

POULTRYLINE



Readership — Poultry Wide

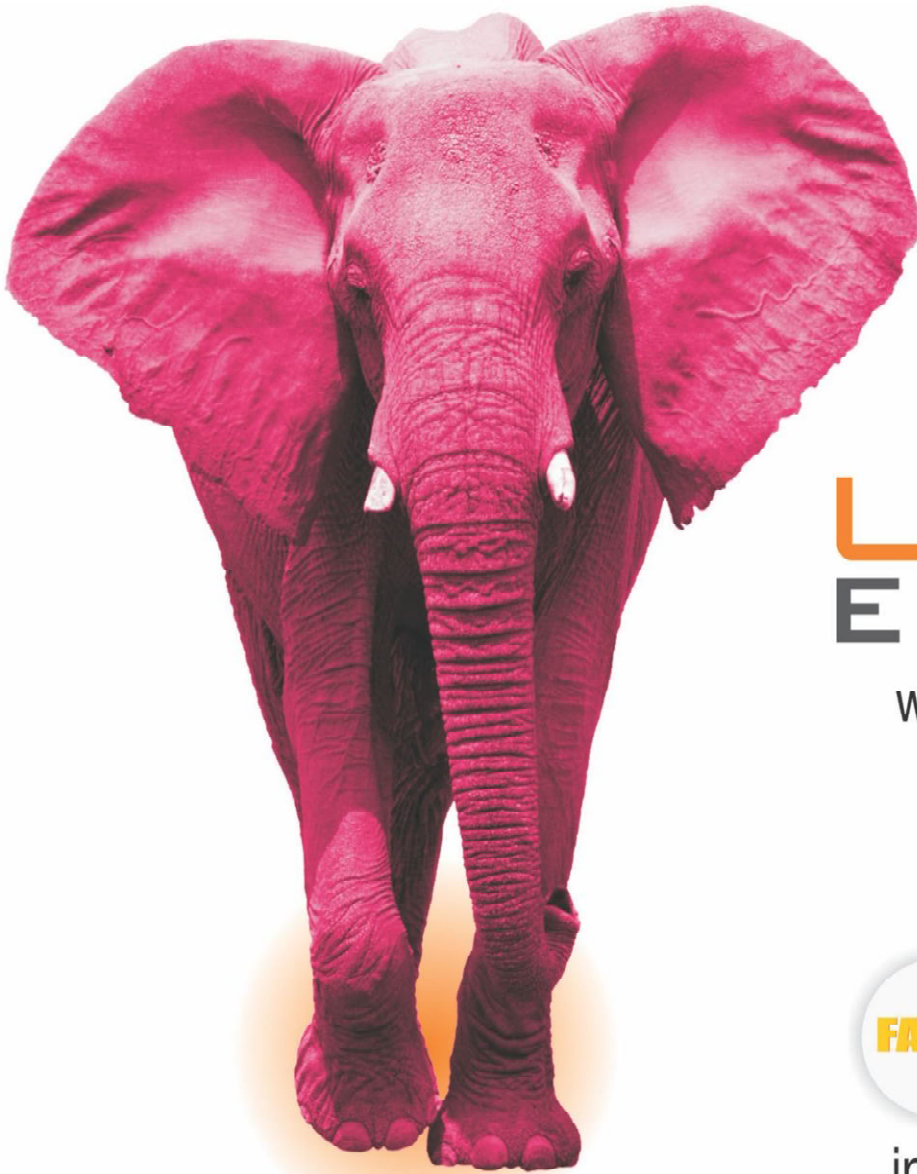
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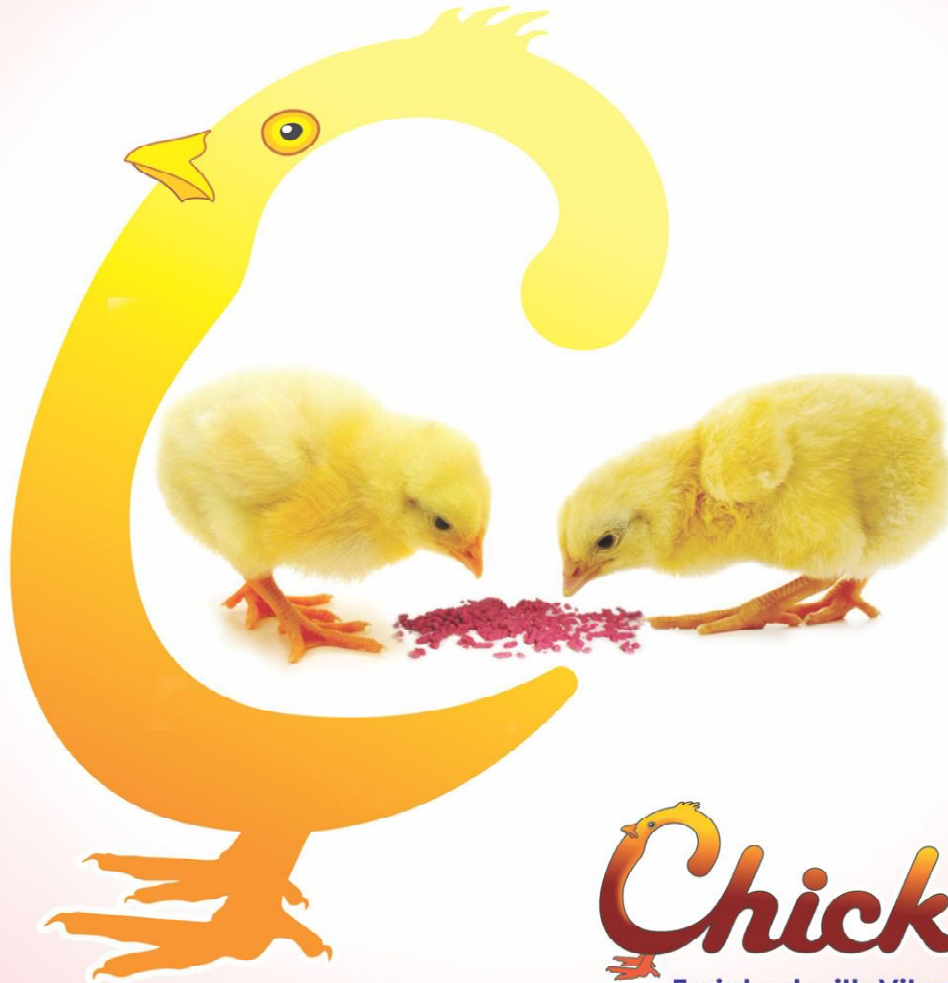
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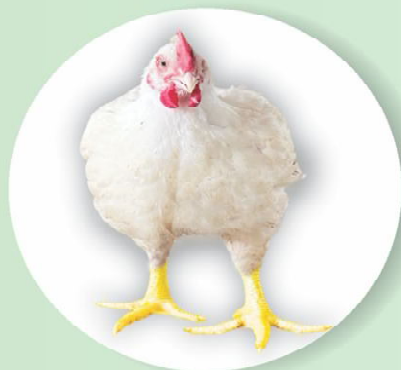
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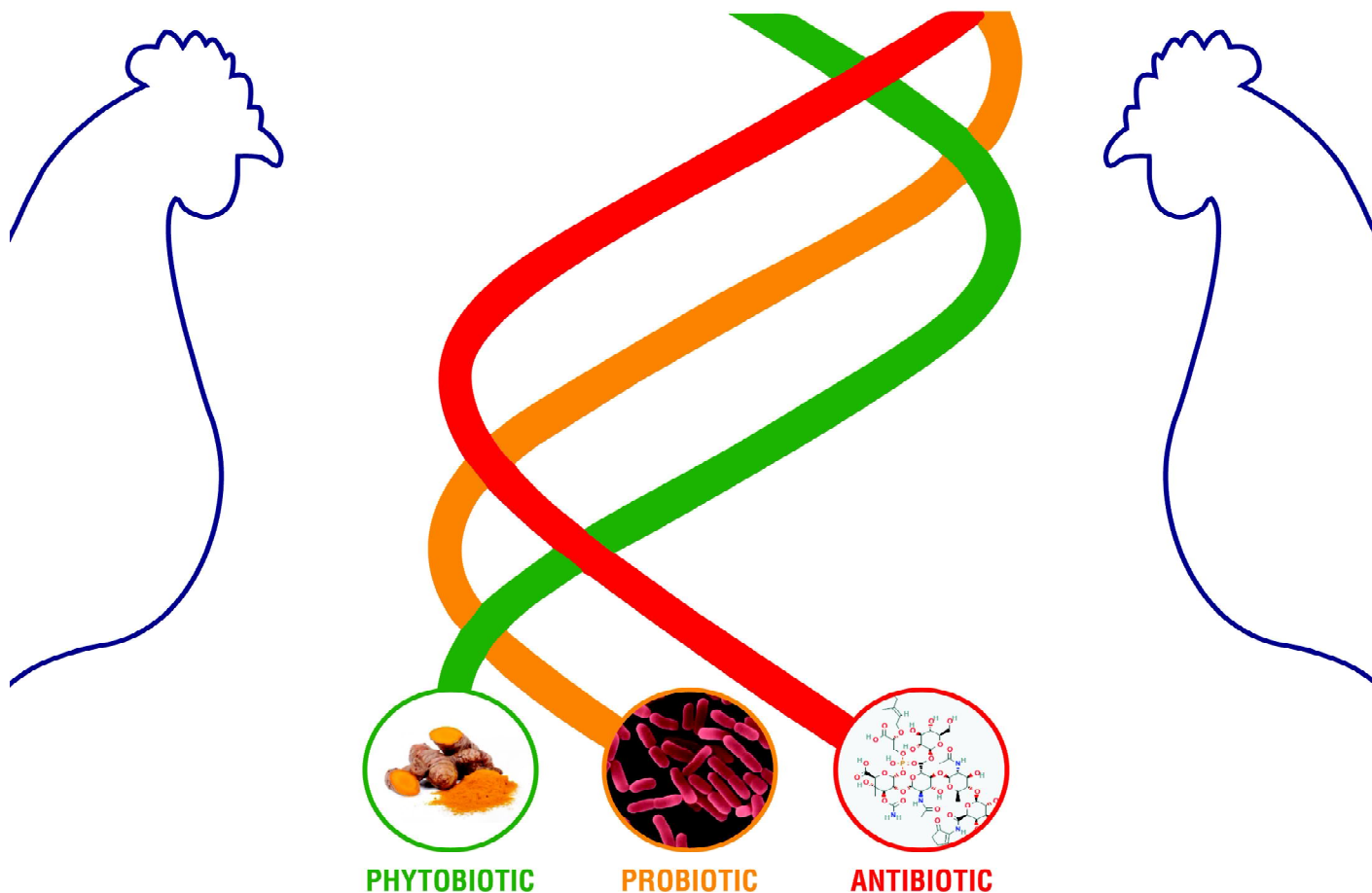


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A close-up photograph of a white chicken in a wire cage. The chicken is looking down towards a pile of yellow feed pellets. The background is slightly blurred, showing other chickens in the cage.


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1. Botero LA, Fernandez R, Rojo F, Orrego JC, Lemiere S. Colombian chicken meat industry performance further to the use of VAXXITEK® HVT + IBD vector vaccine. Oral presentation. 16th congress of the World Veterinary Poultry Association, Marrakesh, Morocco, 2009; p169.
2. Godinho E, Pereira CJ, Fernandez A, Lemiere S. Case study of broiler chicken carcass condemnation in Brazil – Improved control using a herpesvirus turkey-infectious bursal disease (HVT-IBD) vector vaccine. Oral presentation. XVIIIth Congress of the World Veterinary Poultry Association, Cancun, Mexico, 2011.
3. Ganjity A. The effect of vectored HVT+IBD (VAXXITEK® HVT + IBD) vaccination on body weights, uniformity and virus shedding in commercial broilers. Abstract. International Poultry Scientific Forum, Atlanta, 2011; p31.
4. Fernandez R, Rojo F, Garcia H, Sanchez P, Martinez H, Menendez A, Ruiz H et al. Field efficacy in broiler chickens in Latin America of VHV1-013, a Marek's HVT vector vaccine expressing VP2 in infectious bursal disease virus. Oral presentation and abstract at the 15th congress of the World Veterinary Poultry Association, 2007; p199.

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Technical seminars in Ajmer & Kurushetra



Dr. Prakash Reddy Ajmer Layer Farmer Meeting 2021

Venworld conducted technical seminars in Ajmer & Kurushetra on 8th & 14th December 2021. The speakers were **Dr. Prakash Reddy**, DGM, Technical Services-All India, **Dr. Sunil Nadguada** DGM-Technical services ALL India & **Dr. H. K. Rohilla** DGM-Venco Technical Services -North India

Dr. Prakash Reddy highlighted the current disease challenges in poultry and their strategies to control.

He started with the lessons to be learnt by the poultry industry from the COVID-19 pandemic, which includes:

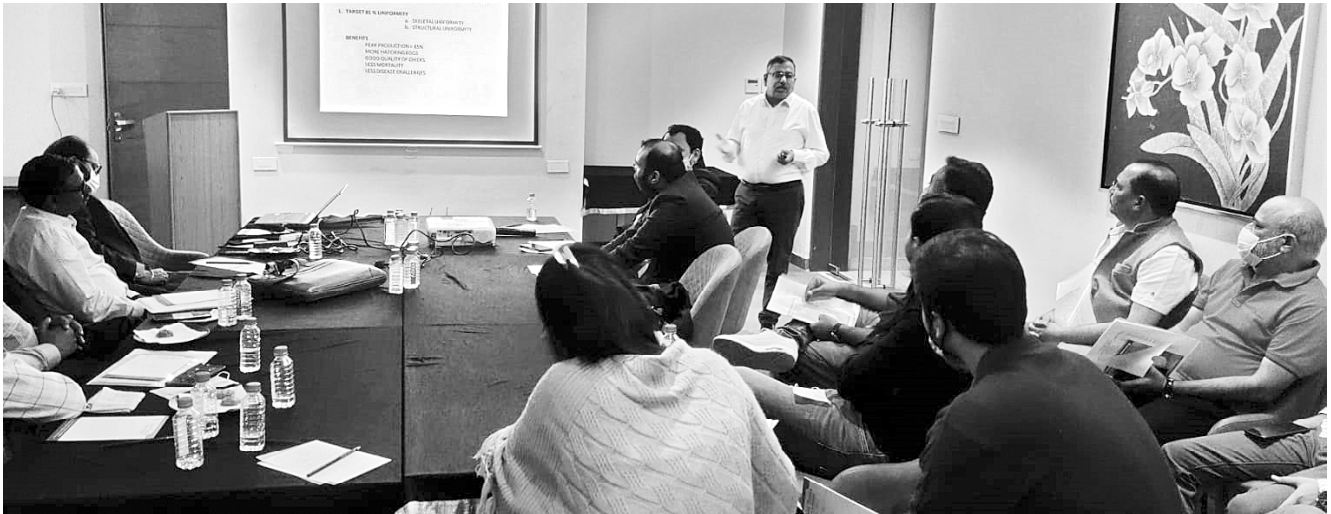
1. The sensitivity of poultry industry to react to rumors, without checking the facts about zoonotic diseases.
2. Biosecurity: Lockdown (curfew), sealing of State and National borders, Quarantine, Masking, Social distancing etc. to reduce the spread of the virus.



Ajmer Layer Farmer Meeting 2021



Breeder Farmer Ajmer



Dr. Rohilla Ajmer Breeder

3. Age resistance.
 4. Susceptible population with co-morbidities complicating the disease condition.
 5. Importance of the next generation diagnostics with respect to accuracy and speed of diagnosis.
 6. Virus variation creating a moving target.
 7. Vaccines and vaccination:
 - a. Challenges with the vaccine production and technology.
 - b. Herd immunity by vaccination to reduce the spread of the virus and emergence of variants.
 - c. Vaccine safety and efficacy.
 - d. Limitations of vaccines in preventing the disease, but not infection.
 - e. Speed of Vaccination coverage.
- Further, correlated the challenges with the poultry corona viruses (Infectious bronchitis virus) variations in India and the novel strategies to control.



Breeder Ajmer



Breeder Farmer Meeting Ajmer- Dr.Prakash Reddy



Mr.H.S. Padda Ajmer Breeder Farmer



Dr. Prakash Reddy - Ajmer



Dr. Prakash Reddy, Kurushetra

A comprehensive approach to control Respiratory disease complexes, specially related to control of Mycoplasmas.

Lastly, Immunosuppressive diseases related to IBD and CAV were thoroughly discussed during the sessions.

Dr. H. K. Rohilla threw light on “ How to achieve peak and persistent production in broiler breeders” wherein he highlighted the management /nutritional practical tips to be followed in order to prevent the issues faced in various stages of a broiler breeders life viz. Brooding, Growing, Pre-lay and laying phase like:

1. Tips to maintain proper uniformity of the flock.
2. Importance of precise feed formulations.
3. Intussusception issue in growers and preventive measures to be followed.
4. Precautions to be followed during pre-lay period.



Dr. Sunil Nadgauda, Kurushetra

5. Calcium tetany and its remedy/preventive measures.

6. Role of ND & IB vaccination in broiler breeders

Dr. Sunil Nadgauda presented on “Optimizing layer nutrition and management for better productivity and profitability”

1. Essential for good egg production like nutrition, management and health.
2. Important nutrient consideration for optimizing layer hen productivity.
3. Regular management practices like feeding, lighting, body weight and uniformity were discussed in detail.
4. Importance of pullet development and their body weight at point of lay.
5. Fulfilling precise nutrient requirement is very essential for optimizing production.

Manufacturing of feed in easy and simple way with Venky’s 5% layer composite premix was discussed. Venky’s 5% Eggxtra layer composite premix helps to optimize cost and improve overall health and productivity of the laying hens.

Broiler breeder, Layer Customers and technical persons attended the seminar and appreciated the information. Mr. Harjit Padda, DGM, Marketing North Zone welcomed the customers.

Mr. Shashibushan Zonal Manager North Zone 3, gave the vote of thanks .All the technical & other sales r team participated in the meeting.



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

Mumbai, 15th February 2022: 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.

For any media queries, please contact, marcom@sugunafoods.com
18001034343

Royal DSM releases latest annual DSM Mycotoxin Survey results

Royal DSM, a global, purpose-led company in Health, Nutrition & Bioscience has released latest annual DSM Mycotoxin Survey results *detailing the occurrence of fungal metabolite contaminants in feed crops and the potential risks to farm animals worldwide.*

Health, nutrition and bioscience expert DSM has unveiled its mycotoxin survey results of over 112,000 analyses conducted on more than 24,000 samples of animal feed ingredients collected from 75 countries in 2021.

Overall, mycotoxin-related threats to animal protein production remain high compared to last year. Globally, the average risk level was 62%—meaning that nearly two-thirds of samples had at least one mycotoxin above recommended levels. On a regional basis, calculated risk levels ranged from a moderate 44% in whole of Europe to a high of 79% in Asia.

Main regional trends

- North American corn (maize) shows slightly increased concentrations of deoxynivalenol and fumonisins while showing the same high prevalence as in 2020.
- Deoxynivalenol levels are the main potential threat in the European cereal harvest; Western and Southern Europe are the most affected areas. The prevalence of T-2 toxin increased in Northern Europe as did the prevalence of aflatoxins in Southern Europe.
- Asia Pacific faces a heightened risk of mycotoxins overall and aflatoxins remain a problem in this region. An increase in the abundance of Ochratoxin A and T-2 toxin has been observed.
- In Latin America, fumonisins are still the most prevalent mycotoxin in corn. While we observed a slight decrease in concentration levels of fumonisins in South American corn, deoxynivalenol levels increased.
- In Middle East and North Africa Fusarium mycotoxins are highly prevalent. Deoxynivalenol is a main concern in Sub-Saharan Africa.

Anneliese Mueller, Product Manager Mycotoxins, DSM Animal Nutrition and Health stated:

“Mycotoxins compromise animal health and gut integrity, increasing the probability of lower health status, poor performance and inefficient use of resources. Having a clear and accurate view of feed contaminants enables the industry to take appropriate countermeasures and improve profitability, animal health, welfare and sustainability.”

“Risk levels conveyed in the findings indicate the likelihood that farmers confront mycotoxin contamination in the feed. Looking at the latest results, it would be wise for producers everywhere to vigilantly monitor raw commodities and feed for mycotoxin contamination, and to adopt a robust mycotoxin risk management program.”

About the survey

The annual DSM Mycotoxin Survey (formerly the BIOMIN Mycotoxin Survey) constitutes the longest running and most comprehensive data set of fungal metabolite occurrence in animal feed ingredients. The survey results provide insights on the incidence of the six major mycotoxins in the agricultural commodities including corn (maize), wheat, soy, barley, rye, oats, rice, sorghum, millet and their by-products that are used to feed farm animals, notably poultry, swine, ruminants and aquaculture.

For more information please visit: www.dsm.com/anh

Royal DSM is a global, purpose-led company in Health, Nutrition & Bioscience, applying science to improve the health of people, animals, and the planet. DSM's purpose is to create brighter lives for all. DSM's products and solutions address some of the world's biggest challenges while simultaneously creating economic, environmental, and societal value for all its stakeholders – customers, employees, shareholders, and society at large. DSM and its associated companies employ approximately 23,000 people around the world and deliver annual net sales of about €10 billion. The company was founded in 1902 and is listed on Euronext Amsterdam. More information can be found at www.dsm.com.

NATIONAL EGG CO-ORDINATION COMMITTEE

DAILY / MONTHLY EGG PRICES DECLARED BY NECC AND PREVAILING PRICES AT VARIOUS PRODUCTION CENTRES (PC) AND CONSUMPTION CENTERS (CC) FEBRUARY 2022

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	NECC Prices																													
Ahmedabad	476	483	490	490	490	475	465	465	455	450	450	450	450	450	452	454	454	454	440	440	415	415	415	395	395	398	400	400	445.39	
Ajmer	452	458	460	460	445	430	425	405	405	395	391	391	391	450	400	400	400	390	370	355	355	350	350	343	343	346	351	-	397.04	
Barwala	454	458	460	460	447	435	430	410	410	410	395	395	395	395	398	398	398	385	385	370	360	360	360	345	345	348	351	351	397.25	
Bengaluru (CC)	475	475	485	485	485	485	470	455	455	440	440	430	430	435	435	435	435	435	435	435	425	415	415	405	390	390	390	390	438.04	
Brahmapur (OD)	446	459	467	467	467	467	454	437	432	427	427	417	417	417	417	423	423	423	413	413	413	378	378	373	363	369	375	375	419.18	
Chennai (CC)	485	485	485	485	485	485	478	478	470	470	450	450	450	450	450	450	450	450	450	450	440	440	440	440	425	425	410	410	455.18	
Chittoor	478	478	478	478	478	478	478	478	463	463	443	443	443	443	443	443	443	443	443	443	443	433	433	433	418	418	403	403	448.18	
Delhi (CC)	477	477	477	477	477	467	467	460	455	430	430	430	425	425	425	425	425	425	410	400	390	380	380	380	365	365	370	370	423.11	
E.Godavari	427	439	446	446	446	446	446	435	420	415	405	405	405	405	405	408	408	408	398	398	398	365	365	355	345	350	355	355	402.07	
Hyderabad	423	430	433	433	433	420	410	400	400	385	385	385	388	388	392	395	395	395	385	370	360	360	340	330	335	340	340	340	384.89	
Ludhiana	454	454	459	459	454	451	441	436	422	411	411	402	402	396	396	399	399	399	383	371	366	356	356	346	346	346	348	348	400.75	
Mumbai (CC)	481	488	495	498	498	498	485	475	465	465	450	450	450	450	453	457	460	460	450	450	429	429	419	410	400	400	400	405	453.14	
Muzaffarpur (CC)	505	505	505	505	505	495	486	476	462	457	457	452	448	448	452	448	448	448	438	433	429	429	419	410	400	400	400	405	450.79	
Mysuru	470	470	470	480	480	480	480	465	455	440	440	430	430	435	435	435	435	435	435	435	425	425	400	400	385	375	375	-	427.78	
Nagpur	460	467	483	475	475	450	450	445	435	425	415	415	415	415	415	435	435	435	430	425	425	400	400	405	405	380	380	380	432.86	
Narmakkal	460	460	470	470	470	470	460	460	460	440	440	425	425	425	425	425	443	443	430	430	430	430	405	405	400	400	400	400	444.54	
Patna	490	500	500	500	495	495	486	476	452	452	452	448	443	443	443	443	443	443	424	419	419	405	405	400	400	400	400	400	444.54	
Pune	485	490	495	500	500	500	490	480	470	465	455	455	455	455	455	457	459	460	445	435	420	410	410	395	385	390	395	395	450.39	
Ranchi (CC)	500	505	505	505	505	500	490	481	471	467	462	457	452	452	462	457	457	452	448	438	438	429	424	414	410	410	410	410	457.54	
Vijayawada	437	449	456	456	456	456	445	430	425	415	415	415	415	415	415	418	418	418	408	408	408	375	375	365	355	360	365	365	412.07	
Vizag	440	450	455	455	455	455	440	425	425	425	425	425	425	425	425	425	425	425	410	410	410	400	400	375	375	375	375	375	418.93	
W.Godavari	427	439	446	446	446	446	446	435	420	415	405	405	405	405	405	408	408	408	398	398	398	365	365	355	345	350	355	355	402.07	
Warangal	425	432	435	435	435	422	412	402	402	387	387	387	387	390	394	397	397	387	387	372	362	362	342	332	337	342	342	342	386.89	
Prevailing Prices																														
Allahabad (CC)	486	490	490	486	486	481	476	467	462	457	448	438	438	438	443	443	438	433	429	419	419	410	405	395	390	390	390	390	440.61	
Bhopal	460	465	470	470	470	470	455	445	435	425	415	415	415	415	415	425	427	427	415	405	405	390	380	370	-	370	-	370	424	
Hospet	435	435	435	445	445	445	430	415	415	400	400	390	390	395	395	395	395	395	395	395	385	375	375	365	350	350	350	350	398.04	
Indore (CC)	460	460	470	460	460	460	455	445	440	440	425	420	410	420	420	420	425	425	415	400	395	380	380	370	-	380	-	375	420.96	
Jabalpur	463	466	467	467	467	467	455	442	442	432	432	418	420	421	421	426	428	428	418	418	402	390	385	370	370	362	362	364	417.86	
Kanpur (CC)	476	490	490	490	476	467	457	448	448	438	429	429	429	429	429	433	433	433	429	414	414	395	395	381	381	381	381	381	429.93	
Kolkata (WB)	508	520	523	523	523	523	523	483	483	483	468	468	475	475	475	480	480	480	480	480	440	440	440	425	-	430	440	440	476.15	
Luknow (CC)	507	507	507	507	507	500	500	493	487	487	477	477	470	467	467	467	460	460	450	450	437	430	423	423	423	413	413	413	464.46	
Raipur	457	465	467	467	460	460	448	443	430	430	425	425	425	425	433	433	433	435	419	405	390	380	365	365	-	355	-	360	424.81	
Surat	480	490	495	497	497	485	485	475	465	465	450	450	450	450	452	455	455	455	440	440	440	400	400	400	400	400	400	400	448.25	
Varanasi (CC)	507	510	513	513	500	500	500	493	493	483	477	467	450	450	460	460	460	460	450	450	433	433	417	417	417	407	413	417	417	460.96



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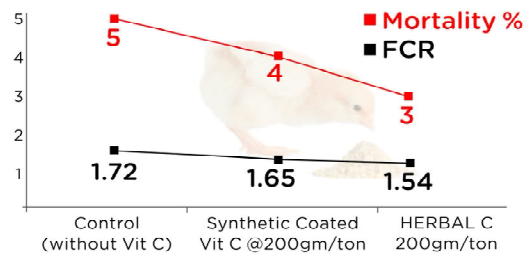
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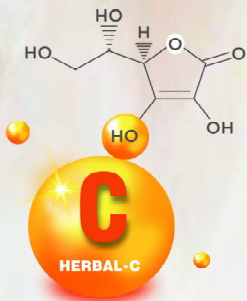
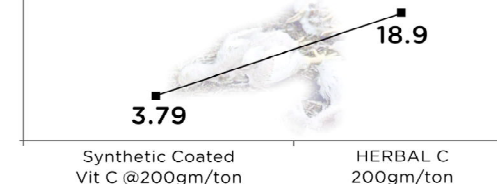
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Government Committed for the growth of Poultry & Livestock Sector through Special Funds and Financial Assistance

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.



Ricky Thaper

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 Union Finance minister Smt. Nirmala Sitharaman 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.

New Aviagen Document Series Delves into Topical Industry Subjects

Jan.28, 2022 –UDUMALPET, India – Aviagen®has recently launched a “Focus” document series, presenting customers with a deep dive into hot topicsrelevant 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 subjectseries 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 subjectbackground, and then walks the reader through topical highlights, opportunities and challenges, sharing helpfulknowledge 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](http://www.aviagen.com) (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.

For more information, please visit Aviagen.com, or follow Aviagen on [LinkedIn](#).

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Stress in Poultry

Dr Manoj Kumar Dev Sarma, Dorector, Bhuvana Nutribio Sciences. www.bhuvanans.com

Stress means "Pressure, Burden or Compulsion when much energy is required." Stress is a condition where the body is not able to maintain normal body functions. This is found invariably that birds are always under stress specially in Indian Open Farming model & comes across a large number of stressor during their lifetimes like Seasonal, Climate, Management, Production & Others. This leads to huge economic losses. Stress is major hidden enemy.



Dr Manoj Kumar
Dev Sarma,

Birds are having various stress factors in everyday life like-

1) Adverse Environment

2) Management Stress

- a) Vaccination
- b) Medication
- c) Transportation
- d) Frequent handling
- e) Beak trimming
- f) Overcrowding of birds

3) Management problemsa)

- a) Handling for the purpose of weighing & moving
- b) Pecking/cannibalism
- c) Wet litter/Ammonia

4) Poor quality feeds

- a) Imbalanced diets
- b) Feeds containing toxins
- c) Inadequate intake

5) Inadequate measures for health

- a) Lack of biosecurity
- b) Poor hygiene
- c) Poor water quality
- d) Disease stress

The adverse effects of Stressors are additive and need to reduce the number and intensity of these stressor in all poultry operations.

Technically, Stress leads to increased Corticosterone levels (Stress hormone) which is release by Adrenal gland in the blood that results in rapid release of glucose into the blood resulting in

depletion of Glycogen. The Respiratory rate is changed. There is alteration of Ph levels in intestine which upset the balance of microflora in the gut. The Increased blood glucose occurs as body wants to conserve energy to fight any sudden requirements of energy by vital organs like brain, heart and kidney.

Due to higher blood glucose levels birds does not feel hungry and reduces feed

intake. Longer duration of stress affects immunity and hamper metabolism of Carbohydrate, Protein, Fat and Minerals. Finally, birds directly suffered with egg production and body weight gains.

Improvisation of stress through Nutrition-

1) Energy - Increase the energy content of diet.

2) Protein - Balancing amino acids

3) Calcium and Phosphorus - Increase calcium intake & maintain Ca:Ph ratio

4) DEB - Maintain appropriate DEB ratio as per region and season

5) Osmoregulators/ Stress Balancers/ Electrolytes/Buffering agents/ Supportive agents

6) Vitamin C - Synthesis of vitamin C is not constant. The ability of kidneys to synthesize vitamin C changes with age, management, environment, disease, nutrition and stress. This is why supplementation of coated vitamin C is must.

7) Antipyretic - Salicylic acid, Aspirin in diets are helps as antipyretic.

This helps in maintain body temperature and supplementation in diet of heat stressed birds improved performance as well as welfare.

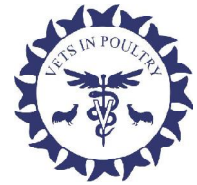
8) Chromium - Helps to maintain hormonal balance by managing stress hormone and energy uptakes

9) Betaine - Good quality betaine manage Osmoregulation and combat stress

10) Changes in feeding practices

a) Early feeding and in late hours of the day

b) Stored feed for a week in hot and humid climates.



Pleaded Amendments in Bird Flu Guideline from Vets In Poultry (VIP)

“**Vets In Poultry (VIP)**” a association having more than 900+ members who are working closely with Indian poultry farming. We being technocrats working closely with poultry farmers feel that a few amendments in GOI guidelines to contain, prevent and control bird flu outbreak are required to strike out balance between livelihood of the poultry farmers and food security as well. Please find enclosed a detailed letter about international guidelines, GOI guidelines vis a vis our recommendations for your kind consideration and further action.

We strongly request GOI to consider Vets in Poultry (VIP) as a worthy body to discuss matters related to Poultry. We are open for discussion and remain at your disposal.

We make open appeal to poultry sector, to join with VIP for this needful task and continue your support hence for any such activity. We'll be happy to receive your suggestions on below mention details.

To,
Shri Narendra Modi,
Hon'ble Prime Minister of India, New Delhi.

Subject: - Recommendations from “Vets In Poultry” (VIP) association for the prevention, control, and containment of “Bird Flu”

Respected sir,

Vets in Poultry (Veterinarians working in poultry farming) is an association of veterinarians working in poultry farming across the country with more than 900 + members. The members of the association include experienced pathologists, geneticists, microbiologists, nutritionists, academics and zoonotic disease specialists, and poultry entrepreneurs.

Veterinarians contribute to all the departments of poultry farming, and poultry farming employs more than 5000 veterinarians in the country including Pharmaceuticals related to poultry. Apart from the

veterinarians, many skilled and unskilled laborers are direct dependents of the poultry sector. The maize, soya bean, rice, wheat, and mustard-growing farmer's economy depends on the poultry sector too as 70% of the maize and soya bean de-oiled cake produced is consumed by the poultry sector. Poultry farming is an agro-allied activity and is an important element of the livelihoods of poor farming communities.

The objective of this proposal is to provide sound technical inputs and policy advice by following OIE and other international guidelines in order to harmonize poultry farming in India.

We appreciate the government's intentions and efforts to contain the recent Bird flu outbreak. We would like to bring to your notice that there is a gap between OIE and GOI guidelines. We also believe that a few amendments in these guidelines will help poultry farmers who are already struggling to survive after the Covid crises.

Please find below our 6-point agenda in line with existing GOI and OIE guidelines and our proposed recommendations for your kind perusal and necessary action

1.Notification of outbreak –

1. Government of India guidelines - The State would notify the disease and immediately carry out all control and containment measures after getting the positive report for the samples from NIHSAD, Bhopal. (Annexure I, Page 3, Chapter 3, Para 3 of Action Plan for Prevention, Control & Containment of Avian Influenza - Revised – 2021)

1.2 OIE guidelines – As per OIE guidelines, it is necessary to assess the pathogenicity of influenza A virus isolates for domestic poultry. Although all naturally occurring “highly pathogenic avian influenza” strains isolated to date have been either of the H5 or H7 subtype, most H5 or H7 isolates have

been of low pathogenicity. The methods used for the determination of strain virulence for birds have evolved over recent years with a greater understanding of the molecular basis of pathogenicity, but still primarily involve the intravenous inoculation of a minimum of eight susceptible 4- to 8-week-old chickens with an infectious virus; strains are considered to be highly pathogenic if they cause more than

75% mortality within 10 days, or inoculation of 10 susceptible 6-week-old chickens resulting in an intravenous pathogenicity index (IVPI) of greater than 1.2.

Characterization of suspected highly pathogenic strains of the virus should be conducted in a virus-secure biocontainment laboratory. (Annexure-II, OIE Avian Influenza Manual, Chapter 3.3.4, page 1, para 4)

1.3 Proposed recommendation – To understand the virulence of the virus, we recommend following the OIE guidelines of intravenous pathogenicity index (IVPI) before declaring HPAI.

Rationale - Most H5 or H7 isolates from the field have been of low pathogenicity.

2. Infected zone & culling of birds –

2.1 Government of India guidelines - The area within one km from the site of confirmed AI will be designated as “Infected Zone”. The rest of the area within 10 km is the “Surveillance Zone”.

(Annexure I, Page 3, Chapter 3, Para 5 of Action Plan for Prevention, Control & Containment of Avian Influenza - Revised – 2021)

Stamp out all the live poultry birds/ other captive birds within the infected zone.

(Annexure I, Page 28, Chapter 3, Para 3 of Action Plan for Prevention, Control & Containment of Avian Influenza - Revised – 2021)

2.2 OIE guidelines –

When outbreaks are detected, stamping out is generally applied at the level of the infected farm or within a short radius around the infected premises in conjunction with active surveillance.

(<https://www.oie.int/en/animal-health-in-the-world/avian-influenza-portal/prevention-and-control/>)

2.3 Proposed recommendation –

i. Birds found positive for HPAI from infected flock should be depopulated.

ii. Healthy birds in the infected zone should not be destroyed merely on suspected grounds. Sero-surveillance of poultry birds within 1 km of the epicentre should be conducted, and if tested negative should not be culled and allowed for sale.

iii. Feed should not be destroyed under the assumption that it might be infected but rather alternative method like fumigation should be adopted

3. Movement of the poultry birds, feed, medicines, and equipment –

3.1.GOI guidelines - Absolute ban on movement of poultry, closure of poultry and egg markets/shops, restrict access to wild and stray-birds, restriction of movement of persons & vehicles, destruction/culling of birds in the infected zone, disposal of dead birds, destruction of infected materials, cleaning and disinfection of farm premises and farm implements (commercial and backyard Poultry), implementation of the Post Operation Surveillance Plan (POSP), declaration of freedom status and repopulation of birds in the infected zone, etc.

(Annexure I, Page 3, Chapter 3, Executive summary section of Action Plan for Prevention, Control & Containment of Avian Influenza - Revised – 2021)

3.2 OIE guidelines - Strict quarantine and controls on the movement of poultry and any potentially contaminated vehicles and personnel;

(<https://www.oie.int/en/animal-health-in-the-world/avian-influenza-portal/prevention-and-control/>)

3.3 Proposed recommendation –

3.3.1. Movement of poultry feed, medicine, and vaccines should be allowed in infected as well as surveillance zone.

3.3.2. Sale and transportation of healthy birds and eggs should be allowed in the alert zone only if tested negative for HPAI.

3.3.3. Marketing of birds/chicks/eggs through hawkers, vendors, etc. should be allowed in the alert zone and surveillance zone for uninterrupted supply to consumers.

3.3.4. Movement of poultry feed, medicines, and vaccines should be allowed in the alert & surveillance zones.

Rationale – If the supply of poultry feed, medicines, vaccines and equipment is interrupted, healthy birds may die of starvation and other health issues and this will lead to further economic losses to poultry farmers.

4. Restocking –

4.1 GOI guidelines - Farmers may re-start poultry production and marketing 90 days after the release of the sanitization certificate.

(Annexure I, Page 34, Chapter 4, Para 2 of Action Plan for Prevention, Control & Containment of Avian Influenza - Revised – 2021)

4.2 OIE guidelines – As per OIE restocking can be done after a period of 21 days

4.3 Proposed recommendation – Restocking should be allowed 21 days after thorough disinfection of the infected premises as per OIE guidelines.

Rationale – Ensures a quick revival of livelihood of the farmers who have to repay bank loans, farm labour salaries, etc.

5. Compensation –

5.1 GOI guidelines – For Maharashtra state

- For layer bird up to 8 weeks – Rs 20/- per bird
- For layer bird above 8 weeks – Rs 90/- per bird
- For broiler bird up to 6 weeks – Rs 20/- per bird
- For broiler bird above 6 weeks – Rs 70/- per bird
- For table eggs – Rs 3/- per egg
- For poultry feed Rs 12/- per kg
- Breeder pullet up to 24 weeks – not mentioned
- Breeder pullet above 24 weeks – not mentioned
- Breeder hatch able eggs – not mentioned

5.2 OIE Guidelines - Systems of financial compensation of farmers and producers who have lost

their animals as a result of mandatory culling ordered by national authorities vary around the world.

5.3 Proposed recommendation –

Limited access to compensation funds and inefficient payment mechanisms discourage farmers from reporting suspicious disease occurrences. Current compensations offered for culling poultry birds by GOI are meagre and not as per actual expenses incurred for all mentioned poultry birds, eggs, and feed items.

We recommend the below compensation as per actual field costing because poultry farmers not only purchase poultry bird at the substantial price, but also incur other costs in rearing and maintaining birds such as feed, medicine, vaccine, labour, bank interest, and other overheads.

- For layer bird up to 8 weeks – Rs 208/- per bird
 - For layer bird above 8 weeks – Rs 381/- per bird
 - For broiler bird up to 6 weeks – Rs 140/- per bird
 - For broiler bird above 6 weeks – Rs 160/- per bird
 - For table eggs – Rs 5/- per egg
 - For layer feed Rs 25/- per kg
 - For broiler feed Rs 30/- kg
 - Breeder pullet up to 8 weeks – Rs 2326/-
 - Breeder pullet above 16 weeks – Rs 2466/-
 - Breeder pullet above 24 weeks – Rs 2700/-
 - Breeder hatch able eggs – Rs 18/- per egg
- (Annexure attached for detailed calculations)

6. Vaccination:

Globally vaccination has proved to be highly effective in high-risk countries. China, Indonesia, Egypt, and Vietnam implemented vaccination after H5N1 HPAI became enzootic in domestic poultry. Clinical disease and mortality have been prevented in chickens, human cases have reduced, and rural livelihoods and food security have been maintained by using vaccines during HPAI outbreaks.

In case of the vaccination re-introduction of disease is likely to happen but if this is done as per guidelines then it will be helpful.

The government should encourage the vaccination of captive (organized) and backyard birds (unorganized) both to ensure long-term control of HPAI. Avian Influenza has become endemic in many parts of India. Further migratory birds & wild birds are carriers of AI virus. So it's very essential to protect domestic poultry with strain based vaccine. OIE also suggest vaccination in endemic area where culling is not possible.

Further we are stamping out only domestic poultry in infected zone. Wild birds in infected zone remaining untouched. So these wild birds remain carriers of AI virus.

Stamping out policy is best in sporadic outbreaks but not when the virus has become endemic. Vaccination a better option in endemic area. The government should define SOP's for HPAI vaccine production and quality, conduct needs base surveillance for the status of the vaccinated flock.

The first case of HPAI in poultry had been noticed in 2006 in India, and since then (2006-2020) it has appeared multiple times in various regions and farms. We would like to bring to your notice that the occurrences were always a mix of H5 and H7 ex-

pressed as LPAI and HPAI in poultry and there isn't a single evidence of human infection or illness reported. The recent outbreak of Avian Influenza in India confirms the involvement of the H5N8 strain found in and transmitted by migratory birds.

However, time and again we observed that electronic and print media misrepresented the facts about Avian Influenza and created fear and confusion in the minds of the consumers, affecting the consumption of poultry products because of which poultry farmers incurred huge losses. We would like to request Government authorities to inform appropriate government media channels as a part of the awareness program and provide the right information to educate people.

We hope our practical suggestions will help policymakers to amend existing guidelines that will protect the interests of poultry farmers and the poultry sector of the country at large and ensure the survival of both.

Thanking you in anticipation.

Yours Faithfully,

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Vets In Poultry,
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place	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Hyderabad	100	102	102	93	87	87	87	77	82	82	85	90	98	103	110	115	115	110	105	100	90	90	90	90	90	95	97	97	102	104	109	109
Karimnagar	100	102	102	93	87	87	87	77	82	82	85	90	98	103	110	115	115	110	105	100	90	90	90	90	90	95	97	97	102	104	109	109
Warangal	100	102	102	93	87	87	87	77	82	82	85	90	98	103	110	115	115	110	105	100	90	90	90	90	90	95	97	97	102	104	109	109
Mahaboobnagar	100	102	102	93	87	87	87	77	82	82	85	90	98	103	110	115	115	110	105	100	90	90	90	90	90	95	97	97	102	104	109	109
Kurnool	100	102	102	93	87	87	87	77	82	82	85	90	98	103	110	115	115	105	105	100	90	90	90	90	90	95	97	97	102	104	109	109
Vizag	107	109	109	100	94	94	94	84	89	89	92	97	102	102	105	110	110	110	100	95	95	95	95	95	95	100	102	102	105	107	110	110
Godavari	101	103	103	94	88	88	88	78	83	83	86	91	99	104	110	115	115	110	105	100	95	95	95	95	95	100	102	102	105	107	110	110
Vijayawada	101	103	103	94	88	88	88	78	83	83	86	91	99	104	110	115	115	110	105	100	95	95	95	95	95	100	102	102	105	107	110	110
Guntur	103	105	105	96	90	90	90	80	85	85	88	93	101	104	112	117	117	112	107	100	95	95	95	95	95	100	102	102	105	107	110	110
Orgole	103	105	105	96	90	90	90	80	85	85	88	93	101	104	112	117	117	112	107	100	95	95	95	95	95	100	102	102	105	107	110	110
Namakkal	96	96	96	84	84	84	84	84	84	80	83	83	88	91	94	96	96	88	88	88	85	85	85	85	85	85	87	87	91	94	96	96

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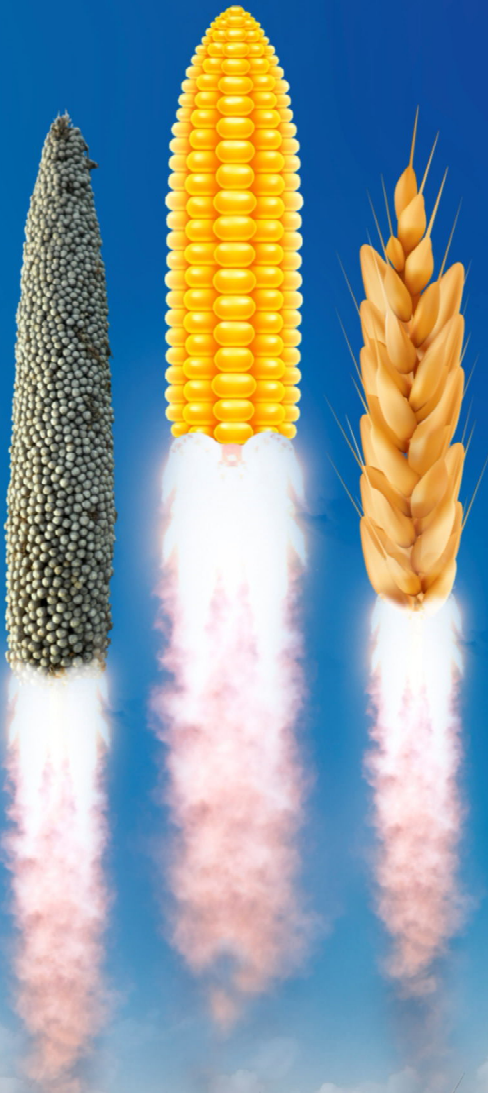
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Dose :

a) Water

- Poultry :**
- 5 -10 gm/1000 Chicks
 - 25-50 gm/1000 Kg B.Wt.
- Swine :**
- 5-10 gm/10 piglets
 - 5-10 gm/pig/day

b) Feed - 200 gm / MT

Or As Recommended by Technician

Directions for use :

Calculate total requirement of flock and administer all quantity in drinker as like vaccines dose (drinker dose)

Usage :

recommended as: 5 days in 1st week and then after 2 days every alternative week or during stress condition or any treatment/vaccine course

- **Product Pack:** 50gm & 200gm Packet
- **Carton Size:** 50gm x150 & 200gm x 50

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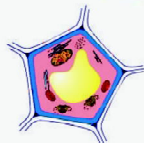
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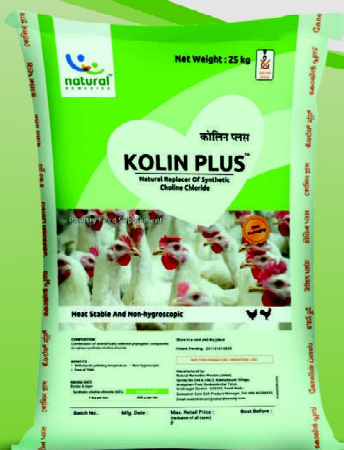


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■ Dose :

WATER - 15 gm/ till 1kg B.Wt for 1000 birds & then after 1 gm/ 100 gm B.Wt

FEED - 200 gm/MT

■ Mode of Administration :

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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:

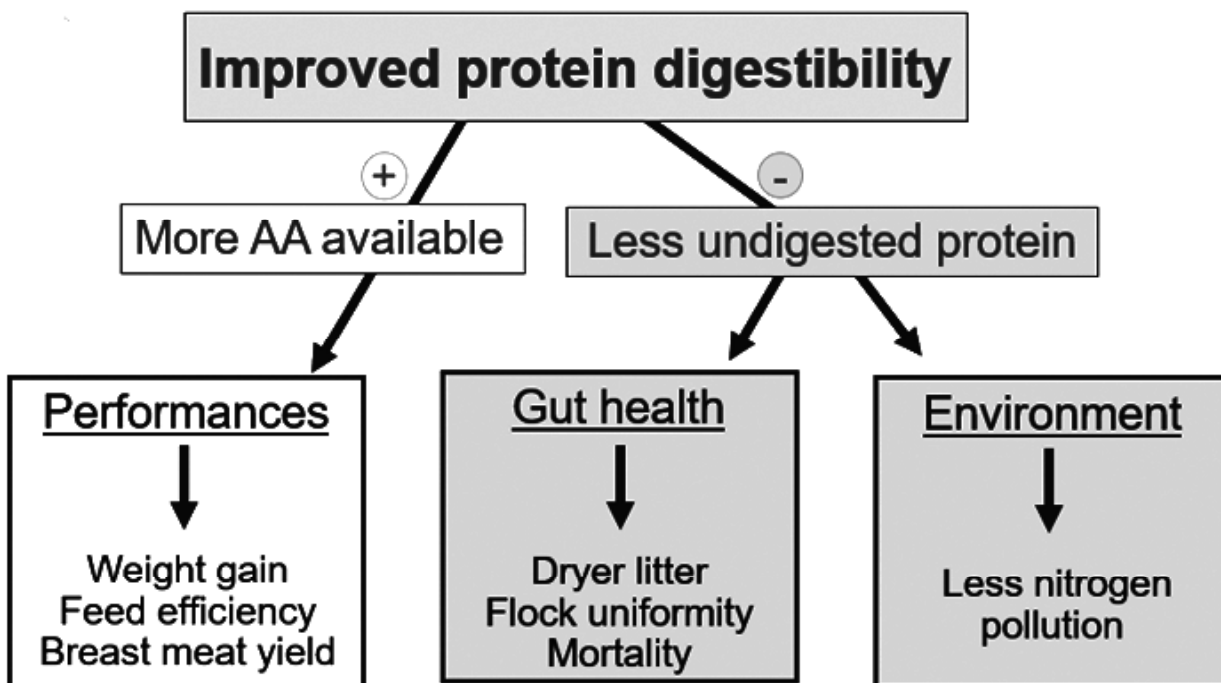
For a protease to be successful in feed it should, like any other enzyme, be selected and developed

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 subtilis* and developed for the detergent industry, with characteristics which render them less effective in feed.

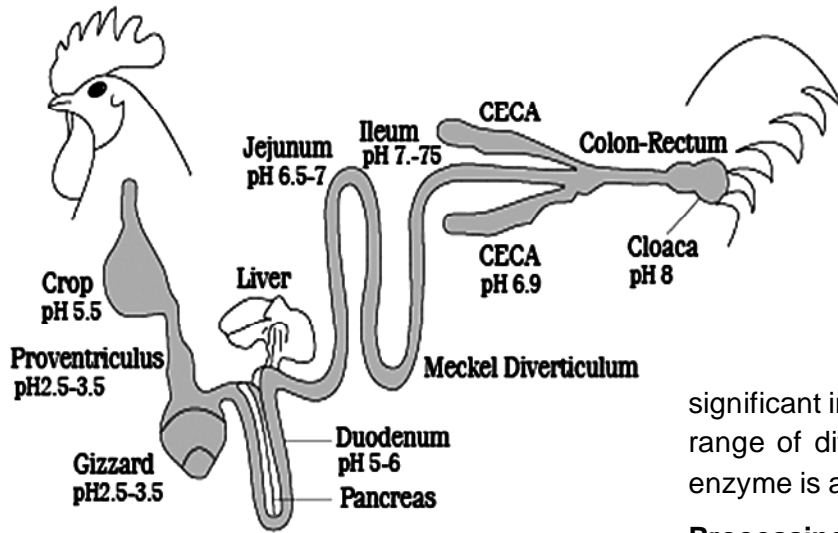
The recent development of unique feed protease specifically selected for application as a feed enzyme, has overcome many of these issues. Unlike most other commercially available proteases, it is produced from a genetically modified strain of *Bacillus licheniformis*. In the selection process, factors 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:

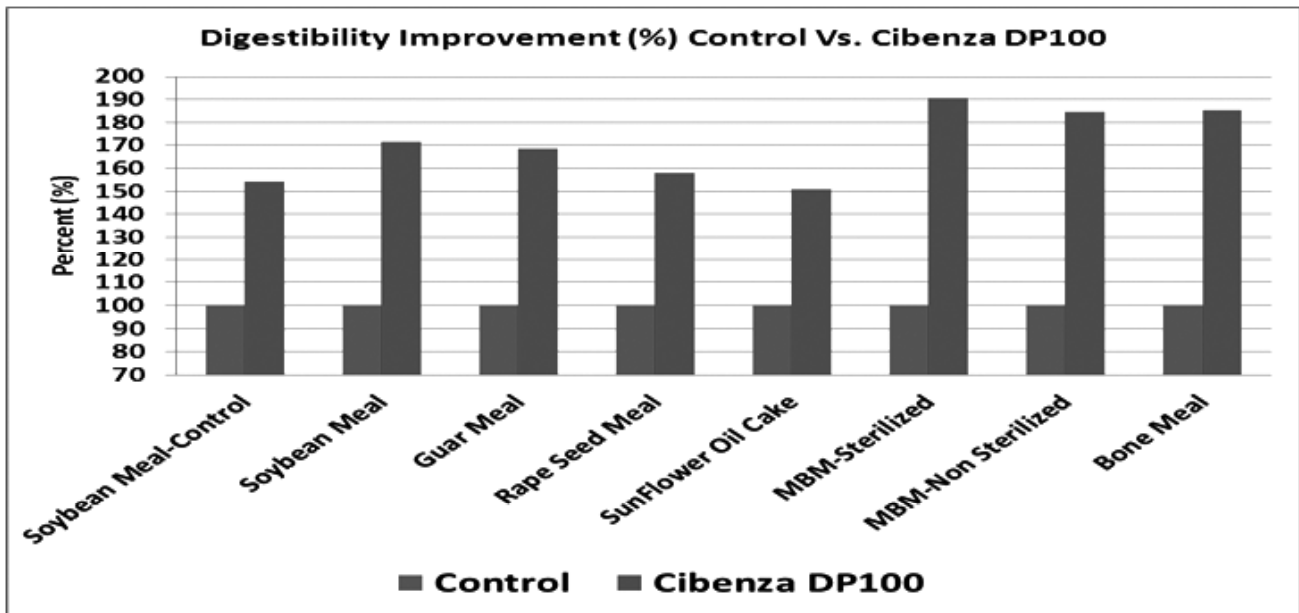
For a protease to be commercially useful it must be possible to use it flexibly in a diverse range of diet types. The ability to improve the digestibility of protein from as wide a range of feed ingredients as

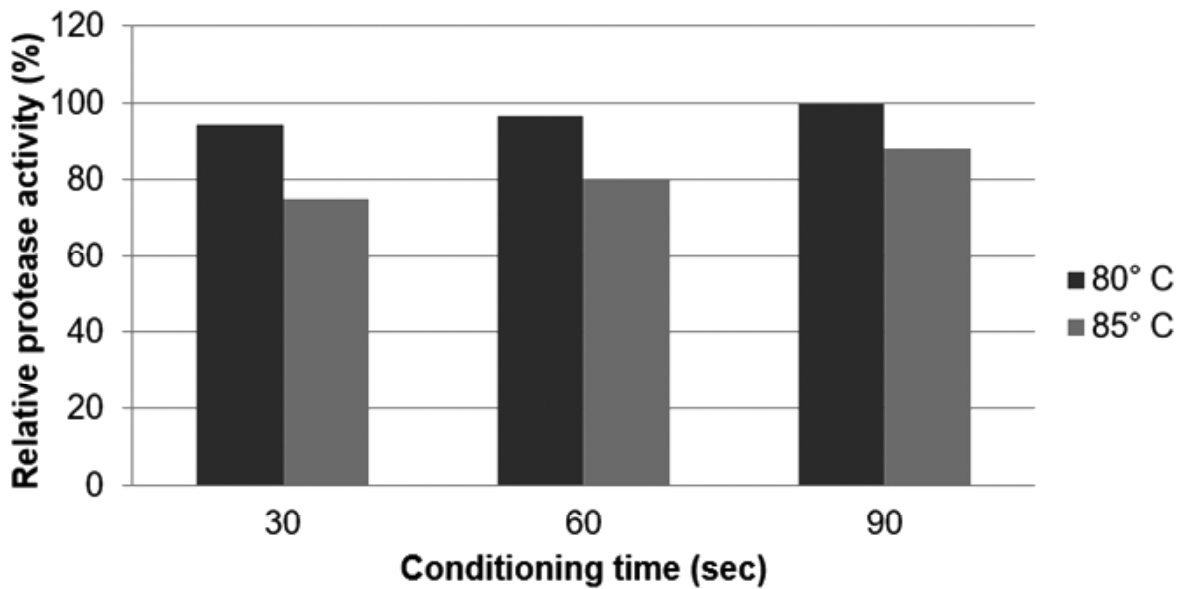
possible is therefore important. Protease should have the potential to improve digestibility of protein in a wide range of ingredient sources in vitro. Such improvements should however not just be obtainable in vitro but also in vivo. In vivo, both ileal and faecal amino acid digestibility studies have 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





Kolding, Denmark

stable at each of the conditioning times and temperatures tested, demonstrating its superior stability even under more demanding conditions.

Reducing Anti nutritional Factor:

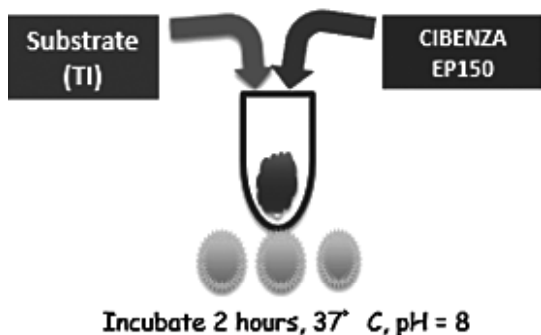
Soybean meal (SBM) is the most important source of dietary protein for poultry it itself contains some

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.

Analytical characteristics of common types of soy protein products

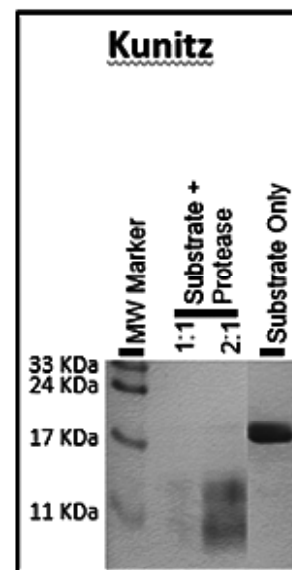
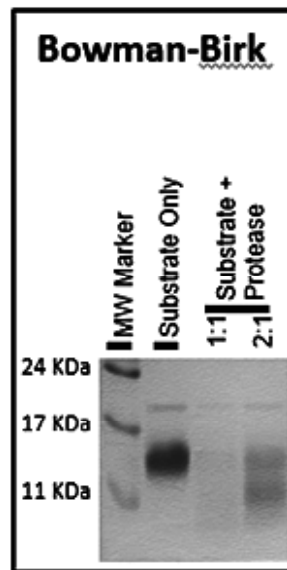
Product type	Unit	Soybean seeds	SBM	Enzyme treated SPC	Alcohol extracted SPC	SPI
Humidity	%	10 - 12	10 - 12	6 - 7	6 - 7	6 - 7
Crude protein	%	33 - 37	42 - 50	55 - 60	63 - 67	>85
Fat	%	17 - 20	0.9 - 3.5	2.5	0.5 - 3.0	0.1 - 1.5
Ash	%	4.5 - 5.5	4.5 - 6.5	6.2 - 6.8	4.8 - 6.0	2 - 3.5
Oligosaccharides	%	14	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	%	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)



Incubate 2 hours, 37° C, pH = 8

TI:	Trypsin inhibitor	CIBENZA
CIBENZA	(µg) - substrate	EP150
EP150		(µg)
1:0	15	0
1:1	15	15
2:1	15	7.5



In vitro degradation of TI with CIBENZA EP150
KDa = molecular mass of the TI

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

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).

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 substantially even in higher concentration (2:1) of TI as well.

Conclusions:

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.

AVIAN INFLUENZA – A MAJOR ECONOMIC THREAT TO INDIAN POULTRY INDUSTRY

Avian Influenza a zoonotic disease which is also known as Avian Influenza, Bird flu, or fowl plague. Avian Influenza is highly infectious /contagious zoonotic viral disease mainly of wild birds and domestic birds. This disease spreads very fast and can cause huge economical losses in poultry. The losses may be due to culling of birds and hampering or stoppage of international trade of poultry and poultry products which will affect the total economics of the poultry industry. As it is a zoonotic disease so it can transmit to the human beings who are in close contact with birds.

India has emerged as a global hotspot for AI. It is also habitat for migratory waterfowl and habitat for several resident waterfowl species throughout the year. India lies at the heart of Central Asian Flyway (CAF), which spans 30 countries and covers 279 populations of 182 migratory



water bird species. Last year in Jan 2021 Indian poultry industry suffered a lot of outbreaks of AI. Outbreaks were confirmed in 9 states in poultry birds and 12 states for other migratory and wild birds. As per the reports the overall loss of the poultry industry at the national level is estimated at about Rs. 3400 Cr due to bird flu as per financial expert from the poultry industry (Ref. TOI Hyderabad 2021).

ETIOLOGY

Infectious virus belongs to Orthomyxovirus family, single stranded RNA virus. There are three types A, B and C which are differentiated by internal viral proteins. Influenza A type is responsible for human influenza and avian disease. Influenza B type is human only and type C causes milder disease and swine also.

Influenza A is more important for poultry. It is subtyped on basis of viral envelope glycoprotein hemagglutinin (HA) and Neuraminidase (NA). There are 16 different HA antigens (H1 to H16) and 9 different NA antigen (N1 to N9). Influenza A virus can infect variety of domestic and wild birds. Avian Influenza in domestic chicken and turkey is classified according to disease severity as HPAI (Highly Pathogenic Avian Influenza) and LPAI (Low Pathogenic Avian Influenza).

HPAI is highly virulent and it can cause near about 100% mortality in chicken. All subtypes found in poultry but subtype H5 and H7 are seen more as cause of outbreaks.

All the birds including domesticated birds are susceptible to avian influenza virus but migratory birds as water fowls and wild ducks are natural reservoirs of avian influenza virus. Chicken and turkey are also susceptible to virus and can cause fatal infection.

In recent studies shows that the low pathogenicity virus (LPAI) can mutate to highly pathogenic virus.

Haemagglutinin protein mediates attachment to and entry of the virus into host cell by binding to sialic acid receptors on cell surface. Influenza A virus is genetically labile and can escape from host defense system. This virus lacks mechanism of proofreading and repair the error which occur during replication. This change, uncorrected error remains and genetic changes happens during passage through human and animals, and the original strain changes to a new antigenic variant. This changes in the antigenic component of Influenza A virus are known as "antigenic drift".

When two viruses from same host system or originally coming from different host replicate in the same cell and reassort or swap genetic material. In this process changes in NA or/and HA protein takes place. Such abrupt changes in virus antigen is called as "antigenic shift". The virus originates from this mechanism creates a novel virus subtype that differ from both original viruses which may have capacity to completely evade the immunity of host.

TRANSMISSION AND SPREAD

In winter more incidences of HPAI are seen, this may be due to agricultural practices, environmental changes, migratory birds flying from one place to another, water fowl and duck migration.

Low pathogenically avian influenza virus is distributed worldwide. Virus may be present in backyard poultry in villages without showing any symptoms but carrier as they directly come in contact with wild birds and ducks. As migratory birds mostly resides near water bodies, so many times the outbreaks of AI are seen more farms in the close proximity of water bodies, lakes, ponds, etc.



HPAI virus arise from mutation of LPAI virus, mainly H5 or H7, and which may cause high epidemics. The incubation period may vary from few days in birds to some days in flock. Virus transmission is due to inhalation or ingestion of infected material.

Spread is due to lack or breaches in farm biosecurity norms, as movement of birds, close contact of flock with wild or migratory bird, contaminated droppings, fomites as equipment, trays, gunny bags and trucks carrying live birds, coops. Airborne transmission is possible between farms but in close distance and not far off distance.

AI virus sheds in feces and respiratory secretion of birds. The aquatic birds as water fowl and duck fecal material contain large amount of virus. Once AI virus enters poultry flock it can spread on the farm by both fecal-oral route and aerosols due to close proximity of birds. House flies can act as mechanical vector/carrier but not far distance.

CLINICAL SIGNS

LPAI – Low pathogenic virus causes mild illness in poultry and shows symptoms like decrease egg production, misshaped eggs, decrease fertility or hatchability in breeder flocks, sneezing, coughing and ocular / nasal discharge in affected flocks, swollen infraorbital sinus, decreased feed and water consumption and gradually increase trend in mortality. HPAI – Highly pathogenic virus shows severe illness in poultry and chicken. Marked depression, decreased feed and water intake and often neurological and respiratory signs are seen, sudden heavy mortality occurs in flock. Signs as coughing, sneezing, sinusitis, blood-tinged oral nasal discharge, ecchymoses on shank and feet, edema and cyanotic lesions on unfeather skin i.e., on wattles and comb, diarrhea, drop in egg production and misshaped eggs.

POST MORTEM LESION

LPAI – Rhinitis, sinusitis, congestion and inflammation of trachea and pneumonia in some birds, hemorrhagic ovaries, involuted or degenerated ova in reproductive system in layer birds, airsacculitis, peritonitis is also seen in birds.

HPAI – Classical symptoms of oedema and cyanotic lesions on head, comb and wattle. Gross lesions may not be classical lesions as bird die per acutely. Hemorrhagic lesions on shank and legs

PREVENTION, CONTROL AND BIOSECURITY

In some countries the live or killed vaccine is available and regularised. It is depend upon the Regulation from AH dept. Govt. of India, GOI has not permitted for Poultry AI vaccination in India.

So, control through biosecurity as there is no effective and economical treatment in poultry.

VIRUS EFFECTIVE DISINFECTION

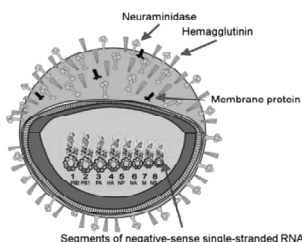
AI virus is susceptible to various disinfectant and can be destroyed with Sodium hypochlorite solution, Ethanol 60-95%, QAT, Aldehydes (Glutaraldehyde, Formaldehyde), phenols, povidone iodine.

VIRUS CAN SURVIVE

1. In dry/wet faces for 8wk at 4°C but 18hrs at 42°C or for 24hrs at 37°C, so temperature increases virus will get destroyed. At 0°C or sub-zero temperature as in frozen lakes or water bodies for 30days, 6 days at room temp ie at 37°C. On plastic virus can stay for 24-48 hrs, on cloths and paper 8-12 hrs. But it can survive or stary alive for decades in frozen lakes, snow.

FOR EFFECTIVE BIOSECURITY

- ⇒ Isolation
- ⇒ Traffic control
- ⇒ Decontamination/Sanitization



SOME OF THE BASIC BIOSECURITY MEASURES

- Keep the poultry houses from wild birds, pests and other livestock. Don't grow any fruit or flower plants near the poultry shed which may attract wild birds which can be carrier for AI.
- Keep visitors to a minimum. Allow only those people who are important to visit your farm. Make sure that they use proper biosecurity measures before entering the flock.
- Use foot bath and dedicated shoes for visiting the flock. Use some good disinfectant in foot bath which can be effective in presence of organic matter. (Prophyl 75™)
- Make sure you have effective pest control program mainly rodent and insect control.



- Do not visit any other farm and don't keep any birds or desi birds at farm premises. Keep close watch if any of the workers coming from outside are keeping any birds at their house, as far as please avoid.
- Don't bring any equipment or feed from other poultry farm. If equipment is brought outside, please ensure they are properly cleaned and disinfected with effective disinfectant. (Benzo DT™)
- Ensure your flock is healthy and if any problem get the help from veterinarian.
- Once you dispose of any flock, please ensure you remove all litter material properly and dispose of away from the poultry farms.
- Cleaning and disinfecting the farm with proper disinfectant is very important to keep the next flock and farm away from the disease. (Vulkan™ S)
- All the vehicles coming to farm must be cleaned and disinfected. Use wheel dip for the vehicles entering your farm premises. (Prophyl 75™). But don't take outside vehicle near to shed or flock.
- In shed Cleaning & Disinfection (C&D) first dry cleaning, then wet cleaning with some detergent / foam (DT Foam™) and disinfecting with effective disinfectant or fumigation. If possible, take Sanitary break as surface or facility to dry before entering birds in the shed, so keep the shed vacant for 2/3 days, this is to stop multiplication of organism and break the cycle. (Benzo DT™)

To know more, please contact Huvepharma technical team



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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.

-Ends-

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About Alltech:

Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech delivers smarter, more sustainable solutions for agriculture. Our 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 additives, 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](#).

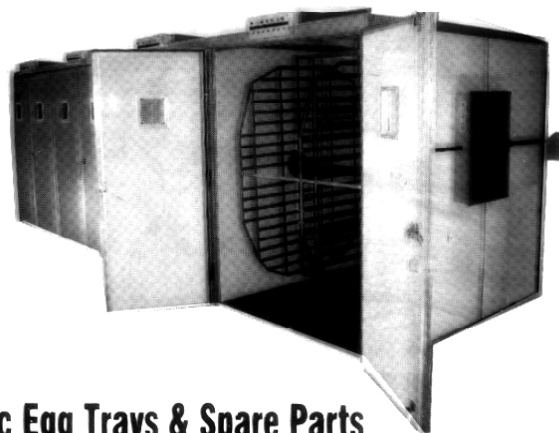


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- **Cost effective** formulation.

Composition:

Each gram contains :
Vitamin E : 100 mg
Selenium : 1 mg
Zinc, Biotin, Ocimum sanclum extract, Aloe Barbadensis Miller and Inert Carrier

Dose:

- Through Water -
- Chick/Layers : 5 Gm/200 Birds
 - Broilers/Breeders : 5 Gm/50 Birds

● **Product Pack:** 200gm Packet ● **Carton Size:** 200gm x 50

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- Original Product Pack from USA Manufacturing unit.
- **Value to money**

Guaranteed Analysis:

Chromium Propionate 4000 mg per kg
Coated Vitamin C 1,25,000 mg per kg

Ingredients:

Chromium Propionate, Coated Vitamin C, Black Cumin Powder and Zeolyte

Feeding Directions:

Poultry : 200 grams per ton of feed
Dairy : 300 grams per ton of feed
Each dose (200 grams) of Chromiate provides 800 mg of Chromium Propionate and 25,000 mg of Coated Vitamin C.

Packing:

25 Kg Bag



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Proteon Pharmaceuticals appoints Paolo Doncecchi as Global Sales Director

Mumbai, 27 January 2022: Proteon Pharmaceuticals, a subsidiary of Proteon Pharmaceuticals SA Poland, today announced that it has appointed Paolo Doncecchi as its Global Sales Director as its expansion plans in India and other South-East Region.

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.

With over 30 years of experience in marketing and sales, Paolo has led several sales and marketing positions at global biotechnology companies such as Pfizer, Zoetis, Biomin and Adisseo in the field of animal health and nutrition. Paolo, an Italian national, has completed his university degree in Veterinary Medicine. He recently became member of Insight Partners, an American venture capital and private equity firm based in New York City that invests in growth-stage technology, software and Internet businesses.

Elaborating on his new role at Proteon Pharmaceuticals Paolo Doncecchi said, "We will focus on getting results through people empowerment. I believe that Proteon's technology is on the edge of a modern and sustainable fight against AMR (Antimicrobial Resistance). Bacteriophages are effective and do not leave residuals in poultry meat, therefore, eventually, safe for us to consume."

Meanwhile, Proteon Pharmaceuticals is further streamlining its R&D investments, aiming to deliver

phages solutions focused on controlling bacterial diseases to let their livestock customers achieve sustainable profit.

Commenting on Paolo's joining, Nipun Gupta CCO, Proteon Pharmaceuticals, said, "I am pleased to announce the appointment of Mr Paolo Doncecchi as the Global Head of Sales. Paolo started working as part of Proteon commercial organization from January, 2022. I am excited to welcome him. Paolo brings in wealth of experience from the animal healthcare organisations that will be of benefit for our company's global expansion plans."

About Proteon Pharmaceuticals

Proteon Pharmaceuticals uses precision biology for microbiome protection to improve animal and human health, increasing environmental sustainability and eliminating the unnecessary use of antibiotics. Proteon uses natural, safe and environmentally sustainable solutions developed from patented phage-platform technology. Proteon partners with farmers in the field of animal health, focusing on solutions that improve the economic efficiency of farms, while promoting environmentally sound, natural and sustainable solutions.

Contact Persons:

Proteon Pharmaceuticals:

Rachel D'costa

Proteon Pharmaceuticals - Spokesperson |

M: 9909032994 | www.proteonpharma.com

Fortuna PR:

Priyanka Sood

Handset: +9867892554 | **Email:** priyanka@fortunapr.com |

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Monensin – A Tool For Methane Emission & Rumen Related Disorder

INTRODUCTION

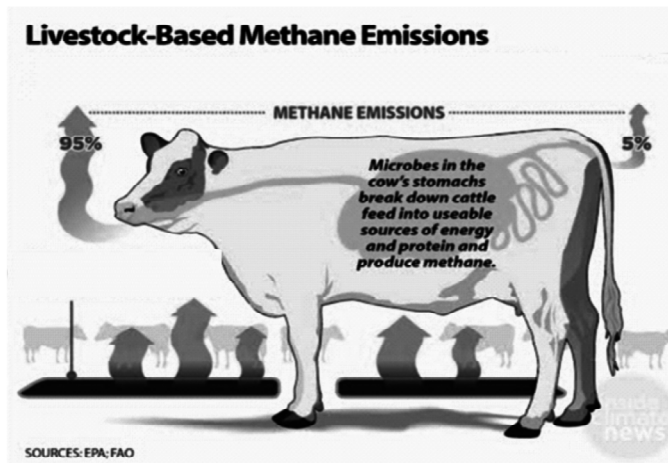
- Microbial digestion by ruminant microflora yields metabolites able to be used for synthesis of milk constituents, as well as carbon dioxide and methane.
- The types of metabolites arising from fermentation (including acetic, propionic and butyric acids) are affected by diet composition and the microflora, especially bacterial species and the protozoa.
- India hosts 18% of the global dairy cattle population. More over urbanization in India has increased rapidly and the share of urban population has doubled in the past 60 years.
- Greenhouse gas emissions from livestock farming and in particular enteric methane (CH₄) from ruminants are criticized for being one of the main contributors to climate change.

WHY METHANE?

- Methane is an especially potent trace gas due to its global warming potential, 25 times that of carbon dioxide.
- It is the second largest anthropogenic greenhouse gas, behind carbon dioxide.
- Also, methane is able to increase ozone in the tropospheric region of the atmosphere where the greenhouse effect occurs.
- Globally, 50–60% of methane emissions are from the agricultural sector, specifically from livestock production operations; the principal source of methane is from ruminant animals.

HOW METHANE IS PRODUCED BY RUMINANTS

- Ruminant livestock – cattle, sheep, buffalo, goats, have a fore-stomach (or rumen) containing microbes called methanogens which are capable of digesting

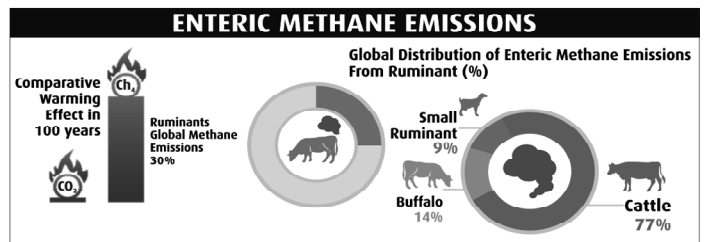


- coarse plant material and which produce methane as a by-product of digestion (enteric fermentation).
- This microbial fermentation is referred to as enteric fermentation, produce methane as a by-product, which can be exhaled or eructated by the animal.
- The amount of methane produced and excreted by an individual animal depends primarily on the animal's digestive system and the type of feed it consumes.

- Rumen archaea are strictly anaerobic and are the only known microorganisms present in the rumen capable of producing methane. Such archaea are referred to as methanogens.

WHAT IS METHANOGENS

- Methanogens belong to the domain Archaea and the phylum Euryarchaeota Unlike Bacteria, methanogens lack peptidoglycan in the cell wall.
- Archaea are found in the rumen in the range of 10 to 10¹⁰ cells per ml, accounting for less than 4% of the microbial community. Methanogens are among the strictest anaerobes.



- Most methanogens remove hydrogen gas by reducing CO with hydrogen gas to form methane. Producing methane keeps hydrogen concentrations in the rumen low, allowing methanogens to promote the growth of other species, and enabling a more efficient fermentation.
- Methanogenesis is the only mechanism of ATP synthesis available to methanogenic archaea.
- However, methane produced in the rumen is eructated, leading to atmospheric pollution. It should also be noted that methane production by archaea represents an energy loss of about 2 – 12% of gross energy intake, meaning this energy is no longer available for animal growth, lactation, maintenance or pregnancy.
- Manipulating the diet of ruminants to reduce the number of methanogens would therefore both help reduce the negative impact on the environment, and also improve the efficiency of livestock production.

DIETARY COMPOSITION

- The components of the diet fed especially type of carbohydrate, are important for methane production as they are able to influence the ruminal pH and subsequently alter the microbiota.
- The digestibility of cellulose and hemicellulose are strongly related to methane production.
- Grinding forage feed before it is ingested by the cows also seems to decrease the production of methane.
- Increasing the rate of digestion and flow through the gastrointestinal tract limit the time available for methane to be produced within the rumen.
- It is important to note that increasing the amount of rapidly fermentable carbohydrates in a diet can increase the rate of passage from the rumen, as well as lower the ruminal pH.

WHAT ARE IONOPHORS

Ionophore antibiotics are molecules diverse in chemical structure having several oxygen atoms spaced throughout the molecule. Ionophore have polar and nonpolar regions that enhance cation entrapment and interaction with membranes. Carboxylic acid, polyether ionophore were initially developed to improve the performance of cattle by altering the pattern of rumen fermentation.

CONTROL OF METHANE EMISSION BY DIETARY SUPPLEMENTATION OF MONENSIN

- Monensin is a carboxylic polyether ionophore compound fed to ruminants to modify rumen fermentation dynamics by selectively inhibiting growth of gram-positive bacteria, which produce most of the acetate, lactate, and hydrogen in the rumen.
- Anaerobic fermentation in the rumen derives energy from substrate oxidation by the transfer of electrons (and hydrogen) to acceptors other than oxygen. The reduced compounds formed are mainly VFA and methane. Fermentation balance requires that an increase in propionate production must be accompanied by a decrease in methane production.
- Up to 12% of the gross energy of feed can be lost as eructated methane.
- Interest has been renewed in monensin as a mitigation strategy for methane production, as it is known to inhibit gram-positive microorganisms responsible for supplying methanogens with substrate for methanogenesis.
- Ionophores inhibit methanogenesis by lowering the availability of hydrogen and formate, the primary substrates for methanogens. Bacteria that produce these substrates are sensitive to ionophores, whereas methanogens are more resistant.
- This favors growth of gram-negative bacteria and production of propionate in the rumen. Increased production of propionate in the rumen increases hepatic gluconeogenic flux which improves the overall energy status of ruminants.
- It is hypothesized that monensin does not affect methane production by inhibiting methanogens, but instead inhibits the growth of the bacteria, and protozoa, providing a substrate for methanogenesis.
- The reductions in methanogenesis following ionophore supplementation vary from minor to 25%.
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MONENSIN HELPS TO CONTROL RUMEN RELATED DIGESTIVE DISORDERS

Certain rumen related digestive conditions, e.g., bloat, acidosis, and ketosis are related to disturbances in ruminal fermentation. These conditions are reduced when Monensin are fed because of a specific effect on a particular bacterial species or changes in end products of fermentation.

BLOAT

Bloat results from the excess production of stable foam in rumen. Gas becomes entrapped within the reticulo-rumen and failure of eructation mechanism caused the abdominal distension. The acute nature of the disorder often leads to death within hours after the ingestion of bloat provocative meal. Feeding an ionophore can also reduce the potential for bloat. Monensin inhibits rumen protozoa that normally produced gas & foam stabilizing substances thus leading to a reduction in bloat potential.

ACIDOSIS

Current levels of milk production and the relative cost of grain to forage have resulted in an increased proportion of rapidly fermentable carbohydrate in the diet of dairy cows. Consumption of rapidly fermentable diets places the dairy cow at risk for acidosis. Acidosis is generally linked to lactic acid production. In many cases, digestive disorders are associated with or secondary to other health problems such as mastitis, retained placenta, or metritis associated with calving. Ionophores have the potential to ameliorate the disease of acidosis. Ionophore effects on lactic acid producing strains of bacteria such as *Streptococcus bovis*. Monensin inhibit many of the major strains of rumen bacteria that produce lactic acid.

KETOSIS

The sudden onset of lactation places significant metabolic demands on the cow. Glucose precursors, primarily propionate and amino acids, become essential for a successful lactation. Glucose synthesis must increase to meet the needs of lactose synthesis.

- High producing dairy cows meet the increased energy requirement by mobilizing body fat. Adipose tissue releases NEFA into the blood. The NEFA may be oxidized, reesterified, or metabolized to ketone bodies.
- The liver of the dairy cow has a higher rate of triglyceride synthesis than secretion. This imbalance contributes to fat deposition in the liver (fatty liver).
- Ketogenesis by the liver leads to elevated blood concentrations of BHBA, acetoacetate (ACAC), and acetone.
- Excessive ketogenesis, resulting in most cases from reduced feed intake, often leads to the metabolic disease of ketosis.
- Cows fed monensin had lower concentrations of BHBA in blood during the first 3 wk of postpartum & other studies have reported reduced blood concentrations of NEFA and BHBA when monensin was fed postpartum.
- This pattern of energy metabolites in blood is indicative of an improved energy status for cows fed monensin especially during early lactation.

To know more, please contact Huvepharma technical team



Huvepharma SEA (Pune) Pvt. Ltd.

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Greek Poultry Farmers Invest in Biogas Plants from WELTEC BIOPOWER Efficient operation through a variety of raw materials and proven technologies



In the past year, WELTEC expanded this biogas plant and since March 2021 the plant is in operation with a doubled output of one megawatt. Around a year after the expansion, the operators' résumé is consistently positive.

The German biogas plant specialist WELTEC BIOPOWER registers keen interest in its plant technology in Greece. In the past year, WELTEC expanded its market leadership in the southern European country by building four further projects and expanding three existing plants. Due to the great potential of organic residues to produce biogas and biomethane, especially in the north of the country, the climate-friendly energy source is playing an increasingly important role in the Greek energy transition.

WELTEC BIOPOWER has so far been significantly involved in 17 of a total of 30 Greek agricultural and waste biogas plants. This is no coincidence, because WELTEC is an established technology and market leader there. One of these AD plants has been built in Megara, 30 kilometers west of Athens, in 2015. In the past year, WELTEC expanded this biogas plant and since March 2021 the plant is in operation with a doubled output of one megawatt. Around a year after the expansion, the operators' résumé is consistently positive: "The plant was already running very successfully before the expansion. An above-average plant availability of 97 percent confirms that the extension with WELTEC was the right decision," says John Tetoros, the Greek WELTEC sales partner, from a conversation with the owners.

It was also crucial for the extension that a sufficient amount of substrates were available. The area around Megara is known for keeping chickens and the biogas plant is also on the site of a chicken farm with 20,000 laying hens. As a result, some of the input materials are permanently secured. In addition to the chicken droppings, roughly equal amounts of olive oil pomace, cattle and pig manure, as well as whey are used for energy production. Since the plant was enlarged, the daily amount of the substrate mix has risen to 190 tons.

Originally the plant comprised a digester made of stainless steel with a volume of 3,993 cubic meters, a 530 kilowatt CHP and a storage



The German biogas plant specialist WELTEC BIOPOWER registers keen interest in its plant technology in Greece. In the past year, WELTEC expanded its market leadership in the southern European country by building four further projects and expanding three existing plants.

unit. For the increased input volume, WELTEC BIOPOWER built another 3,993 cubic meter stainless steel digester with a height of 6.30 meters and a diameter of 28.41 meters. In addition, another pre-storage unit, a second 530 kilowatt CHP and an unpacking system for cheese and vegetables were installed. However, this unpacking system is only used in case of irregular deliveries of expired food. A solids feeder is not required since the pumpable substrates are brought into the storage units via a central pump block and then conveyed into the digesters.

John Tetoros is proud of this special energy plant: "The plant in Megara is one of the most efficient biogas projects in Greece. Our many years of experience and knowledge as well as the highly developed biogas technology from WELTEC are two decisive reasons. And the icing on the cake for the success of this plant is the strategically favorable location, the care of the operators and the use of the heat for stables and offices. So, it is hardly surprising that one of the two operators decided to build another biogas plant in Ritsona, 40 kilometers north of Athens. This is about to be completed and will go into operation in spring. Just like in Megara, only organic residues are used to generate energy in Ritsona.

These plant projects are examples of circular economy thinking and the consistent use of existing waste. Konstantinos Nikakis, board member of the Greek biogas operator association HABIO, emphasizes the importance of such projects: "Waste-to-energy plants are urgently required in the new energy age in order to minimize harmful carbon emissions and to achieve climate neutrality. In any case, the supply situation with substrates of animal and vegetable origin is very good; the potential in Greece is enormous. In addition, there is also vegetable and other recyclable waste. In view of this amount of raw materials, agriculture has very good prerequisites to make its contribution so that Greece can achieve its climate goals." It is now up to the individual players to bring Greece into the new energy age.

PRESS RELEASE

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

Mumbai, 15th February 2022: 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"

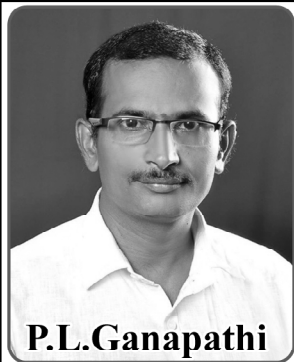
Suguna Foods livebirds are available at leading poultry retail stores in the region.

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.

For any media queries, please contact,
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PRESS RELEASE

Newly Elected Body to Poultry Federation of India in its 32nd AGM held at New Delhi

Annual General Body Meeting of Poultry Federation of India was conducted at Hotel Pullman in New Delhi on 23rd December 2021 and elected New Office Bearers, Zonal Vice Presidents and Managing Committee Members as under:

Mr Ranpal Dhanda was elevated to the post of President

Mr Sanjeev Gupta was elected to the post of Vice President (HQ)

Mr Ravinder Singh Sandhu was elected as the Secretary

Mr Ricky Thaper was re-elected as Treasurer

Mr Ramesh Chander Khatri who had been very active and proved his metal for all these years as the President of PFI was nominated as Chairman.

Mr Neeraj Srivastava was nominated as Chairman, Technical Committee.

Keeping in view of a wider representation for Poultry Federation of India from across the country, the following persons were elected as Zonal Vice Presidents and Managing Committee Member from different zones:

ZONAL VICE PRESIDENTS

Mr Praveen Kumar,
Vice President, North Zone.

Mr D S Subramaniam,
Vice President, South Zone

Dr Pawan Kumar,
Vice President, East Zone

Dr Sujit Kulkarni,
Vice President, West Zone

Dr Dinesh Kumar Arora,
Vice President, Central Zone

MANAGING COMMITTEE MEMBERS

Dr Jeetendra Verma

Dr Kapil Manwal

Dr D K Dey

Mr Rahil Somjee

Mr Mohan

Mr K Shekar

Mr G S Cheema

Mr Selvan Kannan

Mr Sukhminder Singh

Mr Ashok Seth

Mr Dinesh Kumar Arora

Mr Sameera Patel

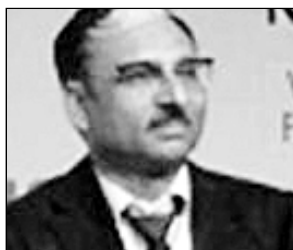
Dr Vijay Makhija

Dr Devender Hooda and

Mr Deepak Mukhija



Mr. Ranpal Dhana
President



Mr. Sanjeev Gupta
Vice President



Mr. R.S. Sandhu
Secretary



Mr. Ricky Thapar
Treasurer



Mr. Ramesh Khatri
Chairman,
PFI Working Group



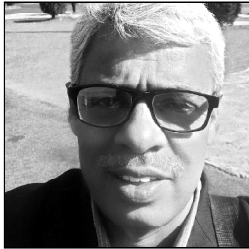
Mr. Neeraj Srivastava
Chairman, Technical
Committee



Mr Praveen Kumar,
Zonal Vice President
North Zone.



Mr. D.S. Subramaniam
Zonal Vice President
South Zone



Dr. Pawan Kumar
Zonal Vice President
East Zone



Dr. Sujit Kulkarni
Zonal Vice President
West Zone



Dr. Dinesh Kumar Arora
Zonal Vice President
Central Zone

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DR.MANOJ SHUKLA, a renowned poultry Veterinarian, with 20 years of enriched field experience, now started Free Lance Poultry Consultancy. In the past 20 years have contributed to the development of the hatcheries in various capacities of leading companies across India - Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Orissa, Bihar, West Bengal, Jharkhand, North-East, Uttar Pradesh and neighbouring country of Nepal.



His areas of expertise include:

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- Breeder Management.
- Sales & Marketing of Day-Old commercial Layer chicks, Broiler chicks & Poultry Feed.
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- Integration.
- Training to Field staff.
- Field Trial of Drugs & Feed additives.
- Speaker in Technical Seminars.

He can be Contacted at:- **Dr. Manoj Shukla**

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Mob.No : 09644233397, 07746013700, Res. 0771-4270230

Email : drmanu69@gmail.com

As a strategic partner, Poultry Line wishes Dr. Shukla every success in his new assignment

WEDDING BELLS

Chi. Souwmya

(Daughter of Smt. & Sri Gouri Shankar)
Got married with

Chi. Srinath

(S/o. Smt. & Sri Vale Nagaiah)

On 10th February 2022, Thursday, 11.31 am.

Venue: Devaki Convention, Nagole, Hyderabad.

The wedding was well attended by poultry fraternity from all over the country and blessed the couple

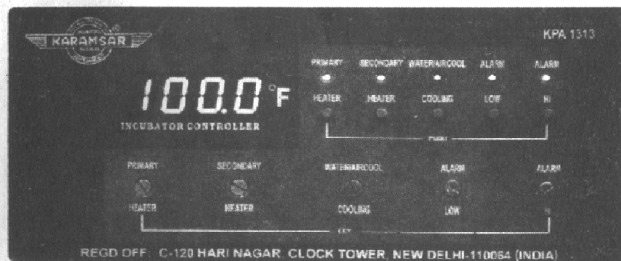
The team of **Poultry Line** wish the couple a long, happy and prosperous married life



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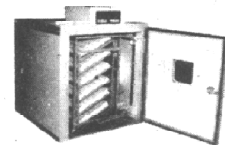
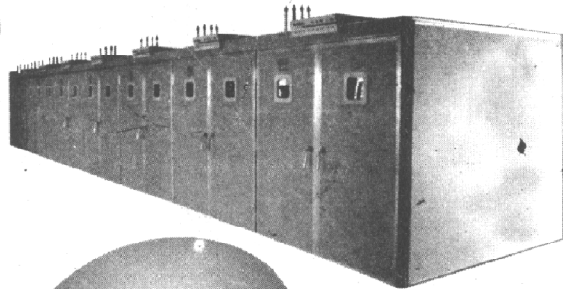
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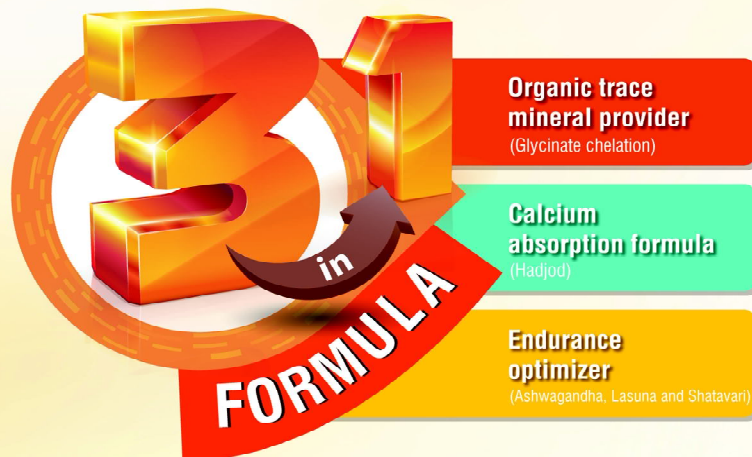
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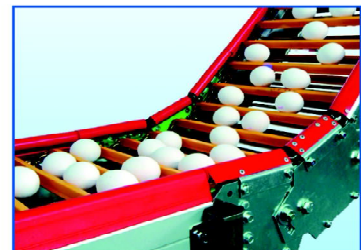
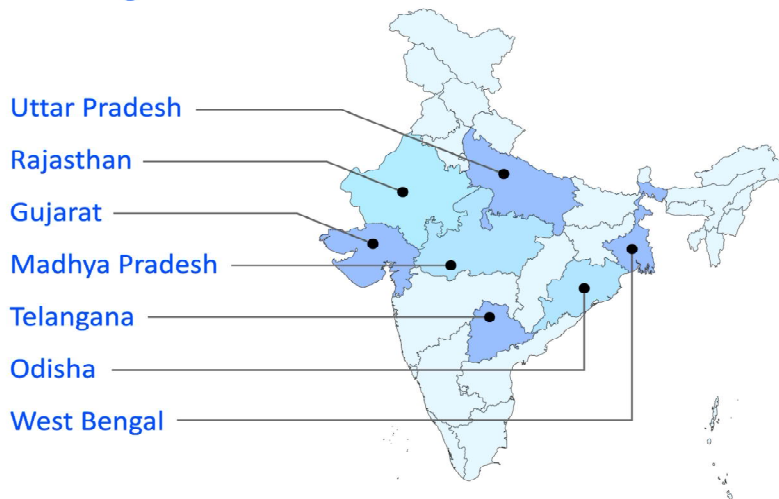


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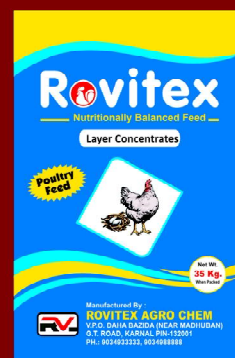
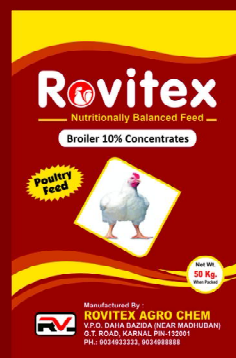
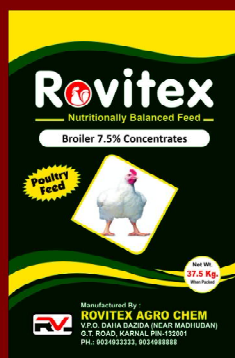
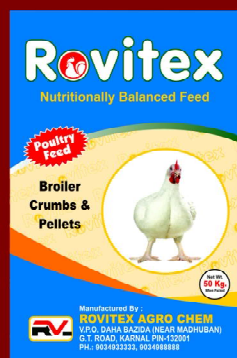
- ❖ Broiler 10% Concentrates
- ❖ Broiler 7.5% Concentrates
- ❖ Broiler 5.5% Concentrates
- ❖ Broiler 3.5% Concentrates
- ❖ Broiler 2.5% Concentrates
- ❖ Broiler 1.5% Concentrates

Layer Concentrates:

- ❖ Layer 5% Concentrates
- ❖ Layer 10% Concentrates
- ❖ Layer 25% Concentrates
- ❖ Layer 35% Concentrates

Broiler Crumbs/Pellets:

- ❖ Broiler Pre-Starter Crumbs
- ❖ Broiler Starter Crumbs
- ❖ Broiler Finisher Pellets



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Chick Feed Tray



Chick Drinker



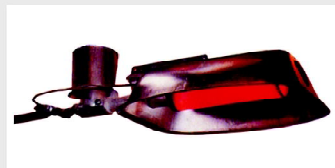
Drinker
(Assemble Valve System)



Deluxe Drinker
(Standard & Large)



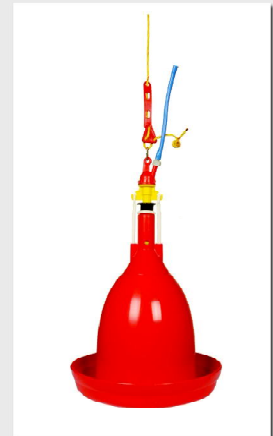
Feeder



Gas Brooder



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ZEUS BIOTECH participated in VIV MEA 2021, Abu Dhabi, UAE



The 3rd Edition of VIV MEA, an international Trade Fair for intensive animal production and processing was held between 23rd to 25th November 2021 at Abu Dhabi National Exhibition Centre (ADNEC), Abu Dhabi, United Arab Emirates.

It was an informative, exciting, busy and extremely productive show, with an outstanding quality of the profiles in attendance. A memorable edition, which the whole industry deserved so much. A total of 6,671 professional visitors smoothly made it to the 500 exhibitor booths at ADNEC, thus confirming the success of the previous edition in terms of visitor quantity, despite the limited traveling scenario occurred in 2021. At the same time, visitor quality

reached even greater results. In fact, 1/4 of the total visitors were C-levels. 66% of the visitors came back to the exhibition halls for more than one day. This speaks volumes about the range of products and brands available onsite and about the seriousness of the participants in getting into detailed conversations with the suppliers. The U.A.E. topped the list with 29% of all the visitors coming from the country itself. Importantly, the majority of the visitors came from the rest of the world, with the GCC countries in the lead. 71% of the visitors in fact came from outside of the hosting country. This makes VIV MEA a truly international show and a recognized hub for the whole Middle East and Africa.





Zeus Biotech actively participated in the show. Zeus showcased its innovative concept products like **Feed Specific (FSSSF) Enzymes, Fermented Organic Trace Minerals (FOTMs), Non-Antibiotic Growth Promoters, New Generation Probiotics, Yeast Culture** along with other range of products in feed mix and water soluble category. There were lot of visitors from the countries like Saudi Arabia, Kuwait, Oman, Jordan, Libya, Syria, Iraq, Iran, Egypt, Pakistan, India, Bangladesh, Kenya, Nigeria, Ghana, Rwanda, apart

from UAE. Information about the company activities and details about its products were disseminated. For Zeus Biotech, it was a good opportunity to meet its associates and customers from Middle East, Africa and other Asian countries at the venue.

VIV MEA 3rd edition was initially planned from 31st August to 2nd September 2020 which was rescheduled to 23rd to 25th November 2021, due to the pandemic.





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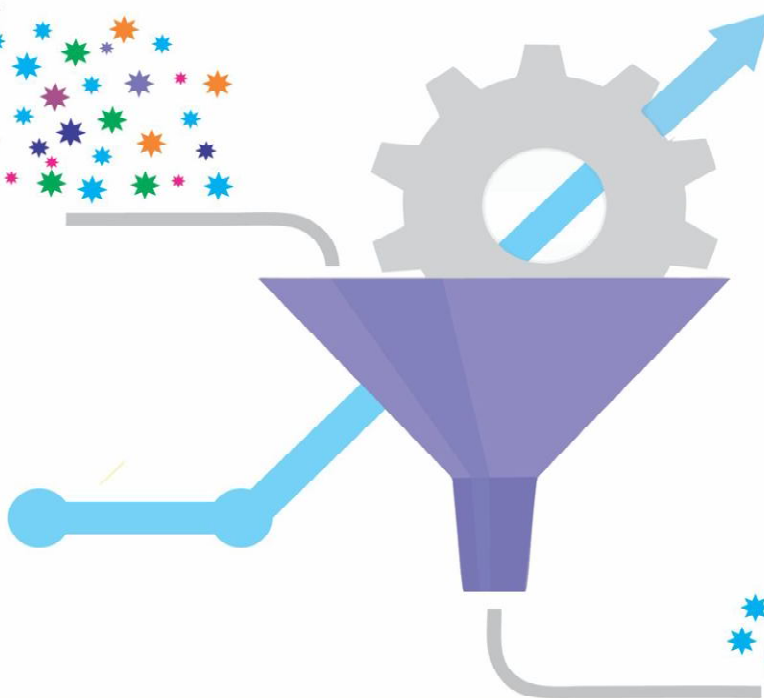
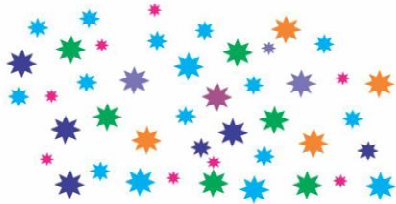


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