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Inside...

Poultry Fortune

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M. A. Nazeer

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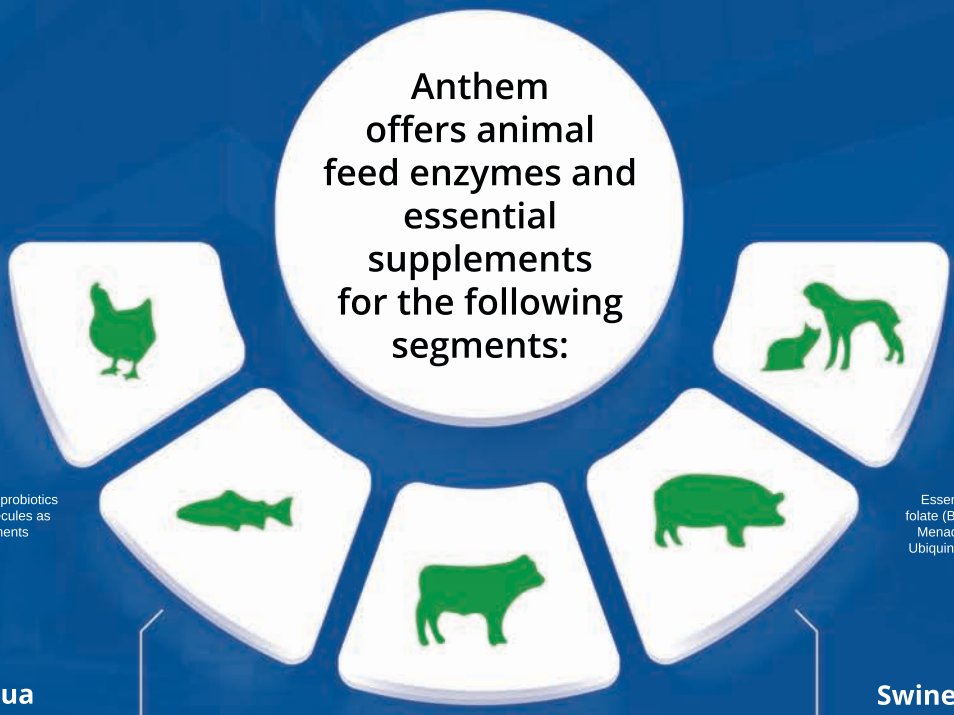

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Industry should stay strong in marketing, publicizing and advertising their products

Industry should focus on highlighting the health benefits of egg and chicken meat, and also convince the consumers about the myths circulating in social media about chicken and eggs.

Unfortunately, many farmers in India do not give proper attention to first two weeks of chick life. The early chick life determines the later performance. Mistakes made during this period cannot be corrected later on. If this period is managed correctly, the genetic potential of the bird, in terms of production of hatching eggs, fertility, hatchability and maximum saleable day old chicks can be achieved

Dear Readers,

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

ICAR-Directorate of Poultry Research, Hyderabad, organised a one-day national seminar in collaboration with Indian Poultry Science Association - Telangana and Andhra Pradesh Chapter on the topic *'Revisiting poultry production and marketing systems for addressing the fast changing consumer preferences'* on 6 May 2022. Dr G. Ranjith Reddy, Member of Parliament (Lok Sabha) said that poultry is passing through crucial time with feed prices skyrocketing and creating havoc for poultry industry in the country. He said that the industry should focus on highlighting the health benefits of egg and chicken meat, and also convince the consumers about the myths circulating in the social media about chicken and eggs. He advocated that the industry should stay strong in marketing, publicizing and advertising their products. He also encouraged young Veterinary graduates to venture into poultry sector as there are lot of opportunities. Dr V. Ravinder Reddy, Vice Chancellor, P.V. Narsimha Rao Telangana Veterinary University, Hyderabad and Dr R.N. Chatterjee, Director, ICAR-DPR addressed the seminar.

Right to Protein, a nationwide public health initiative, welcomes another renowned industry leader, Srinivasa Farms, to the league of Soy Fed adopters. 'Soy Fed' label is India's first-ever voluntary feed label, launched in 2021 to raise awareness about the role of animal feed in determining the quality of protein consumed. The voluntary label will feature on Srinivasa Farms' processed chicken portfolio and 'Hello Eggs' brand products soon. Mr Suresh Chitturi, MD, Srinivasa Farms said as a leading player in building the Indian poultry industry, he is extremely passionate about food and strongly believe it to be a vehicle for good health and nourishment. While soy feed plays a significant role in the growth and development of animals and helps define the quality of protein consumed by humans, awareness about it remains limited. Hence, introducing the 'Soy Fed' label was imperative to bridge the knowledge gap and set a benchmark for quality, and he wanted to play a role in it. He believes that adopting the label further reinforces their commitment to provide quality and affordable nutrition to consumers, which has always been at the core of their existence.

Dr Inderjeet Singh, Vice Chancellor, Gadvasu, Ludhiana, along with his committee members released world's first odorless eggs on the occasion of Alumni Meet 2022 held on 30 April 2022 in Ludhiana. These eggs were distributed on the basis of trial to different diabetic persons. These eggs have to be consumed daily depending upon the sugar level of the patient. The sugar level has to maintain the medicines you have been taking while you are consuming the eggs. These eggs are manufactured at Kansal and Kansal Agro Farm, Village Kohand, District Karnal, Haryana.

Novus South Asia team hosted the customer meet-and-greet featuring Sr. Director of Global Strategy Marketing Abishek Shingote and Vice President and Asia Managing Director, Dr Vaibhav Nagpal from Novus Headquarters in the U.S. The evening started with the welcome address by Neeraj Kumar Srivastava, Managing Director for South

Contd on next page

NRS GROUP

Poultry Fortune

Our Mission

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

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

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

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

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

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Asia & South East Asia, followed by the leadership messages from Dr Nagpal, Shingote, Sr. Vice President and COO Ed Galo, and the company's CEO and President Dan Meagher. Novus International opens its new Corporate Office in Bangalore on April 21.

The Institute of Veterinarians of Poultry Industry (IVPI) organized a Technical Nutrition Conference to celebrate the 'World Veterinary Day' on 7 May 2022 at Bengaluru. Raw material challenges such as inadvertent rise in protein and energy sources due to exports / shadow pricing, poor quality and adulteration threats while using unconventional raw materials etc. have significantly dented the financial health of poultry industry from the last couple of years. IVPI made an effort to address raw material issues and alternative resources with the theme "Feed Ingredients: What goes up, won't come down". The Technical Conference was supported by Vencobb, Life Line's Tender Chicken, Nandu's, Coastal Chicken, Bharath Agrovet, Ideal chicken and Shanthi Feeds.

In the Articles section – *Block the Summer Shock by Nutritional Intervention,* *authored by* Dr Pooja Bhardwaj, M.V.Sc, discussed that one of the greatest challenges to production facing poultry farmers in India is heat stress and the strain that it causes to the bird. Climatic conditions in India are such that there is intense radiant energy for an extended period of time. Poultry creates a large quantity of metabolic heat and accumulate additional heat from radiant energy. Heat production and accumulation coupled with compromised cooling capability because of environmental conditions causes heat load in the bird to increase to the point that body temperature rises, intake declines and ultimately the bird's productivity drops. Birds are 'heat stressed' if they have difficulty in achieving a balance between body heat production and body heat loss.

Another article titled ***Family Poultry: Post COVID Livelihood Opportunity in Rural India,*** *authored by* Vijay Kumar and Rajkumar U, ICAR-Directorate of Poultry Research, Hyderabad said that COVID pandemic badly impacted livelihood, employment and economy of the country. Family poultry is an option to improve the household situation. It needs low investment and gives good return; has local production and consumption value chain and helpful to meet the household need and family labour utilization. Government along with many other agencies also promotes backyard poultry through various schemes. There are many native as well as improved poultry varieties which can be reared from extensive to small scale intensive system in profitable manner. Backyard poultry is one of the most important sources of nutritional security, income generation and livelihood opportunity. It can be started on very low investment and within short period of time there is regular income to support the household. Lakhs of unemployed rural persons can start backyard poultry farming that can solve the issue of migration from rural to urban areas in any distress condition. It has huge potential for further expansion as the produce of backyard system is preferred in all sections of the society across the country.

Article titled ***Artificial Insemination in Poultry,*** *authored by* Dr Mukhtar Ahmad (B.V.Sc, M.V.Sc, Poultry Science, IVRI), informed that Artificial Insemination (AI) in poultry is innovative approach to reduce the cost of production by reducing the number of males used for the mating purpose which will increase the profitability in poultry industry. It has been observed that performing AI in birds achieved better fertility rate than natural mating. Fertility can be increased by another 5 to10% simply by adding AI to the propagation program at breeder farms. Insemination should be done at proper time. It should be done at afternoon when there is no egg in the reproductive tract of female which could hinder the transport of the sperms in the tract. Generally 1:2 dilution is done to get optimum fertility. Normal saline can be used for dilution if AI is done at zero hour after collection. Usually number of spermatozoa per AI should be 100 to 200 million spermatozoa.

Another article titled ***Diamond V Postbiotics, the next generation approach to strengthen immunity and gut health for optimal performance in poultry,*** *authored by* Dr Umesh, Product Manager, Provimi Animal Nutrition India Pvt Ltd, discussed that commercial poultry production in India is undergoing various challenges viz. high raw material prices, numerous stress conditions, bacterial diseases and viral outbreaks. Over the years, breeding companies have developed birds designed specifically to overcome these challenges. However, with the current global trends, climate change and increasing commercial poultry population, these challenges are limiting the attainment of the full genetic potential. In order to maintain health and performance of these birds, interventions to enhance immunity and gut health are key to ensure sustainable poultry production.

Article titled ***Early Chick Mortality: Causes and Prevention***, *authored by* Prof. R.N. Sreenivas Gowda, Former VC, KVAFSU, Bidar, Former Director, IAH&VB, Bangalore and Former Prof. & Head Veterinary Pathology, Veterinary Collage, Bangalore, said that the first two weeks chick life is critical. This is an important period in which all systems of the chicken are in developing stage or under developed. The immune system is immature and unable to fight against diseases. The digestive system is undergoing enormous anatomical and physiological changes. The feathering system is not perfect. Thermoregulatory system (the system in which chick can regulate its body temperature) generally matures at 12 to 14 days under normal conditions. The chick is learning how to eat and drink. Unfortunately, many farmers in our country do not give proper attention to first two weeks of chick life. The early chick life determines the later performance. Mistakes made during this period cannot be corrected later on. If this period is managed correctly, the genetic potential of the bird, in terms of production of hatching eggs, fertility, hatchability and maximum saleable day old chicks can be achieved. The performance of the flock depends on early chick management. Although factors responsible for early chick mortality are complex. A better understanding of the causes of mortality in the crucial first few weeks of the chick's life may lead farmers to rely more on better management such as, brooder and ventilation management, better hygiene and sanitation and information on chick mortality can be used for the training of farmers on its control.

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

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Editor & Publisher
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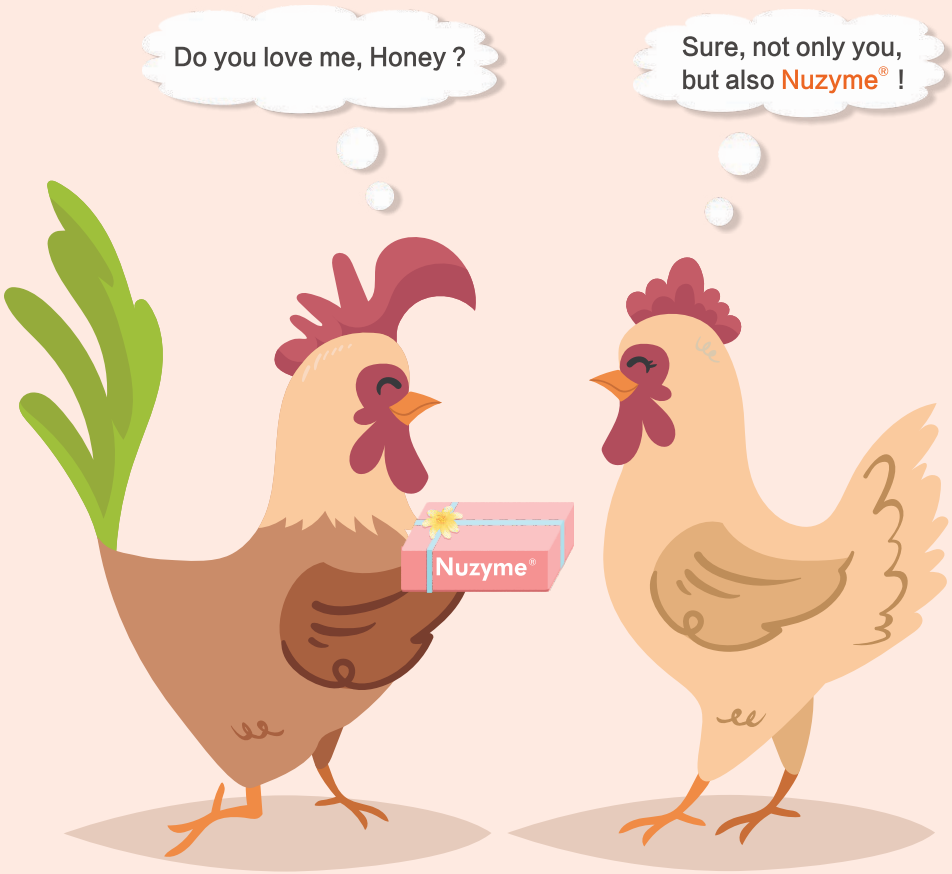

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Industry should focus on highlighting the Health benefits of Eggs and Chicken meat

ICAR-DPR & IPSA organises National Seminar at Hyderabad

Hyderabad: ICAR-Directorate of Poultry Research, Hyderabad organized a one-day National Seminar in collaboration with Indian Poultry Science Association- Telangana and Andhra Pradesh Chapter on the topic "Revisiting poultry production and marketing systems for addressing the fast changing consumer preferences" on 6th May 2022. Dr G. Ranjith Reddy, Member of Parliament (Lok Sabha), Chevella, Telangana has graced the Seminar as the Chief Guest.

Dr R.N. Chatterjee, Director, ICAR-DPR welcomed the dignitaries and the participants to the Seminar. He said that it is very delightful to organize theSeminar in the offline mode after a very long gap. He highlighted the role of Poultry industry and its contribution to the national economy. Dr S.V. Rama Rao, Principal Scientist elaborated on the theme of the National Seminar and its high relevance during this pandemic era. Dr V. Ravinder Reddy, Vice Chancellor, P.V. Narsimha Rao Telangana Veterinary University, Hyderabad, the Guest of Honour for the Seminar, emphasised the need to support the poultry farmers by providing the feed ingredients in time at a reasonable cost. He also opined that proper biosecurity and health measures should be taken to control the emerging and remerging poultry diseases.

The Chief Guest of the programme, Dr G. Ranjith Reddy appreciated the efforts of the Directorate in organizing the Seminar at this crucial time when feed prices are skyrocketing and creating havoc for the poultry industry in the country. He said that the deliberations should focus on highlighting the health benefits of egg and chicken meat, and also convince the consumers about the myths circulating in the social media about chicken and eggs. He advocated that the industry should stay strong in marketing, publicizing and advertising their products. He also encouraged the young Veterinary graduates to venture into the poultry sector as there arelot of opportunities. The dignitaries released a book on "Poultry Feed: Region specific" authored by Dr S.V. Rama Rao, Dr A. Kannan and Dr M.V.L.N. Raju of theDirectorate. They also released the Vermicompost "Vermipoul"developed by Dr R.K. Mahapatra from poultry litter under the

Lighting of the lamp by dignitaries

Dr G. Ranjith Reddy delivering Chief Guest address

Dr V. Ravinder Reddy, VC, PVNRTVU addressing the audience

Dr A.S. Ranade delivering invited talk

Dr P.S. Mahesh

K.G. Anand delivering talk

Dr S.V. Rama Rao introducing the seminar theme

Dr R.N. Chatterjee giving welcome address

Dr M.V.L.N. Raju proposing vote of thanks

Dr U. Rajkumar, Organising Secretary

programme "Wealth from waste". Dr M.V.L.N. Raju, Principal Scientist proposed vote of thanks for the inaugural program.

Subsequently, invited lectures were delivered by eminent speakers in the field of poultry. In the forenoon, Mr K.G. Anand, General Manager, Venkateshwara Hatcheries, Hyderabad spoke on the current status of poultry industry, challenges and opportunities. Dr P.S. Mahesh, JC (Poultry), Govt. of India and Director, CPDO & TI, Bengaluru delivered a talk on human protein mission through poultry. Dr A.S. Ranade, Assoc. Dean, Mumbai Veterinary College and President, Indian Poultry Science Association (IPSA) talked about the issues concerning poultry welfare and the current challenges.

In the afternoon, Dr U.C. Patel, Proprietor, PCS, Ahmadabad spoke on the importance of precision feeding for reducing feed cost. Shri Suresh Rayudu Ch., CEO, Srinivasa Poultry Farms, Hyderabad and Chairman, International Egg Commission has highlighted the relevance of branding and appropriate strategies for effective marketing of eggs and meat in the country. Dr M.M. Chawak, General Manager, PDRC, Pune dealt the topic on current scenario of poultry diseases in the country and the ways for their prevention and control. Dr Mujeeb Ather, Deputy Director (Retd.), VBRI, Hyderabad gave a talk on the notifiable diseases and the way forward to minimize their incidence in the country. In the last talk, Shri Tommy Lim, Product Manager, Big Dutchman shared his experiences on EC housing in the Indian context.

Pleanry session in progress

Dr R.N. Chatterjee felicitating Dr. G.Ranjith Reddy

Dr A.S. Ranade presenting memento to Suresh Rayudu, Chitturi for delivering invited talk

Dr\ A.S. Ranade presenting memento to Dr M.M. Chawak for delivering invited talk

Dr A.S. Ranade and Dr R.C.Hazary presenting memento to Shri Tomy Lim for delivering invited talk

Dr A.S. Ranade and Dr R.C.Hazary presenting memento to Dr Mujeeb Ather for delivering invited talk

Dr A.S. Ranade presenting memento to Dr U.C. Patel for delivering invited talk

A view of Audiences

This was followed by the Plenary Session, which was chaired by Dr R.N. Chatterjee, Director, ICAR-DPR and Co-chaired by Dr T. Kotaiah, MD, IndBro Research & Breeding Farms Pvt. Ltd., Hyderabad;Dr V. R. Reddy, Retired Professor, Hyderabad, and Dr A.S. Ranade, Associate Dean, Mumbai Veterinary College. The Seminar was attended by Scientists from DPR, Officials, staff and students from the Telangana Veterinary University, Poultry entrepreneurs and industry representatives from AP and Telangana (TS), officials from the AH Department and members of IPSA-TS and AP chapter. At the end of the Seminar, Dr U. Rajkumar, Principal Scientist and Organizing Secretary gave vote of thanks.

Srinivasa Farms adopts 'Soy Fed', India's first-ever feed label, to help consumers identify high-quality protein products

Following other leading poultry producers, Srinivasa Farms joins the list of supporters of the 'Soy Fed' label that enables Indian consumers to make better protein choices.

Mumbai, 9 May 2022: Right to Protein, a nationwide public health initiative, welcomes another renowned industry leader, Srinivasa Farms, to the league of Soy Fed adopters. 'Soy Fed' label is India's first-ever voluntary feed label, launched in 2021 to raise awareness about the role of animal feed in determining the quality of protein consumed. The voluntary label will feature on Srinivasa Farm's processed chicken portfolio and 'Hello Eggs' brand products soon.

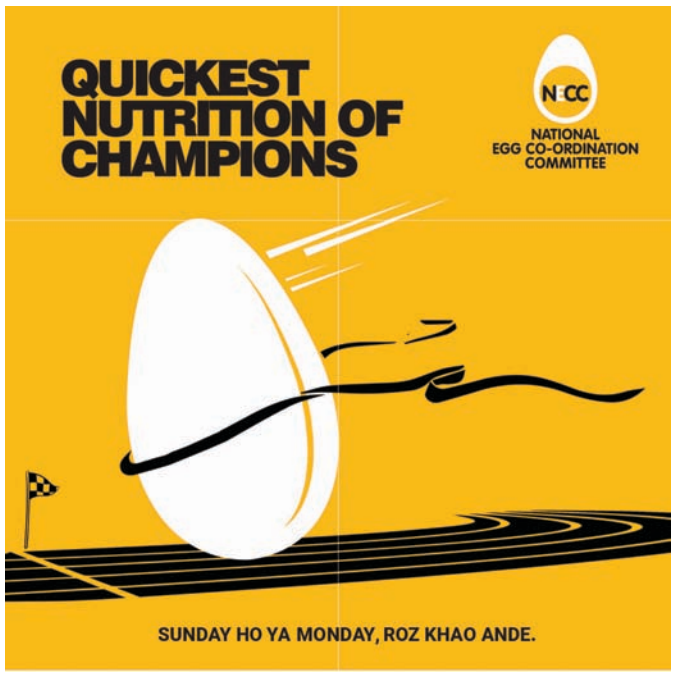
Since its inception last year, the 'Soy Fed Label' has received widespread support from industry stakeholders like Sneha Farms and Shalimar Group, owing to its ability to distinguish soy as a high-quality protein source for animal feed and empowering consumers to make informed decisions while differentiating packaged poultry,meat, and fish fed with soy.

Mr Suresh Chitturi, Managing Director, Srinivasa Farms said, "As a leading player in building the Indian poultry industry, we are extremely passionate about food and strongly believe it to be a vehicle for good health and nourishment. While soy feed plays a significant role in the growth and development of animals and helps define the quality of protein consumed by humans, awareness about it remains limited. Hence, introducing the 'Soy Fed' label was imperative to bridge the knowledge gap and set a benchmark for quality, and we wanted to play a role in it. We believe that adopting the label further reinforces our commitment to provide quality and affordable nutrition to consumers, which has always been at the core of our existence."

"The introduction of the label was a necessary step undertaken to drive awareness about Soy as a complete protein source for animal, as well as human consumption. It is encouraging to witness the overwhelming support we are receiving from our industry partners for the 'Soy Fed' label and are happy to have champions like Srinivasa Group helm the cause with us. With this, we are indeed progressing on our journey to further the protein knowledge beyond just the immediate source – going from food to feed", stated **Jaison John, Lead - India, US Soybean Export Council (USSEC) and Right To Protein supporter.**

Surging ahead in its mission to drive protein sufficiency in the country through awareness, advocacy, and action, Right to Protein, continues to reachout to multiple brands in India for voluntary inclusion of the 'Soy Fed' label on their packaged protein products - meat, poultry, and fish - and helping citizens learn that **We Are What Our Food Is Fed!**

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



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World's First Diabetic Eggs

Ludhiana: Dr Inderjeet Singh, worthy vice chancellor, Gadvasu, Ludhiana, along with his committee members released world's first odorless eggs on the occasion of alumni meet 2022 held on 30 April 2022 at Pal Auditorium PAU Campus, Ludhiana. These eggs were distributed on the basis of trial to different diabetic persons. Their experience and comments are mentioned below:

1. Dinesh Kumar, Editor, S.R. Publications,
Earlier, I was disturbed in the midnight for urination, but, after consuming two eggs a day, this disturbance is totally controlled and now I complete my sleep without any disturbance. Further, after consuming two eggs a day, I feel that energy of my body is continue till bed time, which earlier exhausted by evening.

2. Rakesh Bhardwaj, Livestock Publications
I tried for 18 days with one egg in the morning & another in the evening. The result was somehow perfect as my sugar level remained the same during these 18 days without any fluctuation. Though these eggs have not reduced my sugar level but there was no fluctuation of blood sugar level at all.

3. Dr V.K. Aggarwal, BVSC & A.HM
Blood glucose levels on 27/02/22:- Self -84/160, Wife-115/154 As on 13/03/22: Self – 100/149, Wife – 68/123
I feel the eggs have helped considerably in diabetes control especially in case of my wife. Other factor like urine frequency in case of self is also reduced.

4. Chanpreet Singh, MVSc, ABT Corporation, Chandigarh
I checked my fasting sugar level which was 277 on that day. In every two hours I used to go for urination. Some time I was failed to control the pressure. So, as you advised I started eating one boiled egg in morning and one in evening. After 15 days I got some mild results but when you advised me to increase two eggs once a time. It gave me fantastic results. Now whole night there is no pressure of urine. I can sleep nicely. Secondly timing of urination increased from 2 hours to 6 & 7 hours. I checked my Sugar level. On 11 March. it was 125 fasting and after breakfast 137.

5. Dr M. L. Kansal, B.V.Sc & A.H, M.Sc (Poultry Science), Ph.D, Ex. Professor Animal Science (Ext.) P.A.U, Ludhiana
Before developing Diabeat Eggs I used to consume powder of Paneer Dodi and Vijaysar and five kilometer walk daily. My sugar level reduced from 135 to 84 and I reduced my medicine which I was taking Novonorm 2mg daily to 1.5 mg daily. Again, I consumed raw powder and the level again came to 84 then I again reduced the medicine from 1.5 mg to 1 mg. Then the idea came to my mind to develop these types of eggs having Paneer Dodi and Vijaysar powder along with methi in different doses and developed these diabetic eggs which I am consuming 2 eggs daily. Three of my problems have been solved which are urination, weakness, and partial memory. Now I sleep soundly without needing to urinate. Now my body is stronger.

6. Dr Rathi
My father consumes Diabeat odorless eggs for more than one month. He observed the following changes in his health. Reduces the inflammation (Itching) and wound healing time. Improve digestion. Reduce flatulence. Improve fatigue i.e., lethargy

Dr Janak Raj
I observed that there was no smell in the eggs, the sugar levels were maintained. No weight gain and the cholesterol level were also normal. The eggs boosted the energy in the body.

8. Dr D.C. Dhablania, B.V.SC & AH, MVSc, Ph.D (Hons) Ex. Director & Head Clinics (P.A.U. Ludhiana) They are almost odorless, they control Sugar level fasting to 20-30 points.Regulate urinary flow and prevent well due to proteinuria quality of eggs consume I also had reduced my insulin doses by DiabeticOdorless Eggs. The Eggs have definite positive effects on the whole.

9. Dr S.P Rana, Ex. Director Government Animal Husbandry, Haryana
Good news about your treatment of long diabetic problem by taking Herbal eggs produced by a poultry farm supervised by our classmate Dr M L Kansal. The insulin injections taken by you have been reduced considerably. It shows Diabeat Odorless eggs are quite effective in the treatment of Diabetes. A word of caution doesn't stop your regular mediation.

Comments:

Dr A.S. Nanda, Ex. Vice Chancellor, Gadvasu,
Hats off to your tireless efforts in promotion of health through consumption of innovated eggs.

Dr Dhaiya, Ph.D, Ex. Professor, Haryana Agricultural University,
Salute to your research dedicated to the society. Keep going. God bless you excellent health and long life.

Dr Ranjeet Singh, Ex. Professor, Gadvasu,
Very good information and it must help in recovery from diabetes.
These eggs have to be consumed daily depending upon the sugar level of the patient. The sugar level has to maintain the medicines you have been taking while you are consuming the eggs. These eggs are manufactured at Kansal and Kansal Agro Farm, Village Kohand, District Karnal.

Novus International Announces New Corporate Office in India

Bangalore: Novus International's Asia leadership team in India inaugurated its new corporate office in the country in April. The new space was officially opened on 21 April 2022 in Bangalore, the capital and largest city of the Indian state of Karnataka located in the country's south-western region. Having a corporate office in Bangalore has the advantage of being in proximity to many customers. While a large city that is home to more than 8 million people, Bangalore is centrally located with major livestock and poultry hubs like Coimbatore, Namakkal, Hospet, Hyderabad, Pune, etc., contributing more than 60 percent of the poultry and dairy markets. The location also facilitates frequent engagement with customers, which will result in enhanced customer intimacy, improved services, and business growth.

FY22 leadership award, Dr Vaibhav Nagpal, Abhishek Shingote, Neeraj Kumar Srivastava and others

Ribbon cutting ceremony

On the April 20, Novus South Asia team hosted the customer meet-and-greet featuring Sr. Director of Global Strategy Marketing Abishek Shingote and Vice President and Asia Managing Director Dr Vaibhav Nagpal from Novus Headquarters in the U.S. The evening started with the welcome address by Neeraj Kumar Srivastava, managing director for South Asia & Southeast Asia, followed by the leadership messages from Dr Nagpal, Shingote, Sr. Vice President and COO Ed Galo, and the company's CEO and President Dan Meagher.

In his speech, Srivastava highlighted the importance of shifting the corporate office to Bangalore and he thanked all customers and business partners for their support. He spoke about growth, collaboration, trust and new beginning for Novus in the region. He also emphasized the opportunities in the region and the commitment of Novus to serve its customers with the right solutions and services.

Galo thanked the customers and business partners for their continuous support, stating that Novus has built a sustainable business over the years in the Indian market, and company leadership is pleased and proud of its position in the country.

Lighting of lamp

A view of the guests

"In return, we are committed to supporting the market to help feed the world and continue bringing nutritional health and solutions for best-in-class animal protein production to the market," Galo said.

Meagher congratulated Srivastava and the entire team of Novus South Asia for their renewed commitment to country and its animal protein producers.

"The commitment of Novus's office in India demonstrates the importance of the Indian market to Novus," Meagher said.

Dr Nagpal mentioned the evolution of Novus in India over the last 15 years and spoke to the global development, innovation and focus of the company. He also added the importance of customers and business partners for the growth of any organization.

"Customers are the backbone of any business," Dr Nagpal said.

Many prominent animal nutrition and health companies are located in and are operating out of Bangalore. The area is also a hub for the software and biotechnology-related industry in India and is known as the "Silicon Valley & Biotech Capital of India." Recently, Bangalore has emerged as the start-up capital with almost 32 entrepreneurial companies located there. With this investment in the city, Bangalore has an advantage over other cities in attracting and retaining talents.

Novus South Asia Team

Bangalore is also demographically diverse and the second fastest-growing major metropolis in India as per the Centre for Science and Environment. Bangalore is called the most livable city in India due to its economic ability and opportunities.

IVPI organizes Conference to celebrate 'World Veterinary Day'

Bangalore: The Institute of Veterinarians of Poultry Industry (IVPI) organized a Technical Nutrition Conference to celebrate the 'World Veterinary Day' on 7 May 2022 at Hilton Convention Centre, Manyata Tech Park, Bengaluru. Raw material challenges such as inadvertent rise in protein and energy sources due to exports / shadow pricing, poor quality and adulteration threats while using unconventional raw materials etc. have significantly dented the financial health of Poultry Industry from the last couple of years. Hence, IVPI made an effort to address raw material issues and alternative resources with the theme **"Feed Ingredients: *what goes up, won't come down*"**.

The Technical Conference was ably supported by Vencobb, Life Line's Tender Chicken, Nandu's, Coastal Chicken, Bharath Agrovet, Ideal chicken and Shanthi Feeds Pvt Ltd.

The Event was attended by Poultry Entrepreneurs, Veterinarians, Research Scientists, Senior Government officials and Technocrats from across the country. All the dignitaries were welcomed by IVPI Secretary, Dr Harsha Kumar Shetty and the introductory remark was given by Prof. G. Devegowda, President of IVPI. Emcee of the programme was Dr K L Aravind

An Array of eminent speakers; Mr Kishore Kumar Hegde, MD, Life Line Feeds, Dr Manju NC, Asst. Vice President, JAPFA Comfeed, Mr Srinivas BV, MD, Aspartika Biotech Pvt Ltd, Dr Abhilash, MD, Natani Recyclers India Pvt Ltd, Mr Ashok Kumar KS, Founder, Maa Integrators and Dr Anjan Goswami, Co-founder, 'Utpan App' spoke on interesting topics such as, business challenges in tough situations, alternative raw materials, quality issues, processing data & take corrective actions for the benefit of poultry industry.

Dr Aravind Bhat memorial Best Veterinarian award – 2022 was conferred on Dr Jayanth Deshpande for his immense contribution and service to the poultry farmers. The award ceremony was conducted by Dr G Gopal Reddy. Dr Swamy gave the vote of thanks and the event was followed by networking dinner. The event received very positive feedback for its professionally organising meeting.

Vaksindo organises Seminar at Rajahmundry for Layer Farmers

B Ranga Rao

A Poultry Technical Seminar was organized by Vaksindo Animal Health Pvt Ltd on 1 May 2022 at Manjeera Sarovar Premiere. This seminar was organized to discuss "Respiratory Disease Control with special reference to ND, IB and Infectious Coryza"

The meeting was attended by 50 progressive poultry farmers of Anaparthy,East Godawari district , Andhra Pradesh. Mr Subba Reddy-Dhanalxmi poultry farms, Mr Sachnarayan Reddy-SKR Poultries while Dr Krishna Reddy and Dr S.S. Prasad-Srinivasa farms - graced the technical seminar with their special attendance.

Mr B. Ranga Rao, Director- Vaksindo India and Dr Ganesh Darban, Technical Service Manager presented on efforts taken by Vaksindo Animal Health in last two years on disease monitoring in all poultry belts of India with special reference to AndhraPradesh, their disease control strategies and making available the research basedservices and solutions for poultry.

Vaksindo's legacy of manufacturing antigenically matching vaccines with high antigen mass would help to -

minimize cost of disease control in India

minimizing disease threats in the minds of the farmers

improve the performance of progressive farmers

Expert Speaker was Dr V. Gowthaman, PhD. from Namakkal presented the importance of disease control strategies for respiratory diseases. He

V. Gowthaman

opined that minimizing predisposing factors of various diseases should be prioritized. Indian layer

Ganesh Darban

farmers are facing egg production drop which need comprehensive approach for investigation. Infectious Coryza due to variant B serovars, Velogenic Viscerotropic ND caused by either Genotype VII or Genotype XIII, LPAI and variant IBV serotypes are mainly responsible for respiratory diseases in poultry. Better quality vaccines with good vaccination schedule should be the approach towards controlling diseases in poultry.

Mahesh Gupta proves to be a driving force in prioritization and accountability in Srinivasa Farms

Mahesh Kumar Gupta, Chief Operating Officer, Srinivasa Farms Pvt Ltd

Hyderabad: Mr Mahesh Kumar Gupta, Chief Operating Officer, Srinivasa Farms Pvt Ltd, as the COO has proved to be a driving force in driving prioritization and accountability in Srinivasa Farms. He has been with Srinivasa Farms since 2019. As the COO of Srinivasa Farms Pvt Ltd, he manages diverse verticals like Layer Breeding, Broiler Breeding, Broiler Integration, Layer Integration, Animal Feed Stuff, Chicken Processing and more.
He started his career in the East, worked in North, West and South, and has a well-rounded knowledge on subjects ranging from Agricultural commodities business, Feed Business, Broiler Integration business, Broiler Breeding Businesses, Layer Integration business, etc.

He has successfully managed key positions of diverse nature and capacities during his career and has effectively handled operational and strategic responsibilities, including managing profit center operations, corporate planning, sales and business development.

Mahesh Gupta is proficient in setting up new verticals, dealing with industry issues and has worked on resolving industry related issues with various states and central government.

Mr Mahesh Kumar Gupta is BSc Agriculture (Class of 1988, College of Agriculture, OUAT, Bhubaneswar) and PGDMA Class of 1991, IIM Ahmedabad. He has a rich experience of Business Management spanning 3 decades across organizations like Godrej Agrovet Ltd, C&M Hyline Farms, HUL Animal Feed stuff Division later merged into Godrej Agrovet, Venky's India Ltd, and now the Chief Operating Officer of Srinivasa Farms Pvt Ltd.

In a recent interaction with Poultry Fortune, Mr Suresh Rayudu Chitturi, Managing Director, Srinivasa Farms Pvt Ltd, suppliers of Hy-Line W-80i, said that he has the confidence that Mr Mahesh Gupta will put efforts and organise Srinivasa Farms and gave him freedom to act and bring developmental changes and growth in the company.

Venkat Rao, Business Head, Layer Business Division

Mr Venkat Rao, Business Head, Layer Business Division, Srinivasa Farms Pvt Ltd, with over 32 years experience in various domains like IT, People Management, Business Development, Supply Chain, Logistics, Project Management amongst others, has worked with teams across Asia, Japan, Europe and America. His passion is "Transformation of Organisations" by causing leaders and empowering teams.

Venkat Rao, Business Head, Layer Business Division, Srinivasa Farms Pvt Ltd

Before joining Srinivasa Farms, Venkat worked over 13 years in Cisco Systems, Bangalore. He was in the past an active PMP professional and completed a Business Leadership Course from ISB, Hyderabad.

Since joining Srinivasa Farms in 2016, Venkat has previously managed the Broiler Breeder, Broiler Integration and Chicken Processing Business. Venkat has transformed how we do the Broiler Breeder and Integration business. He also worked in getting the Chicken Processing Division along with his team and created "Srinivasa Processed Chicken" as a quality product which demands a premium over other competitors. Coming from a Non-Poultry Industry background, Venkat Rao brought out of box thinking to Srinivasa Farms.

Venkat Rao says that teamwork, transparency and data are key and he has demonstrated in providing quality products to our farmers and consumers.

Coutesy: NECC

Ranawat celebrates his daughter Niharika's marriage with Harshvardhan

Jaipur: Mr N.S. Ranawat, Senior Executive, Big Dutchman celebrated the marriage of his daughter Niharika with Harshvardhan with traditional and royalty at the Rambagh Palace Hotel, Jaipur on 22 April 2022.

The marriage was attended by the Governor of Rajasthan H.E. Kalraj ji Mishra and many dignitaries of poultry industry, Mr Janjaap Van Der Mark, Joint Managing Director Asia and Mr Coen Director Bu, Poultry Asia of Big Dutchman India. Apart from them, The CEO, COO of Tommy Hilfiger / Calvin Klein India also graced the occasion.

N.S. Ranawat and Kiran Singh with the bride and bridegroom Niharika and Harshvardhan during the wedding ceremony on April 22 at Jaipur.

The marriage was celebrated with the blessings from the elders of the family and about thousand invitees took part in it.

The bride, Niharika, daughter of Mrs Kiran Singh and Mr Narpendra Singh Ranawat, a

Well known senior executive of the multinational company, Big Dutchman and resident of Th. Shahpura, Rajasthan (Bhilwara), whereas the bridegroom Harshvardhan, son of Mrs Sunita Rajawat and Mr Maldeo Singh Bhati of Th. Chattangarh (Jaisalmer).

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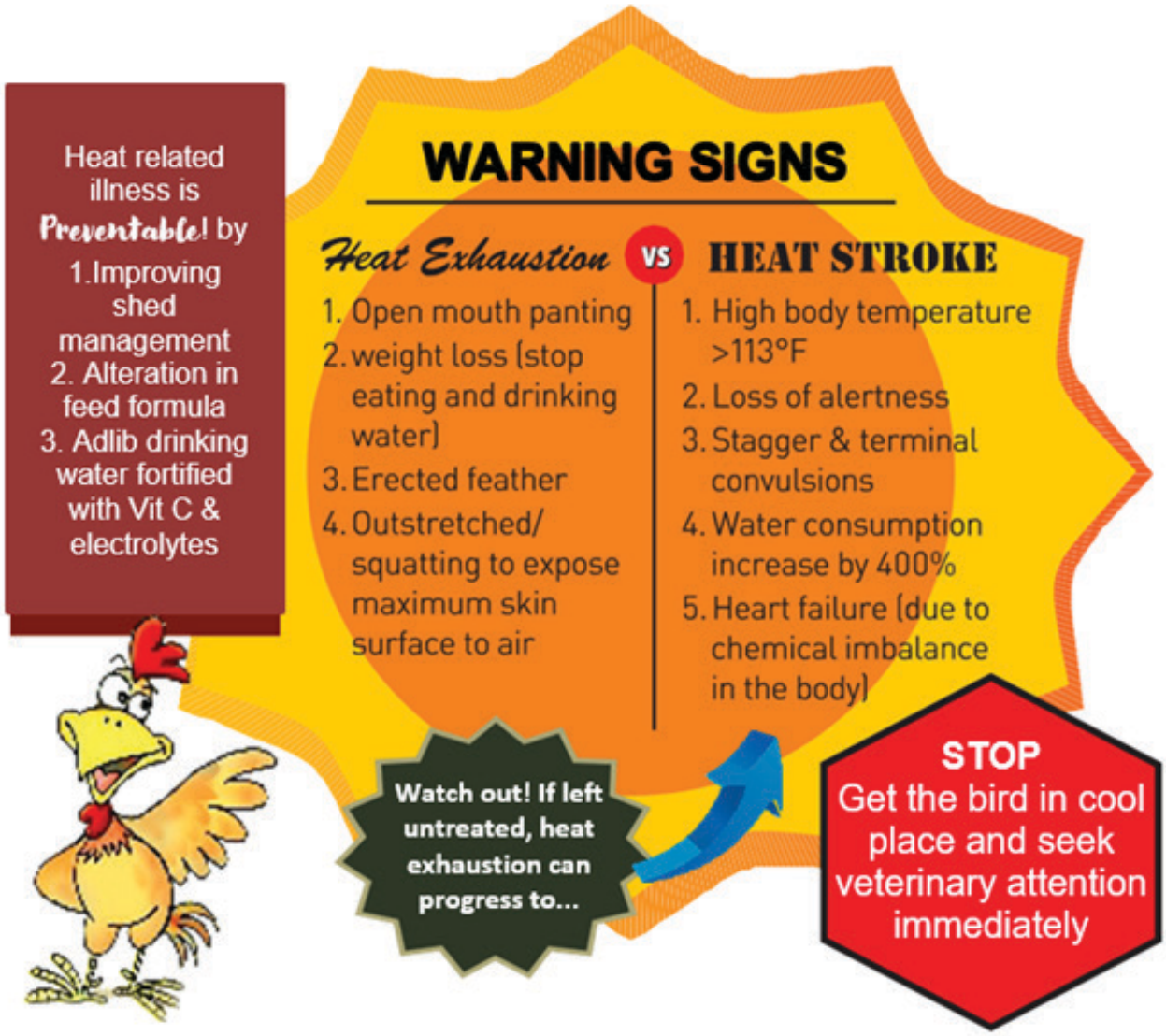
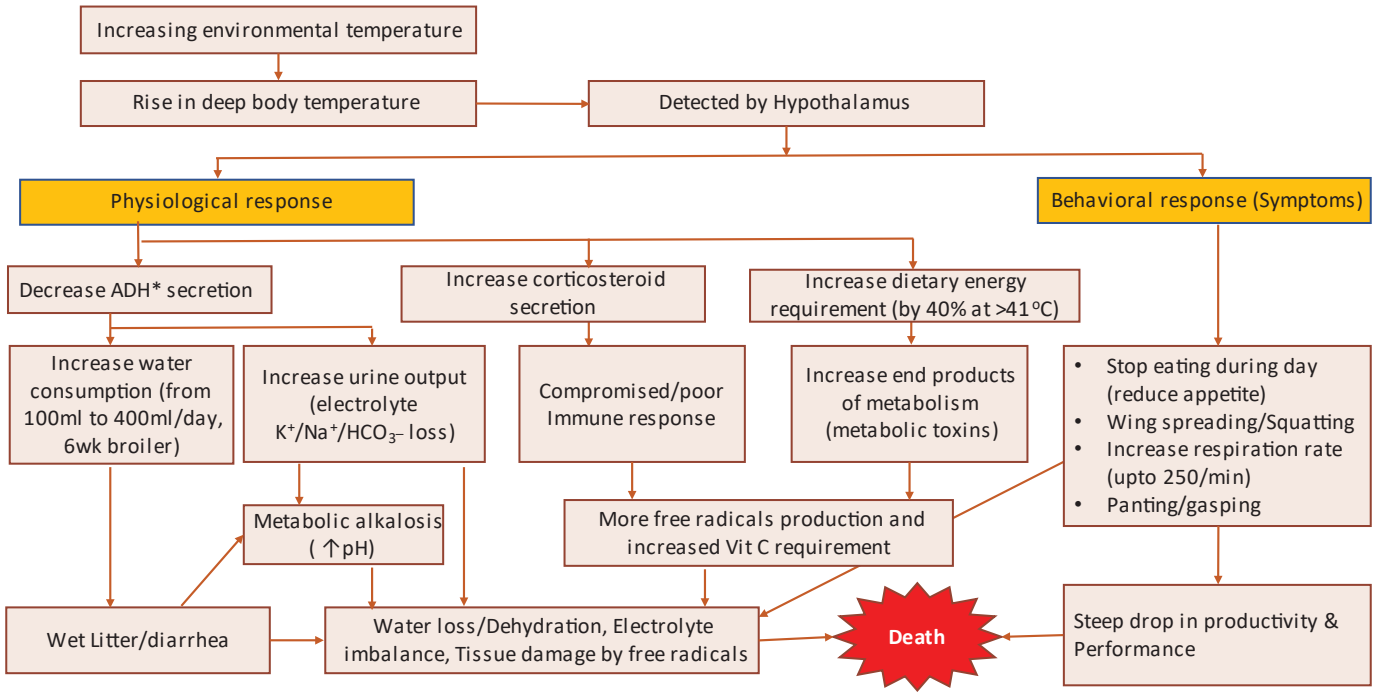
Block the Summer Shock by Nutritional Intervention

Dr Pooja Bhardwaj,
MVSc (Pharmacology & Toxicology)

One of the greatest challenges to production facing poultry farmers in the India is heat stress and the strain that it causes to the bird. Climatic conditions in India are such there is intense radiant energy for an extended period of time. Poultry create a large quantity of metabolic heatand accumulate additional heat from radiant energy. Heat production and accumulation, coupled with compromised cooling capability because of environmental conditions, causes heat load in the bird to increase to the point that body temperature rises, intake declines and ultimately the bird's productivity drops. Birds are 'heat stressed' if they have difficulty achieving a balance between body heat production and body heat loss.



Consequences of Heat Stress



Management of Heat Stress

The strategies to minimize the effects of heat stress can be achieved by:

1) Genetic modification by developing heat - tolerant breeds

2) External environment management: -

a) Improved nutritional management practices.

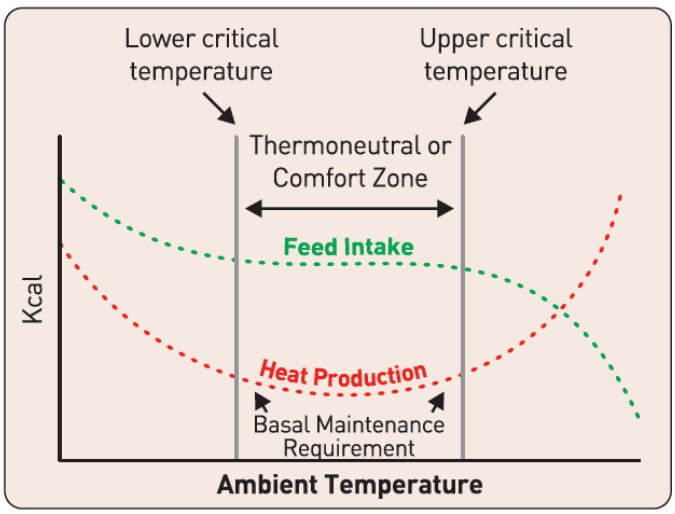
b) Physical modification of the environment [shading, cooling)

In this article we will discuss about nutritional management of heat stress.

Improved nutritional management practices.

1) Feeding Strategies for Heat Stress

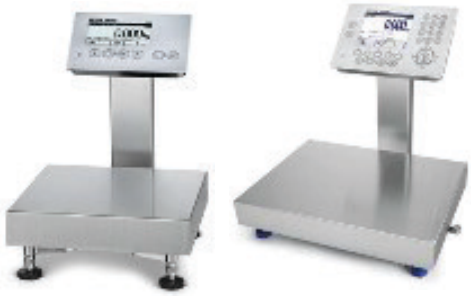
During hot weather birds reduce feed consumption resulting in deficiency of some nutrients. Manipulating the ration such as increasing energy intake, should be done carefully and technically. Avoid using rancid fats & amino acids balance must be maintained by using vegetable protein sources rather animal protein. Measure feed intake per day/per week regularly & adjust the level of critical nutrients according to intake. To encourage feed consumption during heat stress various feeding strategies can be employed like:



a) Feed Restriction: Feed restriction can be done to reduce the heat load when the ambient temperature is high. Gratification for 2 hours prior to the warmest period during the day to fix the FCR and reduce mortality without affecting body weight. One option is to complete the morning feeder cycle by 10:00 am. An additional advantage with this is the availability of calcium in the digestive system during shell formation at night and in the early hours of the morning so-called 'midnight snacks' are a good tool to give hens extra feeding time in the cooler parts of the night. A good strategy to take an unnecessary heat load off the birds is to withdraw feed 8 hours prior to anticipate time of peak temperature. One third of the daily feed ration should be given in the morning and two thirds in the late afternoon. Feeders should run empty at least once a day to enhance the appetite and to ensure that the fine particles of the feed [premixes, vitamins etc.) are consumed.

b) Free choice feeding: Poultry can adjust nutrient consumption by the need to select appropriate feed ingredients physiological needs. Feed with the rough shape particles will have a longer retention time in the digestive tract so will generate heat slower during digestion. In addition, feed consumption as coarse particle encourages more water consumption than regular feed so that it can reduce the heat load to facilitate heat dissipation in evaporation. The feed texture should not be too fine. Oil/

The new full stainless-steel terminal front, consisting of one solid stainless steel plate, doesn't carry any physically accessible buttons. This eliminates the risk of residues or water accumulation on the surface. Furthermore, the metal front protects the unit's inductive keys against mechanical damage and assures failure-free operation in tough environments.



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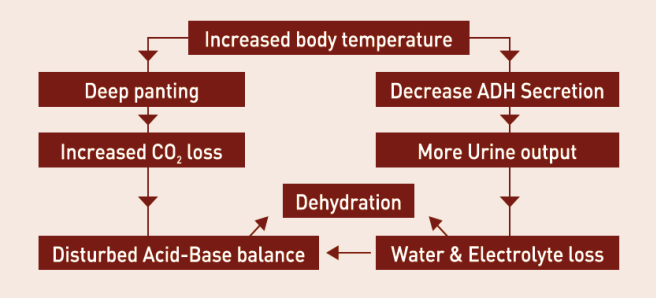


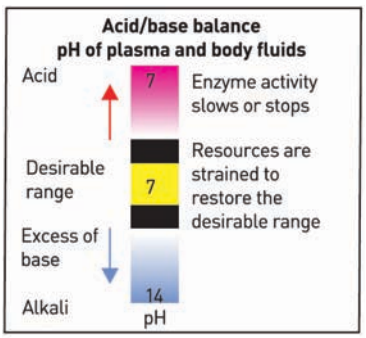
Molasses can also be used to avoid "dusty" feed and to increase palatability.

c) Wet feeding:

As shown in flow chart Prolonged pantingcauses increased CO2 loss & changes acid base balance in body. Birds' metabolism also gets affected due to respiratory alkalosis & dehydration.

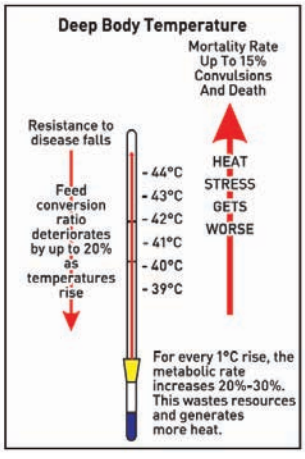
To overcome this imbalance acidifier &electrolyte can be supplemented in feed as wet feeding. This will also create optimal conditions for enzyme activity & digestion so that feed can easily digested and absorbed, which will improve body weight gain and FCR.

Advantage of use of acidifier for wet feeding



- Liquid acidifier moistens the feed without compromising the sterility of feed
- Acts as feed sanitizer
- Improves palatability of feed. Thus, improves voluntary feeding
- Improves digestion & absorption of feed by balancing the gut pH

d) Special Feed formula for summer



Increase dietary protein: In hot weather the need for maintenance energy is much lower than at an ideal temperature and birds respond by less feed consumption. With the reduction in consumption, there is often a reductionin intake of essential nutrients such asprotein, essential amino acids, minerals and vitamins, which can result into reduced body weight and egg production. So, to ensure feed intake of essential amino acids & vitamins, it is recommended that protein content of feed should be increased by 1-2 %. However, there is a possibility that increasing dietary protein might be detrimental to the bird as more heat is produced during its utilization and that may well overload heat dissipation mechanisms (i.e., panting, blood circulation etc.)

Therefore, improving overall balance of the diet by amino acid supplementation appears to be more effective than increasing protein intake.

Increase nutrient density of the diet: To increase the energy content of the diet during hot weather, it is always recommended the use of supplemental fat. Dietary fat increases palatability of feeds and reduces the amount of heat increment that is produced during its utilization in the body.

Feeding calcium carbonate or oyster shells: Calcium content of the diet should be adjusted according to anticipated level of intake, such that each bird can consume the right amount per day. For laying hens, top dressing feed with oyster shell or large particulate limestone is beneficial and has the added advantage of stimulating feed consumption. Limestone and oyster chips may be provided at a rate of 625 g per 100 hens.

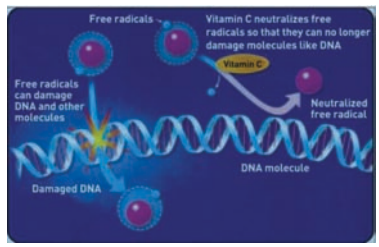
Supplements (Minerals and Vitamins): Imbalances acid-base is very common in heat stressed birds.Therefore, inclusion of various us compounds in the diet or water is a common practice to alleviate the adverse effects of heat stress. These include sodium bicarbonate, potassium chloride, calcium chloride, ammonium chloride and Research has proven that sodium bicarbonate at high temperature stimulates water and feed consumption & contributes to improved weight gain. Sodium bicarbonates can act as alternative source of sodium & assists in maintaining healthier living environment with better condition. The addition of 8 g of sodium bicarbonate to the 100 liters of drinking water [or 35g per 25kg) can be useful in heat stressed birds to stimulate water consumption.

Vitamin C Rich Diet: Any stressors like heat stress may increase the chickens' need for vitamin C, since chicken is not able to synthesize enough vitamin C to meet increased physiological demands. Vitamin C plays crucial role in amino acid & mineral metabolism and synthesis of some hormones.

Vitamin C ameliorates heat stress induced problems such as poor immunity, feed intake, weight gain, oxidative stress, rectal and body temperature, fertility and semen quality, carcass weight and mortality in birds. Supplementation of essential herbs like Ocimum sanctum, Withania somnifera, Emblica officinalis& minerals can also help to overcome the heat stress.

Advantage of Vitamin C supplementation in feed

1. Antioxidant: Ascorbic acid can scavenge free radicals and reduce oxidative stress. It is also protecting the fat-soluble vitamins A and E as well as fatty acids from oxidation.



2. Immune System:

Vitamin C makes the epithelial tissues in the mouth less permeable to bacteria. It also assists the white blood cells

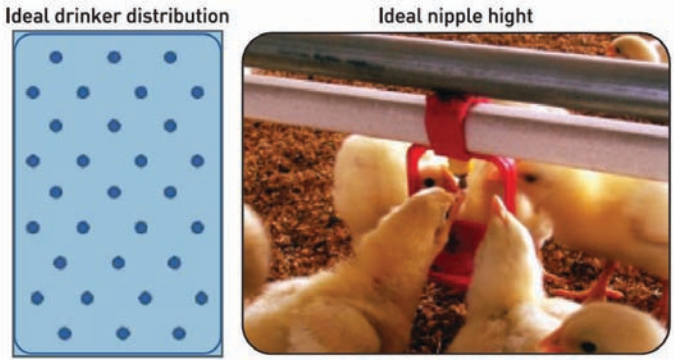
for proper function and so contributes in maintaining the immunity. Furthermore, it protects the immune system and reduces mortality in growing birds infected with IBD in a hot environment by protecting the lymphoid organs and bursal activity.

3. Maintenance: Vitamin C helps in hydroxylation & maturation of collagen fibers. Collagen is integral part of bone, cartilage & blood vessels. So, better maturation of collagen helps to improve egg shell quality in layers & dressing percentage in broiler.

4. Enhances iron absorption: Vitamin C improves the absorption of iron by converting Fe into its bioactive form, which intern increases the hemoglobin level in body & limit the respiratory alkalosis to an extent.

Water Management

The availability of adlibitum clean, cool drinking water is very crucial during hot conditions. Any action which limits water intake will depress production.



The ideal drinking water temperature is 10-120C. Ensure there are enough drinkers with even distribution throughout the shed at the right height. Water tank should be filled in every 4 hours with fresh & cool water.

a) Use of Vitamin C in drinking water to avoid Heat Stress: Vitamin C in drinking water can lower rectal temperature during the day time in chickens. The secretion and release of corticosterone can be reduced by Vitamin C supplementation. Supplementation of honey @ 20ml per liter of drinking water can decreased the frequency of panting and heart rate. Honey contains phytohormones that play a role in muscle contraction and relaxation of the heart and lungs.

b) Advantage of water acidification in summer: Water quality frequently changes from season to season in each location or area depending on the source. In summer the decreased underground water level results into increased pH & total dissolved solids [TOSI in drinking water leading to high water alkalinity and hardness. It is advisable to monitor water composition every six months and not only when the producer experiences poor flock performance. In summer as water consumption also increased, there is maximum threat of water borne diseases. Chlorination is an ideal tool to achieve highest water sanitization, but for proper chlorination water pH should be kept in acidic range. By using acidifier in drinking water both the problems can be solved as organic acids balance water pH in 5-5.5 range and due to their bacteriostatic action ensures the safety of drinking water.

By understanding heat stress and taking steps to prevent it, you will be keeping your birds comfortable and still loving the sunshine.

Vitamin C is necessary for various biosynthesis [collagen, 1,25- dihydroxy vitamin D and adrenaline) as well as for regulation of diverse reactions [secretion of corticosterone, regulation of body temperature and activation of immune system). It has been reported that vitamin C enhances the antioxidant activity of vitamin Eby reducing the tocopheroxy radicals back to their active form of vitamin E. Adult poultry under normal conditions are able to synthesize vitamin C to meet the requirement. However, it has been reported that vitamin C requirement is higher during stress and several reports have documented a beneficial effect of supplementing poultry feed with ascorbic acid.

Ascorbic Acid [Ml. also called vitamin C, had been very useful as a supplement in poultry diets under stress, particularly under heat stress. In view of the fact that ascorbic acid of tissue synthesis is not sufficient at periods of stress and that diets do not usually contain vitamin C, the birds are liable to suffer from vitamin C deficiency, if rations are not supplemented with vitamin C. It has been observed that supplementation of diets with ascorbic acid at required levels, especially under heat stress, improves growth, egg production, egg shell strength, fertility within (male and females) and hatchability of poultry eggs. The depressant effect of high temperature on performance often compels the technique of supplementing poultry diets to ensure optimum production. Therefore, it is necessary to adopt effective measures to control heat stress and its adverse effects on livestock. Vitamin C alleviates the side effects of stress, thus increased heat tolerance in birds, and improved chickens' response to cell functional immunity. Therefore, ascorbic acid could be included at the rate of 250mg/kg diet, 500mg/kg diet and 400mg/kg diet for day old chicks,Breeders or Layers and broiler chickens, respectively.

Family Poultry: Post COVID livelihood opportunity in Rural India

Email: ullengala@yahoo.com

Vijay Kumar and Rajkumar U, *ICAR-Directorate of Poultry Research, Hyderabad, Telangana, India*

Highlight Points

COVID pandemic badly impacted livelihood, employment and economy of the country. Family poultry, an option to improve the household situation. It needs low investment and gives good return; has local production and consumption value chain and helpful to meet the household need and family labour utilization. Government along with many other agencies also promote backyard poultry through various schemes. There are many native as well as improved poultry varieties which can be reared from extensive to small scale intensive system in profitable manner.

COVID-19 pandemic had a trickle-down effect on Indian economy affecting all the sectors except Agriculture which recorded positive trend. There was fall in household's income; high rate of inflation, unemployment, job losses created anall-timelow employment index and ultimately lead to the drastic fall in GDP. The poultry sector also found massive impact but backyard poultry/ family poultry was little affected due to local production and local market consumption compared to the commercial poultry industry.

Family poultry covers wide variety of small-scale poultry production systems in rural, urban and peri-urban areas. There is minimal investment on inputs and labour is mainly family members. This system is good for food security, income and employment generation. FAO classified family poultry production system into four broad categories: small extensive scavenging (1-5 poultry); extensive scavenging (5-50); semi-intensive (50-200) and small-scale intensive (Broiler more than 200 or layer more than 100).

India has registered about 46% growth in backyard poultry compared to 4.5% of commercial poultry in the year 2019 (DADF, 2020). Backyard poultry contributes about 17.8% ofthe total egg production of India.There is huge difference between production and requirement of poultry produce in India especially in non-producing states, rural and tribal areas of the country. Presently, per capita availability of egg is 91 (Economic Survey, 2021-22)and meat is about 3.4 kg (DAHD, 2019) which arefar below the ICMR recommendation of 180 eggs and 11kg of meat per person/ year. According to a report by McKinsey and company, the per capita chicken consumption is set to grow to 9.1 Kg by 2030, on account of rapidly changing consumption behavior of individuals. Share of poultry and other meat in household food consumption is expected to grow from 12 to 24per cent by 2030, if so, the poultry sector should grow many folds to meet the projected requirements. It offers a huge opportunity and scope to enhance the poultry productivity and production. An estimate made by Government of India in 2012 clearly brought out the potential of poultry sector in generating employment, an increase in 50 g of chicken meat and one egg per capita may generate about 25,000 additional employmentopportunities.Backyard poultry sector is providing livelihoods, nutritional security, employment, women empowerment etc.Reverse migration in rural India creates lot of financial as well as social issues in the society. Some of them have returned to their work but many of them still looking for their livelihood based on agricultural and allied sector activity andThe Mahatma Gandhi National Rural Employment Guarantee Act (MANREGA) has come to the rescue of the rural employment last few years when the number of man-days of employment generated increased by almost 50%. But, people cannot get job round the year under this scheme. The land availability per household is reduced due to fragmentation and not able to sustain the livelihood of family on it. Prevailing situation can be addressed by introduction of backyard poultry among landless, marginal and small farmers in Rural India.

The rural backyard poultry systems play an important role in achieving nutritional security, income generation and livelihood option of the person in rural areas. In village poultry systems the production of poultry meat and eggs is extremely efficient in terms of feed and water inputs. The nutritiouseggs and chicken meat can supplement household grain-based diets and fulfill the protein requirements to a large extent. The backyard poultry have a special place in the ecosystem as they are under the control of women, require low investment, assist in pest control and provide

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EUROPEAN QUALITY

manure for fertilizer. Improvements in their production can meet the nutritional demand in the household and in the community by increasing their social standing and financial autonomy.

Why family poultry?

1. Poultry farming is one of the fast growing agri-sector in our country with an annual cumulative growth rate of about 9.6% in broiler meat and 6-7% in egg production.
2. Poultry produce is the cheapest animal protein source
3. Least investment compare to other livestock
4. Easy to rear
5. Reared on zero-input to intensive method
6. Easy availability of chicks and other inputs
7. Extension and Advisory services are easily available
8. Produce can be used as household consumption as well as for sale also
9. Easy marketing as few numbers
10. Native birds have better immunity compared to commercial birds
11. Return start in short time interval and regular source of income

Selection of poultry birds

There are 19 recognized breeds of chicken found in different parts of the country. Farmers can select these birds and they can also go for improved varieties of chicken like Vanaraja, Gramapriya, Srinidhi etc. The list of improved varities and their purpose of rearing is provided in the Table. Vanashree, Krishibro, Krishilayer, Pratapdhan, Narmadanidhi, Kamrupa, Jharism, Himsamridhi, Chabro, Kalinga Brown, Kaveri, CARI-Gold, Hitcari, Upcari, Cari-Debendra, Giriraja, Girirani, Krishipriya, Swarnadhara, Nandanam 99 and Rajasri etc. Main criteria of selection is market demand and suitability of birds in the local condition.

Table 1. Some of the popular crossbred varieties developed in India for backyard poultry farming

Variety	Purpose	Plumage	Institution
Vanaraja	Dual	Brown, Black with black glossy tail feathers	ICAR-DPR, Hyderabad
Gramapriya	Egg	Brown plumage	ICAR-DPR, Hyderabad
Srinidhi	Dual	Multicolored with barred plumage	ICAR-DPR, Hyderabad
Janapriya	Dual	Brown	ICAR-DPR, Hyderabad
Krishibro	Broiler	Multicolored with barring	ICAR-DPR, Hyderabad
Krishilayer	Layer	White	ICAR-DPR, Hyderabad
Giriraja	Dual	Multicoloured	UAS, Benaglure
Kuroiler	Dual	Thick reddish brown and barred feathers	Keg Forms, Gurugram, Haryana
Rainbow Rooster	Dual	Brownish red	Indbro, Hyderabad
Nandanam	Dual		TANVASU, Chennai
Rajashri	Egg	Brown	PVNRTVU, Hyd
Pratapdhan	Dual	Brown, whitish yellow feathers	AICRP on PB, MPUAT, Udaipur
Narmadanidhi	Dual	Black with whitish silk feathers	AICRP on PB, NDVSU, Jabalpur
Kamrupa	Dual	Brown and black	AICRP on PB, AAU, Guwahati
Jharsim	Dual	Multicoloured	AICRP on PB, BAU, Ranchi
Himsamridhi	Dual	Brown	AICRP on PB, CSKHPKVV, Palampur
CARI Nirbheek	Egg	Brown	ICAR-CARI, Izatnagar, UP
Up-CARI	Egg	Brown frizzle faethers	ICAR-CARI, Izatnagar, UP
CARI-Shyama	Egg	Black with silky white feathers	ICAR-CARI, Izatnagar, UP

Management system of Backyard Poultry

Backyard poultry is low or zero input activity requires little feed supplement, night shelter and minimum health care support. They also reared on household waste, green fodder, insects, earthworm and small amount of supplemented feed. There are two phases of rearing of Rural birds: i. Nursery rearing: chicks to 4-6 weeks of age; ii. Free-range rearing: birds (after 4-6 weeks) able to sustain on scavenging and protect themselves from predator.

Family Support

Rural poultry is also called as family poultry because it is reared in family without much extra effort. Women, children and old aged person in a family can also contribute in poultry husbandry work without any risk.

Capacity Development of farmers

There are Krishi Vigyan Kendra (KVK) in each district of farmers, Veterinary Colleges, Universities and many other organizations like NGOs are imparting capacity development programme for poultry producers. They can also financially be supported by many governmental schemes to take up this farming as livelihood option.

Other poultry birds

In the Indian subcontinent, "Poultry Farming" is synonymous with "Chicken Farming" as the chicken is the most commonly reared poultry bird. Poultry include guineas, geese, chickens, ducks, pigeons, and turkeys. There are lot of other opportunities in poultry sector like: Chicken Hatchery, Duck Farming, Duck Farming With Integrated Fish Farming, Ostrich farming, Pigeon farming, Quails farming, Swan farming, Turkey farming etc.

Small scale intensive farming (broiler)

In this production system commercial variety of broiler can be purchased from any authorized hatchery (private or pubic sector) and can be reared at their farm. There are two types of system for small intensive farming: contract farming and private farming. There are many integrate in different parts of the country who offer to join their contract. Integrators give all input and you have to rear the birds at your farm with your manpower support. They will take all birds after few weeks as par contract. You can all take only day-old-chicks without any contract from integrator and can sale in open market. Both the production systems have some merit and demerits, and before going to business take advice from any expert available in your area.

Economics of poultry farming

Poultry farmers should select improved backyard varieties of birds which have local demand in the market. Many studies were conducted in different parts of the country on economics of different backyard chicken varieties. The economics of Vanaraja and Gramapriya in a traditional backyard system was estimated with the net profit per pair of birds in a year as Rs. 595-705 and 820-930, respectively. Farmers can rear more numbers of chicken based on land availability, other recourses, experience and market demand.

Government support in poultry farming

Different states have different types of schemes to support and promote poultry farming in rural areas. These are some important schemes which support poultry sector as well as other employment generation activities: MUDRA Loan, NLM Scheme- Poultry Venture Capital Funds, NABARD Schemes, Heath support from Veterinary/ Animal Husbandry Department. Scheduled Tribes (ST) and Scheduled Caste (SC) farmers may also get support from many government organizations under Scheduled Tribe Component (STC) and Scheduled Caste Components (SSC) programme. There are many Krishi Vigyan Kendra (KVK), State Agricultural University, Central Poultry Development Organizations (CPDO) and many Non-Governmental Organizations (NGO) supporting poultry farming through capacity development as well as by providing necessary input.

Conclusion

Backyard Poultry is one of the most important sources of nutritional security, income generation and livelihood opportunity. It can be started on very low investment and within short period of times there is regular income to support the household. Lakhs of unemployed rural person can start backyard poultry farming that can solve the issue of migration from rural to urban area in any distress condition. It has huge potential for further expansion as the produce of backyard system is preferred in all section of the society across the country.

Coutesy: NECC

ARTIFICIAL INSEMINATION IN POULTRY

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Introduction

Poultry production in India has increased significantly during the last couple of decades. The application of modern genetic tools and development of artificial insemination (AI) technology in breeding programmes have facilitated the rapid progress in poultry production by disseminating genetic superiority very fast. AI had become an important tool of reproduction used almost exclusively for the production of the commercial herd. The technique currently used for AI in poultry was developed in the 1930's and involves applying pressure to the hen's abdomen and everting the vaginal orifice through the cloaca. This method is also called as cracking, venting or everting the hen. Semen is deposited 2–4 cm into the vaginal orifice concurrently with the release of pressure on the hen's abdomen.AI was first practiced in America during the 1920 and became widely used in Australia with the introduction of laying cages in the late 1950's. It has been a critical component of reproduction in turkeys since the 1960 and is used almost exclusively for commercial flock production. It has been observed that performing AI in birds achieved better fertility rate than natural mating . Fertility can be increased by another 5–10% simply by adding AI to the propagation program at breeder farms. At present, AI in other domestic alternate poultry species is not used extensively. But this scenario may change in future. To achieve better fertility by AI, fresh semen should be inseminated within 15-30 min after collection. The AI procedure is not as simple in ducks and geese because unlike chickens and turkey hens, the oviduct cannot be everted and the commercial demand for AI in these species is limited . For genetic improvement, AI is regarded as an important breeding tool throughout the world.

Steps in artificial insemination in poultry

Preparation of Males
⇩
Collection (Milking) of semen from Males
⇩
Evaluation of Semen
⇩
Dilution of Semen
⇩
Deposition of Semen in Vagina of Female

Highlight Points

- Artificial Insemination (AI) in poultry is innovative approach to reduce the cost of production by reducing the number of males used for the mating purpose which will increase the profitability in poultry industry
- It has been observed that performing AI in birds achieved better fertility rate than natural mating. Fertility can be increased by another 5–10% simply by adding AI to the propagation program at breeder farms
- Insemination should be done at proper time. It should be done at after noon when there is no egg in the reproductive tract of female which could hinder the transport of the sperms in the tract
- Generally 1:2 dilution is done to get optimum fertility. Normal saline can be used for dilution if AI is done at zero hour after collection. Usually number of spermatozoa per AI should be 100-200 million spermatozoa.

i) Collection of Semen

Collection of semen is the first and most important step in Artificial Insemination. Burrows and Quinn in 1936 described a non-invasive method, the "abdominal massage method", for collection of semen from roosters. The technique involves restraining the male and gently stroking the back of the bird from behind the wings towards the tail with firm rapid strokes. The male responds with tumescence of the phallus, at which time the handler gently squeezes the cloaca expressing semen through the external papillae of the ductus deferens and collecting the semen into a container. For turkeys, the technique is adapted by massaging the area around the cloaca before milking the semen. Adaptations are also made for species such as waterfowl which have penis-like copulatory appendages and non-domestic species which require additional restraint. The proximity of the cloaca increases the likelihood of obtaining semen contaminated with faeces, urates, and bacteria that are detrimental to semen quality. The semen collector can also affect semen quality by contamination of semen with faeces urine and blood which can be detected by evaluation of color of semen.

ii) Semen Evaluation

The reproductive potential of poultry birds (cocks) is determined to large extent by the quality of the semen they produce . For best results in AI, poultry breeders need to ensure the highest quality of collected semen. The importance of raw semen assessment to identify males of different fertilizing abilities is routinely employed. Avian

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semen quality significantly affects fertility which is in turn affected by breed and environmental conditions.The assessment of semen quality characteristics of poultry birds gives an excellent indicator of their reproductive potential and has been reported to be a major determinant of fertility and subsequent hatchability. Semen evaluation by macroscopic and microscopic methods is the tool to evaluate male fertility in roosters . Macroscopic parameters like color, consistency, appearance score and volume and the microscopic traits like concentration, initial motility, abnormal sperms and percent dead sperms are used in semen evaluation . Among all, initial motility is considered as the single reliable characteristic of semen for identifying the fertilizing ability of the roosters.

The traditional semen evaluation procedures include determination of various characteristics such as semen volume, colour, concentration, motility, viability and morphology of spermatozoa . Many of these assessments correlated with the fertilizing capacity of spermatozoa when fresh semen was evaluated.

iii) Dilution of Poultry Semen

Avian semen is highly concentrated and low in volume which is very difficult to handle without dilution. Dilution of semen makes it possible to handle it properly and thereby enabling the use of semen over many more hens. Dilution of semen can be done by use of different diluents available in market. Generally 1:2 dilution is done to get optimum fertility. Normal saline can also be used for dilution if AI is done at zero hour after collection. Usually number of spermatozoa per AI should be 100-200 million spermatozoa.

iv) Deposion of Semen in Vagina

There are two methods of semen deposition in poultry. These methods are the intra peritoneal insemination and vaginal insemination. The most reliable and successful routine for insemination of poultry, is by depositing semen directly in the mid vaginal area.

Intra peritoneal insemination

This technique of AI is not reliable and has been used periodically for many years. In this technique a sharp needle is punched through the abdominal wall and the cannula inserted to deposit semen in the region of the ovary.

Vaginal insemination

This is the most commonly used AI procedure and two personnel are required for this operation. The technique was developed in the 1930 and involves applying pressure to the hen's abdomen and everting (Turn inside out) the vaginal orifice through the cloaca. This procedure is also referred to as cracking, venting or everting the hen. Semen is deposited 2–4 cm into the vaginal orifice concurrently with the release of pressure on the hen's abdomen. Insemination is accomplished with sterile straws, tuberculin syringes or plastic tubes. In large scale commercial operations, automatic semen dispensers using individual straws loaded with a set AI dose are commonly used. Because poultry semen loses viability within 1 hour, hen insemination should begin immediately after collection .Insemination should be done at proper time. It should be done at after noon when there is no egg in the reproductive tract of female which could hinder the transport of the sperms in the tract. The inseminated spermatozoa reach the sperm host glands where they are stored. Only 1% of inseminated sperms reach the SST in utrovaginal gland others are damaged and are absorbed. The dose of AI in case of chicken is 100 _200 *10^6 spermatozoa. AI dose depends on the concentration of semen and volume of insemination.

Early Chick Mortality: Causes and Prevention

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Introduction

The first two weeks' chick life is critical. This is an important period in which all systems of the chicken are in developing stage or under developed. The immune system is immature and unable to fight against diseases. The digestive system is undergoing enormous anatomical and physiological changes. The feathering system is not perfect. Thermoregulatory system (the system in which chick can regulate its body temperature) generally matures at 12 to 14 days under normal conditions. The chick is learning how to eat and drink. Unfortunately, many farmers in our country do not give proper attention to first two weeks of chick life. The early chick life determines the later performance. Mistakes made during this period cannot be corrected later on. If this period is managed correctly, the genetic potential of the bird, in terms of production of hatching eggs, fertility, hatchability and maximum saleable day old chicks can be achieved.

Table 1. Expected mortality rates according to the bird type

Type of bird	Brooding period	Growing period	Total end –flock mortality
Broilers	<1%(from-oto 2 weeks of age)	0.5bird/1000 birds/day(between 2to 4 weeks of age) <1bird/1000 birds/day(from 4 weeks and up)	5%
Broiler breeder	1 to 2 %(from 0 to 2 weeks of age)	<0,25% /1000 birds/day(between 2 to 4 weeks of age)	10%
Layer chicks	1 to 2 %(from 0 to 2 weeks of age)	<0,25% /1000 birds/day during growth <0.5%/month during lay	2-5%

From day old chick to four weeks' growth and health of the chick determines the future performances. This depends on the quality hatching eggs from a healthy breeding flock and hatchery sanitation and hygiene.1-2% of mortality is normal in a poultry farm; however, anything higher than this should be taken seriously. In any case the mortality of first two weeks should not exceed 2%. If exceeds it is unhealthy flock. (See table1)

What causes early chick mortality?

Many factors cause early chick mortality, such as genetic, management, nutritional and disease causes. Let us analyze the probable problems that are interfering in early chick mortality.

Genetic Causes

There are around 21 lethal gene mutations in birds. Most of these lethal genes lead to chicks' death during the incubation period. However, congenital tremors and congenital loco cause the death of chicks within a week of hatching. **Crossed beak and saddled legs** is common among chicks. There is much improvement in the breeds now, thanks to geneticists for their efforts in controlling these defects.

Management Causes

Another most important cause of early chick mortality is – **'Poor management'**. Chicks reared in poorly managed poultry won't be able to manifest their full genetic potentials. Sound management is indispensable for keeping flocks healthy and alive. Some of the management blunders include.

1. Shed sanitation and environment

The poultry shed has to be prepared as per biosecurity norms to receive the checks.

2. Brooding

Brooding is the most crucial, critical and decisive period in a breeder chick's life. Especially the first two weeks. This period has a great impact on future performance of the flock. More than 50% is decided in this period as to how a flock performs for the rest of its life.

- Place sanitized brooders as per the number of chicks
- Check all the house electric connections
- Check the burners in gas brooders
- Switch on the brooders and check for electrical or gas connections.
- It is important to note that the heaters and brooders should be on 48 to 72 hours in winter and 24 to 48 hours well before the arrival of chicks.
- **High Brooding Temperature:** High brooding temperature is dangerous for chicks. Too much heat makes chicks dehydrated due to which they consume more water rather than the feed. Due to their reduced feed intake, their growth is drastically affected, leading to their death. Besides, it also causes **pasted vent** and ultimately resulting in chicks' deaths because of their inability to pass out waste from the body.
- **Low Brooding Temperature:** Low brooding temperature causes chilling, and prolonged exposure to cold can directly impact the immune system of the flock, thereby making birds vulnerable to diseases. Besides, flock tends to huddle together when exposed to too much cold to keep themselves warm. Huddling causes suffocation in the flock, thereby resulting in chick mortality.
- Set optimal brooder temperature and follow as per the below table.

Table:2. Recommended brooder temperatures.

Recommended Temperatures for Chicks		
AGE	Cage Brooding	Floor Brooding
Day 1-3	33-34°C 91-93°F	35°C 95°F
Day 4-7	32-34°C 90-93°F	33°C 92°F
Day 8-14	29-31°C 85-89°F	31°C 89°F
Day 15-21	26-29°C 80-84°F	29°C 84°F
Day 22-28	24-26°C 75-79°F	26°C 79°F
Day 29-35	21-23°C 70-74°F	23°C 74°F
Day 36+	21°C 70°F	21°C 70°F

3. Litter Contamination: The common cause of chick mortality is contaminated bedding materials. Some farmers use sawdust for brooding, which could be really harmful to chicks. Chicks can mistake sawdust for feed, and in the process, they consume it in good quantity, which leads to gastrointestinal impaction and ultimately resulting in death. Wet litter promotes the growth of Aspergillus fungus which cause **brooder pneumonia** and death.

4. Starvation: there is a saying that 'Poverty in plenty', although there is adequate feed, chicks may not reach out to feed, that leads to starvation death because young chicks do not have fat storage to fulfill body needs during starvation.

5. Injuries: It is important to handle chicks carefully during vaccination, sexing, dubbing, de-beaking, transportation from brooding farm to rearing farm, etc.; otherwise, it can cause injuries and ultimately result in death due to yolk sac rupture with in the abdomen, which forms good medium for growth of microorganisms.

6. Inadequate Feeders and Drinkers: Using wrong feeding and drinking equipment can cause chick mortality. Inadequate feeders and drinkers affect flocks' performance. It also leads to feed wastage and water spillage that results in the wet litter, which provides suitable condition for fungal growth and disease outbreak. Less feeders and drinkers, on the other hand, cause starvation, ultimately leading to death.

7. High Relative Humidity: High relative humidity in the shed cause the dampness of litter material in the brooding house, facilitating the growth of microorganisms, a suitable condition for disease outbreak.

8. Predators: Poorly constructed brooding houses are again a cause of chick mortality. Predators, such as Rat, Dog, Cat, Snakes, etc., can easily make their ways in the brooding place and attack chicks.

9. Lighting: there should be adequate lighting in gas brooding system for proper visibility of feed and water. High light intensity also cause temporary blindness and chicks fail to recognise the feed and water which cause starvation and dehydration deaths of chicks.

10. Curtain Management: clean disinfected curtains have to be installed. Many farmers use blue curtains, in this situation there will be reduction of light giving a night feeling and chicks shows lethargy, the chicks become dull and hence it is called as **"Lazy bird Syndrome"**. Therefore, it is recommended to use white or yellow curtains for brooder house to provide adequate natural light in poultry house.

11. Ventilation: during the brooding period ventilation of the shed is also important. It requires Curtain management. The main objectives of ventilation is to: maintain good air quality, uniform shed temperature, good litter conditions, removal of moisture and noxious gases and conservation of heat.

Nutritional Causes

1. Water: Water is one of the essential elements for maintaining the health and performance of the birds. It not only acts as a transport medium for nutrients and metabolic end products but also it helps in maintaining body temperature during hot weather. Besides, water balances the minor deficiency of minerals like Na, Cal, K, etc. Unhygienic water causes gut infection and high mortality.

2. Feed: Feed for day old chicks should be withheld for the first two hours to allow chicks to find the water prior

to consumption of dry feeds. After the first two hours of housing, feed can be made freely available. Usually the farmers provide ground maize as chick starter. Here care need to be exercised to maintain particle size. If maize grit is too powdery, the hungry chick gulps fast and it sticks to oesophagus and cause choke, aspixia and death. If grit size is too big it also cause crop bound condition and death. The starter feed should be of high protein r ration with at least 20% protein.

3. Fat Soluble Vitamin Deficiency: Vitamins A, D, E, and K are fat-soluble vitamins. These Vitamins are required for normal stimulation of growth, development, and reproduction of chicks. A high deficiency of fat-soluble vitamins can cause death. In comparison, minor deficiency of these vitamins results in cessation of growth, lacrimation, rickets, ruffled feather, exudative diathesis, anemia, etc.

4. Water-Soluble Vitamin Deficiency: Vitamin C and B-Complex are water-soluble vitamins. These vitamins are an essential part of poultry diets. They required for the metabolism, reproduction, growth, and development of chicks. Severe deficiency of these vitamins can cause death; however, minor deficiency leads to poor feathering, low growth, weight loss, dermatitis, nervous signs, and anemia, etc. in chicks.

Some important problems that occur in chicks and their prevention:

Dehydration

Dehydration is condition that results when the body loses more water than it takes in. This imbalance disrupts the usual levels of salts and sugars present in the blood, which can interfere with the way the body functions. The chicks become weak, inactive, dried up appearance and unable to move.

Fig Normal (left) and dehydrated (right) chicks

Causes:

- Holding the chicks in hatchery for long duration
- Keeping the chicks in hot weather
- Transporting the chicks long distance without providing water gels
- After arrival not providing water immediately
- Provision of water in their reaching heights

Prevention

- Take care of putting water gels while transportation of chicks for long distance
- Provision of adequate waterers in the brooder
- Encourage the chicks to drink enough water for proper hydration
- Provide electrolytes
- Avoid high brooder temperature

2. Baby Chick Nephropathy

Outbreaks are seen in young chicks in the first week of life (baby chick nephropathy) or in flocks suffering kidney damage, or reduced water intake. The kidney damage can arise from infection with certain strains of Infectious Bronchitis virus, exposure to some mycotoxins or inadequate water intake (often because the birds have not adapted to a new type of drinker). Baby Chick Nephropathy can be due to inappropriate egg storage conditions, excessive water loss during incubation or during chick holding/transport, or inadequate water intake during the first few days of life. Very low humidity in brooding will also increase the likelihood of this problem. The timing of mortality is a reasonable guide as to the source of the problem.

Outbreaks with mortality of 0%–10% can occur in chicks newly hatched to as old as 7 days; cardinal necropsy findings are renal damage and visceral urate deposits (baby chick nephropathy).

Transportation of chicks for long distance with ashot of Gentamycin cause nephritis and gout.

Treatment

This is based on correcting any management errors and encouraging water intake. Avoid any intentional or unintentional restriction in water intake. Sodium bicarbonate at 1g/litre water is mildly diuretic, however it could be counter-productive if water intake is in any way restricted. Adequate supply of electrolytes for chicks is beneficial.

Prevention

Careful monitoring of the conditions of hatching egg storage and incubation with a view to achieving a standard egg weight loss profile. Humidification of holding rooms and chick transporters may also be beneficial. Humidifiers in chick brooding areas are being used increasingly, especially where whole house hot air brooders are in use. Ample supplies of drinkers should be available and filled with water at house temperature prior to the arrival of the chicks.

3. Pasty Vent

Pasty vent orbutt, is the condition in which a chick's soft droppings stuck to the fine down around their vent and then harden and get stuck in the opening of the baby chick's vent. Then the feces dry up and literally stops up the chick so it can't poop. The dried-up feces act like a cork, creating a plug so they can't excrete their feces. (see the fig). Pasting usually occurs in chicks that are less than three days old.

Cause:

- *Temperature change- too cold or too hot*
- *The major causes of pasting in newly-hatched chicks are temperature change, stress, and improper dieting.*
- *Overheating, (a lot of farmers make the mistake of overheating their baby chicks during brooding).It is strongly advised avoid overheating.*

Fig.1, Pasty vent, button like plugs,

- *Pasty Butt is usually caused by stress as a result of a rigorous journey from the hatchery to their destination.*

Clinical signs

- *Slow or absence of noticeable growth*
- *General weakness, compared to other chicks*
- *Inability to feed or drink*
- *Protrusion of the vent*

Prevention

- *Cleanup the area*
- *Paste Vaseline as lubricant*
- *Maintain proper brooder temperature (provide a conducive brooding temperature)*
- *Feeding maize grit*
- *Ensure that the litter is clean, fresh, and dry*
- *Add probiotic powder to balance the gut bacteria*

Prolapsed vent also called "blowout", vent prolapse is a condition in which the vent becomes inverted and a portion of it protrudes outside the bird's body.

Fig2. Vent Prolapse

Vent prolapse is common in some breeds and crosses, especially those prone to fatness (such as meat breeds), such birds prone to cannibalization.

Diseases causing Chick mortality

Young chicks are more prone to infections and diseases due to a lack of immunity during the first four weeks. The unabsorbed yolk provides good medium for growth of pathogens. It is crucial to maintain biosecurity measures; failure to do so increases the chances of a disease outbreak.

1. The commonest causes of mortality found in the first week were **omphalitis, yolk sac infections and septicaemia.** Escherichia coli and Enterococcus spp. were the most prevalent agents isolated from these cases. Diseases of complex or unknown aetiology such as sudden death syndrome and baby chick nephropathy were also observed.
2. **Salmonellosis:** The mortality increase in first two weeks of chick life is mainly due to vertically transmitted *Pullorum* is a bacterial infection characterized by ruffled feathers, labourd breathing, white diarrhoea, chirping, and death. Salmonellosis is a group of acute rapidly spreading diseases characterized by a rise in body temperature, **Omphalitis, hepatitis, and septicemia,** enlargement of the spleen, arthritis, and death.
3. **Mycoplasmosis:** It is vertically transmitted disease and if the parents are infected, the chicks express air sacculitis in their early age. And accumulation of cheesy material in air sacs. It also causes immunosuppression.
4. **Chicken Anaemia:** A vertically transmitted Viral Infection caused by Chicken Anaemia virus infection. CAV is an acute infection cause immunosuppression. It can infect chickens of all ages; however, it is mostly detected in young chickens. CAV affects the immune system of the chicken, thereby leaving it more susceptible to other infections and vaccine failures. However, mortality is often a result of secondary infections.
5. **Viral arthritis:** (Reovirus Infection, Tenosynovitis, Ruptured Gastrocnemius Tendon) Viral arthritis is causing inflammation of leg joints and/or tendons in poultry species that is attributable to reovirus infection. In cases that present clinically, birds appear lame and may have ruptured tendons.

4. Omphalitis or Yolk sac infection or Mushy Chick disease

Omphalitis is an inflammation of the navel or umbilicus and is also called 'yolk sack' infection or mushy chick disease. It is a bacterial infection of the yolk sac or navel in young chicks. Rough unhealed or incomplete absorption of the yolk sac leads to bacterial infection.

The use of yolk sac

The newly hatched chick has some portion of the yolk located in the proximal portion of the small intestine. Nature has provided this for emergency nutrition for survival. Very importantly it contains the maternal antibodies, necessary for chick's passive immunity. The yolk sac membrane directly absorbs the contents of the yolk sac. It can also be absorbed by yolk sac epithelium or by the intestinal mucosa. The yolk sac weighs about 8 gram and 25% of the yolk is lipids. The contents of the yolk sac are absorbed in 3 to 5 days under normal conditions.

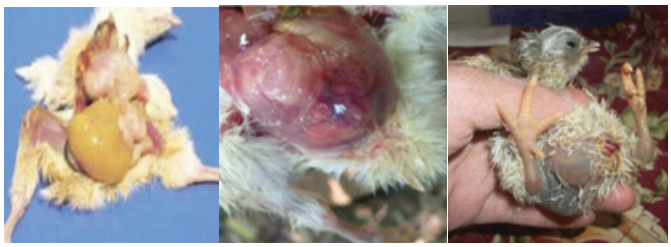

Fig: 3. Unabsorbed yolk and infected yolk sac, Mushy chick Disease

The incidence of chicks with Omphalitis and yolk sac infection increases after hatching and decline by day six, although occasionally losses can occur up to several weeks of age. Consequences of Omphalitis and yolk sac infection can be severe. Infection can result in the deprivation of nutrients and maternal antibodies with resultant immuno suppression. Omphalitis is an infectious but non contagious disease.

What causes Omphalitis?

- Unhygienic and poor regulation of incubation temperature or humidity
- Marked contamination of the hatching eggs or incubator with infectious agents.
- Factor influencing the susceptibility to Omphalitis include poor hygiene and incubation practice as well as the setting of poorly chosen eggs.
- Escherichia coli (E. coli) bacteria is the most isolated pathogen but several different bacteria including Pseudomonas, Staphylococcus, Streptococcus, corynebacterium and Clostridium are also involved in yolk sac infection. 70% of chicks with "mushy chick disease" had E. coli in their yolk sacs.
- Other types of bacteria also can cause Omphalitis, although E. coli is most common. E. coli and Enterococcus faecalis infections accounted for approximately half of the mortality that occurred in layer chicks during the first week after hatching.
- First week mortality was significantly correlated with total mortality in the flock but not flock uniformity.
- A variety of E. coli genotypes indicated different sources of infection. For good flock performance, first week mortality needs to be less than 1%.

Omphalitis symptoms:

The symptoms and clinical signs of mushy chick disease include:

- Affected birds are off feed and water.
- Chicks may be slow or inactive.
- Birds huddle near heat.
- Swelling, oedema, redness, and possibly small abscesses characterised acute inflammation of the navel.
- The abdomen is often distended, and blood vessels are swollen.
- In severe cases, the body wall and overlying skin breakdown and are wet and dirty, leading to the term "mushy" chicks.
- The yolk sac is typically distended because yolk has not been absorbed and inflammatory products have been added.
- Yolk is abnormal in colour, consistency, and smell, and may contain visible pus.
- Blood vessels of the yolk sac are often prominent.
- Chicks with infected yolk sacs that live more than 4 days also may have peritonitis, pericarditis, or perihepatitis, indicating local and systemic spread of the organism from the yolk sac.

Treatment:

- Giving multivitamins and electrolytes in the water.
- Improving the ventilation of shed or brooder.
- Antibiotics for 3 to 10 days as prescribed.
- Replacing floor covering with dry material.
- Consult a Veterinarian for other supportive treatments.

Prevention

- Careful regulation of the environment through management of feed, water, temperature, litter and lighting.
- Avoid setting dirty or floor eggs.
- Removing damaged, cracked or clear eggs from the incubator.
- Low brooding temperatures and fasting after hatching, can increase the incidence of infection and mortality.
- The incubator should be cleaned and disinfected thoroughly between hatches. If fumigation is to be done with formaldehyde, then follow the manufacturer's instructions.
- Omphalitis can be exacerbated by poor brooding conditions; ensuring litter is sufficiently warmed before chick placement is key.

5. Crop bound or impaction of crop

The hungry chicks pick up big corn grit and after drinking water it swells up and impact the crop. The crop is swollen, hard and gritty. Impacted crop (crop bound) hard and swollen.

Birds that have been off feed for a long time may tend to overeat and overfill their crops with dry poultry feed. This feed can increase in volume when the birds start drinking water adding additional pressure to the esophagus blocking the normal transit of feed. Consumption of other foreign objects (long pieces of plastic or thread) can tangle in the crop and obstruct the normal emptying process of the crop.

Clinical signs

- Chick will become lethargic, unable to move, feels heavy with hard crop

Prevention

- Well covering of litter by placing two layers of paper
- Remove hard grit and big particles in feed etc.,
- Removal of plastic or gunny threads, wire bits etc.
- Esophageal impaction is also encounter sometimes.

Fig: 4. Impacted crop or crop bound due to increased size of maize grit.

5. Brooder pneumonia

Aspergillosis is a disease, usually of the respiratory system, of young chickens. The fungus grows in wet and moistened litter especially saw dust predisposes the growth of aspergillus fungus.

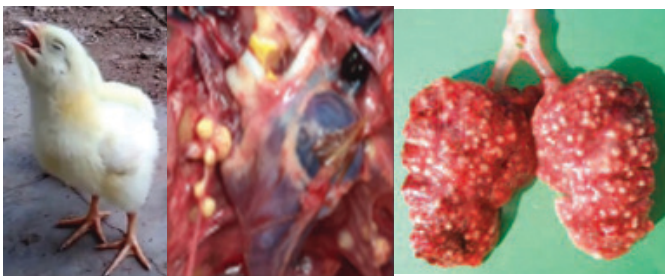

Fig. 5. Gasping for breath, the nodular form, multiple grey whitish or yellowish dense nodes in the air sacs and lungs

Cause

- It is caused by *Aspergillus fumigatus* is a common fungus present in the litter, contaminated incubator and hatcher. *Aspergillus fumigatus*, A. flavus, and A. niger.
- Birds Exposure to Aspergillus fumigatus in poultry confinement houses
- Contamination of litter, feed and environment

Clinical signs

- Dyspnea/ gasp for breath
- laboured breathing
- fever
- in appetence
- emaciation

Prevention & treatment

- Practice good sanitation of Hatchery includes regular fumigation of eggs, machines and air ducts and regular (monthly) plating of hatchery with media to examine for the presence of fungi.
- Use clean dry litter and dry cups or nipples to reduce water spills.
- Antifungals in the feed or water.
- The environment and feed should be kept clean, dry and dust-free
- The chick environment should be cleaned and disinfected between batches of chicks.
- Removal of wet litter immediately and keep the premises clean.

6. Sudden death Syndrome (SDS) or Flip over

Sudden death syndrome (SDS) is also known as flip-over disease. Birds show no outward signs of disease but suddenly extend their necks, gasp, or squawk. They flap their wings, typically resulting in the birds flipping over on their backs (hence the name flip-over disease).

SDS is metabolic disease with high incidence between two to Five weeks caused by heart attack. Commonly seen in broiler/ meat type chicks.

Signs

- Sudden death in convulsion, most are found lying on their back.

Post-mortem lesions

- Intestine filled with feed.
- Haemorrhages in muscles and kidneys.
- The atria of the heart have blood; the ventricles are empty.
- Serum accumulation in lung (may be little if examined shortly after death).
- Livers heavier than those of pen-mates (as a percentage of bodyweight).

Prevention: Lowering carbohydrate intake (change to mash), feed restriction, lighting programmes, low intensity light, use of dawn to dusk simulation and avoidance of disturbance.

7. Ascites

Ascites (Water Belly) in Broiler Chickens during Winter Season. Ascites (or water belly) is a condition of fast growing broiler chickens in which the excess amount of ascitic fluid accumulated in the abdominal cavity. It has become major concern to the poultry industry around the world. *Also called* **Pulmonary hypertension syndrome, water belly,** fluid retained in abdomen, Abdominal distension due to fluids

retained in the abdominal cavity, red skin on abdomen, cyanotic (underlying blue color of skin from lack of oxygen).

Cause/s

Caused by high blood pressure as a result of various conditions, including right ventricular failure, liver disease, liver damage, liver cancer, congestive heart failure, and insufficient pulmonary circulation (see the above diagram). High altitudes, poor ventilation, and cold stress in early life can increase the likelihood of ascites.

Increased metabolic requirements (due to cold temps, low partial pressure of O2, etc.)

⇩

Increased demand for O2 Increased cardiac output

⇩

Enlargement and partial failure of the heart

⇩

Leakage of fluid from the liver into the abdominal cavity

⇩

Ascites

Prevention

Watch for brooder temperatures and ventilation of the shed. Suboptimal ventilation in broiler houses leads to low environmental oxygen and higher toxic gases such as carbon monoxide, carbon dioxide and ammonia. This will put extra pressure on the cardiovascular system thus reducing its capacity to carry oxygen and increasing Ascites. Ventilation rates must supply enough air to replenish the oxygen consumed and ensure the adequate removal of waste gases. Managers who run a constantly increasing, pro-active ventilation program, linked with total house biomass, have no or much-reduced levels of Ascites in their flocks.

Conclusion

The performance of the flock depends on early chick management. Although factors responsible for early chick mortality are complex. A better understanding of the causes of mortality in the crucial first few weeks of the chick's life may lead farmers to rely more on better management such as, brooder and ventilation management, better hygiene and sanitation and information on chick mortality can be used for the training of farmers on its control.

Diamond V Postbiotics, the next generation approach to Strengthen immunity and Gut health for Optimal Performance in Poultry

Dr Umesh, Product Manager, *Provimi Animal Nutrition India Pvt Ltd*

Commercial poultry production in India is undergoing various challenges viz. high raw material prices, numerous stress conditions, bacterial diseases and viral outbreaks. Over the years, breeding companies have developed birds designed specifically to overcome these challenges. However, with the current global trends, climate change and increasing commercial poultry population, these challenges are limiting the attainment of the full genetic potential. In order to maintain health and performance of these birds, interventions to enhance immunity and gut health are key to ensure sustainable poultry production.

Nutritional additives are key in enabling birds extract the best out of feedstuffs. These include probiotics, prebiotics, synbiotics and most recent postbiotics. Probioticactions are largely dependent on the live organisms. However, exposure to different bird's gut environment and antibiotic usages leads to inconsistent results. According to The International Scientific Association of Probiotics and Prebiotics (ISAPP)

in 2019, postbiotics are mainly products of highly controlled processes outside the birds that comprise of inanimate microorganisms and/or their components that include metabolites that confers a health benefit on the host. This implies that postbiotics are highly stable for feed mixing, pelleting and storage. They are also safe and have least chances of causing toxicity. In terms of function, the metabolites are readily utilized by bird's biological system, therefore are more consistent, with a broader mode of action and can produce more consistent results.

Highlight Points

Postbiotics are the next generation approach to strengthen immunity and gut health for optimal performance in poultry. Postbiotics are products of highly controlled processes outside the birds, that are stable and offer consistent performance. Postbiotics helps in improving liability as well as production performance in breeders, layers and broilers.

Diamond V, a USA based company with its headquarters at Cedar Rapids, Iowa, USA is and has been a leader in producing fermentation based postbiotics for animals since 1943. Diamond V postbiotic products are produced through a proprietary fermentation technology, inspired by nature, and refined over more than 78 years. The products are highly stable with long shelf lives and are easily incorporated into feed manufacturing processes including pelleting (95°C), extrusion (145°C) temperature (Even tested for extrusion temp. of 145 °C for 30 min).Research shows that Diamond V postbiotics work naturally with the biology of the bird to support immune strength and promote digestive health. Studies have shown that when Diamond V postbiotics are fed to poultry, there is an increase in the sensitivity of phagocytic cells especially macrophages and natural killer cell, through cytokine release; hence initiating a timely and desired innate immune response or inflammation. This implies that whenever there is an infection or a threat, there is an immediate reaction/ inflammation, and the immune system goes back to rest as soon as the threat is eliminated. This makes the innate immunity more efficient therefore conserving energy that could have otherwise been used to maintain an active immune system.

In addition, adaptive immune system is important in the sense that it comes in after the first line of defence; is usually specific and can remember the pathogens. It mainly acts in any of the two ways, either through cell mediated immune response or by humoral or antibody production. DV postbiotics can help the adaptive immune system to recognize pathogens and produce an immune response faster. This has been demonstrated by the fact that with postbiotics, there is a faster immunity development upon vaccination against viral diseases such as NCD, IBD, IBV etc. Another important aspect of humoral immune response is the secretory IgA (intestinal & respiratory mucosa) which together with first line of defence provides protection to the mucosa both in gut and respiratory system. On cell mediated response, research shows that with the Diamond V postbiotics, there is an increase in the number of T cells produced which make the pathogen killing more efficient.

Digestive health is important in the sense that this is the largest site of pathogen entry into birds, and it influences the nutrient efficiency and performance of birds. Diamond V postbiotics have demonstrated a positive influence on the villi density and lengths therefore increasing surface area for absorption. Tight junctions hold the epithelial cells together and play a critical role in the communication between the gut lumen and blood stream. Under normal circumstances, the digested nutrients cross the epithelial barrier through these cells. However, during any stressful conditions such as heat stress, these tight junctions due to their protein nature undergo oxidative stress resulting in relaxed junctions and allowing substances to pass through into the blood stream without control including the undesired lipopolysaccharides (LPS) resulting from dead gram negative bacteria in the gut, which affects overall health of birds and the nutrient utilization efficiency. The other second component of gut health is the microbiome. Diamond V postbiotics increases beneficial bacteria especially *Lactobacillus* and *Bifidobacterium* which utilize the fibre in the lower gut to produce volatile fatty acids including butyrate that provide nourishment to the gut epithelia cells and also act as an antimicrobial in the gut. This results in more beneficial bacteria and less pathogenic bacteria such as Salmonella and *E. coli.*

A combination of the above modes of action translates into production performance in all classes of poultry that include breeders, layers, and broilers. Poultry trials have demonstrated several benefits. In breeders, because of the healthy flocks and enhanced gut health, we get extra eggs per hen housed along with higher hatchability and good quality chicks. In layers, we have improvement in egg production, better FCR and strong eggshells. In broilers, we see better feed efficiency and extra weight at slaughter. Across species, because of the enhanced health, we observe reduction in mortality. Diamond V postbiotics have been tested under Indian conditions and against probiotics, prebiotics and yeast based immuno-modulator and proven their superiority. The findings of performance parameters viz. body weight, FCR, livability, EPEF & Ab titer depicted that XPC Ultra could be highly effective and facilitates the better nutrient utilization than prebiotics, probiotics, and immunomodulators.

Disclaimer: The views expressed in this article are based on author's knowledge gathered from references, free access journals, different articles published in internet media on postbiotic. References can be made available upon request.

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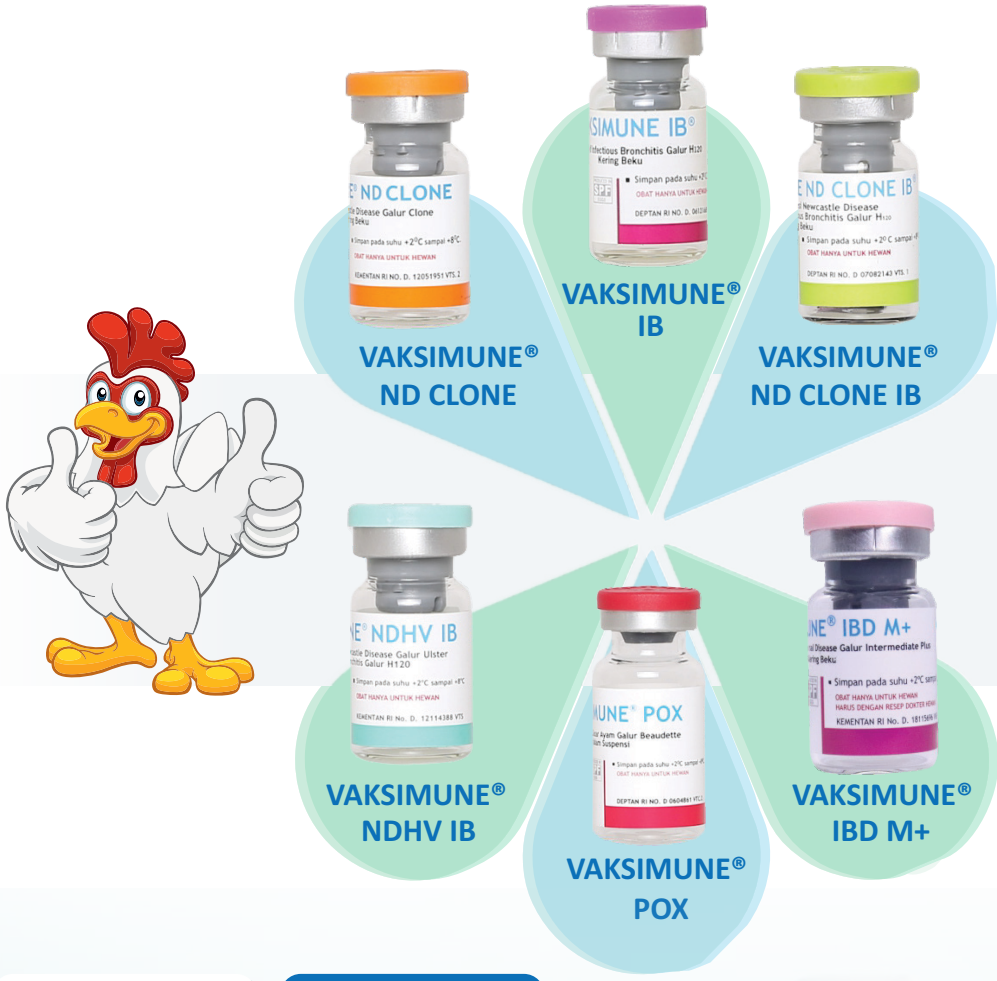

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