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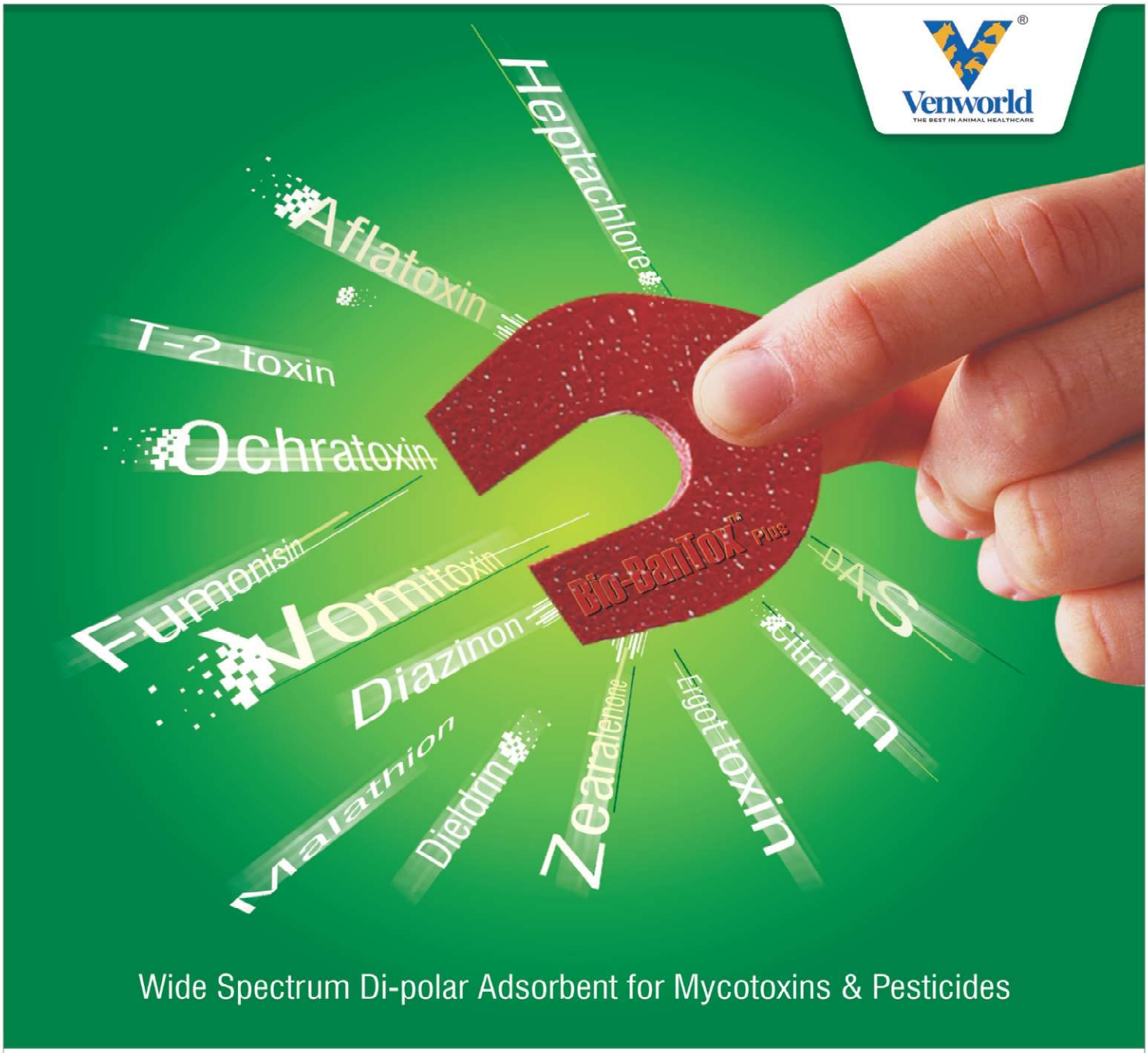

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*** GC- (Growing Charges) will be revised post completion of every 8 batch based on the electricity charges and labour charges.

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VOL.22 ISSUE 9 SEPTEMBER 2022

POULTRY LINE
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CONTENTS

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INDEX OF ADVERTISEMENTS

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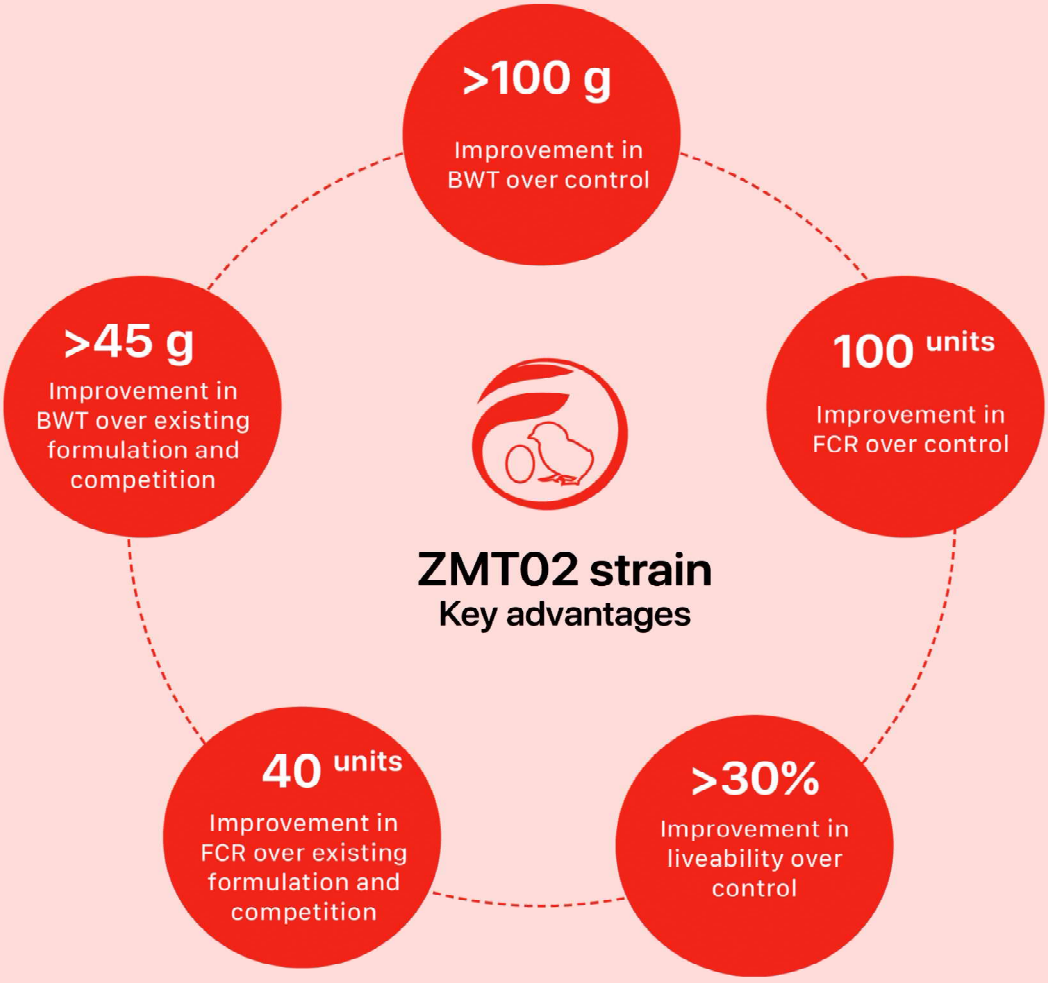

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Animunin Liquid

Broilers	Layers	Quantity (For 100 Birds/day)
0-2 Weeks	0-8 Weeks	10 ml
3-4 Weeks	9-20 Weeks	20 ml
5-6 Weeks	21-72 Weeks	40 ml

- To be given regularly in broilers, layer-chicks and growers.
- In layers to be given regularly or 15 days every month, as required.
- Double quantity is recommended for breeders & during challenging conditions (for first 10 days).

ANIMUNIN POWDER

A natural alternate to conventional antibiotic (Tiamulin, Tylosin, CTC) for prevention of respiratory diseases

ANIMUNIN LIQUID

As an adjuvent alongwith conventional antibiotics for treatment of CRD/ respiratory infections

PRESENTATION

Powder : 10 kg & 25 kg
Liquid : 1 Ltr & 5 Ltr

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CONSUMER: DRIVING CONSIDERATIONS IN ANIMAL PROTEIN PRODUCTION

All this while the focus of the animal protein industry has been to 'produce food'. The when, where and how of it weren't discussion points. The industry, has taken its time to acknowledge the changing considerations of the end user- the consumer.

The end consumers have benefitted from the consistent growth in productivity and efficiency of animal protein production, choosing to spend their disposable income on purchase of meat and its derivatives. The consumer is also 'aware' and 'conscious' of what's happening around the world. How food choices and preferences are changing, what considerations are driving that change, so on and so forth. Slowly but certainly it was bound to influence how the Indian consumer viewed animal protein.

This has been long coming: the industry- producers, processors and marketers of animal protein, is at an inflection point where it is compelled to think beyond productivity and efficiency. And that 'beyond' is understanding the shift in cultural and market expectations for animal protein. There is a lot of lost ground to cover.

Consumer priorities : globally have undergone an important shift. During Covid many lost means to livelihood, others faced uncertainty about income and illness. In this period of heightened anxiety, post COVID, feeding their families and keeping them healthy are a higher priority. Instead of being concerned about what's in the environment that might harm the planet, the concern today revolves more around what's in the environment that might harm me or my family. Its definitely a step down from concerns associated with sustainability and so on and looking more towards survival and self preservation.

Affordable, Healthy Nutrition : Consumers are counting on food industry innovation to provide affordable, healthy options with an eye toward immunity and how processed foods can play a new role. They are also re-thinking their opposition to "processed foods" if there is a nutritional benefit to the processing. Fortifying processed foods with vitamins and minerals may now be back in vogue as consumers look for more opportunities to enhance immune health. This is a clear win for the protein sector.

Alternative Proteins : Plant protein is evolving – it is giving meat eaters an alternative to feeling guilty about the health and environmental impacts of animal protein by providing a passable alternative that is perceived to be "better for me" and "better for the planet". 'Veg meat' options in India from producers like Greenbird, Blue Tribe, Good Dot etc are slow making inroads.

However, the initial perception of 'better for me' is now being questioned by a growing awareness that most plant-based meat alternatives are highly processed with a long list of ingredients, not to mention the added sugar. This provides an opening for animal protein producers to spotlight its nutritional attributes while continuing to innovate as well as to highlight clean labels and nutritionally dense protein.

Engagement with Gen Z and digitised information delivery : Gen Z generation of consumers embraces technology, expects innovation and demands engagement. Direct to consumer (DTC) processed food producers have a definite advantage where they can use consumer feedback to continuously improve product formulations. Giving people an impression that their voice is being heard , gives them a new reason to try a product again, even if they didn't like it the first time. This model - digital feedback loop for ongoing product innovation will create an opportunity for animal protein companies to improve their engagement and products.

Online shopping : COVID-19 is a pivot point for consumers that marks the shift of in-person supermarket shopping as the dominant retail channel to consumers buying food and meat online. Research shows consumers now spend 30 minutes or less on preparation, rely more on online shopping with delivery and/or pick-up. Technology is food shopping is here to stay. This is an opportunity for the animal protein sector to meet (or create) unmet needs through innovation. Is animal protein center of the plate, a meal stretcher or a snack? The answer is yes to all three and more. The real question is, which animal protein companies will be innovative enough to capture this opportunity.

As food producers, a key area is communication with the end consumer. And that will be possible only if there is an understanding of where the consumer is coming from.

Fresh and High Quality : Aware consumers, from their research and reading have formed a belief that the fat profile and vitamin content of organic, grass-fed or free-range products are better, hence the demand for organic eggs and dairy from grass-fed cows. They are also willing to pay a premium for this.

Ethically-Raised Animals : Consumers are concerned about how the animals are being raised at farm level. They are vocal about their expectation of improved welfare standards for food producing animals.

Plant-Based Alternative Proteins : Even in the case of consumers looking to reduce meat consumption, they have conflicting feelings about plant-based proteins. For one, its taste and another, the high level of processing involved in manufacturing of plant based protein.

Food producers need to actively work to meet consumer expectations with products that give consumers the animal protein they crave, give them assurances that they're making the right decisions for themselves and their families – that they're providing high quality, affordable protein produced in an ethical manner.

Communication is key: Food producers need to deliver a message to the consumers. For e.g. leverage "locally grown" so on and so forth. Animal protein production has to become more consumer-centric by taking feedback, and factoring it in product development will bring them closer to the consumer.

Food labels should contain information that talks about the measures food producers adopt to ensure animal well-being, environmental impact and other issues that could drive animal protein consumers to alternatives.

Essential Nutrients and Health : Egg is the cheapest protein and as such accessible to all for desired nutrient delivery. Role of animal protein in in immune health has to be highlighted to drive home the point.

Engage Emerging Audiences : Develop a specific Gen Z strategy.

COVID-19 has shaped consumer attitudes regarding their food and how it's produced, shaping the future of animal protein. Consumers are clearly in the driver's seat and following their lead provides the food system with the best chance for long-term success as consumers adopt new – and perhaps long-lasting – behaviours.

A series of technical meeting has been conducted by Ventri biologicals in North India

A series of technical meeting has been conducted by Ventri biologicals div. of VHPL for breeders at Jind,Panipat & Kaithal and for layer at Krukshetra. Meeting is well organised by Shashi bhushan kumar (Zonal manager) and his team Sandeep Saini RSM & Sunil saroya RSM under the guidance of Mr. H S Padda DGM .

Dr. S P Singh (GM North) & Mr. Satbir Lakra (GM venco sales) spoken about the current challenges and corrective measures.

Deepak Khosla addressed the gathering over challenge the poultry industry is facing related to Poultry immunity, health, and production. The emergence and re-emergence of diseases will continue to be major challenges to the current situation and the strategic future of the industry. Disease control, high production, product quality, and reasonable production costs have been the recent main goals of the poultry industry. Hence, meeting per capita consumption and welfare to humans necessitates continuous efficient and goal-oriented healthcare to control disease spread and decrease the application of antibiotics. These endeavours will include the launch of programs to control infectious diseases in broiler breeders influencing the broiler performance.

Dr. Prakash reddy, spoke with a topic on "EXTENDED IMMUNITY IN BREEDERS: INFLUENCING BROILER PERFORMANCE".

In the meetings, several factors were discussed which can hasten and/or prompt the emergence of animal diseases including:

- The development and structure of the poultry farming, amplify global competition and cost of production, and increase the poultry and poultry products movement worldwide.
- The increased movement could also raise the hazard of introducing infections to specific regions that are free from such diseases.
- Various infectious pathogens, including bacteria and viruses contribute to infectious diseases in poultry and can be transmitted and subsequently spread in farms via horizontal and/or vertical transmission. In India, the most common poultry diseases are Infectious bronchitis virus, Avian flu, Newcastle disease, Infectious bursal disease, Avian Adenovirus (IBH/HPS), Chicken Astrovirus, Avian encephalomyelitis, *Mycoplasma gallisepticum*, Collbacterlosis, Infectious Coryza, Coccidiosis and Infectious laryngotracheitis (regional Vaccinal laryngotracheitis).
- **For proper understanding of disease control, these poultry diseases were categorised as: Category 1: Disease with high problem in breeder productivity** with high production drop and mortality with poor quality hatching eggs, low hatchability and poor quality chicks. The herd immunity with high and uniform humoral immune response is very important during the entire life cycle.

Ex: Avian flu, Newcastle disease, Infectious bronchitis virus.

Category 2: Diseases with less impact on breeder productivity, but when transmitted vertically to progeny can have huge impact on hatchability and broiler performance

Ex: Avian Reovirus, Avian Adenovirus, Chicken Astrovirus, Avian encephalomyelitis,

Salmonella Enteritidis, *Salmonella Typhimurium* and *Mycoplasma gallisepticum.*

Category 3: Diseases with age resistance in long lived birds, with no impact on egg production and hatchability, but the maternal antibody transmitted can protect against early sub-clinical infection / immunosuppression.

Ex: IBDV- Early diagnosis of the source and route of virus spread help to control the disease and develop an effective vaccine for emerging variant diseases. In a future study, improvements in laboratory diagnosis will offer sensitive, fast, and precise disease diagnosis, and early mediations will be a reality.

- Vaccination has had and will continue to have a major influence on the development and strategic growth of the industry, allowing economic and effective control and eradication of diseases. However, the vaccine and vaccination strategies varies based on the geographical variations happening locally. So, there is a need to "Think globally and Act Locally", based on the strain variations happening in India, which includes prevalence of - Avian infectious bronchitis virus variants GI-24 lineage (Novel Indian variants)

- Local variants of Avian Reovirus causing Malabsorption, Tenosynovitis and Brittle bone disease.

- Avian Adenovirus serotype 4 and 11

- Chicken astrovirus variants subgroup Biii causing visceral gout (nephritis) and Malabsorption (enteritis)

- Several pathogens are implicated as potential reasons for poultry diseases, either individually, in synergy with different other microorganisms (multi-causal), or facilitated by non-infectious causes. Any stress-causing agent can hinder poultry disease resistance, increase the susceptibility of chickens to infections, and decrease the effectiveness of vaccinations. Ex: CRD complications with Mycoplasma.

- Comprehensive approach for Mycoplasma control programmes with VH-MGK was discussed extensively with data around the country with both single and multi-age breeder flocks.

- **Causes of Vaccine Breaks:** In most cases, the use of vaccination creates a false sense of biosecurity and hygiene. Generally, vaccination does not prevent infection; rather, it only leads to a reduction in the number of outbreaks. Several factors can lead to the so-called vaccine break: incorrect transport and storage of the vaccines, faults or deficiencies of the administration, and high infectious pressure in an area.

- The occurrence of unanticipated and new diseases and new legislation will also remain essential issues. Restricted use of a vaccine, such as the epidemiological situation, cost- benefit analysis, availability of the vaccine, and governmental regulations.

- As a general rule to finalize the vaccination program, adequate immunity is an obligatory need in order to manage infectious pressure on the farm, thus providing proper vaccination programs for disease control is essential to ensure the health status of poultry. Furthermore, there could be subclinical infections within the flock, and other immunosuppressive diseases or infections with field strains could occur shortly before or after the vaccination, and/or there could be infection with mutant strains. Finally, the quality of the vaccine is affected by the number of antigens, poor storage conditions, improper handling, and administration.

Launch of VIPx (IBD immune complex vaccine), a hatchery vaccine as a complete solution to the current issues related to the cross protecting strains and gaps in IBD vaccination procedures at the field.

- VIPx vaccine includes Ventri's Intermediate plus strain bound with specific homologous antibodies,
- The Ventri's Intermediate plus vaccine strain was most effective in controlling vvIBDV in India since two decades, with superior cross protection against the Novel variants of IBDV emerging in India.
- Early immune response to the low maternal antibody chicks, preventing subclinical IBDV infections.
- Reduced vaccination stress with the farm vaccination
- Uniform distribution of the vaccine dose.Minimal interference of neutralizing Maternal antibodies

Vaccine virus competes with the field virus to reach the bursa at the earliest and stimulate active immune response. Less bursal damage and good immune response to ND, IBH, IBV etc. vaccinations in broilers

Large scale outcomes research data in >20 million broiler chicks, conducted across the country were discussed. Vast comparative data within the same farm and branches with the controls vaccinated at the field on day-12 were discussed. Improvement in the performance with reduced incidence of IBD leading to economic benefits were seen with VIPx hatchery vaccination. Along with less handling stress at farm level, resulted in the good uniformity of birds were noticed. Farmers were happy, since their vaccination work got reduced and chances of vaccination failures due to improper maintaining of cold chain, usually encountered at farm level was getting avoided.








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PRESS RELEASE

Srinivasa Farms

Prestigious Food Awards 2022 - Srinivasa Farms

In a first of it's kind, renowed HyBiz TV has organized Food Awards on 27th Aug'22 paving way to felicitating Individuals, Outlets, and Brands providing exceptional services in Food sector. Gracing the star-studded gathering, Mr. Kishan Reddy, Union Minister for Culture & Tourism, Miss India Ms. Manasa Varanasi and actress Ms.Purna were amongst few distinguished guests who congratulated and awarded awardees for their commendable contribution in the field of Food & Hospitality.

It was a proud moment for all of us at Srinivasa Farms when our young & dynamic third generation entrepreneur Mr. Harsha Rayudu Chitturi, heading Retail division bestowed winners with esteemed Food Awards for the year 2022 at the event.

Talking at the event, Mr. Harsha reiterated Srinivasa Farm's motto of providing quality and affordable nutritious food to all segments of the society which in a way also envelops employment generation and extending support to current & upcoming entrepreneurs. He also stressed that Poultry industry is an inherent part of Food Industry and has every potential to cater the needs of the Food industry at a large scale. He had vouched to continue company's commitment towards society.

We at Srinivasa Farms once again extent our heartiest congratulations to Mr. Harsha and wish him all the very best to achieve many more such milestones.

Srinivasa Farms – Official protein sponsor for prestigious Food Awards 2022

PRESS RELEASE

Srinivasa Farms

Inauguration of Sales office of Srinivasa Farms at Lucknow

Suresh Rayudu Chitturi, Managing Director, Srinivasa Farms & Venkat Rao, Business Head Layer Business, inaugurated their Sales office at Lucknow at 114-B, Highway Plaza, Udayan II, Raebareli Road, Lucknow, UP on 25th August 2022

Srinivasa Farms opened this office to further the partnership and commitment to the Farmers of this region. Suresh has also promised to setup a laboratory, strengthen the technical team and organise good quality feed for our farmers.

Omkar Verma, General Manager is in charge of UP, Bihar, Uttarakhand, West Bengal & Assam.

Prominent Farmers who attended inauguration & meeting afterwards.

Mr VP Singh,Dr Subhas Jaiswal, Mr. MohdSaif, Mr Omair Abbasi, Mr MohdAakif, Mr. MohdNayaab, Mr. Mohd Nazim&Mr. WasiUl Hasan,

After the Inauguration, the farmershad a discussion with Suresh. Points discussed included future of the industry, high feed cost due to increasing ingredient cost, low realisation prices of eggs, and various factors influencing the farmers. Suresh then shared with the farmers how Hy-Line W 80i will save them upto 0.50 ps per egg. (i.eupto Rs. 225/bird).

Existing Srinivasa Hy-Line Farmers shared how their decision to take this bird is supporting them even at these times by reducing production costs signifacntly

1. Lower mortality during rearing (approx 2%) and laying period (approx. 6-7%),

2. Lower Feed intake upto 25 gms which is saving about 0.50 ps per egg compared to competitor breeds.

3. Dr. Jaiswal shared one of the aspects he was impressed is the Superior Shell Quality of Srinivasa Hy-Linebird which were grown in peak summer, did not loose shell quality at the age of

100 weeks was very good and he decided to test the birds further to see when does the quality degrade to the competitor bird he reared earlier. He was surprised that the shell quality was strong till 140 weeks(without moulting) and then started going down which he used to get at 60 weeks in the competitor bird.

4. Farmers who have Srinivasa's birds also shared how they get 97% saleable eggs (54 to 60 gms).

Suresh ended the meeting by asking the farmers to focus on maximising the performance, since there is no such thing as cheap feed cost anymore. Truly extracting the Genetic potential of W-80i is the only way to produce eggs at the lowest cost with the added bonus of getting highest saleable eggs with unmatched quality.

PRESS RELEASE

GLOCREST Pharmaceutical Pvt. Ltd

Mycotoxicosis a big Threat to poultry

Dr. Mahesh Rajurkar
Product & Techno-Commercial Manger
GLOCREST
Pharmaceutical Pvt. Ltd.

Dr. Ramdas Kambale
CEO & Board Member
GLOCREST
Pharmaceutical Pvt.LTD

Mycotoxin is hidden enemy for poultry farming. Mycotoxin become worldwide problem due to high incidence and level of occurrence in animal feed. Increase in feed cost has just aggravated this problem. Mycotoxin have high potential risk to public health as well.According to the FAO **approximately 25% of the world's agricultural products is contaminated with mycotoxins**, and this contamination maybe due to saprophytic fungi before harvest of these crops while they are still in the field, during the process of harvest, and even after harvest during the storage of these. The most common poultry feed ingredients contaminated by mycotoxins include - Maize, Wheat and wheat by-products and Soybean meal. Storage condition of grains and environment factors are major factors for development of mycotoxicosis. Aflatoxins (AF), zearalenone (ZEN), ochratoxin A (OTA), fumonisin (FUM), trichothecenes such as deoxynivalenol (DON), and T-2 toxin are some of the mycotoxins that can significantly impact the health and productivity of poultry. In general, contaminated feeds usually contain morethan one mycotoxin.

Extreme weather conditions, heavy rain and drought lead to plant stress making them more susceptible to fungal infections. Mycotoxins are small and stable metabolites produced by fungi which can contaminate a wide variety of crops. The contamination of food and feed by mycotoxins is a global safety issue due to their adverse effects on human and animal health. In livestock & poultry, mycotoxins lead to important decreases in performance (growth, feed efficiency or reproduction issues) and consequently losses of revenue for farmers. common effects mycotoxin in poultry are reduced feed intake, poor weight gain, poor feed efficiency, poor growth performance, immunosuppression and poor hatchability along with increased mortality.

Mycotoxins vary in their chemical structures, which results in vast differences regarding their chemical, physical, and biochemical properties. While considering the great variety of mycotoxin structures there is no single method, which can be used to deactivate mycotoxins in feed. Therefore, different strategies have to be combined in order to specifically target individual mycotoxins without impacting the quality of feed. The best-known method for mycotoxin deactivation is "binding" with the use of binding agents, which are referred to as mycotoxin binders, adsorbents.

Prevention and Control of toxin in feed by TOXKIL POULTRY FEED ADDITIVE **:-**

Being an industry pioneer, GLOCREST & its peers, has more than half a century of combined expertise in the development and manufacturing of nutrition products- developed broad spectrum economical toxin binder - TOXKIL POULTRY FEED ADDITIVE. It counteracts mycotoxins in three ways –

By silicate binding, Mycotoxin destruction and by Liver protection TOXKIL POULTRY FEED ADDITIVE. contains –MOS, PVPP, Copper oxime, Choline chloride and Sodium butyrate,Humicacid, Activated charcoal and HSCAS. It binds polar and non-Polar mycotoxinse.g., Aflatoxins, ochratoxins, Ergot poisoning, Deoxynivalenol, zearalenone, T2 toxin,Fumonisin, etc TOXKIL POULTRY FEED ADDITIVE is safe and efficient and economical toxin binder.

Role of Humic Acid in TOXKIL POULTRY FEED ADDITIVE – It helps to stabilise the intestinal microflora to helps nutrients absorption. It acts as antibioticlike substance as alternative to growth promotor.It is one of most safe organic acids. It has unique action to bind moulds and fungus outside body as well as when feed is under storage. It acts as synergistic with other essential nutrients.

(Source: - Images and some information from internet).

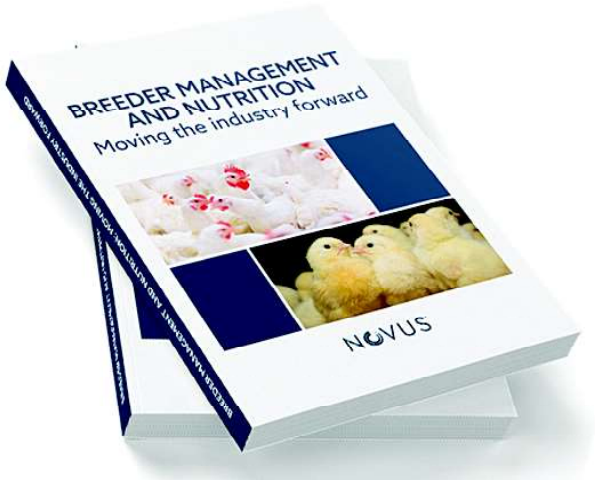
PRESS RELEASE

NOVUS INTERNATIONAL, INC.

New breeder book aims to aid in management, performance, and sustainability

Novus's latest publication showcases insights and experience of industry experts around the world

SAINT CHARLES, MO (July 19, 2022) – "This book is perhaps needed now more than ever as we see the escalating increase in meat protein production and consumption worldwide." This statement, written in the preface of a new publication on breeder production that Novus International, Inc. will release in August, highlights an industry reality – demand for safe, quality, nutritious meat protein is growing but producers face challenges.



Titled, **Breeder Management and Nutrition: Moving the industry forward**, the book's 14 chapters were carefully curated to serve as a reference for current broiler breeder production best practices and considerations as well as to be a catalyst for new ideas in management, nutrition, and industry sustainability.

"We know in order to meet the production goals of tomorrow, each part of the industry must work together today," said Sandrine Durox, Novus poultry solutions manager who serves as book co-curator together with Novus Executive Regional Technical Services Manager Silvia Peris and Professor Johan Buyse of KU Leuven, who served as scientific coordinator. "This book brings together the knowledge and know-how of academics, researchers, industry leaders, breeding companies, nutrition companies, veterinarians, and nutritionists to consider how each part of the broiler breeder's lifecycle can be impacted to optimize performance and positively impact the producer and the industry."

Those in the industry and academia will likely recognize the book's contributors:

Eddy Decuypere of KU Leuven, Aitor Arrazola of Perdue University, Rick van Emous and Annemarie Mens of Wageningen Livestock Research, Henk Enting of Cargill, Dinabandhu Joardar of Cargill,Edgar O. Oviedo-Rondón of North Carolina State University, Rebecca Forder of the University of Adelaide, Johan Buyse of KU Leuven, Juan Carlos Abad and Robin Jarquinof Cobb-Vantress, David Cavero Pintado and Xabier Arbe Ugalde of H&N International, and Stanislaw Budnik, Juxing Chen, Silvia Peris, Hugo Romero-Sanchez, and Mercedes Vázquez-Añón of Novus.

"It was important to have contributors from recognized academia, as well as experts from the industry and breeding companies, to properly cover the vast array of topics ranging from practical management, nutrition (quality and quantity), welfare, (epi)genetics and physiology," Buyse said.

Novus will host the official book launch on August 8 during the World's Poultry Congress 2022 in Paris.

Presented by the France branch of The World's Poultry Science Association, the 26th annual

Congress includes a five-day scientific program covering sustainability, health, nutrition, genetics, meat quality, broiler management,and other topics on species ranging from chicken, turkey, and duck to geese, quail, pigeons, and more. The event is expected to attract more than 3,000 participants from 100 countries.

Novus is a gold sponsor of WPC 2022.

"The World's Poultry Congress is the perfect venue to launch this book," said Hugo Romero-Sanchez, Novus global poultry solutions executive manager. "The goal of WPC is to contribute to solving the challenges of poultry production for the benefit of the global population. This book takes that goal and focuses on the breeder sector with an emphasis on broiler breeders, which is responsible for not only maintaining the health and productivity of the parent flock but also the success of their progeny."

Launch activities during WPC at Le Palais des Congrés de Paris are scheduled to include a seminar on excerpts from the book and an author meet & greet. Those interested in participating should visit the Novus booth at WPC (FO2) for details and to download a free digital version of the book. Hardcover versions will be available at regional launch events that Novus will host throughout the remainder of this year.

For more information about the launch event at the World's Poultry Congress, visit www.NovusInt.com /Events.

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Novus International, Inc. is a leader in scientifically developing, manufacturing, and commercializing nutrition and health solutions for the animal agriculture industry. Novus's portfolio includes ALIMET® and MHA® feed supplements, MINTREX® chelated trace minerals, CIBENZA® enzyme feed additives, NEXT ENHANCE® feed additive, ACTIVATE® nutritional feed acid, and other feed additives. Novus is privately owned by Mitsui & Co., Ltd. and Nippon Soda Co., Ltd. Headquartered in Saint Charles, Missouri, U.S.A., Novus serves customers around the world. For more information, visit www.novusint.com.

Book reservation link: http://www2.novusint.com/l/36552/2022-07-13/5vj9rn

Cutline for image (attached): Novus will launch its latest publication, **Breeder Management and Nutrition: Moving the industry forward**, at World Poultry Congress 2022 in August.

Contact: Reena Rani L C

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PRESS RELEASE

Technical Knowledge Forum at Itahari, East Nepal

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With an objective to foster scientific practices in the poultry production, ROSSARI-AHN held a Technical Knowledge Forum at Itahari, East Nepal on 10/08/2022. Here, we got to engage with the poultry producers & influencers and discuss thoroughly about the Broiler Management & Key Practices To Ensure Profitable Poultry Production. This discussion was highly appreciated by more than 50 participants composed of doctors, poultry farmers, and feed manufacturers. The audience applauded the company's initiative to enrich & update the poultry producers & doctors at their regional levels with the recent changes and developments in poultry production.

Team Rossari is very thankful for the warm gesture shown by the east Nepal poultry producers and highly appreciates the active participation of our associates.

ব্ৰয়লাৰ কুকুৰাৰ পামঃ স্বচ্ছ চৌহদ, নিকা ঘৰ আৰু বীজাণুমুক্ত পৰিৱেশ

মিহিৰ শৰ্ম্মা, আৰফান আলী, পংকজ ডেকা
পশু- চিকিৎসা বিজ্ঞান মহাবিদ্যালয়
অসম কৃষি বিশ্ববিদ্যালয়, খানাপাৰা, গুৱাহাটী

ব্ৰয়লাৰ কুকুৰা পাম এখনৰ পৰা আৰ্থিক সুফল পাবলৈ হ' লে কুকুৰাবোৰৰ সম্পূৰ্ণ সু- স্বাস্থ্য অপৰিহাৰ্য্য। নতুনকৈ আৰম্ভ কৰা ব্ৰয়লাৰৰ পাম এখনত প্ৰথম ২-৩ টা জাকৰ বাঢ়ন ক্ষমতা যথেষ্ট উৎসাহজনক আৰু মৃত্যুৰ হাৰো তেনেই নগণ্য হয়। কিন্তু পৰৱৰ্তী পৰ্য্যায়ত পিছৰ জাক বিলাকত বহুতো কুকুৰাপালকৰ ব্ৰয়লাৰ কুকুৰাবোৰৰ বাঢ়ন ক্ষমতা হ্ৰাস হয় তথা মৃত্যুৰ হাৰো বেছি হোৱা দেখা যায়। জাক এটাৰ সফল প্ৰতিপালন কৰি বিক্ৰী কৰাৰ পাছত ব্ৰয়লাৰৰ ঘৰটো সম্পূৰ্ণকৈ চাফ- চিকুণ, সা- সঁজুলি বিশুদ্ধিকৰণ তথা ঘৰটো সম্পূৰ্ণকৈ বীজানুমুক্ত কৰাত কম গুৰুত্ব দিয়াটোও ইয়াৰ এক অন্যতম কাৰণ। কুকুৰাৰ পামখন বেমাৰ আজাৰৰ পৰা মুক্ত কৰি ৰাখিবৰ বাবে পামঘৰৰ স্থান আৰু গঠন অত্যন্ত জৰুৰী বিষয়। মুক্ত বায়ু চলাচল, ৰ' দ পৰা স্থান আৰু নিগনি মুক্ত পৰিৱেশ বাধ্যতামূলক বুলি ধৰা উচিত। একেটা পামঘৰত বেলেগ বেলেগ বয়সৰ কুকুৰা ৰখাটো বিজ্ঞানসন্মত নহয়, সেয়ে এটা ঘৰত একে বয়সৰ এটা জাকহে পালন কৰা উচিত। অন্যথা ডাঙৰ কুকুৰাবিলাকৰ পৰা সৰু পোৱালিবোৰলৈ বেমাৰৰ বীজাণু বিয়পিব পাৰে।

এটা জাক বিক্ৰী কৰাৰ পিছত ব্ৰয়লাৰৰ ঘৰটো সম্পূৰ্ণকৈ চাফ- চিকুণ কৰি, বীজানুনাশক দ্ৰব্য, ধোঁৱাকৰণ (Fumigation) আদিৰ সফল প্ৰয়োগৰ জৰিয়তে ব্ৰয়লাৰ ঘৰটোত এক নতুন বীজাণুবিহীন স্বাস্থ্যকৰ পৰিৱেশ দিব লাগে যাতে পৰৱৰ্তী পৰ্য্যায়ত ব্ৰয়লাৰৰ জাকটোক এক সুন্দৰ বাঢ়ন ক্ষমতা যুক্ত, নিৰোগী জাক হিচাপে তুলিব পৰা যায়। প্ৰতিটো জাকৰ সফল বৃদ্ধি তথা নূন্যতম মৃত্যুৰ হাৰ পাবলৈ জাকটো বিক্ৰী কৰাৰ পিছত আৰু নতুন জাক এটাৰ আগমণৰ আগতে কুকুৰাৰ ঘৰটো তথা সা- সঁজুলিবিলাক সম্পূৰ্ণ বীজাণুমুক্ত হোৱাটো অতিকৈ প্ৰয়োজনীয়।

ব্ৰয়লাৰ পাম এখনত সঠিক চাফ- চিকুণতা, বীজাণুনাশক প্ৰয়োগ, ধোঁৱাকৰণ, পুৰণি অলাগতিয়াল বস্ত আঁতৰোৱা আৰু পুৰণি লিটাৰ খিনিৰ সঠিক স্থানান্তৰ আদিয়ে পিছৰ জাক ব্ৰয়লাৰৰ বেমাৰৰ সম্ভাৱনীয়তা যথেষ্ট পৰিমাণে হ্ৰাস কৰে আৰু ফলত বাঢ়নত সহায়ক হয়। যদি ব্ৰয়লাৰ জাক এটা বিক্ৰীৰ পিছত ব্ৰয়লাৰৰ ঘৰটো সম্পূৰ্ণৰূপে চাফ- চিকুণ তথা বীজাণুনাশক প্ৰয়োগ কৰা নহয় তেতিয়া পিছৰ জাক ব্ৰয়লাৰে আৰম্ভণিৰে পৰা এটা অস্বাস্থ্যকৰ পৰিৱেশ পায় ফলত বিভিন্ন ৰোগ সংক্ৰমণৰ

সম্ভাৱনীয়তা বাঢ়ি কুকুৰাৰ মৃত্যুৰ হাৰ বৃদ্ধি পায় আৰু ইহঁতৰ বাঢ়নতো ইয়াৰ কু-প্রভাৱ দেখা যায়।

সেয়েহে পিছৰ জাক ব্রয়লাৰৰ সঠিক বৃদ্ধি তথা নিৰোগী স্বাস্থ্যৰ বাবে এটা জাক বিক্রী কৰাৰ পিছত পামৰ পৰিসীমাৰ লগতে পামঘৰৰ সু-পৰিচালনা, চাফ-চিকুণতা, বীজাণুনাশক প্রয়োগ ব্যৱস্থা আৰু অলাগতীয়াল লেতেৰা সামগ্রী সমূহৰ সঠিক নিষ্পত্তীকৰণ (Disposal) অতিকৈ জৰুৰী।

পামঘৰৰ সা-সঁজুলি আৰু পাম পৰিসীমাৰ পৰিষ্কাৰ-পৰিচ্ছন্নতা:

১) ব্রয়লাৰ জাকটো বিক্রী কৰাৰ পিছতেই গোটেই ঘৰটোৰ বাহিৰে ভিতৰে অনুমোদিত কীটনাশক দ্রব্য, কোম্পানীৰ নির্দেশ অনুযায়ী স্প্রে কৰি কমেও ১০ ঘণ্টা ৰাখিব লাগে আৰু তাৰ পাছতহে সা-সঁজুলি, লিটাৰ আদি বাহিৰলৈ উলিয়াব লাগে।

২) প্রথমে বাল্ব, ব্রুডাৰ, ফেন আৰু অন্যান্য বৈদ্যুতিক সামগ্রীবোৰ ভালদৰে চফা কৰি খুলি ৰাখিব লাগে আৰু পামঘৰটো সম্পূর্ণ বীজাণুনাশন হোৱাৰ পিছত, পিছৰ জাক ব্রয়লাৰ অহাৰ আগে আগে পুনৰ পামত ব্যৱহাৰ কৰিব লাগে।

৩) দানাৰ পাত্রবোৰ বাহিৰলৈ উলিয়াই ভালদৰে ছাফ কৰি, ছার্ফ জাতীয় (Detergent) মিশ্রণেৰে ধুব লাগে আৰু বীজাণুনাশৰ বাবে খুব ভালদৰে ৰ'দত গুকুৰাব লাগে।

৪) পানীৰ পাত্রবোৰ খালী কৰি ছার্ফ জাতীয় (Detergent) মিশ্রণেৰে বা হাইড্র' ক্লৰিক এচিড দ্রৱীভূত পানীৰে পৰিষ্কাৰকৈ ধুই ভালদৰে ৰ' দত গুকুৰাব লাগে। স্বয়ংক্রিয় পানী যোগান ব্যৱস্থা, বেল ড্রিংকাৰৰ ক্ষেত্রত প্রথমে পানী সংযোগ ব্যৱস্থা ব্যাহত কৰি, পানীৰ পাত্রবোৰ বাহিৰলৈ উলিয়াই আনিব লাগে আৰু ওপৰত উল্লেখিত ধৰণে ৰ' দত গুকুৰাব লাগে। নিপল ড্রিংকাৰৰ ক্ষেত্রত পানীৰ সংযোগ ব্যৱস্থা ব্যাহত কৰি পাইপডাল ওপৰলৈ দাঙি বান্ধি থ'ব লাগে যাতে ভিতৰখন পৰিষ্কাৰ কৰাত অসুবিধা নহয়।

৫) প্রথমে ব্রয়লাৰৰ ঘৰটোৰ জালিকাযুক্ত অংশৰ পর্দাবিলাক খুলি জোকাৰি ৰ'দত দিব লাগে। তাৰ পিছত ঘৰৰ চালি, চিলিং, কাষৰ বেৰ তথা জালিকাৰ পৰা ধূলি-মাকতি, মকৰাজাল বা যিকোনো লেতেৰা বস্তু আঁতৰ কৰিব লাগে।

৬) পামত ব্যৱহাৰ হোৱা লিটাৰ পৰাপক্ষত পোনে পোনে সাৰ হিচাপে বিক্রী কৰিব পাৰিলে উত্তম। মজিয়াত লাগি ধৰা লিটাৰবোৰ ৰুকি আঁতৰোৱাৰ ব্যৱস্থা কৰিব লাগে। এই লিটাৰবোৰ পোনে পোনে বিক্রী কৰিব নোৱাৰিলে, লিটাৰৰ ওপৰত ৫-১০% ফর্মেলিন স্প্রে কৰি পাম পৰিসীমাৰ পৰা কমেও ১,০০০-২,০০০ ফুট দূৰত্বত পেলাব লাগে বা ডাঙৰ গাত এটা খান্দি পুতি ৰাখিব লাগে যাতে পিছত ইয়াক সাৰ হিচাপে বিক্রী বা কেচু সাৰ প্রস্তুত কৰাৰ বাবে উপাদান হিচাপে ব্যৱহাৰ কৰিব পৰা যায়। ব্যৱহৃত লিটাৰখিনি দ'ম কৰা ঠাই বা গাতটো এনেকুৱা স্থানত হ'ব লাগে যাতে সেই দিশৰ পৰা পামৰ

দিশলৈ বতাহ নবয় (Opposite wind direction)।

৭) পামৰ পৰিসীমাত থকা কুকুৰাৰ পাখি বা আন অলাগতিয়াল বস্তুবোৰ গোটাই সেইবোৰ পুৰি পেলোৱাৰ ব্যৱস্থা কৰিব লাগে।

৮) যদি আগৰ জাক ব্রয়লাৰত ৰোগৰ প্রাদুর্ভাৱ বা মৃত্যুৰ হাৰ বেছি আছিল তেন্তে গোটেই পামঘৰটো ফ্লেমগান (জুইৰ শিখা) ব্যৱহাৰ কৰি বীজাণুমুক্ত কৰিব লাগে।

৯) পামঘৰত পোক-পৰুৱা, চাঁহি-চিকৰা আদি নহ'বৰ বাবে কীটনাশক দৰৱ ব্যৱহাৰ কৰিব লাগে।

১০) পামৰ মজিয়া পকী (Pucca) হ' লে চার্ফ জাতীয় সামগ্রী গৰম পানীত মিহলাই মজিয়াত চটিয়াব লাগে যাতে মজিয়াত লাগি থকা লেতেৰা বস্তুবোৰ কোমল হয় আৰু তাৰ পিছত বেছি স্পীডৰ পাইপেৰে (High Speed Pressure) পানী মাৰি মজিয়াখন চফা কৰিব লাগে।

১১) সঠিক চাফ-চিকুণৰ বাবে সাধাৰণতে ১,০০০ বর্গফুট মজিয়াৰ বাবে ২ কেজি. কাপোৰ ধোঁৱা ছ'ডা ৫০ লিটাৰ গৰম পানীত মিহলাই ১২ ঘন্টাৰ বাবে মজিয়াখন তিয়াই থ'ব লাগে। ইয়াৰ পিছত আকৌ ১ কে. জি. কাষ্টিক ছ'ডা (Caustic Soda) ৫০ লিটাৰ গৰম পানীত মিহলাই পুনৰ ১২ ঘন্টাৰ বাবে মজিয়াখন তিয়াই ৰাখিব লাগে আৰু তাৰ পিছত উচ্চ ক্ষমতাযুক্ত পাইপেৰে পানী মাৰি (High Speed Pressure) মজিয়াখন চফা কৰিব লাগে।

১২) পামৰ মজিয়া, বেৰ বা চাল আদিৰ মেৰামতিৰ প্রয়োজন থাকিলে এইবোৰ ঠিক কৰি ল' ব লাগে যাতে এন্দুৰ, নিগনি, বনৰীয়া চৰাই-চিৰিকতি তথা বৰষুণৰ পানী আদিৰ পৰা হাত সাৰি থাকিব পৰা যায়।

১৩) স্বয়ংক্রিয় পানী যোগান ব্যৱস্থাৰ ক্ষেত্রত পানীৰ পাইপবোৰ ৫% হাইড্র' জেন পেৰ'ক্সাইড যুক্ত পানীৰে পৰিষ্কাৰ কৰাটো অতিকৈ দৰকাৰী (৯ লিটাৰ পানীত ১ লিটাৰ ৫০% হাইড্র' জেন পেৰ' ক্সাইড ব্যৱহাৰ কৰিলে ৫% হাইড্র' জেন পেৰ' ক্সাইড পোৱা যাব)।

১৪) পানীৰ পাইপৰ এটা মূৰ বন্ধ ৰাখি আনটো মূৰেৰে ৫% হাইড্র' জেন পেৰ' ক্সাইড যুক্ত পানী পাইপত ভর্তি কৰি ৪-৬ ঘন্টা ৰাখিব লাগে, যাতে হাইড্র' জেন পেৰ' ক্সাইডে বিক্রিয়াৰ বাবে সম্পূর্ণ সময়কণ পায়। বিক্রিয়ণ সময়ৰ (৬ ঘন্টা) পিছত পাইপ ডালৰ বন্ধ মূৰটো খুলি উচ্চ ক্ষমতা সম্পন্ন স্পীডেৰে পানী মাৰি পাইপবোৰ চফা কৰিব লাগে।

১৫) পামৰ চাৰিওকাষে আৰু পামৰ ভিতৰত কোম্পানীৰ নির্দ্দেশ অনুযায়ী বীজাণুনাশক বা ৫% ফর্মেলিন স্প্রে কৰাটো অত্যন্ত লাভজনক। এই ক্ষেএত ৫০০ মি. লি. ফর্মেলিন ১০ লি. পানীত মিহলাই ১,০০০ বর্গফুট কালিৰ পকাঘৰৰ বাবে বা ১ লিটাৰ ফর্মেলিন ১০ লিটাৰ পানীত মিহলাই ১,০০০ বর্গফুট কালিৰ কেচাঁঘৰৰ বাবে ব্যৱহাৰ কৰাটো অত্যন্ত জৰুৰী।

১৬) কেচাঁ মজিয়াৰ পামৰ ক্ষেত্রত লিটাৰ সামগ্রী তথা অন্যান্য অলাগতিয়াল বস্তুবোৰ আঁতৰোৱাৰ পিছত ১-২ ইঞ্চি মজিয়াখন ৰুকি মাটিখিনি আঁতৰ কৰি তাৰ ঠাইত নতুন মাটি দি মজিয়াখন সমান কৰি ললে বেমাৰ আজাৰৰ পৰা বহুখিনি হাত সাৰি থাকিব পৰা যায়। এই ক্ষেত্রত ১,০০০ বর্গফুট ঘৰৰ বাবে ৬০ লিটাৰ পানীত ২০ কি. গ্রা. চূণ, ফর্মেলিন ১ লিটাৰ আৰু কেৰাচিন তেল ৫০০ মি. লি., ক' পাৰচালফেট ২০০ গ্রাম মিহলাই মজিয়া আৰু বেৰ লেপন কৰিব লাগে।

ধোঁৱাকৰণ বা জাগ দিয়া (Fumigation)

উপযুক্ত ধোঁৱাকৰণে পামত বীজাণুমুক্ত পৰিৱেশ বর্তাই ৰখাত যথেষ্ট সহায় কৰে। এই কথাটো মনত ৰাখিবলগীয়া যে পামঘৰটো সঠিকভাবে চাফ-চিকুণ নকৰাকৈ ধোঁৱাকৰণ কৰিলে ইয়াৰ সম্পূর্ণ সুফল পোৱা নাযাব সেয়ে ওপৰত উল্লেখিত ধৰণে পামঘৰ, সা-সঁজুলি আদি চাফ-চিকুণ কৰাৰ পাছত ধোঁৱাকৰণ কৰাটো অত্যন্ত জৰুৰী।

সাধাৰণতে পোৱালিৰ বাবে ঘৰটো প্রস্তুত কৰি যেনে- ব্রুডাৰ, চিকগার্ড, দানা-পানীৰ পাত্র, লিটাৰ, পেপাৰ, লাইট আদি ঠিক-ঠাক কৰাৰ পিছত কাষৰ পর্দাবোৰ পেলাই ঘৰটোত সম্পূর্ণ বায়ুসঞ্চালন বন্ধ কৰি ল' ব লাগে। এই ক্ষেত্রত পামৰ দর্জাকেইখনো ভালদৰে পর্দাৰে ঢকাৰ ব্যৱস্থা কৰিব লাগে। সাধাৰণতে পোৱালি পামলৈ অহাৰ ৪৮ ঘন্টাৰ আগয়ে ধোঁৱাকৰণ কৰিব লাগে। দিনটোৰ আবেলি সময়কণ (অর্থাৎ যেতিয়া উষ্ণতা আৰু আর্দ্রতা বেছি থাকে) ধোঁৱাকৰণৰ বাবে উত্তম। সাধাৰণতে ২৪° ছেন্টিগ্রেড উষ্ণতা আৰু ৭৫% আপেক্ষিক আর্দ্রতাত এই গেছে সুন্দৰভাবে কাম কৰে। ১,০০০ বর্গফুট কালিৰ পাম এখনৰ বাবে ২ কে. জি. পটাছ (KMno4) বা ব্লিচিংপাউদাৰ আৰু ৪ লিটাৰ ফর্মেলিনৰ প্রয়োজন।

এই ক্ষেত্রত প্রথমে চাৰিটা ১ লিটাৰৰ প্লাষ্টিক বটলত ফর্মেলিনখিনি ভগাই লৈ বাল্টি এটাত লব লাগে। এতিয়া চাৰিটা ফুটা নথকা মাটিৰ পাত্রত (১৫ লিটাৰ ধাৰণ ক্ষমতাৰ) আধা কেজি. পটাছ ($KMno_4$) বা ব্লিচিংপাউডাৰ লৈ দহফুট আঁতৰে আঁতৰে পামঘৰৰ শেষ মূৰৰ পৰা দর্জাৰ কাষলৈ ঘৰৰ সোমাঁজত স্থাপন কৰিব লাগে যাতে ধোঁৱাবোৰ সম্পূর্ণ সুষমভাবে পামঘৰৰ চাৰিওকাষে বিয়পি পৰে।

এতিয়া পামঘৰৰ শেষ প্রান্তৰ পৰা ফর্মেলিন বটল (১ লিটাৰৰ) কেইটা মাটিৰ পাত্রত ঢালিব, একেবাৰে শেষত দর্জাৰ কাষৰ পাত্রটোত ঢালিব আৰু এই ফর্মেলিন ঢলা কামটো খুব ক্ষীপ্রতাৰে কৰিব।

ফর্মেলিন আৰু পটাছ ($KMno_4$) বা ব্লিচিংপাউদাৰৰ মাজত বিক্রিয়া হৈ ধোৱা (Fume) উৎপন্ন হব আৰু গোটেই পামঘৰত বিয়পি পৰিব। ধোঁৱাকৰণৰ পিছত ১২ ঘন্টালৈ কোনো কাৰণত পর্দাবোৰ আঁতৰাই দিব নালাগে। ধোঁৱাবোৰ আপোনা-আপুনি নোহোৱা হোৱাৰ পিছতহে পর্দাবোৰ আতঁৰাই দিব লাগে।

ধোঁৱাকৰণৰ পিছত পামত সোমাব লগা হলে ভৰিদুখন বীজাণুনাশক যুক্ত পানীত (Foot Bath) জুবুৰিয়াই পামত প্রৱেশ কৰিব।

প্ৰবায়'টিক বা উপকাৰী জীৱাণুৰ সংমিশ্ৰণঃ কুকুৰা পালনত সমস্যা নিৰাময়ৰ এক পৰিপূৰক প্ৰণালী

আৰফান আলী, পংকজ ডেকা, মিহিৰ শৰ্ম্মা
পশু- চিকিৎসা বিজ্ঞান মহাবিদ্যালয়
অসম কৃষি বিশ্ববিদ্যালয়, খানাপাৰা, গুৱাহাটী

পৃথিৱীৰ উপৰিভাগত বসবাস কৰা দৃশ্যমান জীৱ- জগত প্ৰকৃততে এক অদৃশ্যমান অতিসুক্ষ্ম আণুবীক্ষণীয় জীৱাণু জগতত ডুব গৈ আছে ঠিক যেনেকৈ আমি বায়ুৰ সাগৰত ডুব গৈ আছো অথচ বায়ু আমি চকুৰে দেখা নাপাওঁ। এই দৃশ্যমান আৰু অদৃশ্যমান জীৱ আৰু জীৱাণু জগতৰ সমূহ সদস্য আৰু অজৈৱিক পৰিৱেশ মিলি বায়ুমণ্ডলত এক বাসোপযোগী বৃহৎ পৰিৱেশৰ সৃষ্টি কৰে। বায়ুমণ্ডলত প্ৰতিটো জীৱই ইটোৱে- সিটোৰ লগত লগ লাগি পৰস্পৰ নির্ভৰশীলভাৱে এক সুন্দৰ সহজাত জীৱন নির্বাহ কৰিবলগীয়া হয়। কিন্তু যেতিয়াই কোনো প্ৰাকৃতিক বা মানৱিক কার্য্যকলাপৰ দ্বাৰা এই জৈৱ সমতাত কিবা বিঘিনি ঘটে তেতিয়াই বিভিন্ন প্ৰাকৃতিক দূর্যোগ, দূর্ভিক্ষ বা বেমাৰ- আজাৰ আকাৰে মানৱ সমাজকে আগুৰি জীৱজগতত খলকনিৰ সৃষ্টি কৰে। থুলমূলভাৱে এয়ে জৈৱ সমতা আৰু তাৰ ভাৰসাম্য বিনষ্ট। স্বাভাৱিক অৱস্থাত জীৱাণুজগতৰ ৯০- ৯৫ শতাংশই অন্য জীৱৰ বাবে প্ৰত্যক্ষ বা পৰোক্ষভাৱে উপকাৰী আৰু মাত্ৰ ৫- ১০ শতাংশ জীৱাণুহে সুযোগসন্ধানী পৰজীৱি হিচাপে থাকি জীৱদেহত বিভিন্ন প্ৰকাৰৰ দৈহিক ব্যাঘাত আৰু ব্যাধিৰ উপক্ৰম ঘটাব পাৰে।

প্ৰসঙ্গ পোল্ট্ৰী পামঃ এতিয়া আহো আমাৰ আজিৰ প্ৰাসঙ্গিক পোল্ট্ৰী পাম পৰিচালনাৰ কথালৈ। পোল্ট্ৰী পামতো জৈৱ সমতাৰ কথা বুজিবলৈ উপৰোক্ত কথাখিনি জনাটো খুৱেই প্ৰয়োজনীয়, যিখিনি প্ৰত্যেক জীৱৰ ক্ষেত্ৰতে প্ৰযোজ্য। গতিকে কুকুৰাৰ ক্ষেত্ৰতো একেই পৰিঘটনা সংঘটিত হয়। ওপৰত উল্লেখ কৰা উপকাৰী জীৱাণুবোৰ আমি কেনেদৰে নিয়ন্ত্ৰিতভাৱে আমাৰ পোল্ট্ৰী পামবোৰত ব্যৱহাৰ কৰি সুস্বাস্থ্যৱান ব্ৰইলাৰ আৰু কণী পৰা কুকুৰা বা লেয়াৰ পাম অধিক উৎপাদনক্ষম কৰিব পাৰি তাৰে কিছু কথা আলোচনা কৰিব বিচাৰিছো।

সাধাৰণ আৰু সাম্যক অৱস্থাত প্ৰকৃতিত মানুহকে আদিকৰি প্ৰত্যেক জীৱৰে নিজৰ দেহত কোষৰ সংখ্যাতকৈ বিভিন্ন প্ৰজাতিৰ অধিক সংখ্যক জীৱাণুৱে জীৱদেহত সহবাস কৰে, কোনো ধৰণৰ ক্ষতি নকৰাকৈ। পোল্ট্ৰীৰ ক্ষেত্ৰতো পৰিঘটণাটো একে। বৰঞ্চ বহুসময়ত খাদ্যনলীত থকা জীৱাণুৱে বিশেষকৈ বেক্টেৰীয়া আৰু প্ৰট'জোৱাই খাদ্যবস্তু জীণ যোৱাত, বহু ধৰণৰ জৈৱ মৌল বা পদার্থ উৎপাদন কৰে আৰু ক্ষতিকাৰক জীৱাণুবোৰক সংক্ৰমণ কৰিব নোৱৰাকৈ ৰাখে। তাৰে এটি উৎকৃষ্ট উদাহৰণ হ'ল কুকুৰা বা অইন চৰাইৰ খাদ্যনলীত সহজাত হিচাপে বসবাস কৰা কিছুমান বেক্টৰীয়াৰ

প্রজাতি। প্রাণীভেদে এনে বেক্টৰীয়াৰ গোট বেলেগ বেলেগ হ'ব পাৰে।

কুকুৰা পামৰ আৰ্থ-সামাজিক উন্নয়নত ভূমিকাঃ বৰ্তমান আমি উপলব্ধি কৰিব পাৰিছো যে এখন দেশৰ আৰ্থ-সামাজিক উন্নয়নত কুকুৰা চৰাইৰ পাম যাক আমি সচৰাচৰ পোল্ট্ৰী পাম হিচাপে কওঁ সেয়া ব্ৰইলাৰেই হওঁক বা লেয়াৰ পামেই হওঁক এক গুৰুত্ব পূৰ্ণ ভূমিকা বহন কৰি আহিছে বিশেষকৈ গ্ৰাম্য অৰ্থনীতিত। পোল্ট্ৰী উৎপাদনে প্ৰভাৱিত কৰা কিছুমান দিশ হ'ল-ই নিৱনুৱা যুৱক-যুৱতী সকলৰ বাবে কৰ্ম আৰু আত্মসংস্থাপনৰ পথ মুকলি কৰিছে, মাংস আৰু কণী হিচাপে মাংসাহাৰ উৎপাদনৰ যোগেদি ৰাষ্ট্ৰীয় অৰ্থনীতিত অৰিহণা যোগোৱাৰ উপৰিওঁ অপুষ্টি নিবাৰণত সৱল ভূমিকা পালন কৰি আহিছে। ৰাষ্ট্ৰীয় পৰ্যায়ত বীজাণুমুক্ত কণী, প্ৰক্ৰিয়াকৃত মাংস আৰু কণীৰ উপজাত দ্ৰব্যাদি ৰপ্তানিৰ যোগেদি বিদেশী মুদ্ৰা আহৰণতো সহায় কৰিছে। এনে এক প্ৰচূৰ সম্ভাৱনীয়তা আৰু চাহিদাপূৰ্ণ খণ্ডটো মাজে সময়ে বহু ধৰণৰ ঘাত-প্ৰতিঘাতৰ সন্মুখীন হৈ আহিছে। তাৰে ভিতৰত কিছুমান কাৰক হ'ল পাৰিৰাৰ্শ্বিক তাৰতম্যৰ ফলত পোৱা চাপ, অপৰিপক্ক আৰু অনভিজ্ঞ পাম পাৰিচালনা, অবৈজ্ঞানিক পৰিচৰ্যা, অসম পৰিপুষ্টি যোগান, প্ৰতিজৈৱিক দৰৱপাতিৰ অবিচাৰ আৰু অতিব্যৱহাৰ ইত্যাদি এশ এবুৰি চাপ বা বাধা। বাণিজ্যক ভাৱে পামত পোহপাল কৰা পোল্ট্ৰী সাধাৰণতে এনেবোৰ চাপৰ প্ৰতি অতিসংবেদনশীল। আৰু প্ৰথমেই এই সংবোদনশীলতাৰ পোনপটীয়া প্ৰভাৱ পৰে খাদ্যনলীত, খাদ্যনলীত জৈৱ-বৈচিত্ৰৰ ওপৰত। ফলত অন্তঃদেহত বাস কৰা জীৱাণুকুলৰ সমতা আৰু সামঞ্জস্য বিনষ্ট হয়। ফলস্বৰুপে চাপ আৰু বিভিন্ন বেমাৰৰ উপসৰ্গই দেখা দিয়ে। পুণৰ এই সামঞ্জস্যপূৰ্ণ সমতা ঘু�ৰাই অনাটো অতিকৈ কষ্টকৰ আৰু বেদনাদায়ক কাৰ্য্যপ্ৰণালী। পামৰ সজলতা নষ্ট হয়, উৎপাদন কমি যায় আৰু গৰাকী আৰ্থিকভাৱে ধৰাসায়ী হৈ পৰে।

গতিকে এনেধৰণৰ বহুসমস্যা আতৰাই ৰাখিবৰ বাবে আমাৰ এক সহজ উপায় হ'ল দেহৰ ভিতৰৰ বিশেষকৈ খাদ্যনলীৰ জৈৱ-বৈচিত্ৰক যথাযথভাৱে সংৰক্ষন কৰা আৰু বৈজ্ঞানিক পদ্ধতি অৱলম্বন কৰি নিয়ন্ত্ৰিতভাৱে উপকাৰী জীৱাণুৰ অধিক বংশবৃদ্ধিৰ জৰিয়তে অপকাৰী বা বেমাৰৰ কাৰক জীৱাণুবোৰক অপসাৰন কৰাৰ ব্যৱস্থা কৰা। এই পদ্ধতিৰ উপকৰণ হিচাপে যথেষ্ট চৰ্চিত আৰু প্ৰমাণিত উপকৰণৰ নাম হ'লঃ প্ৰবায়টিক বা **উপকাৰী জীৱাণুৰ সংমিশ্ৰণ বা** জৈৱ সমৰ্থক দ্ৰব্য।

প্ৰবায়টিক কি? সহজভাষাত প্ৰবায়টিক হ'ল এক বা একাধিক উপকাৰী জীৱাণুৰ মিশ্ৰণ। প্ৰাণী আৰু প্ৰজাতিভেদে প্ৰবায়টিকৰ প্ৰস্তুতি প্ৰকৃতি বেলেগ হ'ব পাৰে। কাৰণ বিভিন্ন প্ৰাণীত এই উপকাৰী জীৱাণুৰ সমূহ আৰু প্ৰজাতিও ভিন্ন হয়। পোল্ট্ৰী প্ৰবায়টিক হিচাপে চিহ্নিত আৰু ব্যৱহৃত বেক্টেৰীয়াৰ প্ৰজাতি কেইটামান হ'ল লেক্টোবেচিলাচ, বাইফিডবেক্টেৰিয়াম, বেচিলাচ, এণ্টেৰোকক্কাছ, ষ্ট্ৰেপ্টকক্কাছ, ছেকাৰমাইছিছ, এছপাৰজিলাছ আৰু কেনডিডা। যদিও ইয়াৰে আটাইবোৰ বাণিজ্যিক ৰোপত উপলব্ধ নহয় তথাপি কিছুমান অন্য দৰৱ বা খাদ্য দ্ৰব্যৰ লগত সহসংযোজন হিচাপে পোৱা যায়। মূলতঃ প্ৰাকৃতিক হিচাপে প্ৰবায়টিক ধৰ্ম বা গুণ থকা এনেবোৰ জীৱাণু সম্বলিত খাদ্য যোগান ধৰাৰ চেষ্টা কৰিব লাগে। অতি সহজলভ্য হিচাপে থিতাতে উপলব্ধ অতি উচ্চ গুণগত মানদণ্ডৰ বিশেষকৈ লেক্টোবেচিলাচ প্ৰজাতিৰ বেক্টৰীয়া সম্বলিত প্ৰাকৃতিক প্ৰবায়টিক হ'ল গাখীৰজাত

পণ্য "দৈ"। আমি দৈনন্দিন যোগান ধৰা পানীত কিছু পৰিমাণে দৈ বা অন্য প্ৰবায়টিক জাতীয় পদাৰ্থ সংযোজন কৰাটো নিয়মিত কৰিব পাৰিলে প্ৰবায়টিক ব্যৱহাৰৰ সুফল পাব পাব পৰা যায়।

এতিয়া আহো প্ৰবায়টিকে কাম কিদৰে কৰেঃ আমি জানো যে প্ৰবায়টিকবোৰ জীৱিত উপকাৰী জীৱাণুৰ এক সমূহ। সাধাৰণ অৱস্থাত এই জীৱীণুবোৰে সকলো প্ৰাণীৰে দেহত বিশেষকৈ বৃহৎ পৰিমাণে পৰস্পৰ লাভজনকভাৱে সহৱস্থান কৰে খাদ্যনলীৰ বিভিন্ন খণ্ডত। প্ৰাণীদেহে কৰিব নোৱৰা কিছুমান উৎসেচক, খাদ্যপ্ৰান আৰু খাদ্যমৌল উৎপাদন কৰি গৰাকী প্ৰাণীৰ খাদ্য জীৰ্ণ যোৱাৰ পৰা আৰম্ভ কৰি অপকাৰী আৰু বেমাৰৰ সৃষ্টি কৰিব পৰা বীজাণুৰ পৰা ৰক্ষনাবেক্ষন আৰু সুস্থ জীৱন-যাপন কৰাত সহায় কৰে। গতিকে এক প্ৰদত্ত সুক্ষ্ম পৰিৱেশত যদি উপকাৰী জীৱাণুৰ সংখ্যাগৰিষ্ঠতা স্থাপন কৰা হয় তেন্তে অপকাৰী সংখ্যালঘিষ্ঠ বেমাৰৰ বীজাণুবোৰক স্থানৰ পৰ্য্যাপ্ততা আৰু পুষ্টি আহৰণৰ প্ৰতিযোগিতাৰে স্থানচ্যুত কৰে। তাৰোপৰি জীৱাণুবোৰে দেহৰ ভিতৰত ৰাসায়নিক বিক্ৰিয়াৰ যোগেদি কিছুমান প্ৰতিজৈৱিক অণুৰ সৃষ্টি কৰে আৰু মাধ্যমত নিসঃৰণ কৰে। এই প্ৰতিজৈৱিক অণুবোৰে আন প্ৰতিযোগী জীৱাণুবোৰক ধ্বংস কৰে আৰু প্ৰতিজৈৱিক পদাৰ্থ উৎপাদনকাৰী জীৱাণুৰ বাবে পৰিৱেশ অনুকুল কৰি ৰাখে। গতিকে আমি যদি উপকাৰী প্ৰবায়টিকবোৰত থকা জীৱাণু যেনে গাখীৰ জাত খাদ্য সামগ্ৰীত থকা লেক্ট'বেচিলাছ জাতীয় বেক্টেৰীয়াৰ বসতি নিশ্চিত কৰিব পাৰি তেন্তে অপকাৰী আৰু ৰোগ সৃষ্টিকাৰী জীৱাণু যেনে ছালম'নেল্লা, কেম্পাইল'বেক্টাৰ আদি বেক্টেৰীয়াৰ অপসাৰণৰ দ্বাৰা সংখ্যা সিহঁতৰ নিয়ন্ত্ৰাধীন কৰি ৰাখিব পাৰি। ইয়াক প্ৰতিযোগিতামূলক বহিষ্কৰণ বুলি কব পাৰি। নিয়মিত প্ৰবায়টিক যোগানৰ ফলত দেহত হোৱা অইন ধনাত্মক পৰিৱৰ্তনবোৰ হ'লঃ খাদ্যনলী স্বাস্থ্যৱান আৰু অক্ষত থাকে, খাদ্যনলীত যথেষ্ট শ্লেষ্মা থাকে, কোষবোৰ সুস্থ-সৱল হয় ফলত বীজাণুবোৰে ভিতৰলৈ সোমাই যাব নোৱাৰে, তেজ বীজাণুমুক্ত থাকে, শৰীৰৰ প্ৰতিৰোধ ক্ষমতা বৃদ্ধি কৰে। গতিকে কুকুৰাবোৰ নিৰোগী, স্বাস্থ্যৱান আৰু অধিক উৎপাদনক্ষম হয়। মাংস আৰু কণীৰো গুণগত মানদণ্ড উন্নত হয়।

উপসংসাৰঃ আমি জানিব পাৰিলো যে প্ৰকৃততে প্ৰবায়'টিক কোনো নতুন বস্তু নহয় বৰঞ্চ এক প্ৰাকৃতিক জৈৱিক পৰিৱেশক বৈজ্ঞানিক জ্ঞান আৰু প্ৰযুক্তিৰ সহায়ত বাণিজ্যিক ব্যৱহাৰ কৰি তাৰ সুফল লাভ কৰাৰ এক পদ্ধতি। এনে প্ৰযুক্তিৰ ব্যৱহাৰে আমাক বহু পৰিমাণে মানৱ আৰু প্ৰাণীজগতৰ বাবে হানিকাৰক ৰাসায়নিক দ্ৰব্য আৰু এণ্টিবায়'টিক বা প্ৰতিজৈৱিক দৰৱৰ ব্যৱহাৰ ৰোধ কৰি এক সুস্থ পৰিৱেশত জীয়াই থকাৰ বাবে সুযোগ প্ৰদান কৰিব। প্ৰতিজৈৱিক প্ৰতিৰোধক (antibiotic resistant) জীৱাণুৰ আৱিৰ্ভাৱ লাঘৱ কৰি বিভিন্ন মাৰাত্মক ৰোগৰ সংক্ৰমণৰ পৰা জীৱকুলক পৰিত্ৰাণ দিব পাৰে। মানুহে ৰসায়ণমুক্ত খাদ্য পাব, পৰিৱেশ সুৰক্ষিত হ'ব, আৰ্থ-সামাজিক পৰিস্থিতি উন্নততৰ হ'ব আৰু আজিৰ বিশ্বায়নৰ যুগত পোল্ট্ৰীৰ পৰা উৎপন্ন খাদ্য সামগ্ৰী আমদানি-ৰপ্তানিৰ ক্ষেত্ৰতো সুদুৰপ্ৰসাৰী প্ৰভাৱ পৰিব। এক ক্ষুদ্ৰ কল্যানকামী খোজৰ বিশাল সুফল পৰিণতি।

প্রসঙ্গঃ কুকুৰা পামত ব্যৱহাৰ কৰা পানী

অসীম শইকীয়া, আৰফান আলী, পংকজ ডেকা
পশু-চিকিৎসা বিজ্ঞান মহাবিদ্যালয়
অসম কৃষি বিশ্ববিদ্যালয়, খানাপাৰা, গুৱাহাটী

পানী খাদ্যৰ অতি লাগতীয়াত উপকৰণ। দেখা গৈছে যে মানুহ বা পশু-পক্ষী যিয়েই নহওঁক, ইয়াৰ খাদ্যত পানীৰ গুণাগুণ আৰু পৰিমাণত কেতিয়াওঁ উপেক্ষা কৰিব নোৱাৰি। যিকোনো জীৱ-জন্তুৰ ক্ষেত্ৰতে পানীৰ অভাৱে খাদ্যৰ অভাৱতকৈ বেছি ক্ষতি কৰে। শৰীৰত থকা মুঠ পানীৰ যদি ১৫-২০ শতাংশ ওলাই যায় তেন্তে যিকোনো পশু-পক্ষী মৃত্যুমুখত পৰিব পাৰে। খাদ্য আৰু খোৱাপানীৰ মাজত এটা অতি গুৰুত্বপূৰ্ণ সম্পৰ্ক আছে যাৰ কাৰণে খাদ্যৰ লগতে যথেষ্ট পৰিমাণৰ পানী খাবলৈ নিদিলে পশু-পক্ষীৰ প্ৰকৃত হাৰত বৰ্দ্ধন হ'ব নোৱাৰে। এই বাধাটো আহি পৰে শাৰীৰিক আৰু বেমাৰ প্ৰতিৰোধী ব্যৱস্থাত পানীৰ অভাৱৰ কাৰণে আহি পৰা দূৰ্বলতাৰ বাবে। সাধাৰণতে পক্ষীপালকসকলে তেওঁলোকৰ চৰাইক দিয়া পানীৰ গুণাগুণ আৰু পৰিমাণৰ ওপৰত দানাৰ সমানে গুৰুত্ব দিয়া দেখা নাযায়। যি কি নহওঁক, বিভিন্ন পৰীক্ষাৰ পৰা দেখা গৈছে যে পানীৰ সমস্যাই চৰাইৰ প্ৰকৃত হাৰত বৰ্দ্ধনত প্ৰভাৱ পেলায়।

প্ৰাণীৰ দেহত পানীৰ কামঃ জীৱৰ দেহত পানীৰ দ্বাৰা বহুতো গুৰুত্বপূৰ্ণ কাম সমপন্ন হয় যিবোৰৰ দ্বাৰা জীৱ-জন্তু আৰু গছ-গছনিবোৰ জীয়াই থাকে। তাৰে ভিতৰত প্ৰধান প্ৰধান কামবোৰ হৈছে- ই দেহৰ কোষবোৰৰ মাজত পোষকদ্ৰব্যবোৰ (Nutrients) এঠাইৰ পৰা আন ঠাইলৈ সঞ্চালন হোৱাত সহায় কৰে, শৰীৰত হোৱা সকলো ধৰণৰ জৈৱ-ৰাসায়নিক ক্ৰিয়াবোৰ সম্পাদনত ভাগ লয়, শৰীৰৰ পৰা অলাগতিয়াল বৰ্জিত পদাৰ্থবোৰ ওলাই যোৱাত সহায় কৰে, শৰীৰৰ ভিতৰত উত্পন্ন হোৱা তাপ শৰীৰৰ পৰা বাহিৰ কৰি দি শীত-তাপ নিয়ন্ত্ৰণ কৰাত সহায় কৰে, পানীয়ে শৰীৰটোক নিৰ্দিষ্ট আকাৰ প্ৰদান কৰাত সহায় কৰে, ই হৈছে শৰীৰৰ জোৰাবোৰৰ পিছলিকৰণ পদাৰ্থৰ প্ৰধান উপাদান আৰু ইয়ে স্নায়ৱিক প্ৰণালীত কোষবোৰক সুৰক্ষা দি এই প্ৰক্ৰিয়াটোক নিয়ন্ত্ৰণ কৰে।

পানীৰ উত্সঃ জীৱই শৰীৰত সাধাৰণতে তিনি ধৰণৰ উত্সৰ পৰা পানী পায়। প্ৰথমটো উত্স হৈছে-খোৱা পানী। দ্বিতীয়তে, দানা আৰু ঘাঁহ-পাত আদিৰ পৰা পোৱা পানীও পশু-পক্ষীৰ বাবে এটা গুৰুত্বপূৰ্ণ উত্স। উদাহৰণস্বৰূপে গোমধানৰ গুটিত ১০-১৪ শতাংশ পানী থাকে। অৰ্থাৎ প্ৰতি ১ কি. গ্ৰাম গোমধানৰ পৰা ১০০-১৪০ গ্ৰামলৈকে পানী পায়। পানীৰ তৃতীয় উত্সটো হৈছে শৰীৰৰ ভিতৰত খাদ্যৰ ৰাসায়ণিক পৰিৱৰ্তনৰ সময়ত উত্পন্ন হোৱা পানী। এই ৰাসায়ণিক পৰিবৰ্তনৰ সময়ত এক গ্ৰাম স্নেহ পদাৰ্থৰ পৰা ১.২ গ্ৰাম, ১ গ্ৰাম মাংসাহাৰৰ পৰা ০.৬ গ্ৰাম আৰু ১ গ্ৰাম শৰ্কৰাৰ পৰা ০.৪ গ্ৰাম পানী উত্পন্ন হয় যাক শৰীৰে বিভিন্ন কামৰ কাৰণে ব্যৱহাৰ কৰে। দানা আৰু ৰাসায়নিক ক্ৰিয়াৰ পৰা পোৱা মুঠ পানীয়ে পশু-পক্ষীক লগা পানীৰ প্ৰায় ২০ শতাংশ পূৰণ কৰে।

পানী ওলাই যোৱাৰ পথঃ শৰীৰৰ পৰা পানী ওলাই যোৱাৰ পথ প্ৰধানকৈ তিনিটা- উশাহ-নিশাহত, শৰীৰৰ ছালৰ কোষবোৰৰ যোগেদি আৰু শৌচ-প্ৰস্ৰাৱৰ লগত ওলাই যোৱা পানী। কণী দিয়া চৰাইৰ ক্ষেত্ৰত কণীৰ যোগেদি যথেষ্ট পৰিমাণৰ পানী ওলাই যায়। উশাহ-নিশাহত ওলাই

যোৱা পানীৰ পৰিমাণ বায়ুমণ্ডলৰ উষ্ণতা আৰু আৰ্দ্রতাৰ ওপৰত নির্ভৰ কৰে। শৰীৰৰ পৰা বাষ্প হৈ ওলাই যোৱা পানীৰ পৰিমাণ মুঠ পানীৰ ১২ শতাংশমান হয়, যেতিয়া বাহ্যিক উষ্ণতা ১০° চে. হয়। কিন্তু ই ৫০ শতাংশ পর্যন্ত হ'ব পাৰে যদি বাহ্যিক উষ্ণতা ৩০-৩৫° চে. লৈ বৃদ্ধি পায়। বায়ুত আৰ্দ্রতাৰ পৰিমাণ বেছি হ'লে বাষ্প হৈ ওলাই যোৱা পানীৰ পৰিমাণ কম হয়। তাপমাত্রা বহুত বেছি হ'লে বাষ্প হৈ ওলাই যোৱা পানীৰ পৰিমাণ খোৱা পানীৰ পৰিমাণৰ সমান হ'ব পাৰে। কুকুৰাৰ ক্ষেত্রত মুঠ খোৱা পানীৰ ২০-৩০ শতাংশ মল-মূত্রৰ যোগেদি ওলাই যায়। বিভিন্ন পৰীক্ষাৰ পৰা জনা গৈছে যে যদি এদিনীয়া কুকুৰা পোৱালীক উচ্চ উষ্ণতাত ৰখা হয়, তেতিয়া ইয়াৰ ওজন আৰু শৰীৰৰ পৰা পানীৰ হানি হয়। এনে অৱস্থাত সোণকালে পানীৰ ব্যৱস্থা নকৰিলে এই হানিৰ পৰিমাণ আৰু বাঢ়ি যায়, পোৱালীবোৰে দানা খোৱাৰ পৰিমাণ কমাই দিয়ে আৰু শুকাই যায়।

পানী খোৱাৰ আৱশ্যকতাঃ কুকুৰা পোৱালীৰ শৰীৰৰ ওজনৰ প্রায় ৭০ শতাংশই হৈছে পানী। শৰীৰত থকা মুঠ পানীৰ আকৌ ৭০ শতাংশ কোষবিলাকৰ ভিতৰত আৰু বাকী ৩০ শতাংশ কোষবোৰৰ মাজৰ ঠাই আৰু তেজত থাকে। শৰীৰৰ পানী আৰু মাংসাহাৰৰ গঠণৰ সম্বন্ধ আছে। সেয়ে, পোৱালীবোৰ বাঢ়ি অহাৰ লগে লগে শৰীৰত মাংসৰ পৰমাণ বাঢ়ি যায় আৰু শৰীৰৰ ওজন অনুপাতে পানীৰ পৰিমাণ কমি যায়। পানী খোৱাৰ পৰিমাণৰ ওপৰত প্রভাৱ পেলোৱা আন কাৰণবোৰ হৈছে বয়স, লিঙ্গ, বায়ুমণ্ডলৰ উষ্ণতা আৰু আৰ্দ্রতা, পানীৰ উষ্ণতা, দানাৰ পৰিমাণ, দানাৰ গঠন আদি। বায়ুৰ উষ্ণতাই কুকুৰা পোৱালীৰ খোৱাপানীৰ পৰিমাণৰ ওপৰত প্রধানকৈ প্রভাৱ পেলায়। ৰাষ্ট্রীয় গৱেষণা কেন্দ্রৰ (NRC) অনুসৰি বায়ুমণ্ডলৰ উষ্ণতা ২১° চে.ৰ বেছি হ'লে প্রতি ডিগ্রী উষ্ণতা বৃদ্ধিৰ বাবে পোৱালীৰ খোৱা পানীৰ পৰিমাণ ৭ শতাংশ বৃদ্ধি পায়। তদুপৰি, তাপমাত্রা বৃদ্ধিৰ লগে লগে দানা খোৱাটোও কমি যায়। সাধাৰণ অৱস্থাত পানী আৰু দানা খোৱাৰ অনুপাত ২:১ হয়। যদিও গৰম বঢ়াৰ লগে লগে পানী খোৱাৰ পৰিমাণ বাঢ়ি গৈ দানা খোৱাৰ পৰিমাণ কমি যায়।

পানীৰ তাপমাত্রাঃ খোৱা পানীৰ পৰিমাণ ইয়াৰ তাপমাত্রাৰ ওপৰত নির্ভৰ কৰে। সাধাৰণতে, পানীৰ তাপমাত্রা বায়ুমণ্ডলৰ উষ্ণতাৰ লগত মিল থকা দেখা যায়। যদি পানী গৰম হয় কুকুৰাবোৰে পানী খোৱাৰ পৰিমাণ কমাই দিয়ে। সৰু পোৱালীবোৰক দিয়া পানীখিনি ডাঙৰ কুকুৰাক দিয়া পানীতকৈ অলপ গৰম হোৱা প্রয়োজন, যাতে ঠাণ্ডা পানী খাই তাক গৰম কৰোতে ইয়াৰ শক্তিৰ ক্ষয় নহয়। পোৱালীবোৰে প্রথম অৱস্থাত যদি অধিক উষ্ণতা আৰু তাপমাত্রাযুক্ত পানী পায় তেন্তে ইহঁতে অসুবিধা পায়। তেতিয়া সিহঁতে পানী নাখায় কিন্তু নিজৰ গাটো পানীৰে তিয়াই লয় যাতে শৰীৰত অলপ গৰম অনুভৱ হয়। এই কথাটো ভলদৰে পৰিলক্ষিত হয় যেতিয়া দানাত মাংসাহাৰৰ পৰিমাণ লগাতকৈ বেছি বা কম হয়। দানাত নিমখৰ পৰিমাণ বেছি হলেও পানী খোৱাৰ পৰিমাণ বাঢ়ে। সেইদৰে, অধিক পটাছিয়াম আৰু ছডিয়ামেও খোৱা পানীৰ পৰিমাণ বৃদ্ধি কৰে আৰু শৰীৰৰ পানী ধৰি ৰখাৰ ক্ষমতা বঢ়ায়।

পানীৰ পাত্রঃ আজিকালি ব্রইলাৰ কুকুৰাপালকসকলে দুই ধৰণৰ পানীৰ পাত্র সাধাৰণতে ব্যৱহাৰ কৰে। ঘণ্টাৰ নিচিনা (bell type) আৰু নিপলৰ দৰে (nipple type)। ঘণ্টাৰ নিচিনা পানীৰ পাত্র ব্যৱহাৰ কৰিলে ইয়াক ৰখাৰ উচ্চতা আৰু তাত দিয়া পানীৰ পৰিমাণ সঠিক হাৰত নিয়ন্ত্রন কৰাটো দৰকাৰ। পানীৰ পাত্রটো বেছি তলত হ'লে ই শুহি খাব নোৱাৰে আৰু বেছি ওপৰত হ'লেও সৰু কুকুৰাবোৰে পানী দেখাই নাপাব পাৰে। গতিকে, দুয়ো ক্ষেত্রতে প্রয়োজনীয় পৰিমাণৰ পানী খোৱাত অসুবিধা হ'ব পাৰে। পাত্রত পানীৰ পৰিমাণ প্রথম সপ্তাহত ইয়াৰ পানী

ধাৰণ ক্ষমতাৰ ৯০ শতাংশ পানী ৰাখিব লাগে। পোৱালীবোৰ ডাঙৰ হৈ অহাৰ লগে লগে পাত্ৰত পানী ৰখাৰ পৰিমাণো কমাই আনিব লাগে। পোৱালীৰ বয়স ২১ দিনৰ বেছি হ'লে পাত্ৰৰ ধাৰণ ক্ষমতাৰ আধামাণ পানী পাত্ৰত ৰাখিলেই হয় আৰু কুকুৰাৰ সংখ্যা অনুপাতে পানীৰ পাত্ৰৰ সংখ্যা বঢ়াই দিব লাগে। নিপলৰ ধৰণৰ পাত্ৰ ব্যৱহাৰ কৰিলে ইয়াক ৰখাৰ উচ্চতা আৰু পানী প্ৰৱাহৰ গতিৰ ওপৰত চকু দিব লাগে। নিপলৰ উচ্চতা এনেদৰে ৰখা হয় যাতে চৰাইৰ মূৰটোৱে ৪৫° কোন কৰিলে পানী খাব পাৰে। গৰমৰ দিনত নিপলবোৰ অলপ তলত ৰখা হয় যাতে পানী খোৱাৰ পৰিমাণ বৃদ্ধি হয়। পানী প্ৰৱাহৰ ক্ষেত্ৰত বিভিন্ন ধৰণৰ নিপলৰ নিৰ্দিষ্ট প্ৰৱাহ ক্ষমতা থাকে। পোৱালীৰ বয়স বঢ়াৰ লগে লগে পানীৰ প্ৰৱাহ অলপ বঢ়াই দিব লাগে আৰু এই কাৰ্য্য সপ্তাহৰ অন্তৰালত কৰা উচিত।

পানীৰ গুণাগুণঃ বিভিন্ন ঠাইত পৰ্য্যাপ্ত পৰিমাণে পানী নথকা কাৰণে কুকুৰা পালনত সমস্যাৰ সৃষ্টি হোৱা দেখা যায়। আনহাতে, পানী থাকিলেও তাৰ গুণাগুণ গ্ৰহণযোগ্য নহ'ব পাৰে। সেয়েহে, পানীৰ পৰিমাণ আৰু গুণাগুণ দুয়োটাই অতি গুৰুত্বপূৰ্ণ। কেতিয়াবা পানীৰ উৎসত ইয়াৰ গুণাগুণ ঠিকে থাকে, কিন্তু তাক আনঠাইত জমা কৰি যোগান ধৰাৰ সময়লৈকে ইয়াৰ গুণ বেয়া হৈ যাব পাৰে। পানী নলীয়েদি যোগান ধৰাৰ সময়তো খনিজ পদাৰ্থ বা বীজাণুৰ দ্বাৰা ই দূষিত হ'ব পাৰে। বিভিন্ন ভৌতিক, ৰাসায়নিক আৰু জৈৱিক ধৰ্ম বা গুণৰ দ্বাৰা পানীৰ গুণাগুণ নিৰূপণ কৰিব পাৰি। পানীৰ পি.এইচ. সাধাৰণতে ৭ হয়। এই পি.এইচ. বাঢ়িলে পানী খাৰকীয় হয় আৰু এনে পানীত ই. *কলাই* বেক্টেৰীয়াৰ বৃদ্ধি বেছি হয়। খাৰকীয় পানীত ক্লৰিণৰ কাৰ্য্যক্ষমতা কমি যায়, ই কুকুৰাত টীকাকৰণৰ সহাৰি (vaccination reponse) কমাই দিয়ে। পানীত ক্লৰিণ ব্যৱহাৰ কৰি ইয়াক বীজাণুমুক্ত কৰা হয়। আনহাতে, নাইট্ৰেট, আইৰণ, হাইড্ৰ'জেন, এমনিয়া আৰু জৈৱিক অৱশিষ্ট আদিয়ে ক্লৰিণৰ কাৰ্য্যকাৰিতা কম কৰে। গতিকে, যিমানেই পানীৰ পি.এইচ. বেছি সিমানেই পানী শোধণৰ কাৰণে বেছিকৈ ক্লৰিণৰ দৰকাৰ হয়। আকৌ বেছি ক্লৰিণ ব্যহাৰ কৰিলে পানীৰ সোৱাদৰ ওপৰত প্ৰভাৱ পৰে আৰু পানী খোৱাৰ পৰিমাণ কমি যায়। পানীৰ পাত্ৰবোৰ ভালদৰে চাফা কৰি নাৰাখিলেও পানী দূষিত হ'ব পাৰে। ঘণ্টাৰদৰে পানী পাত্ৰত দিয়া পানী নিপলৰ ধৰণৰ পাত্ৰত দিয়া পানীতকৈ বেছি দূষিত হয়। পানীৰ পাত্ৰবোৰ প্ৰতিদিনে বীজাণুনাশক দ্ৰৱ ব্যৱহাৰ কৰি পৰিষ্কাৰ কৰিব লাগে।

মুঠ দ্ৰবীভূত খনিজ পদাৰ্থঃ ইয়াৰ নিৰূপণ অতি গুৰুত্বপূৰ্ণ। ইয়াৰ দ্বাৰা পানীৰ ৰাসায়নিক গুণাগুণ জনা যায়। ইয়াৰ পৰিমাণৰ বৃদ্ধিত সহায় কৰা খনিজ পদাৰ্থবোৰ হৈছে- কেলছিয়াম, মেগনেছিয়াম, ছডিয়াম, ক্লৰিণ, বাইকাৰ্বনেট আৰু ছালফাৰ। পানীত দ্ৰৱীভূত খনিজ পদাৰ্থৰ পৰিমাণ যিমানেই বাঢ়ে পানীৰ গুণাগুণ সিমানেই বেয়া হয় আৰু ই কুকুৰাই খোৱা পানীৰ পৰিমাণ আৰু ইহঁতৰ বাঢ়নৰ ওপৰত প্ৰভাৱ পেলায়। পানীত দ্ৰৱীভূত কোনো খনিজ লৱনৰ পৰিমাণ জনা থাকিলে সেই লৱনটো দানাৰ পৰা আংশিকভাৱে বা সম্পূৰ্ণভাৱে বাদ দিব পাৰি। ছডিয়াম আৰু ক্লৰিণৰ ক্ষেত্ৰত বিশেষকৈ এই প্ৰথা ব্যৱহাৰ কৰিব পাৰি। গতিকে উপৰোক্ত বিশ্লেষণাত্মক কথাখিনি জানি লৈ উন্নত মানৰ পানী সঠিক পদ্ধতিৰে কুকুৰা পামত ব্যৱহাৰ কৰিলে ভাল ফল পোৱাৰ আশা কৰিব পাৰি।

Duck population in Assam face new threat: *Riemerella anatipestifer* infection

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In India, next to poultry farming, duck farming occupies an important position. Ducks form about 10% of the total poultry population and contribute about 7-8% of the total eggs produced in the country. India has a total population of 33.51 million ducks (20th Livestock population), concentrated mainly in the coastal regions in the southern, eastern and north-eastern states of the country. Among the north-eastern states, Assam, Manipur and Tripura comprise the major portion of country's duck population. Of the total duck population, 90% is constituted by the indigenous ducks and are the second largest species contributing towards egg production. The hot and humid climatic condition of Assam along with extensive availability of water beds like ponds, river, marshy wet lands etc. provide different natural foods for scavenging by ducks. Assam houses different groups of indigenous breeds/ variety of ducks and are reared under traditional farming systems. Pati breed constitute the majority of the duck population in Assam followed by other indigenous breed like Muscovy and Nageswari.

Mostly, the small, marginal farmers and nomadic tribes practice duck farming in India. Considering the sturdy and prolific nature of ducks among various species of poultry, duck farming is a feasible business for marginal farmers. Ducks are easily brooded and resistant to common avian diseases, thereby having tremendous scope as a subsidiary source of income for almost all the farmers. Moreover, duck rearing is economical as they does not require elaborate housing and thrive well in scavenging conditions, supplement their feed by eating fallen grains, earthworms, insects, small fishes and other aquatic materials. Duck farming provides great potential for income generation at minimum investment.

Despite this lucrative business, and ducks being hardier than other poultry, they are prone to get infected by viral and bacterial pathogens. Among the diseases affecting ducks, duck plague, duck pasteurellosis and riemerellosis have been known to have more serious repercussions to duck production. However, appropriate intervention strategies can prevent and control the outbreak of infectious diseases. Vaccination and scientific management can minimize the rate of mortality and morbidity. Implementation of strict biosecurity measures at the wild-domestic interface may protect domestic birds from wild birds that may transmit the infection.

Northeast India homes to over 750 bird species and of them, 689 bird species are found in Assam alone. The Brahmaputra valley in Assam serves as an ideal habitat for water birds, both resident and migratory birds. Over 300 species birds migrate from winter hit regions and many of them visit the Brahmaputra wetlands. Every year Assam get influx of millions of migratory birds including water birds like Grelag goose, Ruddy Shelduck, Geese and Swans, Cranes and Rails, Storks, Ibises and Spoonbills, Gulbs, Terns, Pelican, Pintali duck, Indian spot bill duck, Gadwall etc. On February 2021 the most beautiful duck in the world, the Mandarin duck was spotted in Tinsukia district of Assam after more than a century (last sighted in 1902) (https://science.thewire.in/environment/mandarin-duck-returns-to-assams-tinsukia-after-a century/). The rare Mandarin duck, neither falls in its usual migratory route nor a globally threatened species. This convinces that beside a regular route for migration, birds may stray from the flock. During these movements, birds carry pathogens which results in transmission risk of emerging diseases. Epidemiological factors such as uncontrolled

Occulo-nasal discharge

Incoordination of neck & paralysis

Diarrhoea

contacts between migratory birds and domesticated ducks (in backyard system of rearing) may favor spill over of the pathogens. Thus, the resident and free living migrant birds as well as the poultry farms that do not take adequate biosecurity measures are prone to disease spread by the migratory/ visiting birds.

In recent times, high mortality of birds was reported in different districts of Assam that led to huge losses to the duck farmers. The infected ducks showed clinical signs of hurdling, squatting down, incoordination of neck, paralysis and death (Figure 1-3) which were similar to that of duck pasteurellosis. Isolation of the causative agent revealed it to be *Riemerella anatipestifer* (10.20546/ijcmas.2020.903.038 and 10.18805/IJAR.B-4295. It causes a septicaemic disease of primarily ducks and geese, but it also affects domestic poultry and swans. Since its first report in USA in 1932 in ducks reared in intensive farming system, *R. anatipestifer* has been reported worldwide. Anatipestifer disease or reimerellosis (previously called as new duck disease) is an emerging bacterial disease among ducks which has been well documented as a considerable cause of economic loss to the duck industry of Kerala (10.3923/ijps.2008.189.190) and Assam (10.20546/ijcmas.2020.903.038; 10.18805/IJAR.B-4295). Reimerellosis causes 5- 75% mortality in ducks and more than 50% in ducklings below five weeks (10.20546/ijcmas.2020.903.038). The control of this infection is rather difficult because there are at least 21 known serotypes of *R. anatipestifer,* and different serotypes do not provide cross-protection against each other. Serotypes 1, 2 and 6 are the most commonly prevailing *R. anatipestifer* serotypes in Asia. Unlike for duck plague and duck pasteurellosis there is no commercial vaccine available for riemerellosis. However, immunization by means of an effective vaccine and strict biosecurity measures are the only solution to prevent riemerellosis. Although live and inactivated vaccines have been used for ducklings in overseas, no vaccine has been developed in India. As there is little or no cross-protection among the serotypes, an ideal vaccine incorporating the predominant serotype/ serotypes is need of the hour to provide broad-spectrum protection. Thus, the key to control the disease without the cost or inconvenience of treating the flocks during outbreaks is vaccination using local isolates having cross-protection against serotype/ serotypes of *R. anatipestifer*. At the same time, a feasible and practical immunoassay for antibody detection and immune response measurement is critical for vaccine development. Further, precise and rapid identification of *R. anatipestifer* is highly imminent as the organism is similar to *Pasteurella multocida* and *Manheimia hemolytica* being bipolar in nature and its illness, most often riemerellosis misdiagnosed as pasteurellosis. These require development of effective diagnostics to detect and monitor *R. anatipestifer* infections. Lastly, disease surveillance tracing bird movements, bird abundance, geographic origin and interspecies mingling along with a high level of good biosecurity management is important to adapt preventive measures.

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PRESS RELEASE

Alltech's Corn Quality Assessment reveals high moisture and mould challenges

After rice and wheat, corn is India'sthird-most important field crop. Accounting for 10% of total food grain productionin the country, India rankssixth largest in corn production and fourth largest in terms of acreage in the world.

The ever-growing human population, rising income and consequent growth in meat consumptionhave demanded more cereal production. The ability of new cornvarieties to produce higher yield and their capacity to grow in different seasons has led farmer's interest to divert field for corn production rather than other cereal grains in many parts of country. Globally corn is referred as "Queen of Cereals" due to many positive attributes in agricultural production.

Corn was initially cultivated during the "Kharif" season. An experiment with "Rabi" corn in Bihar and some southern states during the early 1960's brought higher yields and fewer pest attacks and thus gradually popularisingcultivation of "Rabi" corn in many states.

Corn is principal energy source used in poultry diets because of its highmetabolizable energy, palatability, presence of pigments and essential fatty acids.

In early May month, Alltech conducted corn crop quality assessment survey by collecting samples from field, farms and mandis in several districts of Bihar, one of the major Rabi corn producing states.

The assessmentrevealed that the samples tested had an average moisture percentage of 15.56, with a relatively bigger corn sizebut an average crude protein of 7.46%. It is suggested that feed producers must check protein level of corn consignments and adjust feed formula to get desired protein levels in complete feed.

It was also observed that all samples were very high in mould count and producers must have a close watch during storage of current corn crop.

The mycotoxin testing revealed that 72% of samples were positive for all five mycotoxins tested -Aflatoxin, Ochratoxin, Fumonosin, T2, DON andZearalenone. 100% samples were positive for four mycotoxins.

"The high mould count is alarming for producers and survey enables them to foresee the challenge of mycotoxins in their feed," said Dr. Aman Sayed,Managing Director – India, Regional Director - South Asia. "Producers are advised to pay attention to mould and mycotoxin management with the help of quality solutions."

Emphasizing the fact that "multiple mycotoxins is a reality", Dr Lokesh Gupta,Sr. Regional Technical Manager-Poultry (South Asia) said,"Hundreds of mycotoxins have been identified and most animal feedstuffs and feed are likely to be contaminated with multiple mycotoxins under practical farming and storage conditions.Moulds and mycotoxins are major threat for productivityeven in best-run livestock production systems and their detection as well as control should be every feed producer's priority". He recommended Alltech®Rapiread™for effective detection of various mycotoxins.

Scan the QR code below to view the complete documentarycovering the Alltech Rabi Corn Quality Assessment Survey.

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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 specialty ingredients, premix 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 in 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.

Use of Exogenous Emulsifiers in Poultry Ration

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Introduction

Feed is the major component of input cost, accounting for up to 70% of the total production cost. Efficient utilization of nutrient is therefore a key of profitable poultry production. Although broilers are highly efficient in converting feed to meat, a part of the nutrients is not adequately digested and utilised but lost through excretion. Chickens require energy and a number of essential nutrients, including amino acids, minerals and vitamins, for maintenance, growth and egg production. Fat is usually included in diet formulations to meet the high energy requirements of broiler chickens, as the energy value of fat is at least twice as high as those of carbohydrates and protein. Other benefits of adding fats include improved palatability, improved absorption of fat-soluble vitamins, dust control in feed mills and provides essential fatty acids for immune system potentiation. The use of emulsifiers in poultry diets have increased feed efficiency, lipids absorption, growth performance and modified the lipids present in the blood (Udomprasert and Rukkwamsuk, 2006). Therefore, supplementing diets with a nutritional emulsifier provides an opportunity in this context, not only for the bird but also to lower the production cost (Sibbald and Kramer, 1980). By incorporating matrix values of a nutritional emulsifier in the feed formulation programme, a cheaper feed can be obtained without impacting performance. This type of additive is, more specifically, able to support the digestion in young birds where there is a possible lack in digestive enzymes. An emulsifier can also support digestion of lower quality fats, often the case at the end of production cycle, to formulate cheaper diets. In flocks with high pathogenic pressure it can even support digestion as certain digestive enzymes (e.g. bile salts) are prone to break down due to the effect of bacterial enzymes (Leeson and Atteh, 1995).

Emulsifier: Mechanism of action:

An emulsifier in the diet is helpful to increase the total enzymatic surface needed for digestion of fats. An emulsion is a mixture of two products such as oil and water that do not mix together i.e. that are immiscible. Adding an emulsifying agent (emulsifiers or emulgents) to the mixture causes the oil to be broken down into smaller pieces that can then be dispersed throughout the water. The emulsifier's action is made possible by reducing the tension between the two phases and creating a constant interfacial film. These substances have both hydrophilic and lipophilic component in their chemical structure. The emulsifiers are absorbed into the oil-water interface to provide a defensive barrier around the dispersed droplets. They stabilize the emulsion by reducing the interfacial tension of the system (Roy et al., 2010). Dietary supplementation of Phospholipids (PLs) has proven to be effective in improving fat digestion and nutrient utilization, and consequently in improving growth performance, particularly in broilers and layers. Phospholipids are recommended to be supplemented into feeds for chicks, containing a higher level of feed fats/ oils, as well as a higher level of saturated fats.

The mode of action of various emulsifiers is as follows:

- Creates smaller emulsion particles and a more stable emulsion phase
- Speeds hydrolysis and micelle formation
- Enhances lipid and nutrient absorption
- Supports the effects of bile salts during fat emulsification in the gut
- Improves nutrient transport through the intestinal lumen

Commercial agents which are usually used in the feed industry can be categorized as two groups (natural and synthetic emulsifiers). Natural ones are those produced in the animal body such bile and phospholids, and those from food materials such as soylecithin (Soares and Lopez-Bote, 2002) Synthetic emulsifiers that are modified emulsifiers such as lysolecithin or lysophosphatidylcholine (Zhang et al., 2011).

Emulsifiers and their roles

It is well documented that the **digestion and absorption of fat in newly hatched chicks is poor** due to the immaturity of physiological functions. The assimilation of dietary fats in young birds is poor because they have a limited capacity to produce and secrete bile salts and lipase until their gastrointestinal tract matures at 10-14 days of age (Noy and Sklan, 1998). This immaturity leads to an inability to form mixed micelles in the intestinal lumen of the birds which reduces fat digestion and absorption of nutrients (Leeson and Atteh, 1995). In particular, the secretion of lipase and bile seems to be first limiting during the first week of life. The ability to digest and absorb dietary fat develops after the first week of life. Further in layers where fatty acids are required to deposit into the egg yolk it become very crucial to lose fat of the diet.

Effect of dietary emulsifier on poultry Growth and performance

Exogenous emulsifier supplementation of broiler feed tends to increase the growth performance as the final body weight of the broilers was significantly higher. In a study conducted on broilers, the results of supplementation lysolecithin in feed showed no significant effect on the growth performance of the broilers for one to 21 days (Gheisar et al., 2015. In a similar study, Dabbou et al. (2019) reported that supplementation with natural emulsifiers for one to 10 days significantly decreased the feed conversion ratio (FCR) in broilers, but there were no significant differences in body weight gain and feed intake. In contrast, a study by Bontempo et al. (2018) showed a significant improvement in average daily gain with the supplementation of synthetic emulsifier to the feed for one to 12 days and a significant decline in the FCR for 22 to 44 days. Improvement in the growth performance of the broilers may be the result of increased fatty acid and nutrient digestibility. Exogenous emulsifiers used in broiler diet revealed that these synthetic products caused no increase in morbidity and mortality and didin‘t affect feed intake (Guerreiro Neto et al., 2011). Lysophosphatidyl choline acted as an emulsifier on broiler chicken performance, but did depend on the type of oil (Zhang et al., 2011). Emulsifiers are more effective in birds supplemented with soybean oil (rich in polyunsaturated fatty acids), in comparison with palm oil (saturated fat) (Guerreiro Neto et al., 2011).

Energy digestibility:

Emulsifier helps in improvement of fat utilization in poultry. A study by Zhao and Kim (2017) showed that the supplementation of emulsifiers to broiler feed significantly improved energy digestibility. Experiments with globin in broiler feed resulted in improved energy digestibility and increased energy efficiency (Dabbou et al. 2019). The supplementation of emulsifiers to low-energy feeds, as well as general feeds, has been shown to improve energy digestibility (Dabbou et al. 2019). Energy digestibility with the addition of emulsifiers may vary depending on the composition and proportion of the fat source in the feed (Zhao et al., 2015). Jansen et al. (2015) reported that the supplementation of emulsifiers to a fat source with low digestibility significantly affected nutrient digestibility. The addition of exogenous emulsifier was effective in improving energy digestibility depending on the fat source in the normal diet.

Meat Quality:

The addition of 0.2% exogenous emulsifier improved meat quality by increasing the water holding capacity (WHC) and decreasing the shearing force of broiler breast meat (An et al., 2020). The water holding capacity (WHC) of meat refers to the property of retaining moisture in the meat when an external physical force, such as cutting and heat treatment, is applied (Choi et

al.,2009). The WHC affects a variety of properties, such as texture and meat color, and increases with changes in the protein structure and ionic level (Wu et al., 1987). The experimental results of low-energy feed in broiler showed that the WHC was significantly decreased when emulsifiers were added (Li et al., 2017). The study by Upadhaya et al. (2018) also found that the supplementation of emulsifiers reduced the WHC of broiler meat. However, the present study showed the opposite result, which may have been due to the difference in energy levels in the feed and the type of emulsifiers.

Serum metabolites:

Concentrations of lipoproteins and plasma lipids are representative of metabolic regulation and the basal adjustment of fatty acid transfer between the adipose tissue

and the liver (Amal et al., 2002). Studies have determined that lecithin, a phosphatidyl choline containing phospholipid, has hypocholesterolemic properties (Thomas et al., 1998). Huang et al. (2007) reported birds fed a diet supplemented with soy-lecithin resulted in a lower serum concentration of total cholesterol (TC) and LDL (Thomas et al., 1998), whereas serum concentrations of HDL and total triglyceride (TG) were elevated. In a further study, soybean emulsifier products significantly reduced total and LDL-cholesterol and TG levels (Ristic et al., 2003) whereas HDL cholesterol was significantly elevated and phospholipid fatty acid content was optimised after 24 weeks feeding. Plasma metabolic hormones like insulin, glucagon and T3 are valuable factors which indicated the level of hepatic lipogenesis of birds (Hillgartner et al., 1995). It has been observed that circulating levels of thyroid stimulating hormone (TSH) increased when2% crude soybean lecithin was supplemented in broiler diets, but no significant differences were observed on serum free fatty acids (FFA) and T4, although T3concentration declined compared with other groups (Huang et al., 2007).The type of fat added to the diet can modify the concentration of serum lipids such as triglyceride, cholesterol, HDL, and LDL. The inclusion of saturated fatty acid, such as tallow or lard, increases the levels of these lipids. The supplementation of emulsifier may help to reduce the concentration of cholesterol, LDL, and triglyceride by efficient utilization of energy. Roy et al (2010) indicated that glycerol polyethylene glycol ricinoleate at concentrations of 1% and 2% reduced LDL and total cholesterol.

Conclusion

In changing scenario of poultry production technology we have to focus on efficient utilization of available feed resources to gain maximum profits. Fat is usually included in diet formulations to meet the high energy requirements of broiler chickens, as the energy value of fat is at least twice as high as those of carbohydrates and protein. The assimilation of dietary fats in young birds is poor because they have a limited capacity to produce and secrete bile salts and lipase until their gastrointestinal tract matures at 10-14 days of age. An emulsifier in the diet is helpful to increase the total enzymatic surface needed for digestion of fats. Exogenous emulsifier supplementation improves utilization and performance of poultry to economize poultry production.

References

- **Amal, M., Michel, L., Solang, G. and Maryline, L. (2002) Effect of dietary fats on hepatic lipidmetabolism in the growing turkey. *Comparative Biochemistry & Physiology Part B Biochemistry & Molecular Biology*. 132: 473-483.**
- **An J.S., Yun W., Lee J.H., Oh H.J., Kim T.H., Cho E.A., Kim G.M., Kim K.H., Lee S.D. and Cho J.H. (2020). Effects of exogenous emulsifier supplementation on growth performance, energy digestibility, and meat quality in broilers. *Journal of Animal Science and Technology*. 62(1): 43.**
- **Bontempo V, Comi M, Jiang XR, Rebucci R, Caprarulo V, Giromini C. (2018).. Evaluationof a synthetic emulsifier product supplementation on broiler chicks. *Animal Feed Science Technology*. 240:157-64.**

- Choi YS, Choi JH, Han DJ, Kim HY, Lee MA, Kim HW. (2009). Characteristics of low-fatmeat emulsion systems with pork fat replaced by vegetable oils and rice bran fiber. *Meat Science*.82:266-71.
- Dabbou S, Schiavone A, Gai F, Martinez S, Madrid J, Hernandez F. (2019). Effect of dietary globin, a natural emulsifier, on the growth performance and digestive efficiency of broiler chickens. *Italian Journal of Animal Sciences.* 18:530-7
- Gheisar MM, Hosseindoust A, Kim HB, Kim IH. (2015). Effects of lysolecithin and sodium stearoyl-2-lactylate on growth performance and nutrient digestibility in broilers. *Korean Journal of Poultry Sciences,.* ;42:133-7.
- Guerreiro Neto, A.C., Pezzato, A.C., Sartori, J.R., Mori, C., Cruz, V., Fascina, V.,Pinheiro, D.F., Madeira, L.A. and Gonçalvez, J.C. (2011) Emulsifier in broiler diets containingdifferent fat sources. *Brazilian Journal of Poultry Science*. 13: 119-125.
- Hillgartner, F., Salati, L. and Goodridge, A. (1995) Physiological and molecular mechanismsinvolved in nutritional regulation of fatty acid synthesis. *Physiological Reviews*. 75: 47-76.
- **Huang, J., Yang, D. and Wang, T. (2007). Effects of Replacing Soy-oil with Soy-lecithin on Growth Performance, Nutrient Utilisation and Serum Parameters of Broilers Fed Corn-based Diets. *Asian-Australian Journal of Animal Sciences*. 20: 1880-1886.**
- Jansen M, Nuyens F, Buyse J, Leleu S, Van Campenhout L. (2015). Interaction between fat type andlysolecithin supplementation in broiler feeds. *Poultry Sciences*. 94:2506-15.
- Leeson, S. and Atteh, J.O. (1995). Utilisation of fats and fatty acids by turkey poults. *Poultry Science*. 74: 2003-2010.
- Li TS, Liu WC, Zhao PY, Kim IH. (2017). Evaluation of essential oil or/and emulsifier in low energydensity diets on growth performance, nutrient digestibility, blood cholesterol and meat qualityin finishing pigs. *Italian Journal of Animal Science*.16:624-30.
- Noy, Y. and Sklan, D. (1998). Metabolic responses to early nutrition. *Journal of Applied Poultry Research*. 7: 437-451
- Ristic, M.D., Ristic, V. and Tepsic, V. (2003) Effect of soybean Leci-Vita product on serum lipids andfatty acid composition in patients with elevated serum cholesterol and triglyceride levels. *Nutrition Research*. 23: 465-477.
- Roy, A.S., Haldar, S., Mondal, T. and Ghosh, K. (2010) Effects of supplemental exogenousemulsifier on performance, nutrient metabolism, and serum lipid profile in broiler chickens. *Veterinary Medicine International* Art. ID 262604.
- Sibbald, I.R. and Kramer, J.K.G. (1980). The effect of basal diet on the utilisation of fat as a source of true metabolisable energy, lipid and fatty acids. *Poultry Science.* 59: 16-324.
- Soares, M. and Lopez-Bote, C.J. (2002). Effect of dietary lecithin and fat unsaturation on nutrient utilisation in weaned piglets. *Animal Feed Science and Technology*. 95: 169-177.
- Thomas, A.W., Craig, M.M. and Robert, J.N. (1998). Soy lecithin reduces plasma lipoprotein cholesterol and early atherogenesis in hypercholesterolemic monkeys and hamsters: beyondlinoleate. *Atherosclerosis.* 140: 147-153.
- Udomprasert, P. and Rukkwamsuk, T. (2006). Effect of an exogenous emulsifier on growth performance in weanling pigs. *Kasetysart Journal of Natural Science.* 40: 652-656.
- Upadhaya SD, Lee JS, Jung KJ, Kim IH. (2018). Influence of emulsifier blends having different hydrophilic-lipophilic balance value on growth performance, nutrient digestibility, serum lipidprofiles, and meat quality of broilers. *Poultry Science.* 97:255-61.
- Wu FY and Smith SB. (1987). Ionic strength and myofibrillar protein solubilization. *Journal of Animal Science*. 65:597-608.

- Xing, J., Heugten, E., Li, D., Touchette, K., Coalson, J., Odgaard, R. and Odle, J. (2004). Effects of emulsification, fat encapsulation, and pelleting on weanling pig performance and nutrient digestibility. *Journal of Animal Science.* 82: 2601-2609.
- Zhang B., Haitao L., Zhao D., Guoand Y. and Barri A. (2011). Effect of fat type and lysophosphatidylcholine addition to broiler diets on performance, apparent digestibility of fatty acids and apparent metabolisable energy content. *Feed Science and Technology*. 163: 177-184.
- Zhao PY and Kim IH. (2017). Effect of diets with different energy and lysophospholipids levels on performance, nutrient metabolism, and body composition in broilers. *Poultry Science*.96:1341-7.
- Zhao PY, Li HL, Hossain MM and Kim IH. (2015). Effect of emulsifier (lysophospholipids) on growth performance, nutrient digestibility and blood profile in weanling pigs. *Animal Feed Science and Technology.* I. 207:190-5.

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BhuQuinol

Chlorhydroxyquinoline 60% w/w

Non Antibiotic Growth Promoter

COMPOSITION:

Each Kg contains
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USP:

- Unique in its class
- Highly effective against Bactria, Protozoa & Fungal infections
- Inhibits respiration across bacterial cell wall leading it's death
- Helps to maintain gut motility
- No Resistance
- No Residual effects
- Effectively control nonspecific diarrhoea / loose droppings - Compatible with all drugs

INDICATIONS:

- Best non antibiotic growth promoter works against Gm + and Gm - and Fungi
- Prevent & Control non specific diarrhoea
- Control loose droppings and their by flies
- Support anticoccidia actions

USAGE:

- Poultry:
  - Growth Promoter - 100 gm Gm/MT of Feed
  - Treatment – Up to 500 Gm/MT (depending upon severity) (Enteritis/ Diarrhoea/Loose Droppings)
- Cattle/Sheep/Goat/Pig : 200 gm Gm/MT
- Fish: 0.1% in water/feed

OR

As Recommended by Technician

WITHDRAWAL PERIOD:

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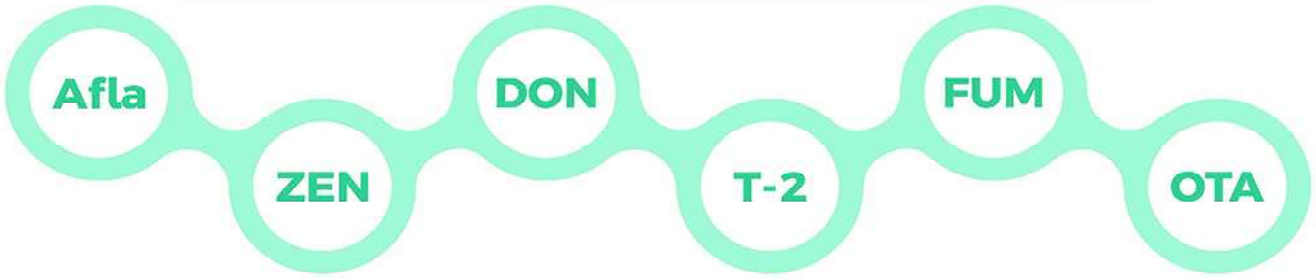
Cargill Mycotoxin Survey

Cargill Mycotoxin Survey (India)

Total Number of Analysis: 3,101	Ingredients: 21	States Covered: 18	Time Period January'22-June'22

6 Main Agricultural Relevant Mycotoxin Groups



Mycotoxins are secondary metabolite produced by various species of fungus/mold, under various stress conditions. The factors that act as stressors for fungus are high temperature, high humidity, low temperature with high humidity, dry and/or wet weather conditions.

There are more than 10,000 known species of fungi. Fortunately, most of them are beneficial to man in the production of bread, cheese, antibiotics etc. There are about 50 fungi species harmful to livestock, poultry, and human being known to produce toxins, which are collectively called mycotoxins. the ones of major importance to poultry industry are Aflatoxin, ochratoxins, T2, zearalenone, fumonisins and DON. The mycotoxins mainly affect the grains and their byproducts followed by oil cakes, and animal protein sources. The grains and grain byproducts that are mainly affected by molds and thereby the mycotoxins are maize, maize gluten, DDGS, rice, rice gluten, rice polish, DORB, wheat etc.

An integrated strategy can minimize Mycotoxin associated risks and costs starting with the right and quick assessment of mycotoxin levels in various raw materials and finished feed.

Cargill Mycotoxin Survey (Jan'22-June'22) for the Indian region covers an overview of the mycotoxin distribution and its concentration in various raw materials.

- **Mycotoxin contamination in ingredients is major concern in India due to favourable condition for their proliferation.**
- **Around 99% samples were contaminated with mycotoxin & 75.23% is above risk level. Major concern is aflatoxin, where 99.27% samples were contaminated & 76.19% samples were above risk level.**
- **Samples were contaminated with Fumonsin, T2 & Zearalenone as 100%, 98.70% and 88.31% respectively.**

Cargill Mycotoxin survey

Cargill Mycotoxin Survey (India)

Mycotoxin Prevalence Pattern in India

Contaminated Samples
N° Samples: 3,101
% Contamined: 99.00%

Above Risk Level
N° Samples: 2,333 (75.23%)

In Brief

In first half of 2022, the most prevalent mycotoxins are Aflatoxin (76%), T2 (66%), Fumonisin (65%) followed by ZEN (58%)

Aflatoxin

Contaminated Samples	Above Risk Level	Average (ppb)	Avg Above Risk (ppb)	Maximum (ppb)
N° Samples: 2,869 (99.27%)	N° Samples: 2,186 (76.19%)	30.13	38.18	365.40

Fumonisin

Contaminated Samples	Above Risk Level	Average (ppb)	Avg Above Risk (ppb)	Maximum (ppb)
N° Samples: 77 (100.00%)	N° Samples: 50 (64.94%)	880.69	1,247	4,510

T2 Toxin

Contaminated Samples	Above Risk Level	Average (ppb)	Avg Above Risk (ppb)	Maximum (ppb)
N° Samples: 77 (98.70%)	N° Samples: 51 (66.23%)	126.21	185,57	703

Zearalenone

Contaminated Samples	Above Risk Level	Average (ppb)	Avg Above Risk (ppb)	Maximum (ppb)
N° Samples: 77 (88.31%)	N° Samples: 45 (58.44%)	146.12	240.70	965

Mycotoxin Prevalence Table for predominantly used ingredients in feed industry

Corn

Mycotoxin	N° Samples	N° Positive	N° Above Performance Risk	Average (ppb)	Maximum (ppb)
Aflatoxin (total)	250	238	45	11	202
Fumonisin	10	10	8	1,010	2,590
T2 Toxin (total)	10	9	6	37	159
Zearalenone	10	8	4	78	319

Cargill Mycotoxin Survey

Cargill Mycotoxin Survey (India)

De Oiled Rice Bran (DORB)

Mycotoxin	N° Samples	N° Positive	N° Above Performance Risk	Average (ppb)	Maximum (ppb)
Aflatoxin (total)	2,163	2,135	1,849	31	268
Fumonisin	18	18	13	829	4,160
T2 Toxin (total)	18	18	11	42	135
Vomitoxin	1	1	1	3,250	3,250
Zearalenone	18	17	12	195	784

Soya Bean Meal

Mycotoxin	N° Samples	N° Positive	N° Above Performance Risk	Average (ppb)	Maximum (ppb)
Aflatoxin (total)	50	49	16	14	81
Fumonisin	12	12	4	409	1,270
T2 Toxin (total)	12	12	6	32	96
Zearalenone	12	10	4	31	134

Ground Nut De Oiled Cake (DOC)

Mycotoxin	N° Samples	N° Positive	N° Above Performance Risk	Average (ppb)	Maximum (ppb)
Aflatoxin (total)	80	80	75	83	323
Fumonisin	15	15	9	784	1,521
T2 Toxin (total)	15	15	7	53	353
Zearalenone	15	12	5	71	333

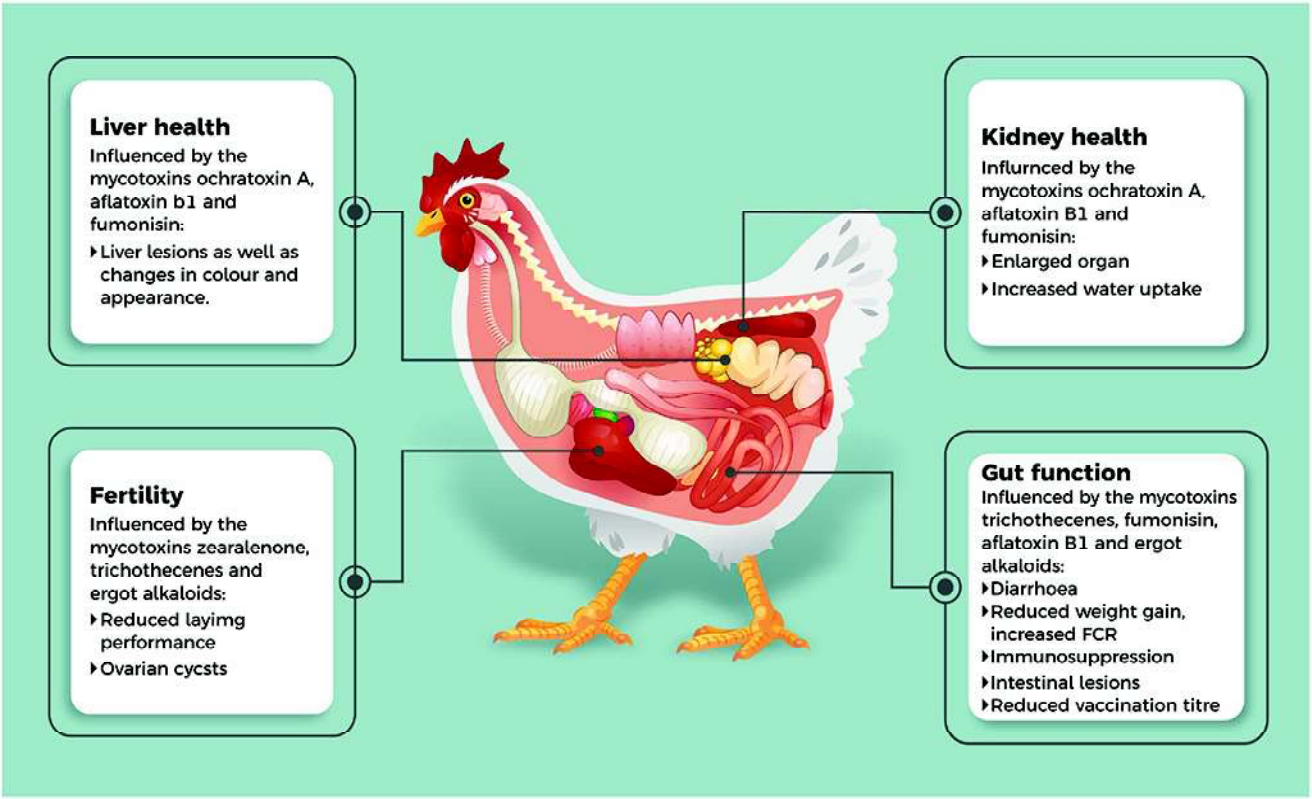
Distillers Dried Grains with Soluble (DDGS)

Mycotoxin	N° Samples	N° Positive	N° Above Performance Risk	Average (ppb)	Maximum (ppb)
Aflatoxin (total)	40	40	39	77	217
Fumonisin	14	14	9	830	2,900
T2 Toxin (total)	14	14	14	388	703
Zearalenone	14	14	13	293	965

1. DDGS is at highest risk of Mycotoxin contamination, in which all analysed mycotoxins are present above risk level in major samples.
2. Soya Bean Meal is less contaminated ingredient, as all mycotoxin's average level is not very high.
3. Extra precautions should be taken care while using corn, as aflatoxin levels are quite high.
4. Due to irregularity in processing & poor storage condition of DORB, it is highly contaminated with aflatoxin.
5. Ground Nut DOC is highly contaminated with aflatoxin & other mycotoxins are also on higher side.

Cargill MycoSchool

Leverage Cargill's global expertise to know more about diagnosis of mycotoxicosis:




Oral lesion - T2 Mycotoxin


Kidney lesion - Ochratoxin


Diarroea-DON


Fatty liver - Afltoxin B1

Contact : Dr. Nidhi Madnawat, email : Nidhi_Madnawat@cargill.com

Cargill Helping the world thrive

PRESS RELEASE

Plant manufacturer WELTEC BIOPOWER presents its biogas technologies at INT'L BIOMASS EXPO in Japan

Individual solutions for waste water, waste and agriculture

For the first time WELTEC BIOPOWER will exhibit at the INT'L BIOMASS EXPO at the Makuhari Messe near Tokyo. From the 31st of August to the 2nd of September 2022, the manufacturer will present its proven plant technologies, services and processes for the energetic utilisation of biogas from sewage sludge, waste and agricultural residues to the trade public there. Together with its Japanese partner Katonoki, the German biogas specialist will be represented on stand 17-53.

WELTEC BIOPOWER has already been cooperating successfully with Katonoki on the Japanese market since 2019. One of the joint projects was established in Urahoro, on Hokkaido, the northernmost of the main Japanese islands (see press release WELTEC 04/2021). In the meantime, the activities also extend to the rest of the country.

The special feature of construction in earthquake regions such as this lies in the specific statics of the tanks, which are adapted to the tectonic position. Even under less than ideal geological conditions, WELTEC delivers a high-quality and operationally safe plant that meets the high requirements. Comprehensive maintenance as well as biological service for the biogas plants is part of the service and ensures sustainable operation in the long term.

In this time we have become an established supplier for agricultural, industrial and municipal biogas plants in the region, emphasises Vladimir Bogatov, Area Sales Manager for the Asia-Pacific region.

WELTEC specialises in the planning and construction of individual plants of up to ten megawatts. A strategic element here is the high

A biogas plant of WELTEC BIOPOWER recently went live in Saitama Prefecture, 40 km north of Tokyo. The facility – which is equipped with a 450-kW cogeneration power plant – is the fourth project to be rolled out by the German manufacturer in Japan.

proportion of manufacturing. Not least, the use of stainless steel technologies and digesters plays an important role in the overall efficiency, because they enable flexible substrate use, fast, modular assembly and a high standard of quality regardless of location. Following commissioning, WELTEC's service ensures trouble-free operation.

With such proven and innovative technologies, Japan's goal of reducing greenhouse gas emissions to 46 % by 2030 can be supported. WELTEC BIOPOWER's more than 20 years of experience in over 350 biogas projects in 26 countries on 5 continents, from small plants to high-tech plants in all fields of application, will also be of great benefit.

Visitors to the INT'L BIOMASS EXPO in Makuhari from the 31st of August to the 2nd of September

2022 can obtain further information on all energy plants at stand 17-53.

A short video about the project can be found here: https://youtu.be/022Oesaoo8E

Company Portrait

The **WELTEC** Group from Vechta, Germany, has developed into a globally leading specialist for the construction and operation of biogas and biomethane plants since it was founded back in 2001. The Group designs, plans and sets up energy plants, operates them on a permanent or temporary basis, provides 24/7 service and delivers sustainable usage concepts for output flows, thereby covering the entire biogas value chain.

The establishment of individual, technically mature solutions up to a plant size of 10 MW is one of the strengths of **WELTEC BIOPOWER**. The high proportion of custom-developed components is a key success factor. Moreover, the use of stainless-steel technologies ensures flexible substrate input, quick and inexpensive assembly and a consistently high quality standard, regardless of the location. Following the commissioning, **WELTEC's** mechanical and biological service plays a significant role in ensuring the plant efficiency.

The company also boasts a wealth of experience in the field of biogas generation and utilisation. The company's nine decentralised plants generate 96 million standard m³ of biogas a year. A portion is processed to biomethane and made available to energy suppliers and petrol station operators via the public gas network. Additionally, at 16 locations in Germany– e.g. in the field of horticulture, housing construction and healthcare as well as communities – the biomethane is used for generating heat within the framework of **WELTEC** energy contracting.

The biogas specialist is well aware of the importance of customer and investor proximity. Accordingly, the Group's sales and service network spans the entire globe. The range of customers includes businesses from industries such as agriculture, food, waste and wastewater. So far, the 120 employees of the **WELTEC** Group have implemented more than 350 energy plants in 26 countries on five continents. All in all, the biogas specialist ensures annual savings of around 530,000 tons of CO_{2eq}.

PRESS RELEASE

WELTEC BIOPOWER builds its first biogas plant in Taiwan
Taiwan‘s government aims for a climate-neutral economy by 2050

Together with its Asian partner Melchers Taiwan, the manufacturer WELTEC BIOPOWER is building a biogas plant in the southwest of the island state. For the 360-kilowatt plant, the German biogas specialist is supplying a proven turnkey solution based on high-quality stainless steel technologies. For the project, WELTEC is responsible for the engineering, the execution and the complete service including biological analyses. Taiwan is already the 26th country in which WELTEC BIOPOWER is building a biogas plant.

Construction at the operator‘s headquarters in Tainan City, on the southwest coast of Taiwan, is scheduled to begin in 2023; commissioning is planned for 2024. „Because this is our first biogas plant in the country, we are particularly pleased to be able to contribute our proven technology to this project,” says Vladimir Bogatov, the Area Sales Manager responsible for the Asia-Pacific region at WELTEC BIOPOWER.

In addition to the electricity fed into the grid, part of it will be used for the plant‘s own use. The heat from the biogas plant is also used to heat the operator‘s production facilities directly at the plant and via a local heating network: among other things, it is used to supply a pigsty that is equipped by WELTEC‘s parent company WEDA Dammann & Westerkamp. The circular economy concept envisages using the pig manure produced as the main substrate for the operation of the biogas plant.

The stainless steel fermenters take into account the special requirements of the island state: due to its tec-tonic position, Taiwan experiences strong earthquakes with far-reaching consequences with above-average frequency. The special stainless steel construction and high stability of the biogas plant is adapted to the high earthquake probability and the local wind load specifications. Another advantage is that only a small amount of work is required for the on-site construction, as the project is intensively accompanied by the WELTEC team from the headquarters in Vechta.

From left to right: Mr. Dominik Seubert, Pro-duct Manager (Melchers Germany), Vladimir Bogatov (Sales Asia-Pacific WELTEC), Mr. Tudor Pascu, Managing Director (Melchers Taiwan), Hajo Schierhold (Head of Sales WELTEC).

“We are extremly happy with our partnership with WELTEC BIOPOWER, one of the world‘s leading companies in the field of biogas plant construction. The plant quality, the high technical standard, the expertise in project implementation, especially in Asia and the after-sales support in plant efficiency immediately convinced us and our customers of the cooperation,” explains the Managing Director of Melchers Taiwan, Tudor Pascu. „And the fact that

WELTEC BIOPOWER has already realised several projects in Japan, South Korea and China may prove to be a strategic advantage for further biogas projects in Taiwan in the future," Vladimir Bogatov looks ahead.

Such framework conditions should also contribute significantly to Taiwan becoming a climate-neutral economy by 2050 as planned. At the end of March 2022, this goal was published by the government in Taipei as part of a new roadmap. The roadmap envisages billions of dollars in state investment for this project. It is expected that especially already experienced market players such as Melchers Taiwan and WELTEC BIOPOWER will play an important role in this process and are eager to cooperate with the authorities to support the implementation path.

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Dr. Ajit Kumar Bhagowati Memorial

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And

COLLEGE OF VETERINARY SCIENCE
Assam Agricultural University, Khanapara, Guwahati

Date

14-15-16
September 2022

Venue:
Maniram Dewan Trade Centre AC
Guwahati, Assam

Contact :

TEZASVI EVENTS

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Email: tezasvievents@gmail.com

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CHICKEN & EGG

FESTIVAL & COOKING COMPETITION

Protein for Each Kitchen

Saturday 23rd July 2022

Cooking Competition
9:30 am to 12:30 pm

Chicken and Eggs Festival
1 pm to 3.30 pm

Venue

Krishna Sunder Lawns
100ft DP Road, Mhatre Bridge,
Erandwane, Pune, Mah. 411004

Organised by
VETS IN POULTRY
(VIP)

Chief Guest
Devwrat Jategaonkar
Celebrity Chef, Guinness Book Record Holder

Dr Santosh Ire
9850979652

Dr Jeevan
9004349622

vetsinpoultry@gmail.com

ANDE KA FANDA

- Plays a key role in a healthy pregnancy & brain function
- Contains ONLY 70 calories Serves as an excellent source of choline & selenium Serves as a good source of high-quality protein, Vitamin D, phosphorus & riboflavin
- Provides 13 essential vitamins & minerals
- Plays a key role in weight management
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- Eggs can't be adulterated
- Plays a key role in muscle strength
- Eggs are have highest biological value after mother milk

HEALTH BENEFITS OF CHICKEN

- Helps build muscle
- Keeps your bones healthy
- Relieves stress
- Reduces PMS symptoms
- Helps boost testosterone levels
- Boosts immunity
- Promotes heart health

You all are invited to enjoy real delicacy in Chicken & Egg festival.

Renowned food houses will exhibits their stalls at the festival.

PRESS RELEASE

Vets In Poultry concluded innovative Chicken & Eggs Cooking Competition & Festival in Pune

Vets In Poultry, an association based in Pune, has more than 1000 members actively working in Poultry Farming. Vets In Poultry association always put relentless efforts into promoting the health benefits of eggs and Chicken in an innovative and scientific way, and as a part of this journey team Vets In Poultry has organized Chicken Cooking Competition & Chicken Festival on 23rd July 2022 at Krushna Sundar Lawns in Pune. This event was one of its kind because, during it, only Chicken and eggs cousins were allowed to be prepared and consumed.

The prime objective of the competition was to offer a professional platform to individuals and students who want to display their skills and creative talent and get opportunities to learn and share experiences in the competitive environment. This event was attended by contestants, Veterinary Animal Health Company employees, distributors, poultry farmers, and other industry associates.

Mr. Devwrat Jategaonkar marked his presence as a Chief Guest and Judge for this event. He is a renowned Chef holding Guinness Book record and represented India in various culinary competitions across the globe. He also won the first Silver Medal for India In 2012 during Culinary Olympics held in Frankfurt, Germany. He has served as Executive Chef to various leading hotel chains in India. Dr.Monjeeta, a food blogger and Veterinarian, was also on the panel as a judge.

Dr. Jeevan Sonawane anchored this event and explained the event's theme to the audience and contestants. The event was formally inaugurated by the lightening of the lamp and Gas stove by Chief Guest Mr. DevavratJategaonkar along with Dr. Ajay Deshpande, President of Vets In Poultry (VIP), Dr.Sanotsh Ire, Secretary VIP, Dr. Prasad Kulkarni, Treasurer VIP and other executive committee members of Vets In Poultry Dr. Chandrakant Pathak, Dr. Sujit Kulkarni, Dr. Pankaj Tuptewar, Dr. Jeevan Sonawane, and Dr. Sachin Patil.

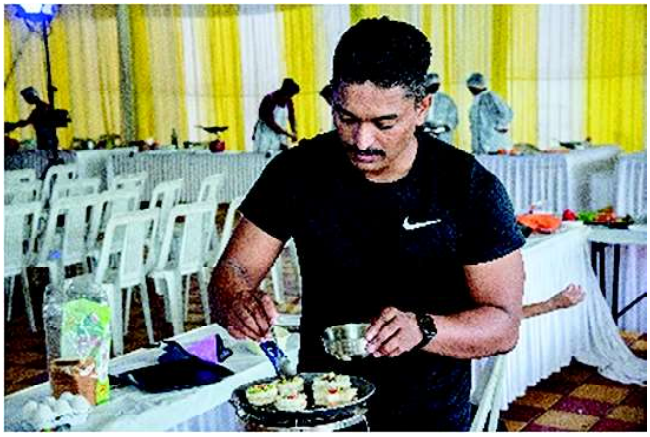
During the inaugural speech, Dr. Ajay Deshpande expressed his views about the importance of eggs and Chicken in countering malnutrition, employing millions of agricultural farmers directly and indirectly. He also described the Vets In Poultry team's relentless efforts to promote protein consumption through eggs and Chicken.

Mr. Devvrat, during his speech, expressed his views about this unique competition and emphasized the importance of eggs and Chicken in the hotel industry in India. He said that eggs and Chicken constitute around 50 % of hotel industry cousins and play a vital role in business. He also agreed that eggs and Chicken are essential protein sources and should be part of our regular diet. The chief guest set the perfect stage for all contestants by boosting their confidence with some practical tips for competition.

The top 20 contestants were selected for the event. Judges interacted with all contesting chefs to find out the ingredients of the recipes, nutritional value and historical significance of the dishes, etc., prepared by them. Food items displayed were a visual treat and were presented in an artistic and aesthetic style. Dishes were judged based on creativity, hygiene, taste, texture, and appearance by esteemed judges Mr. DevvratJategaonkar and Dr.Monjita.

Judges were overwhelmed by the efforts of the participants. It was great to see the participants' energy, enthusiasm, and creativity.








The event has provided a platform for the household wives, gents, and students to foster their creativity and helped them to explore their hidden talents and discover new dishes. It was a challenging task for judges to choose a winner among innovative and delicious dishes.

Finally, three winners and two consolation prize winners were declared and awarded with an attractive trophy and cash prizes.

The cooking competition was followed by Chicken Festival, where many contestants and commercial houses sold their preparations to the visitors. Industry brands like Venky's Express, Shalimar, Godrej, KGN, Power Eggs, Chicken Vicken&Belchick exhibited their stalls and served delicacy. Every visitor to the event was delighted to taste authentic Chicken and egg recipes at the event. Visitors also appreciated this event for tasting various chicken and egg dishes under one roof.

The cooking competition was formally closed with a Vote of thanks by Dr. Sujit Kulkarni. He thanked everyone who supported the event, directly and indirectly, contestants, participants, visitors, volunteers, event managers, members from Vets In Poultry, Producers, Feed millers, Animal Health distributors & everyone who supported this program wholeheartedly.

During event various Vets In Poultry members expressed their views about Chicken and Eggs.

Dr. Ajay Deshpande, President of Vets In Poultry, expressed that the poultry industry plays a vital role in fighting against protein energy malnutrition. There is a massive gap between per capita consumption

and actual recommendation by the National institute of nutrition in India and the need to create more awareness to enhance chicken and egg consumption. His speech expressed the health benefits of white meat vs. red meat.

Dr. B A Pawar, Life Time Member of Vets In Poultry, said there are rumours about broiler chickens that many antibiotics and hormones are used to grow chickens which is not valid. He assured audience that broiler birds are produced scientifically, and if anyone has any doubt, they can connect with us, and we will help them understand this phenomenon.

Dr.MonjeetaBarrowa, a food blogger and Veterinarian who was also one of the judges for this event, appreciated the initiative taken by Vets In Poultry. She said that eggs and chicken are economical and readily available protein sources and have multiple benefits for all ages. She highlighted the health benefits of eggs and chicken, particularly for middle age people, due to its richness in vital nutrients like zinc.

Dr. Chandrakant Pathak, Executive Committee Member of Vets In Poultry, expressed an important message about the health benefit of eggs and chicken to diabetic people, aged persons, and small kids. He said Vets In Poultry would continue such innovative activities in the future.

Dr.Sadanand Undegaokar, Life Time Member of Vets In Poultry, expressed that he is actively involved in the production and assured that chicken is organically produced using corn, soya, and other scientific additives and appealed to society to stay away from rumours. He also emphasized eating chicken and eggs for more health benefits.

Dr. Anju Deshpande, Life Time Member of Vets In Poultry, expressed that the poultry farming community is raising poultry birds scientifically. She

also appealed to homemakers not to withdraw protein from their diet during certain festival seasons because it may hamper the family's health.

Dr. Jeevan Sonawane, an Executive Committee member, explained the objective of the event is to boost chicken and egg consumption. He also stated that India is a protein-deficient country, and many people don't even know how much protein they should consume. He appealed to consume 1 gm per kg body weight protein, and eggs and chicken can help us to achieve this goal.

Dr. Pankaj Tuptewar, the Executive Committee member, explained the importance of protein for everyone and appealed that everyone should consume two eggs and 100 gms of chicken on a daily basis to fulfil their daily protein requirement.

Dr. Sujit Kulkarni, the Executive Committee member, said after the covid pandemic, eggs, and chicken got a lot of significance as protein sources. Indian medical association also recommended eating eggs and chicken to boost protein intake for good immunity. He also said eggs and chicken are rich in protein, vitamins, and minerals, which play a vital role in children's and sportsman's health.

Dr.Praksah Babu, the Chief Geneticist at Venkateshwara Egg Laying unit, said that egg is the most economical, readily available, and most importantly, affordable source of protein. He emphasized that egg is the most balanced food, which is near to mothers' milk having all nutrients including vitamins, and can give us good disease resistance power.

Dr. Santosh Ire, Secretary of Vets In Poultry, explained the event's theme and thanked everyone who supported and participated in this event directly and indirectly. He said that all poultry industry goals are common, and we should all work together to promote our two products, eggs and chicken.

The event was formally closed at 3:30 pm with the promise of organizing more and more such events in the future by team Vets In Poultry.

NATIONAL EGG CO-ORDINATION COMMITTEE

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

Name Of Zone / Day	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	Average
NECC SUGGESTED EGG PRICES																																
Ahmedabad	410	412	414	414	414	414	416	418	420	423	428	431	435	438	438	438	438	438	438	440	440	442	445	448	451	451	435	435	435	435	435	431.26
Ajmer	371	371	371	371	363	375	385	386	386	400	410	420	425	425	425	425	410	400	410	410	410	411	411	411	400	385	385	385	385	385	-	396.9
Barwala	363	363	363	363	363	370	383	386	386	400	408	415	422	422	422	422	410	410	410	410	410	413	413	413	413	380	380	380	370	374	385	394.26
Bengaluru (CC)	425	405	405	405	405	405	405	405	405	405	410	420	425	435	435	445	445	445	445	445	445	445	445	445	445	445	445	435	435	420	420	427.26
Brahmapur (OD)	397	403	407	407	407	407	411	415	421	427	439	447	457	467	472	472	472	472	472	452	452	460	460	460	460	440	440	440	420	420	423	438.68
Chennai (CC)	425	415	415	415	415	415	415	415	415	415	425	445	445	455	455	470	470	470	470	470	470	470	470	470	470	470	470	450	450	430	430	444.68
Chittoor	418	408	408	408	408	408	408	408	408	408	418	438	438	448	448	463	463	463	463	463	463	463	463	463	463	463	463	443	443	423	423	437.68
Delhi (CC)	380	383	383	383	383	383	392	405	408	408	422	429	437	445	445	445	445	430	430	430	430	430	435	435	435	425	400	400	400	390	394	414.19
E.Godavari	380	383	386	386	386	386	389	392	397	402	412	422	432	442	447	447	447	447	447	430	430	435	438	438	438	425	425	425	405	405	405	417.06
Hyderabad	370	373	373	373	373	373	375	377	379	385	390	395	400	405	405	405	405	405	405	405	408	411	414	417	417	400	400	385	370	370	380	391.71
Ludhiana	362	364	364	364	364	364	374	385	387	387	406	409	422	422	422	422	422	416	411	411	411	411	415	415	415	401	389	381	381	381	381	395.45
Mumbai (CC)	424	424	427	427	427	427	427	427	427	430	435	440	445	460	465	465	465	465	465	465	465	465	465	470	475	475	460	460	445	435	435	447.97
Muzaffurpur (CC)	419	424	424	424	424	424	429	438	443	448	457	471	477	481	481	481	481	471	481	471	471	471	477	477	477	471	452	448	443	443	443	455.55
Mysuru	415	405	405	405	405	405	405	405	405	405	415	423	428	438	445	447	447	447	447	447	447	447	447	447	447	447	447	435	435	422	422	428.61
Nagpur	370	370	370	370	360	350	350	350	365	375	385	400	400	445	420	430	430	420	420	410	410	410	450	455	455	455	435	435	425	400	-	404
Namakkal	400	400	400	400	400	400	400	400	400	400	420	420	430	430	450	450	450	450	450	440	440	440	440	440	440	440	430	430	415	415	415	423.71
Patna	419	424	424	424	424	424	429	433	438	443	452	467	477	477	477	477	471	467	471	467	467	471	477	477	477	467	448	448	443	443	443	453.1
Pune	430	430	430	430	430	415	400	400	400	400	410	425	440	450	455	460	460	460	445	445	445	447	450	455	455	455	450	440	440	440	440	436.52
Ranchi (CC)	424	429	429	429	429	429	433	438	443	452	462	477	481	486	486	486	486	481	486	481	476	477	481	481	481	477	471	467	462	452	452	462.06
Vijayawada	380	383	386	386	386	386	389	392	397	402	412	422	432	442	447	447	447	447	447	430	430	435	438	438	438	425	425	425	405	405	405	417.06
Vizag	435	435	435	400	400	400	400	405	405	425	430	435	440	445	450	450	450	450	450	430	430	435	438	438	438	425	425	425	425	425	425	429
W.Godavari	380	383	386	386	386	386	389	392	397	402	412	422	432	442	447	447	447	447	447	430	430	435	438	438	438	425	425	425	405	405	405	417.06
Warangal	372	375	375	375	375	375	377	379	381	387	392	397	402	407	407	407	407	407	407	407	410	413	416	419	419	402	402	387	372	372	382	393.71
Prevailing Prices																																
Allahabad (CC)	414	414	414	414	414	414	419	424	424	429	433	443	452	457	457	457	438	438	438	438	438	448	448	448	448	443	438	433	429	429	429	434.26
Bhopal	375	375	375	375	375	360	360	365	365	375	385	405	415	415	415	415	430	415	415	415	415	415	425	435	435	435	420	420	420	415	-	402
Hospet	385	365	365	365	365	365	365	365	365	365	370	380	385	395	395	405	405	405	405	405	405	405	405	405	405	405	405	395	395	380	380	387.26
Indore (CC)	385	385	385	375	375	375	375	375	375	375	415	430	440	440	430	430	420	410	410	410	420	430	430	430	430	410	410	410	410	400	-	406.5
Jabalpur	367	370	370	370	360	360	365	375	377	380	390	402	420	431	434	434	423	410	410	412	415	419	427	427	427	427	427	427	407	395	397	401.77
Kanpur (CC)	410	410	410	410	410	410	429	429	429	443	443	457	462	462	462	443	443	443	443	443	443	443	443	443	443	443	429	419	419	419	419	434
Kolkata (WB)	450	452	452	452	452	455	460	465	470	475	485	495	505	515	515	515	517	519	509	502	500	505	507	507	507	500	500	480	475	455	461	485.71
Luknow (CC)	430	430	430	430	430	430	443	443	450	450	464	477	477	477	477	477	477	477	477	477	477	477	477	477	477	477	467	467	467	457	457	461.29
Raipur	355	355	355	355	355	345	350	360	373	375	382	397	410	415	421	423	423	408	408	408	408	423	435	438	438	428	420	420	420	405	-	396.93
Surat	420	420	420	420	420	420	420	420	420	420	420	425	430	435	435	435	435	435	435	435	435	440	445	450	455	455	440	440	440	440	440	432.26
Varanasi (CC)	416	423	423	423	413	420	425	430	437	443	453	463	470	477	477	477	477	460	477	467	467	477	477	477	460	450	450	450	443	443	450	451.45

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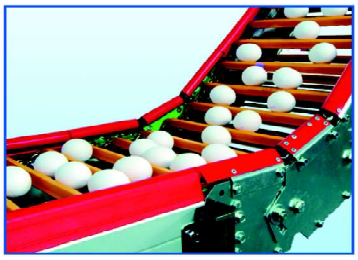

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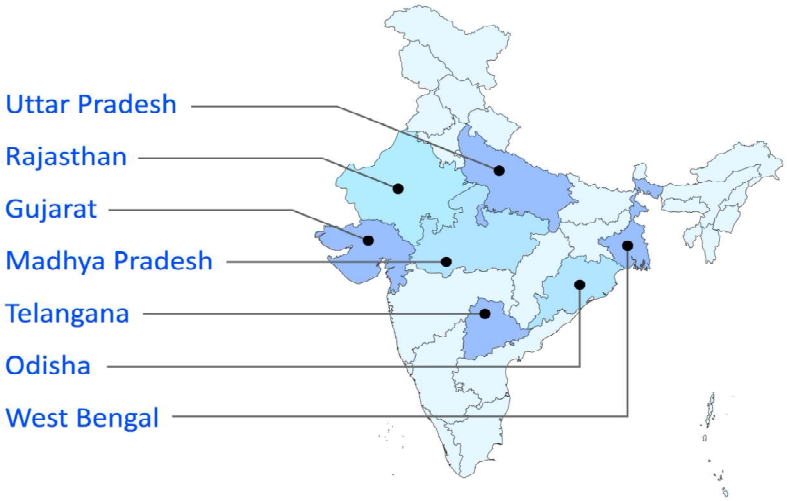

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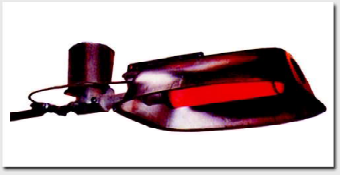

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PRESS RELEASE

Optimizing Strategies to Manage Coccidiosis in Poultry: Why and How Your Control Program Needs to Adapt

In Brief

- Anticoccidial drugs have been used for decades, but new regulations, consumer preferences and resistance concerns are changing coccidiosis management.
- Rotation, shuttle, and bio-shuttle coccidiosis programs have become more widely used.
- A strategic and comprehensive approach can help achieve optimal coccidiosis management.

Coccidia are found anywhere poultry are raised

The estimated cost of coccidiosis globally is between USD 9.2 and 15.6 billion, or approximately USD 0.2 per chicken (Blake et al., 2020). This estimate is derived not only from the cost of prophylactics and therapeutics, but also the associated performance and mortality loss. Additional losses due to secondary challenges associated with coccidiosis may also increase the overall economic impact. Many protozoa plague the livestock industry but, in poultry, there are seven *Eimeria* species of the protozoal parasite coccidia that infect different regions in the intestinal tract (Shirley et al., 1986). Regardless of the site of infection, *Eimeria* have a complex life cycle that includes stages within the bird and environment. Depending on the *Eimeria* species, site of infection and life cycle stage, certain prevention strategies may be more effective than others (Chapman and Rathinam, 2022).

Evolution of rotation and shuttle programs

For more than 50 years, synthetic chemicals, ionophores and the combination of the two have been available for coccidiosis control; however, no new anticoccidial drugs have been developed for many years (Novak et al., 2019). This makes optimizing the currently available coccidiosis strategies even more critical. Not all synthetic chemicals have known modes of action but, in general, chemicals disrupt *Eimeria* by altering their metabolism during their intracellular life cycle stages, and ionophores disrupt *Eimeria* by altering osmotic balance during their extracellular life cycle stages (Chapman and Rathinam, 2022). These two anticoccidial drugs have often been used in combination because of their complimentary modes of action and the additional coverage ionophores have on Gram-positive bacteria. This is advantageous because coccidiosis can predispose birds to clostridial enteritis resulting in high mortality rates and production losses. Thus, using chemicals with ionophores or ionophores alone can provide coverage for both coccidiosis and clostridial enteritis. Although combinations of chemicals and ionophores have been used successfully for several decades to combat coccidiosis, development of resistance has been reported (Glorieux et al., 2022).

Chemical anticoccidials tend to induce resistance more rapidly compared with ionophores because of their mode of action during the intracellular life cycle of *Eimeria*. However, this resistance may be masked while using chemical and ionophore blends as *Eimeria* that are resistant to chemical may still have susceptibility to the ionophore making the overall prophylactic use effective. However, the challenge with ionophores is that they have a very narrow range for safety, can contribute to reduced performance and may impact heat tolerance. Many producers have implemented programs that rotate anticoccidials between flocks (rotation programs) or use different anticoccidials in starter, grower and finisher rations (shuttle programs) to maintain or improve *Eimeria* drug sensitivity.

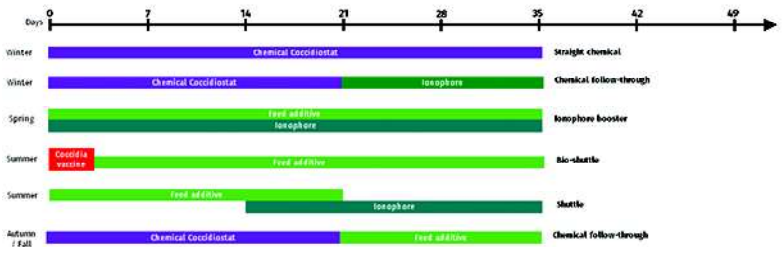

Figure 1. Rotation, shuttle, and bio-shuttle program examples used in commercial production*

*Figure highlights an example of programs, descriptors used may vary by country and product category regulation.

Another strategy to improve drug sensitivity has been to switch from anticoccidial drugs to using a coccidia vaccine. Coccidia vaccines are based on specific *Eimeria* species and induce immunity three to four weeks after vaccination (Tewari and Maharana, 2011). Introducing non-resistant *Eimeria* via vaccination can repopulate the environment to restore drug sensitivity. However, the effectiveness of this strategy to restore environmental *Eimeria* drug sensitivity may be impacted by litter management strategies (i.e., raising birds on fresh litter for each cycle or using re-used litter for several cycles). One challenge with coccidia vaccines is that they tend to impact performance during the time the birds are acquiring immunity. This associated performance loss is more challenging to overcome when birds are marketed at a younger age compared to those marketed at an older age because there is limited time to regain that lost performance. Recovering performance loss associated with vaccination is one area in which feed additives can be used as part of a coccidiosis management strategy.

Feed additives such as probiotics, prebiotics and phytogenics have become part of many coccidiosis management strategies because of their compliance with programs like no antibiotics ever or antibiotic-free and for their unique modes of action that compliment different rotation and shuttle programs. For example, *Eimeria* disrupt the intestine and nutrients are leaked into the lumen; live probiotics can help overcome this by improving intestinal integrity whereas microbial metabolic modulators can redirect those leaked nutrients towards beneficial microbial metabolism. If

	Chemicals	Ionophores	Vaccines	Feed additives**
Mode of action	*Eimeria* inhibition	*Eimeria* inhibition	Host immunity	Varies based on compound used
Ability to induce resistance	+++	++	?	?
Relative strength	+++	++	+	++
Potential coverage for Gram-positive bacteria	+	++	+	+
Compatibility with no antibiotic ever program	Yes	No	Yes	Yes
Relative cost	++	+	+	+

Table 1. Reflections on anticoccidial strategies used in commercial production*

*Summarized information from references provided.

**Feed additives may include phytogenics, prebiotics, probiotics, novel metabolic modulators, etc.

resistance is becoming a concern or you are seeking an alternative, using phytogenic-saponin blends may be a way to give a break to stronger chemicals which could keep those anticoccidials effective long-term. Incorporating feed additives into rotation, shuttle or bio-shuttle programs can help keep current anticoccidial drugs effective while keeping performance at the expected level when other strategies are implemented.

Optimize your current rotation or shuttle program

Identifying the gap in the current rotation or shuttle program is key to determining what strategy would best suit your needs. Our tailored solutions* include:

- PoultryStar®, a synbiotic (blend of live probiotics with a prebiotic).
- Symphiome™, the first of its kind precision biotic, specifically modulates microbiome metabolism.
- Digestarom® PEP-Y, a phytogenic-saponin blend.

Many different programs can be developed depending on the need within your currently implemented strategy. Additionally, differential diagnosis may include identifying other challenges that may be contributing, such as mycotoxins or sub-optimal vitamin levels. At DSM, we offer a comprehensive portfolio of solutions and services that can help you optimize your rotation, shuttle, or bio-shuttle programs and with the support of a broader portfolio can offer coverage from the predisposing factors associated with coccidiosis and clostridial enteritis.

References

1. Blake DP, Knox J, Dehaeck B, Huntington B, Rathinam T, Ravipati V, Ayoade S, Gilbert W, Adebambo AO, Jatau ID, Raman M, Parker D, Rushton J, and Tomley FM (2020) Re-calculating the cost of coccidiosis in chickens. Vet. Res. 51:115. https://doi.org/10.1186/s13567-020-00837-2
2. Chapman HD and Rathinam T (2022) Focused review: The role of drug combinations for the control of coccidiosis in commercially reared chickens. International Journal of Parasitology: Drugs and Drug Resistance 18:32-42. https://doi.org/10.1016/j.ijpddr.2022.01.001
3. Glorieux M, Newman LJ, Wang YT, De Herdt P, Hautekeur J, De Gussem M, Christiaens I, and Verbeke J (2022) Sustainable coccidiosis control implication based on susceptibility of European Eimeria field isolates to narasin + nicarbazin from farms using anticoccidials medication or coccidial vaccines. J. Appl. Poult. Res. 31: 100263. https://doi.org/10.1016/j.japr.2022.100263
4. Grumbles LC, Delaplane JP, Higgins TC (1948) Continuous feeding of low concentrations of sulfaquinoxaline for the control of coccidiosis in poultry. Poult Sci 27(5). https://doi.org/10.3382/ps.0270605
5. Shirley MW, McDonald V, Bellatti MA (1986) Eimeria brunetti: selection and characteristics of a precocious (and attenuated) line. Avian Pathol 15(4):705-17. https://doi.org/10.1080/03079458608436333
6. Tewari AK and Maharana BR (2011) Control of poultry coccidiosis: changing trends. J. Parasit. Dis. 35(1):10-17. http://doi.org/10.1007/s12639-011-0034-7

About the Authors

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Shelby Ramirez is the Global Poultry Technical Manager at DSM Animal Nutrition & Health. She holds a PhD (Iowa State University) and MS (University of Illinois) in nutritional physiology and applied nutrition, respectively. She continued in research as a postdoctoral research at USDA and research manager at Biomin before her current role where she enjoys communicating science into application.

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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	126	122	121	115	115	111	111	108	106	106	100	100	97	97	94	94	96	98	100	100	95	88	80	80	72	77	85	90	90	90	90
Karimnagar	120	118	118	116	116	108	108	106	104	104	98	98	95	95	90	90	92	94	96	96	90	83	75	75	67	72	82	90	90	90	90
Warangal	126	122	121	115	115	111	111	108	106	106	100	100	97	97	94	94	96	98	100	100	95	88	80	80	72	77	85	90	90	90	90
Mahaboobnagar	126	122	121	115	115	111	111	108	106	106	100	100	97	97	94	94	97	99	101	101	95	88	80	80	72	77	85	90	90	90	90
Kurnool	126	122	121	115	115	111	111	108	106	106	100	100	97	97	94	94	97	99	101	101	95	88	80	80	72	77	85	90	90	90	90
Vizag	132	128	127	125	125	123	123	120	116	116	110	110	106	106	104	104	106	108	110	110	105	98	90	90	84	89	95	100	100	100	100
Godavari	132	128	127	125	125	123	123	120	116	116	110	110	106	106	104	104	106	108	110	110	105	98	90	90	84	89	95	100	100	100	100
Vijayawada	132	128	127	125	125	123	123	120	116	116	110	110	106	106	104	104	106	108	110	110	105	98	90	90	84	89	95	100	100	100	100
Guntur	132	128	127	125	125	123	123	120	116	116	110	110	106	106	104	104	106	108	110	110	105	98	90	90	84	89	95	100	100	100	100
Ongole	132																														
Namakkal	120	120	120	120	108	110	110	110	100	100	100	92	93	90	90	90	92	92	84	78	70	66	68	71	73	75	78	81	81	81	82

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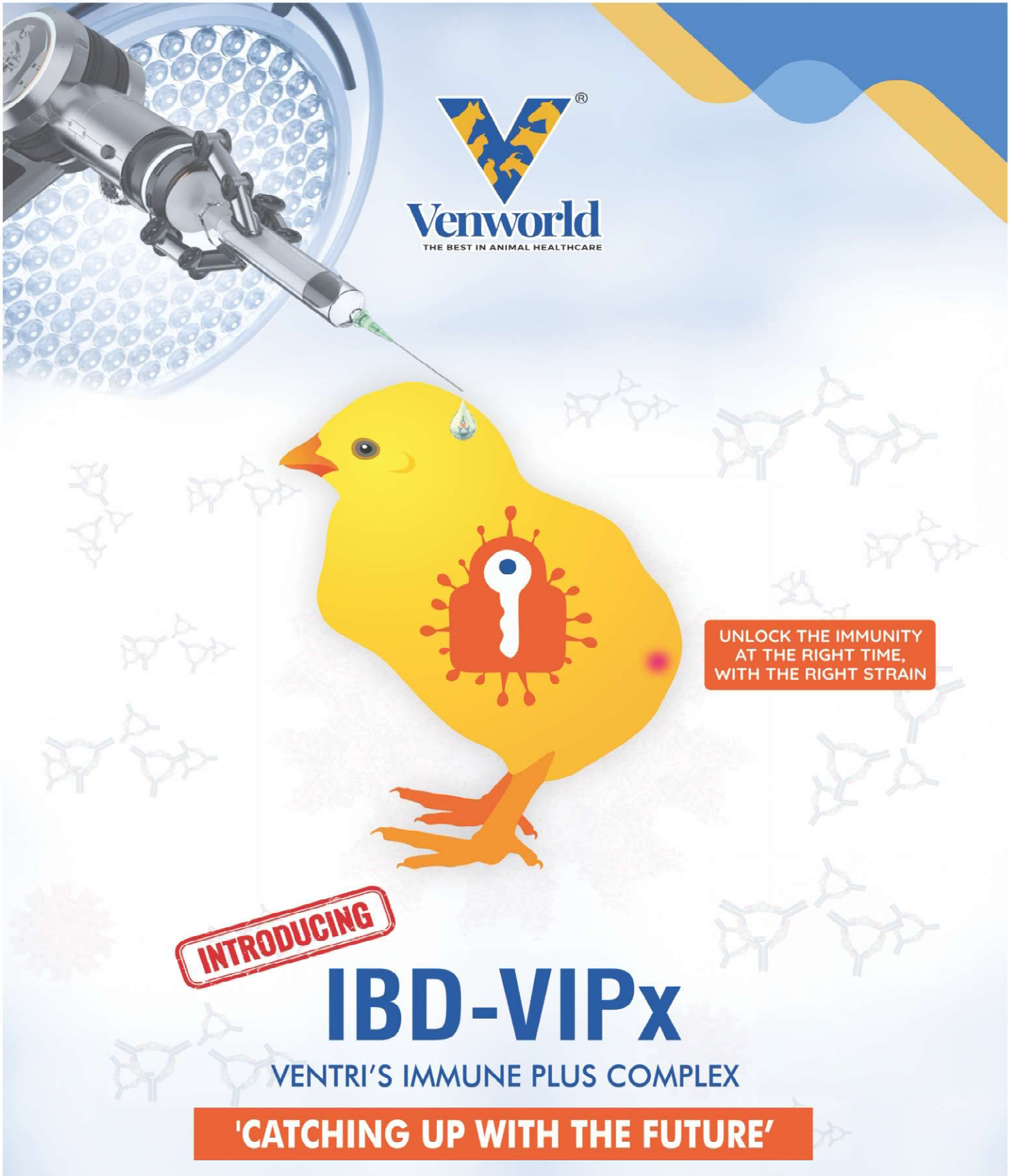

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