Union Budget (2022-23) has allocated Rs 6,407 crore for the Ministry of Fisheries, Animal Husbandry, and Dairying, which is an increase of 44 per cent from the 2021-22 allocation.

Commenting on the union budget (2022-23), Union Minister of Fisheries, Animal Husbandry, and Dairying, Shri Parshottam Rupala said that 95% of livestock farmers are concentrated in rural India, infrastructure development under the 'Vibrant Villages Program" will play a significant role in enhancing market access for these poultry and livestock farmers. He stated that the reduction in alternate minimum tax for cooperatives from 18.5% to 15% as announced in the union budget (2022-23) is indeed a significant announcement that would provide a level playing field between cooperative societies and companies. The incentivizing digital banking, digital payments & fintech innovations as announced in the union budget will have a ripple effect in the poultry and livestock sector.

According to Shri Atul Chaturvedi, Secretary, Department of Animal Husbandry & Dairy (DAHD), said, "in the budget (2022-23), allocation for livestock has been increased by 40%, and central sector schemes have been increased by 48%, indicating the government's commitment to the growth of poultry and dairy farmers.

Schemes which Poultry sector could take advantage:

To support the poultry and livestock sector, DAHD was implementing the Entrepreneurship Development and Employment Generation (EDEG), as a component of the National Livestock Mission (NLM). Poultry Venture Capital Fund was implemented as an activity under the EDEG. The salient features of realigned NLM scheme include employment generation, entrepreneurship development, increase in per animal productivity and thus targeting increased production of meat, eggs, milk and wool. The scheme also envisages increase in productivity development through breed improvement. The scheme also focuses on increasing availability of fodder and feed.

After union cabinet approval in June 2020, Animal Husbandry Infrastructure Development Fund (AHIDF) worth Rs 15,000 crore was established and implemented from 2020-21. AHIDF aims at incentivizing investments by individual entrepreneurs, private companies, Farmers Producers Organizations (FPOs) and companies for establishing meat processing and product diversification, infrastructure and Animal Feed Plant, Breed multiplication farms and Breed improvement technology and the dairy processing and product diversification infrastructure,.

Under AHIDF Rs. 13,500 crore would be the loan to be disbursed by the scheduled bank and Rs.1500 crore will be the end borrowers contribution. Out of these Rs.1623 crore will be provided as interest subvention of 3 per cent over a period of 10 years for repayment of loan during 2020-21 to 2030-31. Rs 750 crore will be credit guarantee to be managed by NABARD for which Rs.75 crore will be provided by the DAHD to NABARD for 10 years.

So far 206 projects with an estimated cost of Rs.2813 crore have been approved under AHIDF with a loan of Rs.2014 crore. Projects worth Rs.911 crore for setting up animal feed plants, Rs.227 crore for meat processing and Rs 874 crore for setting up of dairy processing plants have been approved. Establishment of animal feed plants also include activities such as bypass protein unit, total mixed ration block making unit, mineral mixture plant, animal feed testing laboratory and integrated poultry meat processing units.

The leading poultry industry players have welcomed the "pro-farmer friendly" announcements by Unoin Finance minister Smt. Nirmala Setharaman and several schemes being implemented for the livestock sector as this will boost our agricultural economy and will accelerate benefits with other sectors connected to agriculture, poultry, farming, animal husbandry, food processing etc. Capital and technological infusion into these sectors will definitely help build a long-term vision to yield greater results in the coming years,".

DAHD is implementing a scheme - Assistance to States for control of Animal Diseases (ASCAD) under the Livestock Health and Disease Control (LH&DC) scheme which covers the vaccination of economically important poultry diseases, including control and containment of emergent and exotic diseases. Under the LH&DC Scheme financial assistance is provided to the States for up gradation of Diagnostic Laboratories at the district level. In addition, there are six Regional Disease Diagnostic Laboratories for prompt and effective diagnosis of different Livestock and poultry Diseases.

According DAHD data, Rs.13.87 crore had been released to states and UTs under ASCAD for the FY 2020-21 and 2021-22 for control and containment of Avian Influenza including compensation to farmers whose birds have been culled, poultry eggs and Poultry feed has been destroyed.

The Central Poultry Development Organizations are carrying out Training programs to increase skill of entrepreneurs in the field of Poultry and Livestock. The Department is also assisting the State Government to impart training on Poultry, Sheep, Goat, Pig farming to enhance technical knowledge and entrepreneurship development.

Under this component, the establishment of a composite Poultry unit having parent farm, mother unit and Hatchery unit can be established. Further, to increase the Poultry production under NLM financial assistance is provided to States and Union Territories Governments for implementation of Rural Backyard Poultry Development and Innovative Poultry Productivity Project. These programs envisage the components which take care of the shelter, feed, medicine, equipments, litter etc. to improve the living conditions of the Poultry and Livestock.

Overall the government has ensured that the livestock sector gets necessary financial help for ensuring sustainable growth of the sector.

APPLICATION OF IN OVO TECHNOLOGY IN POULTRY

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INTRODUCTION

Poultry industry is one of the quickest developing sectors in India. Poultry involves a remarkable position in the livestock economy of India by coexistence of intense technology, capital, and scale with integrated production, marketing and the others based on the traditional knowledge and practices. The annual growth rate is more than 11% and 8 % in broiler production and egg production respectively. The general development rate of poultry industry is around 7-8% for every annum, most outstanding among all sectors of agriculture. In poultry industry, poultry meat accounts for two third of the value of output and one third by eggs. Poultry industry generates direct employment for more than 3.5 million people and indirect employment for another 3.5 million people in different facets of allied activities. India is the third most noteworthy egg producer and fifth biggest poultry meat producer. This makes poultry part as the quickest developing segment among all livestock sectors. The broilers in India are reared for 35-40 days to a market weight of 1.8 to 2.2 kg. The feed conversion ratio for modern broilers has been improved considerably through continuous selection programme, precision nutrition by adopting biosecurity measures from 2.2 to 1.6.

In ovo feeding of nutrients have gained more attention recently. *In ovo* feeding of nutrients would be a more effective option, and this is the approach that has been developed by Uni and Ferket (2003). The first administration of *in ovo* delivery of exogenous material was reported in the 1980s for vaccination against Marek's disease (Sharma and Burmester, 1982). At early stages of development, day zero or on or before day seven of incubation, the preferable site of injection is the air cell or albumen part of the egg, which may be termed '*in ovo* administration'. Pre-hatch birds naturally consume the amniotic fluids on 18th day of incubation. Therefore addition of a nutrient solution to the embryonic amniotic fluid would deliver essential nutrients into the embryo's intestine. These early advancements have prompted expanded research on *in ovo* methods in poultry to enhance starting weights, better feed utilization, faster growth rate and higher final weight.

Some of the challenges faced by broilers chicks include weakness, reduced feed intake, impaired growth, susceptibility to disease, and mortality. These symptoms may be due to limitations in some nutrients and energy and to immature digestive system unable to reload depleted energy reserves from consumed feed. Supplementing the amnion fluid with appropriate nutrients (by in-ovo feeding) is a novel way to feed critical dietary components to embryos a 'jump-start' development of the chick. In-ovo feeding technology has established a new science of perinatal nutrition that will open opportunities for greater production efficiency and animal welfare.

Necessity for in ovo feeding

In any commercial production system, the first few weeks are most critical period in a chicks life, which has a significant varying on the survivability and growth of the bird, newly hatched chicks are often subjected to undue stress that makes them more susceptible to pathogens.

The potential period, the last four days before hatch and the first four days after hatch is most critical period for development and survival of commercial birds. It's the period during which the nutritional conditioning and perinatal programming can occur. The perinatal chick makes the metabolic and physiological transition from the nutrition supplied in the egg to feed, and its functionally programmed to adopt its environment. The chick's first meal occurs when it consumes the amnion fluid before internal piping at about 18 days of incubation.

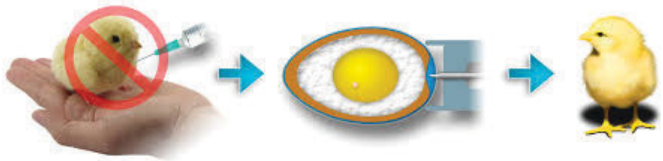
In commercial hatcheries, hatchlings are commonly held for 36 to 72 hours from the time of actual hatch to placement .this is due to the wide hatching "hatching window" ,hatchlings are not removed, until maximum number of eggs have been hatched. This causes most hatchlings to be fasted for 48hours or more before they access to first feed and water. This makes hatchlings become more

susceptible to pathogens, have decreased body weight and have restricted development of the intestine. In ovo feeding of nutrients especially carbohydrates replenishes the glycogen stores depleted during the prenatal period and also increase body weight.

PRINCIPLE

Epigenetic programming refers to the influence produced by the exposure to specific conditions during critical periods of early life that modify the developmental pathways of the organism, leading to stable and long-lasting alterations that have effects when the individual reaches adulthood.

In poultry, epigenetic programming, which allows an animal to metabolically or physiologically adapt to specific dietary or environmental conditions, can occur during two critical periods: when embryo consumes the amniotic fluid prior to hatch, and when the chicks absorb residual yolk and feed during the first few days after hatch.



Nutrients that have been applied for in ovo injection

1. Amino acids
2. Carbohydrates
3. Vitamins
4. Trace mineral
5. Fatty acids
6. Feed additives

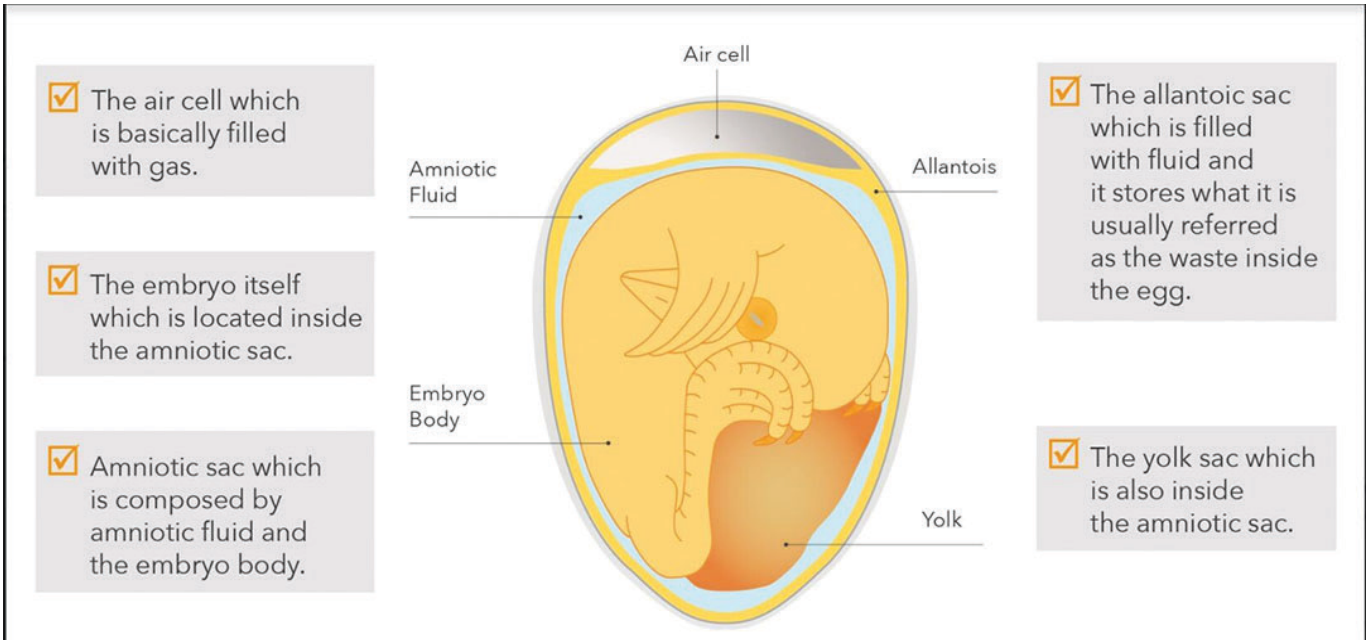
Various potential nutrient supplements can be included in the *in-ovo* feeding solution. Carbohydrates can be used as a source for glucose, which is crucial for the hatching process and hatchling development. Na^+ and Cl^- ions play a major role in the activity of apical and basolateral transporters and in the absorption of glucose and amino acids. β-hydroxy-β-methylbutyrate (HMB), a leucine metabolite which affect muscle satellite cells and increases carcass yield, is a good candidate for the *in-ovo* feeding solution, as are minerals and vitamins which support the development of skeletal, immune and digestive systems in chickens. Many nutrients were evaluated for their contribution to poultry hatchability, chick quality and production performance. Indeed, any selected nutrients can be applied for in-ovo feeding and that includes all amino acids, carbohydrates, vitamins, fatty acids, and other modulators. A large variety of nutrients or supplements can potentially be included in the in-ovo feeding solution. Limitations are volume, timing, osmolality and viscosity of in-ovo feeding formulation.

Important Points should be considered before applying in ovo injection:

- ✓ The stage of development of the embryos.
- ✓ Site of injection
- ✓ Dose of injection and knowing the stage of development of the embryos is essential to determine the correct time to achieve the best hatchability.
- ✓ Avoid prolonged storage of eggs before vaccination.
- ✓ Supervise the incubator parameters (temperature, ventilation, and humidity): they should be stable and optimal.
- ✓ Use only eggs whose shells are in perfect condition, do not use cracked or broken eggs.\
- ✓ Place the eggs in the correct position (upright); the eggs will then be ready for injection.
- ✓ Use sterile techniques and follow the vaccine manufacturer's instructions to prepare the nutrients
- ✓ Have personnel qualified in aseptic techniques for this operation.

Sites of Injection

- Air cell
- Amniotic sac (recommended)
- Yolk sac
- Embryo itself



Sites of injection

The ideal site for in ovo injection

At early stages of development, from 0 : 7days of incubation, the preferable site of injection is the air cell or albumin part of the egg. At 18 th day amniotic sac is preferable.

The ideal time for in ovo injection

Vaccines or nutrients is recommended to be at 18 days of incubation ,Pre-hatch embryos consume the amniotic fluids till hatch,In ovo nutrient injection will help the embryos absorb the nutrients before hatch

Procedure

Clean the eggs and wipe with 70% ethanol

The amnion in the in egg was identified by candling

Inject , with in - ovo feeding solution using a 21-gauge needle after making a pin head size (0.30 mm diameter) hole

- After the eggs were injected, the injection holes were sealed with cellophane tape or with parafilm wax.

Note: (0.1 ml and up to 0.2 ml volumes have been used to avoid embryonic death or failure.)

Research studies carried out

(21 gauge needle for performing in ovo)

Nutrient injected	Stage ofin-cubation	Location of injection	Result	Reference
Threonine	18th day	yolk	Improves post-hatching growth and humoral responses of broiler chicks.	Kadam , , *et al.*, *Br Poultry Sci* 49:736–741 (2008).
Arginine	18th day	Amniotic sac	Improves hatch weight, chick/egg weight ratio and placement weight and provides enough nutrition	Nayak et al. Journal of Animal Research: v.6 n.4, p. 585-591. August 2016
Probiotic,prebiotic and synbiotics	18th day	Amniotic sac	Improves the gut health	*Survase Swapnil Harishchandra,2018 M.V.Sc thesis,TANUVAS*
Nano dicalcium phosphate and Vitamin D3	18th day	Amniotic sac	Better bone development and overall economic index	Yadav Sunil Machendra,2019,M.V.Sc thesis,TANUVAS

Benefits of in ovo feeding

It may leads to improved digestive capacity, increased growth rate and feed efficiency, reduced post hatch mortality and morbidity, improved immune responses. to enteric antigens reduced incidence of developmental skeletal dis orders, increased muscle development and breast meat yield, increase liver glycogen status, higher glycogen reserves, body weight, pectoral muscle weight and body weight gain.

- In ovo fed birds exhibits increased length of villus thereby increase absorption of nutrition's thereby increase the overall performance of the birds.
- In ovo injection of amino acids trace elements or fatty acids and vitamins modulate the cell mediated immune response.
- In ovo injection of minerals, vitamins and carbohydrates improves the mechanical properties of the bone in the earlier part of the chicks life.

Limitation

1. Requirement of skilled persons to carry out this technology
2. Time consuming process
3. Commercial interventions are not up to the expected level
4. Lack of automation
5. Lack of Facilities, equipment availability and cost

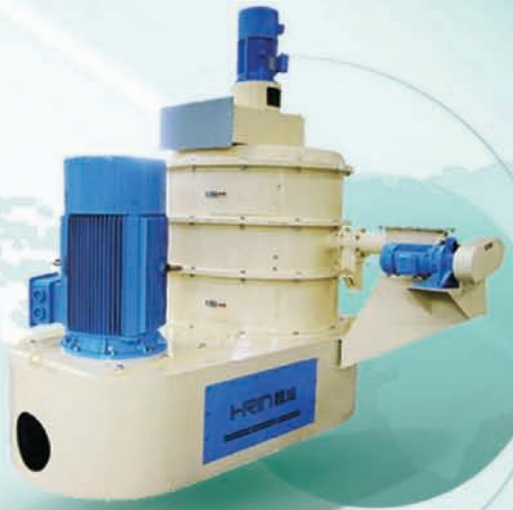
Future Potential

Further research is required to adapt *in-ovo* feeding technique for application at commercial scale in farm conditions, to understand the embryonic development and nutrient metabolism process more precisely, and understand how early nutrition affects specific genes responsible for performance, intestinal health, and overall health-related traits in poultry.

Conclusion

The degree of response to in ovo feeding may depend upon genetics, breeder hen age, and egg size and incubation conditions.The in ovo injection of important nutrients or substances into the amnion is a novel way to feed critical dietary components to embryos. Indeed, in ovo feeding may "jump-start" development, improving the nutritional status of the perinatal chick. The in ovo feeding technique has several advantages, including improvements of total digestive tract capacity; increased body weight, growth rate, and feed efficiency; reduction of post-hatch mortality and morbidity; improvements in the immune system and the response to enteric antigens; reduction in incidence of developmental skeletal disorders; and increase in muscle development and breast meat yield. The next step in the early nutrition could be to imprint genes of a bird at a very early age and turn it into a more efficient animal later.

Professional Feed Machinery Manufacturer



Hengrun SWFL Series Vertical Pulverizer

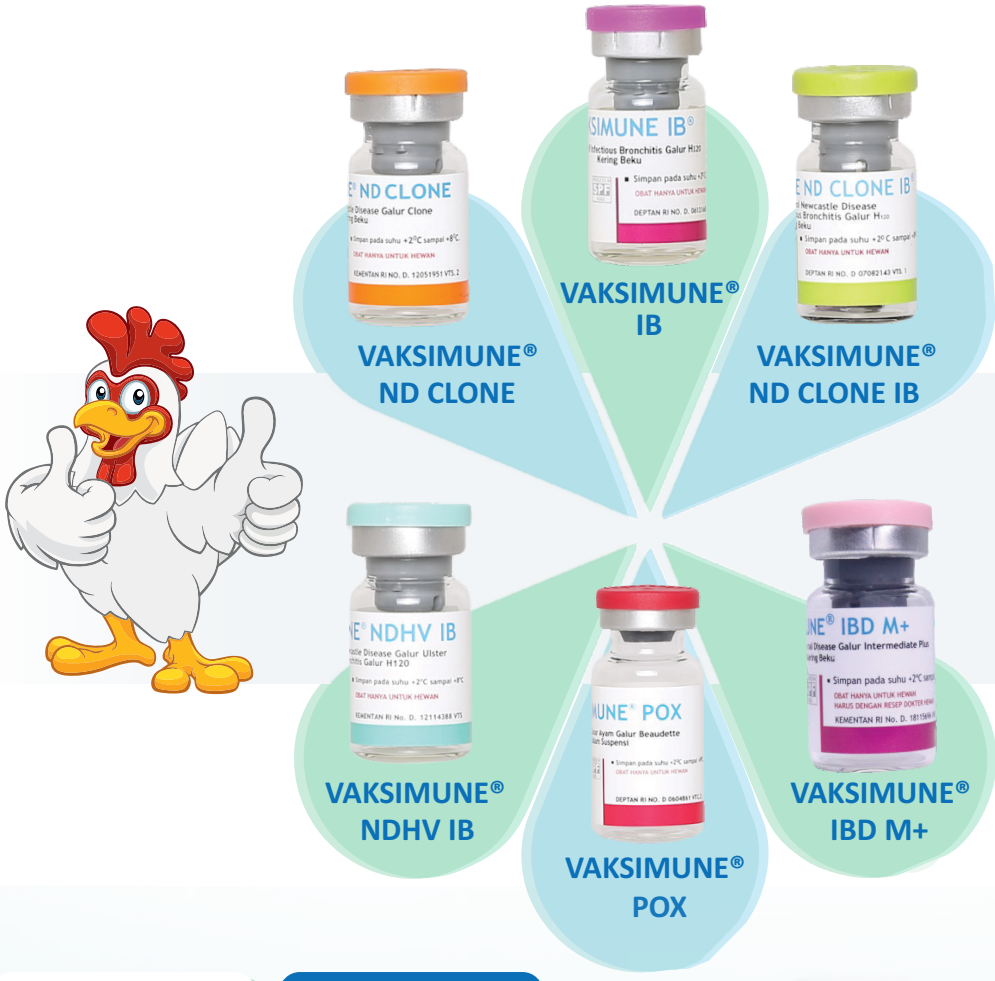
Vertical shaft with no-screen grinding, Bearing no maintenance. The production is uniform and the fineness is adjustable (Range from 40~200 mesh.)

Hengrun HRYTZ Series Vacuum Sprayer

Totally enclosed spraying space, Precision & Efficient spraying proportion widely ranged from 2%-30%.

FORTHCOMING PRODUCTS

vaksindo



High degree of safety.

Propagated in SPF

Does not exhibit any side effect.

Long lasting stability.

BEING EFFECTIVE IS GOOD ALWAYS

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