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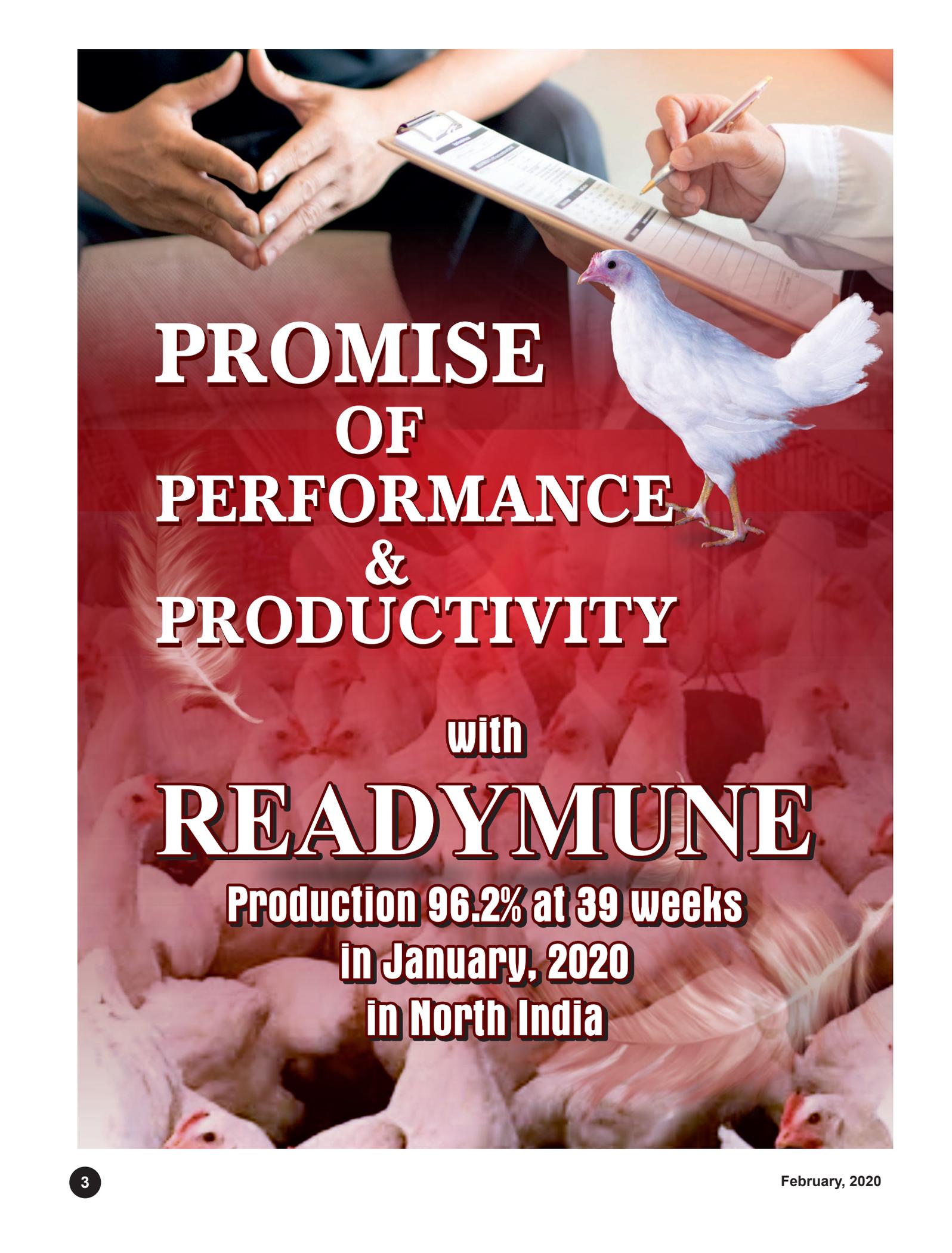
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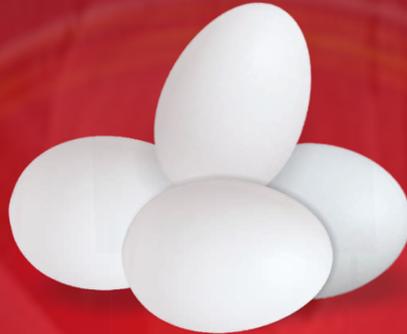
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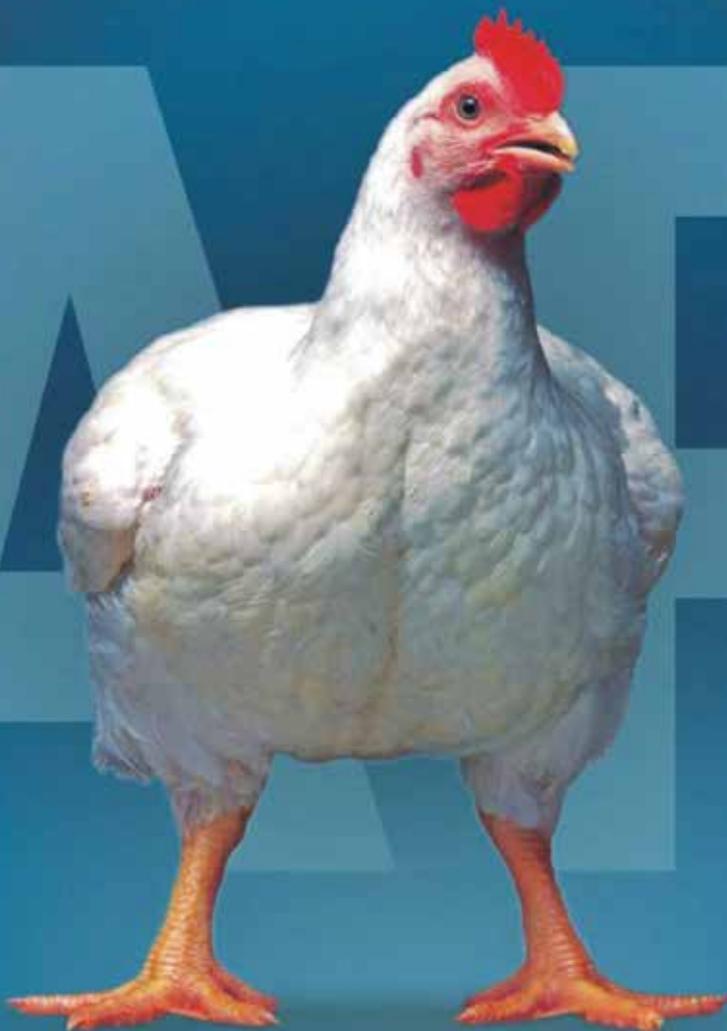
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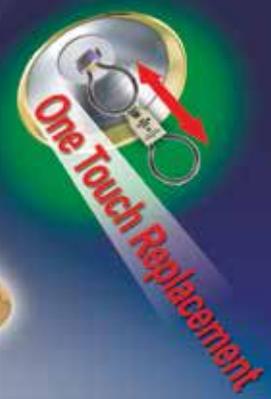
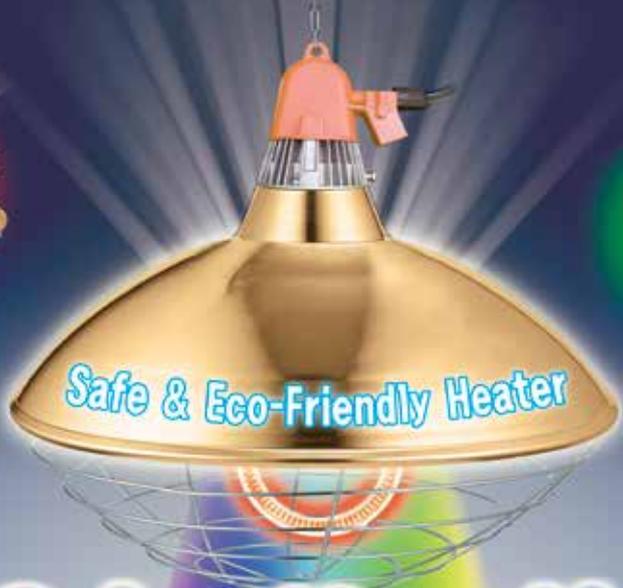
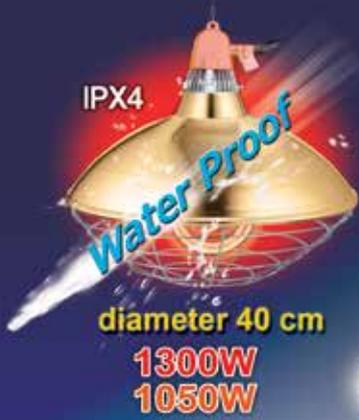
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EDITORIAL

Cost cutting in poultry production

Precision production technique is the call of the day and this applies to poultry production as well. There are various fields, wherein cost cutting can be applied. Feed is most important in poultry production because it requires 70 per cent of the total input. So the right percentage of mixing ratio of feed ingredients in a compound feed can help in drastically reducing the feed cost. Different type of feed composition is needed for different age group of layer or broiler birds. We need not thrust a particular ingredient in a feed and in such cases the right choice of feed additive too can help in reducing the feed costs.

Medication is yet another area where savings can be done. Only the necessary prescription medication directed by the veterinarian should be purchased and no personal medicinal idea should be applied. These days there is already a great hue and cry on antibiotic and other trace mineral residue, which the poultry producers should avoid.

Infrastructure planning is one more aspect to take care of. With the advancement in technology, a lot of alternative construction materials are available to construct an environmentally friendly poultry house that comes at a lower cost as compared to the conventional ones.

For drinkers, temperature control, humidity control, exhaust fans, egg collection etc, one always has scores of choices ranging from the Indian companies to foreign countries and a farm manager can make the right choice accordingly.

Automation at poultry house is the need of the day. As the labour rates have increased, more application of adequate machines will help to increase the performance efficiency at a lower cost. The best suggestion would be, to introduce the application of machines to perform the daily chores at the farm. These days some farms are already using the artificial intelligence equipped robots with sensors, which have displayed exceptional performance.

-Editor



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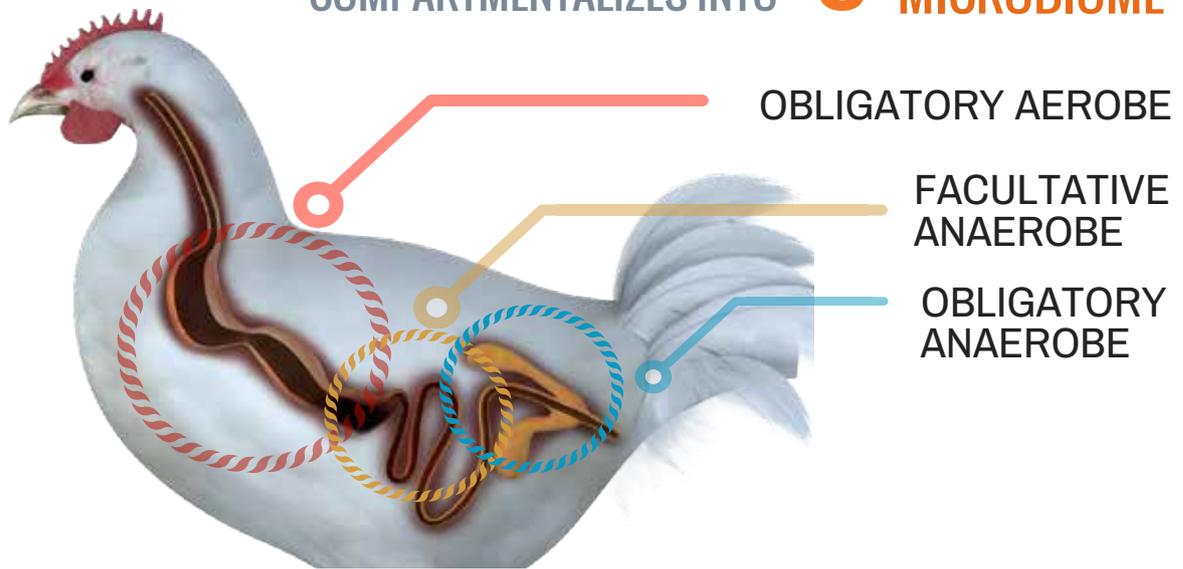
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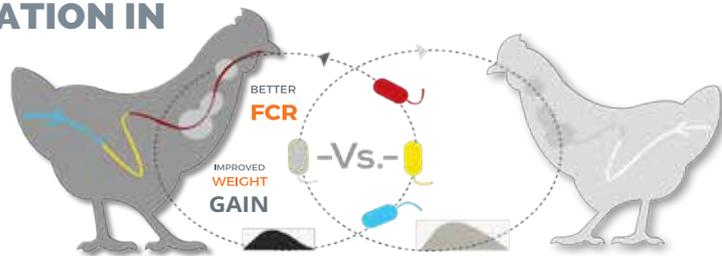


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HIGH INTEREST IN ROSS 308 AP AT POULTRY INDIA EXHIBITION



Udumalpet

Aviagen® India ended 2019 on a high note with a successful Poultry India Exhibition, featuring collaborative meetings and networking among industry colleagues. Aviagen's full team of customer support specialists was on hand at the show in Hyderabad, Telangana, to welcome customers and visitors to their newly upgraded booth, which was continually busy with producers eager to discuss ways to optimize the

performance, health and welfare of the Ross® 308 AP bird.

The Ross 308 AP is enjoying considerable growth throughout India due to the benefits it offers to growers at both the broiler and breeder levels. Some of these traits include a healthy growth rate, strong liveability, high meat yield and field efficiency.

Aviagen also took the opportunity to award its customers who, through dedication and excellence in stockmanship, achieved more than 400 points on the Broiler Performance Index.

Marc Scott, Aviagen India Business Manager, commented, "This show is an important barometer, not only to measure the health of the industry, but also the acceptance of our birds. Judging by the number of visitors to our booth from both existing customers and new enquiries, the Ross 308 AP broilers and breeders are become more and more popular."

Encouraged by the success at the Hyderabad show, the company plans to increase its participation in regional shows and seminars across India this year.





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Bangalore
Over the past 25 years, poultry nutrition has focused on production efficiency. Today, it strives to maximise biological and economic performance. In future, poultry nutrition seems to tend towards production efficiency, biosecurity and food safety, environmental stewardship, and bird's welfare.

To get a handle on modern nutrition, after its first Poultry Nutrition Summit in 2017, Alltech counts date to conduct its 2nd Nutrition summit in March 27-29th, 2020, location set to be Goa. The 3 day conference explores the top innovation and technology trends, emerging business issues and possible solutions, connecting the business and science of poultry nutrition.

Poultry Industry, undergoing a disturbed market situation due to high price and supply shortage of raw materials had resulted in absorbance of loss from last fewer months. Tackling the situation lies in choosing the right alternative! Alltech Poultry Nutrition Summit is the one platform to get assisted on maintaining the economics without hampering the performance with a right nutrition.

Poultry Industry, undergoing a challenged market situation, due to high raw material price and supply shortage had resulted in absorbance of loss from last many months. Tackling the situation lies in choosing the right alternative! Alltech Poultry Nutrition Summit is the one platform to get assisted on maintaining the economics without hampering the

audience as keynote speaker.

Steve Elliot, who is currently serving Alltech as a Global Director of Mineral Division who has been involved in the feed industry for more than 25 years, presents over the gathering, the health benefits of organic minerals.

Effective mycotoxin management is about seeing the whole challenge, from the farm to feed mill and from risk assessment to feed management. Dr. Nick Adams, Global Director for Alltech Mycotoxin Management marks his crucial presence to create awareness on mycotoxin management.

The summit is a platform to bring together nutrition experts and feed millers from all around South Asia to educate and build a valuable skill set about poultry industry.

"Whether your goal is to improve efficiency & profitability or to learn more about the latest nutritional & feed milling technologies to implement in your business, the Alltech South Asia Poultry Nutrition Summit is the place to be", says Dr. Aman Sayed, Managing Director-India and Regional Director- South Asia stressing the importance and benefit of attending the summit.

Poultry Industry, undergoing a disturbed market situation due to high price and supply shortage of raw materials had resulted in absorbance of loss from last fewer months. Tackling the situation lies in choosing the right alternative! Alltech Poultry Nutrition Summit is the one platform to get assisted on maintaining the economics without hampering the performance with a right nutrition.

performance with a right nutrition.

Dr. Steve Leeson, an eminent personality of poultry industry, who published 340 papers in referred journals, over 1000 presentations at scientific and industry meetings world-wide and 8 books publication on poultry nutrition and management, will be addressing the

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VICTAM CORPORATION AND VIV WORLDWIDE CONTINUE THEIR PARTNERSHIP IN 2022



Bangkok

Last year the Victam Corporation and VIV worldwide announced their partnership in Asia for the VICTAM and Animal Health and Nutrition Asia 2020 exhibition in Bangkok, Thailand.

Today it was announced that the two exhibition brands will further continue their partnership by organizing VICTAM International and VIV Europe together at the Jaarbeurs exhibition grounds in Utrecht in 2022 from May 31st – June 2nd.

“This means that the VICTAM International exhibition will move back from Cologne, Germany to its home country, the Netherlands, and where

it all started in 1965, the Jaarbeurs in Utrecht. The set-up of the exhibition is different from the set-up in Asia as VIV Europe and VICTAM International will be co-located but with each exhibition in their own halls,” says Mr. Sebas van den Ende, General Manager of the Victam Corporation.

“We are enthusiastic about the synergy and good cooperation that VICTAM and VIV have established. This partnership continues with a different program in Europe, which will bring to the animal husbandry industry an even wider and richer platform in 2022. We look at the co-location of VIV Europe and VICTAM International as an important

achievement after nearly 4 decades of independent growth and development of the respective events in Europe and in the world,” says Mr. Heiko M. Stutzinger, Director of VIV worldwide, and Managing Director of VNU Asia Pacific.

“Today, the strong network of VICTAM in feed technology and animal feed processing, together with the Feed to Food concept that VIV Europe is famous for, are ready to deliver a very complete and professional platform to exhibitors and visitors.” concludes Mr. Stutzinger.

The organizers are looking forward to welcoming the feed and animal health industries from May 31st – June 2nd, 2022 at Jaarbeurs in Utrecht, The Netherlands.

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AVIAGEN INDIA ENHANCES CUSTOMER SUPPORT, NAMES MANI KARUPPASAMY AS KEY ACCOUNTS MANAGER



Mani Karuppasamy

Udumalpet

Mani Karuppasamy has been promoted to the position of Key Accounts Manager for Aviagen® India, which will take effect immediately. The company created the new role to strengthen customer support at a time when its 308 AP broiler breeder is experiencing considerable growth in popularity. Karuppasamy will be responsible for working with existing customers who have national distribution and developing new business.

Karuppasamy will benefit the new position with extensive management and

customer service skills and experience. He joined Aviagen back in 2012 as Sales Manager for the southern region of the country, and for the past three years has broadened his management skills through his service as Operations Manager for Central India Poultry Breeders.

Marc Scott, India Business Manager added, "Our team works hard to add value to the business of our customers every day, and Mani will be a great asset in this pursuit. We're pleased to have him back in sales, developing customer-focused management techniques while pursuing new business for the increasingly successful 308 AP. We wish Mani much success in his new role".

BUDGET EXPECTATIONS

Encourage oilseed cultivation

Indian vegetable oil consumption is currently pegged at around 23 Million Tons. The domestic production of oils is around 8 Million Tons and the gap of 15 Million Tons is bridged with imports. With annual consumption growing at around 3% and domestic oilseeds production being stagnant, the dependency on imports will continue to increase.

Hence, Government should encourage farmers to grow oilseeds and move away from growing wheat and rice this will have benefit of higher oilseed production locally and improve the water tables where wheat and rice is being grown.

Increase duty differential to support domestic edible oil refineries

The Government of India has currently put import of refined Palm Oil and Palmolein under the restricted list. In future if the government opens the imports again, it will be important to increase the duty

differential between Crude Palm Oil and RBD Palmolein to 15% from current 7.5% in order to support domestic edible oil refineries.

One Agriculture Market

Ensure market reforms like APLM Act, E-NAM are implemented at the earliest and acts like Essential Commodities Act which have outlived their utility are either modified or done away with to make India one agri market and help increase productivity, supply chain efficiencies & decrease cost to final consumers.

Eliminate Commodity Transaction Tax (CTT) on Agri Commodities

Indian Agricultural Commodity Futures market is still in nascent stage and imposition of Commodity Transaction Tax has impacted the development of this market adversely. Introduction of CTT on processed commodities such as sugar, soya oil, RBD palm oil, cotton seed oil cake and



Simon George, President, Cargill India

guar gum has increased transaction cost, leading to a high cost of hedging for value chain participants on organized commodity derivative exchanges. The average traded volume is reducing as participants stay away due to high costs. Hence, CTT on agricultural processed commodities should be eliminated till commodities market reaches a certain maturity level and then can be added in a phased manner.

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ALLTECH LAUNCHES RELIEF EFFORT FOR AUSTRALIAN FARMERS



The bushfires in Australia have destroyed an estimated 10 million hectares, claiming lives and killing wildlife and livestock. The Australia Farming Relief Fund will help provide goods and services directly to effected farmers, coordinated on the ground by Alltech family companies Alltech Lienert Australia and KEENAN Australia. Alltech is matching donations dollar-for-dollar.

Australia Farming Relief Fund will support producers impacted by bushfires

Nicholasville, Ky.

Even as rain begins to fall in some parts of Australia, wildfires continue to devastate large portions of the country. The fires have already destroyed an estimated 10 million hectares, claiming 25 lives and killing wildlife and livestock. Alltech, a leading animal nutrition company, is lending its support to the country's agriculture industry, launching a global fundraising effort for farmers and pledging to match donations dollar-for-dollar. The Australia Farming Relief Fund will provide goods and services directly to producers and will be coordinated on the ground by Alltech family companies Alltech Lienert Australia and KEENAN Australia.

"The Australia Farming Relief Fund

represents a coordinated effort among our Alltech family, suppliers, customers and the global agriculture industry to support the producers who feed our families and are the core of our rural communities," said Mark Peebles, managing director of Alltech Lienert, which is located in Roseworthy, Australia. "The bushfires have been devastating, but Australians are resilient, and we are committed to rallying around our farmers as they recover from this crisis."

As farmers assess the damage, the loss of livestock is expected to exceed 100,000 animals. Producers, who were already contending with a three-year drought, are struggling to secure supplies and feed.

Alltech Lienert and KEENAN Australia will use their resources to distribute supplies

either donated locally or purchased using donations from the Australia Farming Relief Fund. Such supplies will include hay, finished feed, feed supplements, silage, water troughs, fencing and non-perishable items. The companies will deploy their trucks and drivers to deliver supplies to producers in Victoria, South Australia, New South Wales (NSW) and Queensland. Team members will also volunteer their time to work alongside farmers, rebuilding fences, repairing sheds and providing any on-farm support they need.

The effort will initially focus on dairies, sheep and beef farms, and apiaries. Alltech is also exploring partnerships that will offer longer-term mental health support for farmers grappling with trauma as a result of the fires.

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HEALTH & NUTRITION GO HAND IN HAND



Show Preview – January 2020

Animals can only be productive if they are healthy. Hence, all conditions to grow must be excellent. Clean feed plants and farms with a high biosecurity status and precisely balanced rations to feed the animals. Strict veterinary control is needed to avoid incorrect or overuse of medication. That's a challenge.

The world's population is projected to reach 8.5 billion by 2030, 9.7 billion by 2050 and exceed 11 billion in 2100, with India expected to surpass China as the most populous country. At the same time, prosperity and buying power are slowly, but steadily on the rise. According to the Food and Agriculture Organization (FAO) of the United Nations, humans will start eating meat as soon as they gain spending power, usually over 5 USD per day. As a result, consumption of food from animal origin will gradually further increase around the globe and in Asia in particular. After all, the highest population density is currently on this continent.

Hence, a solid and healthy animal production sector will be of paramount importance, in order to meet this growing demand for food. Logically, that all starts with healthy and productive animals. After all, these are the key to provide the income for farmers and related parties. These parties have the tools together to minimize

feed costs and obtain a solid income position at the production side of the "feed to food production chain".

Full control

From their early life, precise and well balanced feed formulation is a prerequisite for such healthy and productive animals. Proper ingredients and additives are the basis for energetic rich rations.

However, regular epidemics like Avian Influenza (AI) in poultry and currently African Swine Fever (ASF) in Asia, are a serious threat to the animal production business. The ASF epidemic has reached an enormous magnitude and the end doesn't seem to be near yet. Moreover, some so called zoonotic animal diseases, may directly transmit to and infect humans. A true danger. Culling such infected crops and herds is often the first measure to be taken. Apart from that however, adequate veterinary control is of great importance, including proper medical treatment.

Banning antibiotics

Up to the recent past, antibiotics were used abundantly to treat animals to a wide range of diseases. Not just that, antibiotics were also used as growth promoters in poultry and swine. In some parts of the world, that is even still common use. But the awareness that this is a serious danger, is steadily gaining ground. Antimicrobial Resistance (AMR) is a very serious threat to animal and human health and causes many casualties if nothing is done. As a result, many governments have adopted, or are in the process of adopting legislation to ban the unlimited use of antibiotics in animal production. Moreover, veterinarians are supposed to only prescribe antibiotics under strict conditions.

Proper solutions

In this context, biosecurity in feed plants and at farm level is of great importance to prevent new outbreaks of



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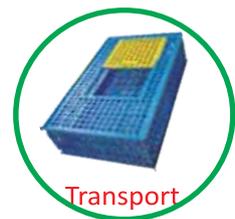
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Panadda Kongma Director- CC
Agribusiness & Operations



Zhenja Event Manager VIV Asia

contagious diseases, which again may lead to enormous losses. Moreover, the use of new and innovative feed ingredients, enhancing the immune system of animals is widely promoted. Many of such products have been developed in the past years and new products are permanently under development. Such products have a positive impact on the health status of animals.

The launch of VICTAM and Animal Health and Nutrition Asia 2020 as a joint event combines under one roof the expertise of two show organizers, VICTAM and VIV, who made the summer headlines worldwide for a unique event in Asia.

Providing a total solution from feed production, feed technology and processing, to feed ingredients, feed additives, animal health and pharmaceuticals in animal

protein production, VICTAM and Animal Health and Nutrition Asia 2020 will open the doors on March 24 – 26, 2020 in Bangkok, Thailand, with around 400 exhibitors and a total of 17,800 square meter exhibition space at BITEC. In parallel with the exhibition, there is an extensive conference program available with specialized topics in the field of animal feed technology, animal nutrition and health. Exhibiting in one of the three show halls of VICTAM and Animal Health and Nutrition Asia, gives exhibitors access to the world's fastest growing market, Asia, and to a targeted audience of around 9,000 professional visitors including CEOs, feed formulators, mill managers, nutritionists, operation directors, veterinarians, academics, and many more.

“VICTAM & Animal Health & Nutrition Asia” is Asia's biggest animal protein trade show in 2020. In one place it displays machinery, feed additives, pharmaceuticals and more. 2020 is the year of our 20th anniversary. During the show, we will display the development of our company and products since our founding. We will also update our present products and announce upcoming innovative products”, says marketing manager, Piyamitr Muenprasertdee of Phytobiotics

“Kanters from The Netherlands, support animal health by the addition of liquid nutritional supplements, and ensure better animal welfare by reducing the use of antibiotics. Healthy Animals and Healthy Farms – that's what we stand for. Our participation in the show in Bangkok is clear: We wish to showcase our Health Concept and solutions to the audience in Asia, strengthen our relations and establish new contacts. We believe that VICTAM & Animal Health & Nutrition Asia will be an excellent opportunity to reach that goal”, says CEO Rogier van Sambeek.

VICTAM and Animal Health and Nutrition Asia offers a series of high quality industry conferences and technical seminars in the fields of animal feed technology, health and nutrition. From current trends and the future in aquafeed to sustainability in petfood to functionalities and nutritional aspects in insect proteins and antibiotic alternatives, there is a topic for everyone in the industry.



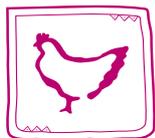
NUPTIAL TIES

Ms Nithya Sundararajan, daughter of Shri G B Sundararajan and Smt Renuga Devi was married to Mr R Vishnu Vardhan, son of Shri M R Ramanujam and Smt Chandra. The grand reception was organized on 11th February 2020 at the venue: Codissia “E” Hall, Coimbatore, Tamil Nadu.

The event witnessed the assembly of high profile poultry stalwarts, who had attended at the venue to grace the occasion along with other bigwigs. The dignitaries showered blessings on the new couple.

Poultry Punch wishes the new couple a long, happy and prosperous married life.

-BS Rana, Editor



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BENTOLI APPOINTS DIRECTOR- SALES & MKTG AND DY GM- TECHNOCOMMERCIAL TO STRENGTHEN BUSINESS IN SOUTH ASIAN ANIMAL NUTRITION MARKET

CHENNAI

Dr. Sushanta Saha has joined Bentoli Agri-nutrition India Pvt Limited as Director- Sales & Marketing for South Asia, In his new role he will roll out scale up strategies to increase geographic presence across all major target species and to improve market share in south asian animal nutrition market. With his rich experience of more than 23 years in animal nutrition market Dr. Saha position is aligned to companies upcoming strategic and business plan execution. Dr.Saha holds bachelor in veterinary science and animal husbandry from Bidhan Chandra Krishi Vishwavidyalaya and MBA from Mumbai University. He has worked for a few major national and multinational companies in different capacities. His last assignment was with Archer Daniel Midland (ADM).



Dr. Jayanta Bhattacharyya has joined as Deputy General Manager - Techno-commercial. He will be in-charge of technical service and marketing support for South Asian market. He will be key link of Bentoli sales team with manufacturing and R & D activities to create a strong market position of Bentoli. He will be based in Mumbai and will support R & D team of Bentoli to develop new products for South Asian as well as for Global market.

He will be responsible for strengthening laboratory. Dr. Bhattacharyya holds master in veterinary science and animal husbandry from WBUAFS and another master in marketing management from the University of Mumbai. He carries more than 17 years of experience in Animal nutrition and health industries. He has hands on experience in technical, new product development, marketing, business development. He has worked for a few multinational companies including few start-ups where he played pivotal roles in strategizing and creating strong business foundation for future growth.

ABOUT BENTOLI:

Bentoli is a global provider of specialty additives for all types of animal feed. Backed by the ethos Better Feed, Better Food, Bentoli optimizes the preservation, processing, and nutritional aspects of the feed. Bentoli strives to be the first choice solutions provider to feed manufacturers around the world, offering superior quality products, highly professional services, and customized consultative regimens. Bentoli believes in supplying quality products with the highest degree of promptness. It maintains manufacturing facilities of the highest standard in the USA, Thailand, Mexico and in India to service our customers through an extensive network of sales offices and valued distributor partners throughout the globe.

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IDMA AND VICTAM EMEA SCHEDULED AT ISTANBUL



Istanbul

- Giant cooperation for grain and feed industry by IDMA and VICTAM
- Power union for 25 billion dollar grain and feed technologies industry
- Grain and feed sector will meet under one roof with cooperation of the Netherlands and Turkey
- They will bring together 25 billion dollar grain and feed technologies industry in Istanbul
- IDMA AND VICTAM EMEA will be held in Istanbul
- The heart of grain processing technologies with global size reaching 5 billion dollars and feed technologies exceeding 20 billion dollars will beat in Istanbul, the attraction center of the world.
- The technologies of compound feed and grain markets, trade volumes of which reach \$ 500 and \$ 165 billion respectively as per IFIF data, will be exhibited at the same exhibition.
- Parantez Fair, the organizer of IDMA which has become one of the international brands of Turkey, and Victam International of the Netherlands will join their forces and hold IDMA AND VICTAM EMEA exhibition in 2021 in Istanbul.
- Parantez International Fair and Victam International, the organizers of events

for the grain and feed milling sectors, combined their success and expertise for IDMA Exhibition. The two companies which set out to organize the biggest international event of the sector will organize the 9th International Flour, Feed, Semolina, Rice, Corn, Bulgur Milling Machinery and Pulses, Pasta, Biscuit Technologies Exhibition together on 11-13 March 2021 under the name IDMA AND VICTAM EMEA.

Turkey-based Parantez International Fair, known for the successful international grain and feed milling exhibitions it has organized, and Netherlands-based Victam International B.V. joined forces for IDMA - International Flour, Feed, Semolina, Rice, Corn, Bulgur Milling Machines and Pulses, Pasta, Biscuit Technologies Exhibition held in Istanbul every two years.

IDMA Exhibition which will be held in Istanbul for the 9th time on 11-13 March 2021 will be organized under the name IDMA AND VICTAM EMEA in the forthcoming process with the expertise of the two giant companies.

A STRONG PLATFORM FOR GRAIN, FEED AND PULSES INDUSTRIES

The two companies which set out with the motto "International event of the grain and feed milling industry" aim to create a significant added value with this cooperation by bringing together all the components

of the grain, feed and pulses sectors on a stronger and more extensive platform under the roof of IDMA AND VICTAM EMEA. Parantez&Victam cooperation will provide both exhibitors and visitors with great convenience and significant advantages in marketing, sales, and operational activities. It will also contribute to the faster growth of companies in international markets.

"THE MOST POWERFUL AND LARGEST EVENT"

Victam International, which organizes the biggest events of the animal feed processing sector in various locations of the world, will strengthen its presence in Europe, the Middle East, and Africa with this cooperation.

Mr. Sebas Van den Ende, General Manager of VICTAM International BV, points out that both parties signing the agreement are aiming to have the strongest and largest event in the region. Mr. Van den Ende continues his speech as follows: "This cooperation provides an entry into the region for Victam and a strategic path for IDMA to respond to growing competition. This cooperation, which adopts a win-win strategy, may create a synergy in sales, marketing, and operations and may be a proactive answer for companies wishing to enter the region. The cooperation aims is to have a long-term cooperation for the benefit of both parties."

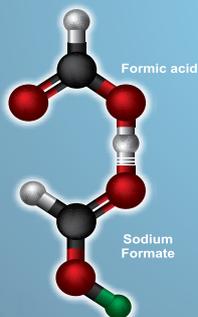


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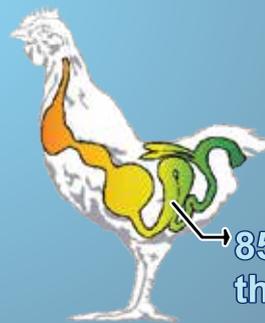
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“COOPERATION FOR A BETTER FUTURE...”

Parantez International Fair, the organizer of IDMA Exhibition which is notable for its international success, aims to develop a new synergy with the new partnership focusing on growth in the sector. Mrs. ZübeydeKavraz, Chairwoman of the company, emphasizes that this cooperation will open up new horizons for both the industry and IDMA.

Pointing out to the significance of partnership for strengthening the sector, Mrs. Kavraz said the following: “We live in a period where food safety and sustainable production are at the forefront. Therefore, the development and strengthening of cereal, feed and pulses sectors of which Parantez and Victam are a part of, are extremely important in terms of ensuring food safety and sustainable production in the world. Because cereal and pulse-based foods and animal products continue to constitute the most basic food sources of human beings. More than 600 million tons of wheat and corn are milled annually, and the flour obtained from them is consumed as for noodles, bread, pasta, etc.

The volume of global grain processing technologies was \$ 4.2 billion in 2018. According to recent market researches, the sector will reach \$ 6 billion by 2025.

Thanks to this cooperation, in Istanbul we will exhibit the technologies of the compound feed and grain markets, of which annual trade volumes are \$ 500 billion and \$165 billion respectively according to the International Feed Industry Federation (IFIF).

In addition, the world is going through a tough economic period. Companies are placing special emphasis on using the budgets they allocate for promotion and marketing activities on much more efficient platforms and for a good reason. And we have decided to bring our expertise and strength together in order to contribute to our sector in this regard. This cooperation will prevent our participants and visitors from being divided into smaller events organized at different points and provide them with an opportunity to come together on a more efficient platform. This means a great deal of convenience and savings for companies in terms of operational activities



and a much stronger and extensive marketing network.

Demand for flour and bakery products is expected to increase in the forthcoming period, especially in regions with higher population growth rates. At this point, the most important regions are; Sub-Saharan Africa, the Middle East and North Africa along with Southeast Asia. Because Turkey is one of the main centers of grain processing technologies industry and it is close to Middle Eastern and African countries where flour demand is expected to grow, so this provides Istanbul strategical advantage in terms of milling exhibition.

IDMA exhibition has received the support of national milling associations of 40 countries. Besides, Turkish-Netherlands Friendship Association gives strong support in the formation of this cooperation.

Associations to Participate in Press Launch:

- Edip AKTAŞ, Chairman of Turkish Netherlands Friendship Association (TÜHOD)
- Erhan ÖZMEN, Honorary President of Southeastern Flour Industrialists' Association (GUSAD)
- Mesut ÇAKMAK, Chairman of Southeastern Flour Industrialists' Association (GUSAD)
- Ata TORU, Deputy Chairman of Anatolian Flour Industrialists' Association (AUSD)
- Cem Oğuz KIRTIZ, Deputy Chairman of Anatolian Flour Industrialists' Association (AUSD)
- Bekir BAĞIŞ, Chairman of Çukurova Flour Industrialists' Association (ÇUSD)
- Mustafa HOŞGÖR, Deputy Chairman of the Association of Cereals and Pulses

Processing Technologies, Storage and Analysis Systems (TABADER)

- İlker AKYÜREK, Deputy Chairman of the Association of Cereals and Pulses Processing Technologies, Storage and Analysis Systems (TABADER)
- Ferhan CAN, Board Member of the Association of Cereals and Pulses Processing Technologies, Storage and Analysis Systems (TABADER)
- Şükrü KARABOĞA, Deputy Chairman of Pasta Industrialists' Association of Turkey (TMSD)
- Suat ÖZTÜRK, Board Member of Turkish Feed Industrialists' Union (TÜRKİYEM-BİR)

About Parantez International Fair and IDMA Exhibition

Parantez International Fairs, which started its activities in 2000, has been organizing IDMA - International Flour, Feed, Semolina, Rice, Corn, Bulgur Milling Machines and Pulses, Pasta, Biscuit Technologies Exhibition since 2005.

IDMA, which is the first and only international technology exhibition of its sector and is organized every other year in order to announce the innovations in the milling sector to the world, has been bringing together the representatives of grain and pulses processing sector in Istanbul for 15 years.

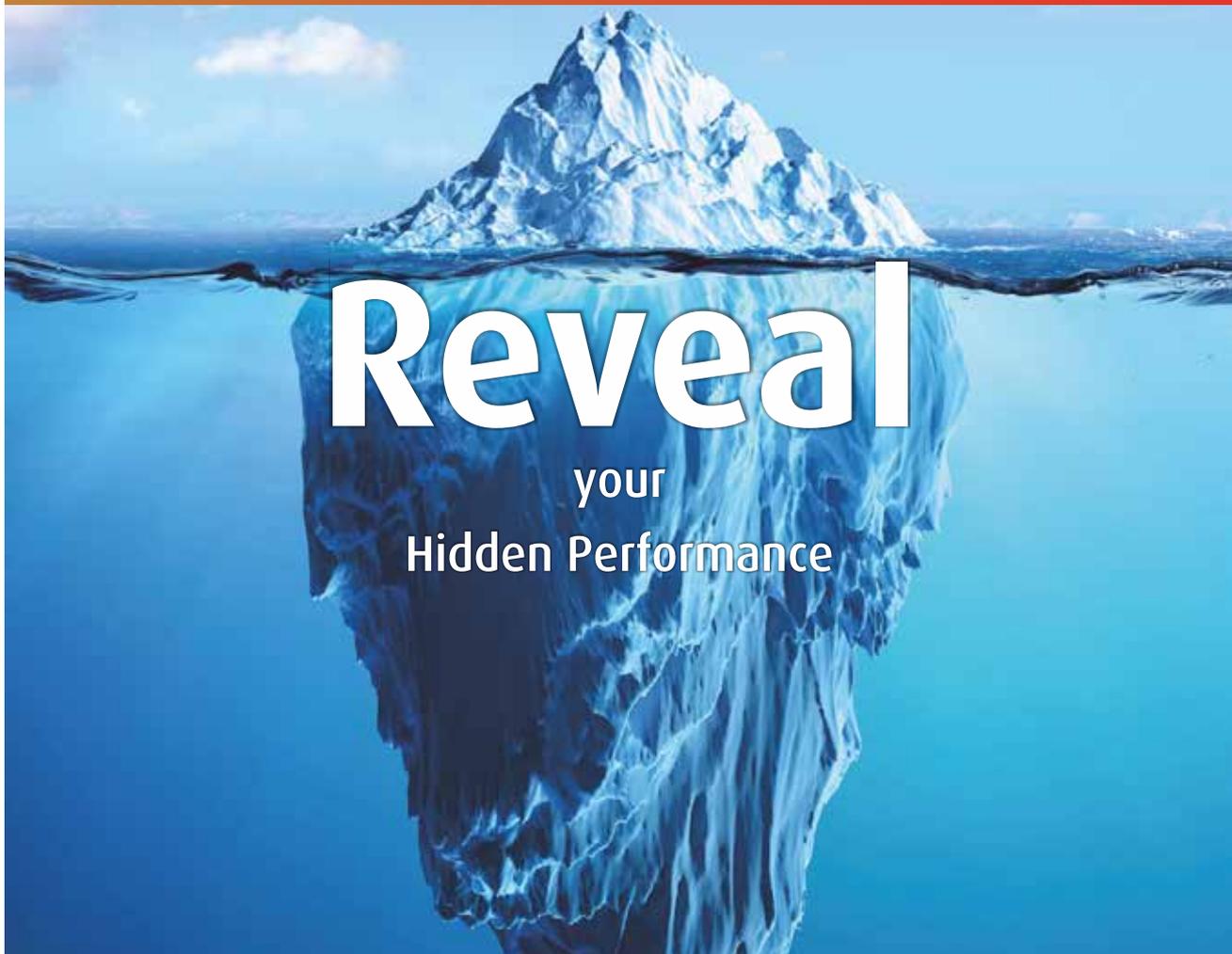
About Victam Corporation

The Victam Corporation is the organization behind the VICTAM events, held in Cologne and Bangkok. These are the worlds' leading international exhibitions and conferences for the animal feed and grain processing industries.



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BENTOLI ORGANIZES “PARTNERSHIP ACCORD 2019” - UNIQUE PROGRAMME TO FELICITATE LONG STANDING BUSINESS RELATIONS WITH BUSINESS PARTNERS OF SOUTH ASIAN MARKET



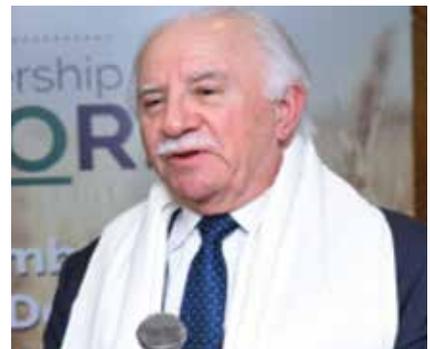
Global leadership team inaugurating the programme (From left to right)- Edward Robinson, Global Sales Director; William Robinson Junior, Global President, William Robinson Senior- Chairman; Dr. Arul Victor Suresh, Managing Director and Alexander Palencia, Global Financial Director



Dr Sushanta Saha welcoming the Customers and Global Team

Mumbai

Bentoli global team and local management organized “ BENTOLI Partnership accord 2019” on 10th of December, 2019 at Hotel aloft, New Delhi. The Event was attended by key distributors from South Asia. The programme was to recognise contribution and long standing relations of partners and to share future strategies and business objectives to reinforce the relations further.



Sir William Robinson Senior sharing his story of Bentoli with partners



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Participants listening to Sir William Robinson senior

The programme was launched with lighting of auspicious lamp followed by Welcome speech of Dr. Sushanta Saha, Director- Sales and Marketing. Sir William Robinson senior- founding chairman of Bentoli global shared his journey of 49 years in Bentoli. Through his inspiring emotional speech he reaffirmed strong bonds with partners for build Bentoli more stronger.

Edward Robinson, Global Sales Director and William Robinson Junior - President addressed partners and had given insightful on Bentoli's business ethos, practices and vision. Bentoli succeeds in highly competitive animal nutrition industry with its consistent quality, unique product lines and technical support.

Dr. Arul Victor Suresh- managing director of Bentoli India showcased manufacturing capabilities, R & D facilities and other core competencies of Bentoli. Bentoli India amongst few companies in India who have FAMI- QS certified manufacturing facility. Dr. Suresh shared that Bentoli's state-of-the-art laboratories which is authorised by export-import council of India for certifying the feed supplements for export. In-house trial farm and aqua ponds for efficacy study are unique facilities which quite a few companies like Bentoli can claim.

All Partners were felicitated with memento and they shared their journey with Bentoli so far and quite excited to be a partner in the long run.



Dr. Jayanta Bhattacharyya giving a Vote of Thanks to all the participants in the event

Dr. Jayanta Bhattacharyya, DGM-Techno-commercial delivered vote of thanks to all participating business partners, global team, local management and media for making the programme a grand success.

ABOUT BENTOLI:

Bentoli is a global provider of specialty additives for all types of animal feed. Backed by the ethos Better Feed, Better Food, Bentoli optimizes the preservation, processing, and nutritional aspects of the feed for all major species like poultry, Aqua, Ruminants, Equine etc. Bentoli strives to be the first choice solutions provider to feed manufacturers around the world, offering superior quality products, highly professional services, and customized consultative regimens.

Bentoli believes in supplying quality products with the highest degree of promptness. It maintains manufacturing facilities of the highest standard in the USA, Thailand and in India to service our customers through an extensive network of sales offices and valued distributor partners throughout the globe. Bentoli is strongly present in major segments with core four products to address the need of animal nutrition market.



Bentoli leadership and management team with participating partners



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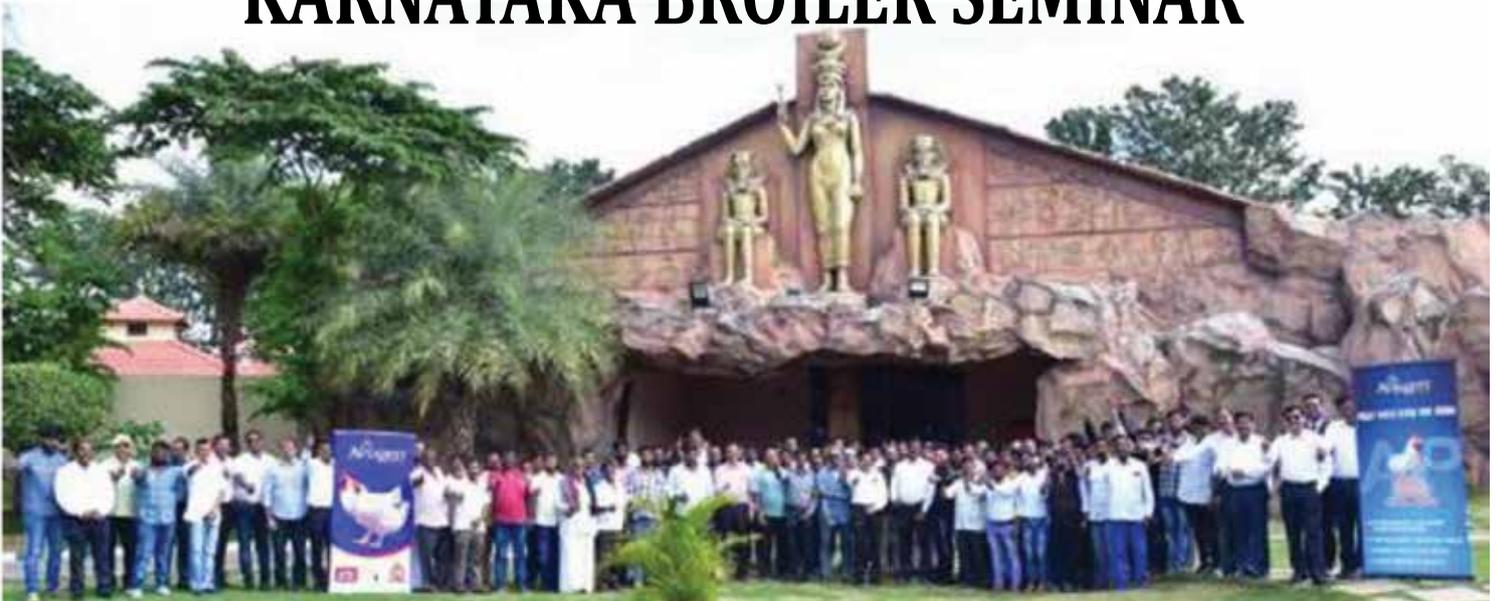
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Attendees explored the latest Ross 308 AP management information

Udumalpet, India

More than 100 producers from throughout Karnataka and South Andhra gathered in December for the Aviagen® India Broiler Seminar. Held at the Golden Amoon Resort, Hosakote, Nr Bangalore, Karnataka, the event provided a forum for the Aviagen India support team and their customers to exchange knowledge and ideas on getting the best performance, health and welfare with their Ross® 308 AP birds. The success of the Ross

broiler breeder continues to grow, as more and more growers benefit from the bird's favorable qualities such as feed efficiency, environmental hardiness, healthy growth rate and good meat yield.

The group discussed critical management topics such as biosecurity, water quality and winter brooding, as well as the importance of proper care during the first week of a chick's life. Mr. Mohan Ramraj, Aviagen Sales Manager, Southern Region, also shared the latest Ross 308 AP broiler performance results, and farmers

appreciated that the subjects were covered in the local Kannada language.

Comments Dr. Joshua Thangaraj, Aviagen India Regional Technical Manager, "Offering opportunities for our customers to share experiences and receive the latest broiler management advice is one way we can add value to their businesses. We had excellent feedback that the topics were relevant and informative. Many also asked for another seminar on summer management. We plan to do just that, and build on the growing popularity of the Ross 308 AP bird."

APPRECIATION FOR ARTICLE PUBLISHED IN POULTRY PUNCH MAGAZINE

My name is Jen and I'm an Editor at Jen Reviews. I was doing research on rearing chickens and just finished reading your wonderful piece: <http://thepoultrypunch.com/2019/10/role-of-poultry-farming-for-socio-economic-development-of-punjab-farmers/>

In that article, I noticed that you cited a

solid post that I've read in the past: <https://en.wikipedia.org/wiki/Chicken>

We just published an updated, comprehensive guide on how to rear chickens on the road on our sister site, Your RV Lifestyle. It is completely free and you can find it here: <https://www.your-rv-lifestyle.com/rv-chickens/>

If you like the piece we'd be humbled if

you cited us in your article. Of course, we will also share your article with our 100k newsletter subscribers and followers across our social platforms.

Either way, keep up the great work!

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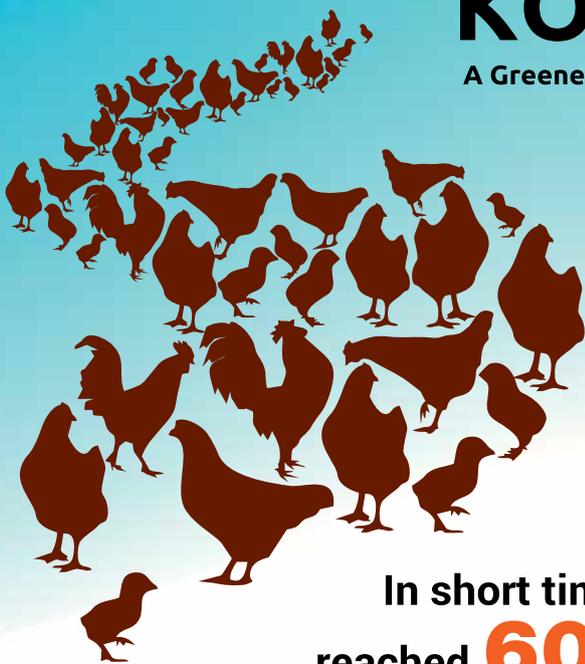


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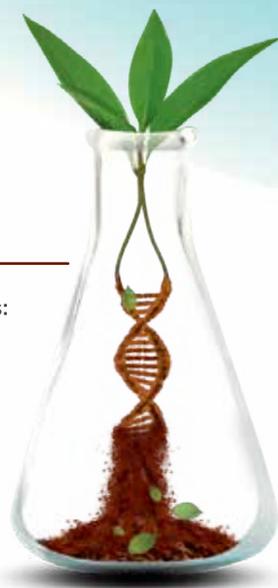
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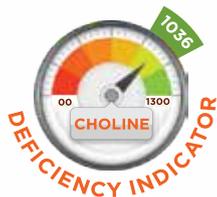


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DR PK SHUKLA FELICITATED WITH LIFETIME ACHIEVEMENT AWARD

New Delhi

“Poultry and other sectors of Animal Husbandry are the most assured routes to Doubling Farmers Income”, said Dr SP Singh Baghel, Hon’ble MP and former Animal Husbandry Minister, Uttar Pradesh at India Poultry Awards 2020 instituted by the Agriculture Today Group.

The Jury of India Poultry Awards 2020, instituted by the Agriculture Today Group, presented the Lifetime Achievement Award to Dr Pankaj Kumar Shukla for his exemplary accomplishments and contribution to Indian Poultry Sector.

Dr Shukla has been feverishly involved in scores of poultry activity across India and rendered a helping hand for the upliftment of Indian poultry, while addressing the poultry issues as well.

In the transformation of poultry sector from a backyard activity to a multifold and multi-faceted industry, many individuals and institutions have played seminal roles. To give due recognition to the role models of the sector, Agriculture Today Group organized India Poultry Awards 2020 on February 14 at Hotel Taj Palace in New Delhi. Awards were conferred upon 18 individuals, institutions and corporates for their exemplary success stories in poultry. The awardees were selected by an eminent Jury of luminaries, chaired by Dr OP Chaudhary, Joint Secretary Poultry, Government of India.

The award ceremony was preceded by two technical sessions with top policy and decision makers, national expert, industry leaders and prominent stake - holders to deliberate upon challenges, opportunities and way forward. The Business and Trade Session focused on Increasing competitiveness and trade performance of India’s poultry sector. The Policy and Technology Session highlighted interventions and innovations that could strengthen India’s position on the global map of Poultry.

While receiving the award on behalf of



Dr Pankaj Kumar Shukla receives Lifetime Achievement Award

the Best State, Bihar Dr N Vijayalakshmi, Principal Secretary, Animal Husbandry invited stake holders to the state with a promise of all possible support. Dr PK Shukla, Registrar and Dean Post Graduate Studies, DUVASU, Mathura, was conferred with the Lifetime Achievement Award for his unparalleled accomplishments and invaluable contribution to the sector.

Dr SP Singh Baghel, Chief Guest of the evening was accompanied by Dr Praveen Malik, Animal Husbandry Commissioner, GOI; Dr MJ Khan, Chairman, ICFA and Dr KML Pathak, former DDG ICAR and VC, DUVASU Mathura for giving away the awards.

Winners of 1st India Poultry Awards 2020

1. Best Upcoming Poultry Brand: Mommy’s Chicken, Bhopal
2. Best Poultry Startup: DSL FARM INDIA LLP, Kanpur
3. Social Impact Award: ICAR-CAZRI Leh, Ladakh
4. Best Poultry Health: Saife Vetmed Pvt. Ltd., Noida
5. Best Poultry Farmer: Mr Parvinder Singh,

Jaipur, Rajasthan

6. Best Poultry Extension: Krishi Vigyan Kendra, Jhabua, Madhya Pradesh

7. Poultry Professional: Dr RN Chatterjee, Hyderabad

8. Development Leadership: Dr AK Rajput, DGM - Corporate Affairs, Suguna Poultry Ltd

9. Best Poultry Feed Company: Godrej Agrovet Ltd, Mumbai

10. Best Technology Company: IB Group, Rajnandgaon, Chhattisgarh

11. Best Innovation Company: VH Group, Pune

12. Most Integrated Company: Suguna Foods Private Limited, Coimbatore

13. Best Poultry Equipment: Gartech Equipments Private Limited, Pune

14. Poultry R&D Award: The Himalaya Drug Company, New Delhi

15. Best Poultry State: The State of Bihar, Dr N Vijayalakshmi - IAS

16. Best Poultry Processing: SKM EGG Products Export (India) Limited, Erode

17. CEO of the Year: Sh Gulrez Alam, Director, IB Group

18. Lifetime Achievement Award: Dr PK Shukla, Registrar, DUVASU, Mathura



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“POULTRY CHICKEN DECLARED SAFE, no relation to Coronavirus”, Clarified the Government of India...!

Mr. Bahadur Ali, Founder and Managing Director of IB Group met the Hon'ble Shri Giriraj Singh, Minister of Husbandry, Dairying and Fisheries...!



In the Picture (Left to Right) Mr. Choudhary, IAS, Secretary, Department of Animal Husbandry, Dr. Sanjeev Kumar Balyan Ji, Union Minister of State, Animal Husbandry, Government of India, Shree Giriraj Singh Ji, Honorable Minister, Animal Husbandry, Dairying & Fisheries, Government of India, Mr. Bahadur Ali, Founder and MD, IB Group, Mr. Gulrez Alam, Director, IB Group, Mr. Vijay Sardana and Mr. Ricky Thaper, Vice President and Head- North Zone, IB Group.

Due to the continuous deceptive rumors associated with the novel coronavirus in poultry products, some antisocial elements are misleading the citizens of the country for their benefit.

All maize and soy farmers of India are dependent on poultry farming which is our country's need. Honorable Shri Giriraj Singh Ji, Minister of Animal Husbandry, Dairying and Fisheries of Government of India consulted the higher official of his department to issue a letter to inform all the citizens of India that **“Poultry products have no relation to the novel coronavirus. They are completely safe! All chicken consumers of India can be assured and happily consume chicken. Citizen should not pay attention to any such vague and deceptive information from**

unauthorized sources”. If any citizen or institution has any doubt regarding this information, they can contact the Department of Animal Husbandry, Dairying and Fisheries of Government of India. He also requested to share the issues letter with every citizen of the country.

In this context, Mr. Bahadur Ali, Founder and Managing Director of IB Group; Mr. Gulrez Alam, Director, IB Group; Mr. Ricky Thaper, Vice President and Head- North Zone, IB Group; Poultry Expert Mr. Vijay Sardana, together met Hon'ble Minister and informed him about the anti-social elements on social media who are misleading the citizens. To which the minister and his department's officials said that **“The novel Corona Virus can only spread human to human and can not**

spread from poultry birds to humans. The Ministry also confirmed that no reference to this virus has been found in poultry products worldwide, nor has it spread to any persons from poultry birds or poultry products worldwide. So no poultry products has any relation to the novel Corona Virus. Hence, chicken is completely safe. All consumers in India can be assured and consume chicken as well as other poultry products.”

Mr. Bahadur Ali, leading all the Indian poultry farmers, thanked the Government of India, Hon'ble Minister Shri Giriraj Singh Ji, and his department on behalf of all farmers and consumers for the support in releasing this information.



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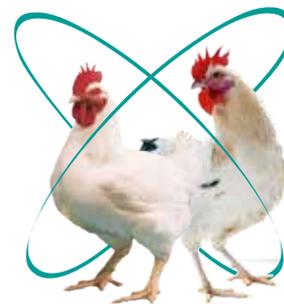
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VICTAM AND ANIMAL HEALTH AND NUTRITION ASIA: THE TOTAL ANIMAL FEED AND HEALTH EVENT ORGANIZED BY VICTAM AND VIV

VICTAM and Animal Health and Nutrition Asia 2020 will open the doors of BITEC on March 24 – 26, 2020 in Bangkok, Thailand, with around 400 exhibitors and 17,800 square meter of exhibition space. The event provides a total solution from feed production to animal health and pharmaceuticals. In parallel with the exhibition, there is an extensive conference program available with specialized topics in the field of animal feed technology, animal nutrition and health.

Exhibiting in one of the three show halls of VICTAM and Animal Health and Nutrition Asia, gives exhibitors access to the world's fastest growing market, Asia, and to a targeted audience of around 9,000 professional visitors including CEOs, feed formulators, mill managers, nutritionists, operation directors, veterinarians, academics, and many more.

"Thailand has been the home for our Asian events for almost thirty years and is certainly a key market for the show in terms of potential investors, top buyers and suppliers," says Mr. Sebas van den Ende, General Manager of Victam International.

"The show has a dedicated program for key people of the industry, including top buyers, which is offered to Thailand and other key markets. The "Industry Leaders Program" offers the opportunity to 150 top industry players to be special guests at the show and enjoy extra participation privileges" mentions Heiko M. Stutzinger, Director of VIV worldwide, and Managing Director, VNU Exhibitions Asia Pacific Co., Ltd.

Continuing with the series of appointments that the show organizers have planned heading to the show and started last month in Myanmar, the Official press conference for the promotion kick-off in Thailand of VICTAM and Animal

Health and Nutrition Asia 2020 was held today, January 30th, at the Westin Grande Sukhumvit Hotel in Bangkok.

Mr. Sebas van den Ende and Mr. Heiko M. Stutzinger gave detailed updates on the March 2020 event and the cooperation between VICTAM and VIV. After the official presentation, a select number of exhibitors were able to present a short highlight of their products.

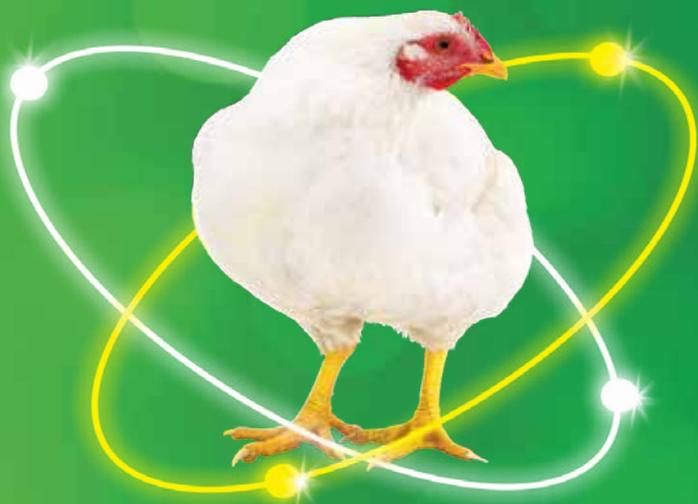
The opening Ceremony will be on 24 March 2020 at V-Square in halls EH 100-101 in BITEC from 10.30 - 11.30 hrs. New at this event is the V-square where all kinds of activities will take place like the opening ceremony, the network reception and the VIP lounge. It is called the V-square as the letter V links VICTAM and VIV as partners.

VICTAM and Animal Health and Nutrition Asia offers a series of high quality industry conferences and technical seminars in the fields of animal feed technology, health and nutrition. From current trends and the future in aquafeed to sustainability in petfood to functionalities and nutritional aspects in insect proteins and antibiotic alternatives, there is a topic for everyone in the industry.

VICTAM and Animal Health and Nutrition Asia is also the exhibition to find all the latest innovations from companies like Andritz, Biomin, Buhler, DSM, Famsun, Impextraco, Kemin, K-PRO, Trouw Nutrition, Van Aarsen and many others.

The organizers are looking forward to welcoming the feed and animal health industries from March 24 – 26, 2020 at BITEC, in Bangkok, Thailand. All information and the online registration is available on the official show websites: www.victamasiam.com and www.vivhealthandnutrition.nl.

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WEDDING BELLS



L-R: Mrs Nina, Mrs Supriya, Honourable Priminister Shri Narendra Modi, Mr Yash, Mr Rajiv Gandhi and Priya

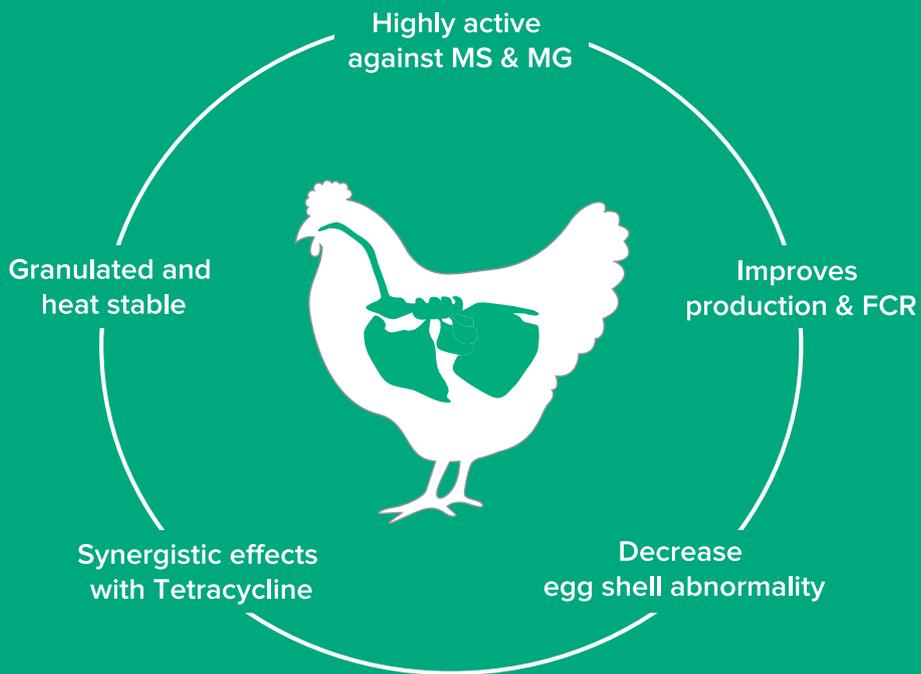
Mr Yash, son of Smt Nina and Shri Rajiv Gandhi was married to Ms Supriya, daughter of Smt Rekha and Shri Prashant K Lahoti on 5th February 2020 at the venue: Darbar Hall, Hotel Taj Palace, New Delhi. The event witnessed the kind presence of Honourable Priminister Shri Narendra Modi, who blessed the new couple. This gala function was also marked by the congregation of high profile poultry stalwarts from across the industry, who had descended on the venue to grace the occasion along with other bigwigs from the social fabric. The dignitaries showered blessings on the new couple. Poultry Punch wishes the new couple a long and happy married life.

-BS Rana, Editor

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Bone fragility and increased fat content in the liver of egg-laying hens are more often encountered in birds from traditional battery-cage systems than in those confined in other systems. Bone fragility can be seen either as a general weakness of bone tissue or as a clinically manifest disease, Cage layer fatigue. It is concluded, that general restriction of the Birds possibilities to locomotive and perform comfort movements are the most important aetiological factors. Improper mixing of feed additives or inadequate supply of Vitamin D3, Calcium and phosphorus are attributable factors for cause of Cage Layer Fatigue. Lack of movements and depletion of bone Calcium in high egg producer breeds is the cause for bone fragility.

COMMON DISEASES OF CAGE LAYING HENS

Prof. R.N.SreenivasGowda

Founder and Former Vice Chancellor, KVAFSU, Bidar, Karnataka

Poultry is one of the fastest growing segments of the agricultural sector in India today. India has emerged on the world map as the 2nd largest egg producer (88 billion eggs) and annual growth rate in egg production approximated 7-8 % per year (Source; Report of the Working Group on AH& dairying,). The current strength of layers in India is estimated to be 230 million and the annual per capita availability of eggs has increased from 7 eggs in 1961 to 68 eggs in 2015. However, the present availability is far below then the ICMR recommendation of 180 eggs per capita per annum.

The poultry sector in India has undergone a paradigm shift in structure and operation. This transformation has involved sizable investments in breeding, hatching, modernization in rearing and adoption of latest processing techniques . Farmers in India have adopted for rearing hybrids which ensures faster growth, good liveability, excellent feed conversion, high egg production and profits to the poultry farmers. High quality chicks, equipment, vaccines and medicines are now available through both public and private players. Technically and professionally competent guidance is available to the farmers. The managerial practices have improved and disease and mortality incidences are reduced to a great extent. This is all possible due to adoption to new

technologies available.

Cage system of rearing of poultry is very common and popular among Indian poultry. Caged layers and breeders are also prone to several diseases if proper attention in management, nutrition and healthcare is not practiced properly. The breeders reared in cages, artificial insemination (AI) is practiced. These birds are handled by inseminators in cages. Such birds are more prone to cloacal and genital problems therefore, at most sanitary and managerial care need to be exercised.

Egg industry in India is flourishing because of cage system of rearing is practiced. In recent years cages have generated controversy by for animal rights personnel and industrial producers.

What is Cage system ?

Cage system is primarily used for egg-laying hens and in breeders. In this system of rearing birds has been considered as a super intensive system providing floor area of 450-525 sq.cm. (0.6-0.75sq.feet) per bird. The cages are made by galvanized wire and the birds are kept in one, two or three per cage, arranged in single or double or triple rows in a house.

What is Battery Cage ?

The name Battery Cage arises from the arrangement of rows and columns of identical cages connected together, in a

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Sometimes the laying hens stop laying eggs for numerous reasons. The laying hens need about 14 to 16 hours of lighting period daily for producing normal number of eggs. Along with the sunlight, use artificial lighting is required by using a 40 watt bulb for every 100 square feet flooring space, and extending the hours of lighting depending on the season of available lighting encourage them to lay eggs again. Feeding habit also affects the egg laying of hens. Errors in feeding schedule and quality nutrition cause drop in production. Laying hens require sufficient amount of fresh and nutritious feed. They need about 16 to 18 percent protein in the feed. Also require adequate amount of essential vitamins and minerals with their regular feed.

unit, as in an artillery battery and hence the name battery cage.

What are the advantages and disadvantages of laying cages ?

Advantages

1. More birds may be reared per unit of area
2. Facilitates correct maintenance of records
3. Easy to identify poor producers and prompt culling
4. Control of vices of poultry cannibalism and egg eating
5. production of cleaner eggs
6. Easy control of protozoan diseases and worm infestation.
7. Helps to control feed wastage.
8. Ideal formoderated climate conditions.
9. Less feed is required to produce a dozen eggs
10. Better Feed efficiency and egg weight
11. Labor requirements are generally much reduced

Disadvantages

1. The handling of manure may be a problem.
2. Generally, flies become a greater nuisance.
3. The investment per pullet may be higher than in the case of floor operations.
4. There is a slightly higher percentage of blood spots in the eggs.
5. The bones are more fragile and Cage layer fatigue problem may arise.
6. Difficult in ensuring proper ventilation to birds especially in summer season and under very high denser conditions.
7. Hysteria is common in cage rearing.

What are the Common Diseases of Cage Layers?

The common diseases in caged poultry may be classified as follows:

Physical damage: broken legs, wings, cannibalism and cutaneous aberrations due to sharp claws and due to hysterical disturbance in the flock. Restricted movement in cages with lack of exercise,

the birds are more prone to metabolic disorders.

Chemical /nutritional: Chemical toxins, nutritional imbalance -Cage layer fatigue are some of the nutritional problems.

Biological: Bacterial, Viral and Parasitic infections if not protected properly.

Further, the Cage layer diseases can be classified in to Non Infectious and Infectious diseases:

I. Non infectious Diseases

1. Bone disorder/ fragility

Bone fragility and increased fat content in the liver of egg-laying hens are more often encountered in birds from traditional battery-cage systems than in those confined in other systems. Bone fragility can be seen either as a general weakness of bone tissue or as a clinically manifest disease, Cage layer fatigue. It is concluded, that general restriction of the Birds possibilities to locomotive and perform comfort movements are the most important aetiological factors. Improper mixing of feed additives or inadequate supply of Vitamin D3, Calcium and phosphorus are attributable factors for cause of Cage Layer Fatigue. Lack of movements and depletion of bone Calcium in high egg producer breeds is the cause for bone fragility.

2. Fatty liver disease

Fatty liver syndrome occurs through accumulating too much fat in the liver of a hen. Hemorrhage of liver due to rupture of liver and death are the postmortem features of this disease. The affected hens have pale combs and a big blood clot in the abdomen. Feeds containing too much carbohydrates can result much fat in laying hens.

It can be prevented by providing nutritious feed, good housing, fresh water and good management. The condition may be seen either as a pathological elevation of the liver fat content or it may be seen as a disease called Fatty liver haemorrhagic syndrome. Several factors may cause

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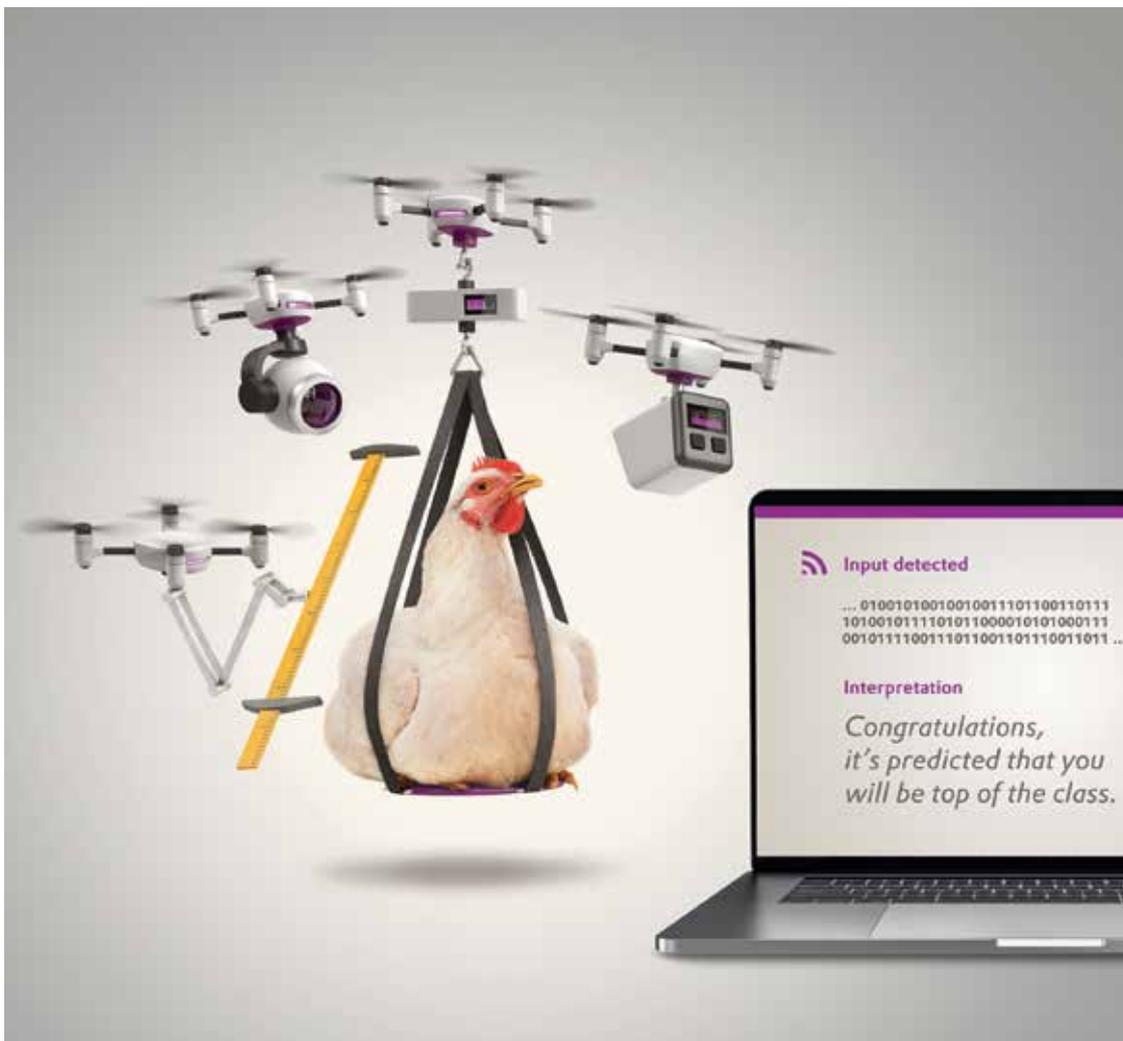
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Lymphoid is a neoplastic disease of poultry caused by avian leukosis virus. The disease is characterized by B-cell lymphoma, occurring in chickens approximately 16 weeks of age and older. Chickens with lymphoid leukosis have few typical clinical signs. These may include inappetence, weakness, diarrhea, dehydration, and emaciation. Infected chickens become depressed before death. Palpation often reveals an enlarged bursa and sometimes an enlarged liver. Infected birds may not necessarily develop tumors, but they may lay fewer eggs. Diagnosis is based on history and clinical signs, gross pathology, and histopathology, immuno-histochemistry, standard and quantitative PCR, virus isolation and serology. There is no treatment or vaccine available, so eradication of avian leukosis viruses from breeding flocks is the most effective control method.

elevation of the liver fat content. The influence of restricted movement on the birds in cage system, energy balance, and behavioural disturbances seems to be the most important aetiological factors.

3. Egg Eating

Egg eating is one of the major vice with cage laying hens. Inadequate water supply due to clogged nipples, or dehydration due to hot water in summer months initiates egg eating habit. There are many reasons of eggs disappearing from the cages. If eggs disappear, snakes or other predators/ attenders might be stealing them also need to be identified.

Egg eating vice starts when the hen taste the contents of a broken egg. Once tasted they will continue to eat their own eggs. And it's very difficult to stop this habit once started. So it's very important to prevent hens from eating their own eggs. It is easy to diagnose as there will be more broken shells at the bottom of such cages.

The solution is frequent collection of fresh eggs from the cages (two or three times daily) installing quality water nipple to avoid clogging and to prevent accidental breakage of eggs by safeguarding with sponge padding.

4. Molting

Feather losing and new feather producing process is known as molting. Laying hens usually stop producing eggs during their molting period. Naturally laying hens begin molting in late summer or during early autumn. Some chickens start molting at their 4 months of age and some chickens don't molt until they reach at least one year of age. Depending on the breeds, molting process can take few weeks even months. Once the hens complete their molting cycle, they will start laying eggs again.

5. Caged Layer Fatigue (CLF)

CLF is a metabolic disease of poultry. Especially laying hens suffers much due to lack of proper amount of phosphorus and calcium ratio. If any hen which is

alert but unable to move, then it might be suffering from caged layer fatigue. If not treated timely, it might die by dehydration. Separate the affected birds to another cage and supply fresh water and quality feed. By providing balanced Vitamin D, calcium and phosphorus will help avoiding further instances of diseases in the flock. Raising the flock in free range or deep litter system can be helpful for preventing the disease.

6. Rickets

Rickets disease due to lack of vitamin D or improper ratio of calcium and phosphorus in their regular feed characterised by soft and bowed bones, thin shelled eggs, lameness, fractured limbs, low egg production etc. are symptoms of this disease. If the feed is well balanced, then chances of getting affected by rickets disease is less. Because most of the commercial layer feed contain proper ratio of all the necessary nutrients, the chances of getting rickets is minimal.

7. Stops Laying Eggs

Sometimes the laying hens stop laying eggs for numerous reasons. The laying hens need about 14 to 16 hours of lighting period daily for producing normal number of eggs. Along with the sunlight, use artificial lighting is required by using a 40 watt bulb for every 100 square feet flooring space, and extending the hours of lighting depending on the season of available lighting encourage them to lay eggs again. Feeding habit also affects the egg laying of hens. Errors in feeding schedule and quality nutrition cause drop in production. Laying hens require sufficient amount of fresh and nutritious feed. They need about 16 to 18 percent protein in the feed. Also require adequate amount of essential vitamins and minerals with their regular feed.

8. Hysteria or Flightiness.

Normally, hysteria would originate from one point in the cage house or shed and spread out in all direction. Birds seem to lose all normal social behaviour and sense

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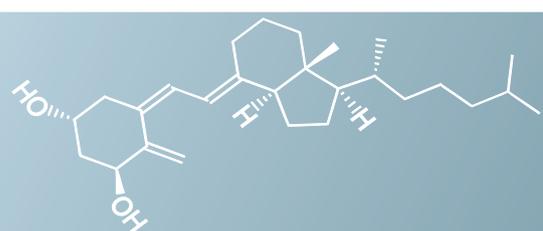
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ILT is an acute, highly contagious, herpes virus infection of chickens characterized by severe dyspnea, coughing, and rales. It can also be a subacute disease with nasal and ocular discharge, tracheitis, conjunctivitis, and mild rales. The disease is caused by Gallidherpes virus I, commonly known as infectious laryngotracheitis virus (ILTIV). In the acute form, gasping, coughing, rattling, and extension of the neck during inspiration are seen 5–12 days after natural exposure. Reduced productivity is a varying factor in laying flocks. Affected birds are anorectic and inactive. The mouth and beak may be bloodstained from the tracheal exudate. Mortality varies but may reach 50% in adults and is usually due to occlusion of the trachea by hemorrhage or exudate. Signs usually subside after 2 wk, although some birds may show signs for longer periods. Strains of low virulence produce little or no mortality with mild respiratory signs and a slight decrease in egg production.

of direction and will mill (crash) and fly in every direction of the cage and making unusual crying with squawking sounds. Production drop is observed more in such caged houses. Controlling multifactorial factors and providing high levels of methionine (2kg/tonne), niacin (200 g/tonne supplement) or tryptophan (up to 5 kg/tonne feed supplement) or in drinking water. Adding meat meal or fish meal supplement increased the levels in the diet will reduce the incidence.

II. Infectious Diseases

Infectious diseases spread quickly in cage system of rearing because of high density and close proximity of flock. The some of the common diseases are as follows:

1. Egg Drop Syndrome—(EDS-76)

The classical Egg drop syndrome is caused by adenoviral viral infection in laying hens transmitted vertically from hens to chicks. The virus is often latent until the chicks reach maturity, thereafter, the matured chickens begin to excrete virus and transmit through the eggs and droppings and infect to a healthy hens and virus can pass from asymptomatic hen to other birds. The disease is characterised by sudden drop (10-40%) in egg production or a failure to achieve a normal peak in production. Production of soft-shelled which easily break and shell-less eggs in apparently healthy birds, Intermittent diarrhea is one of the first signs of egg drop syndrome. The other clinical signs of infection are loss of color in pigmented eggs and soft-shelled, thin-shelled, and shell-less eggs. Thin-shelled eggs may have a rough or even sandpaper-like surface. Sometimes the laying hen can stop laying eggs for a certain period. It is thought that, egg drop syndrome transfer through the contaminated vaccine manufactured out of non SPF eggs. Prevention is adopting proper biosecurity practices. A killed vaccine can be given during the pullet-rearing phase to help prevent the disease.

2. Marek's disease .

Marek's disease is contagious Herpes

virus infection of chickens. In endemic areas there is often poor production is observed in cage system because of cancerous and nonproductive ovaries. The route of infection is usually respiratory and the disease is highly contagious being spread by infective feather-follicle dander, fomites, etc. Infected birds remain viraemic for life. The disease is characterised by T-Cell lymphomas of all visceral organs and peripheral nerve enlargement. The disease may be noticed up to seventy week and above age birds. The standard criteria of diagnosis includes, history, clinical signs of emaciation, pale comb, gross necropsy, and histopathology. Although no treatment is available, current vaccines are highly protective.

Vaccines are administered at hatch or in ovo to embryos at the 18th day of incubation. In ovo vaccination is now performed by automated technology and is widely used for vaccination of commercial chickens, mainly because of reduced labor costs and greater precision of vaccine administration.

The disease may become a serious problem in individual flocks or in selected geographic areas.

3. Lymphoid leukosis (LL)

Lymphoid is a neoplastic disease of poultry caused by avian leukosis virus. The disease is characterized by B-cell lymphoma, occurring in chickens approximately 16 weeks of age and older. Chickens with lymphoid leukosis have few typical clinical signs. These may include inappetence, weakness, diarrhea, dehydration, and emaciation. Infected chickens become depressed before death. Palpation often reveals an enlarged bursa and sometimes an enlarged liver. Infected birds may not necessarily develop tumors, but they may lay fewer eggs. Diagnosis is based on history and clinical signs, gross pathology, and histopathology, immunohistochemistry, standard and quantitative PCR, virus isolation and serology. There is no treatment or vaccine available, so eradication of avian leukosis viruses from breeding flocks is the most effective

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GD is also known as “gangrenous cellulitis,” “wing rot” or “red leg.” GD usually starts with the appearance of aberrations and haemorrhages on the skin, progressing to involve large areas. The problem is more common in caged pullets because of sharp claws or over crowding cages. It is mainly caused by soil bacteria Clostridium perfringens and other bacteria such as streptococcus and staphylococcus in an immunosuppressed birds (CAV,IBD) Gross lesions consist of dark reddish purple to green, weepy areas of the skin.

control method.

4. Newcastle disease(ND/RD/VVND)

Newcastle or Ranikhet disease is an acute viral infection of domestic poultry and other bird species with virulent Newcastle disease virus (NDV). It is a worldwide problem that presents primarily as an acute respiratory disease, but depression, nervous manifestations, or diarrhea may be the predominant clinical form.

An infected bird may exhibit several signs, including respiratory signs (gasping, coughing), nervous signs (depression, inappetence, muscular tremors, drooping wings, twisting of head and neck, circling, complete paralysis), swelling of the tissues around the eyes and neck, greenish, watery diarrhea, misshapen, thin shelled eggs. The virus can remain alive in manure for up to 2 months and in dead carcasses for up to 12 months, however it is easily killed by disinfectants, fumigants and direct sunlight.

Prevention relies on good quarantine and biosecurity procedures and vaccination.

5. Avian infectious bronchitis (IB)

IB is an acute and highly contagious respiratory disease of chickens. The disease is caused by avian infectious bronchitis virus (IBV), a corona virus, and clinically characterized by respiratory signs such as gasping, coughing, sneezing, tracheal rales, and nasal discharge in young chicks.

Clinical signs are strongly dependent on the tropism (preferred tissue to infect) of the strain. Loss of appetite, wet litter and feed intake decreases sharply with minimal mortality in older birds. Some of the IB strains cause damage to the development of oviduct and they become “False Layers” ends up either egg peritonitis or useless pullets. Less common strains can cause a sharp drop in egg production in layers, and production usually drops to near zero within a few days. Recovery occurs within 3–4 weeks, however some flocks never regain an economical rate of lay. During an outbreak, small, soft-shelled, irregular-shaped eggs are produced. Decreased egg production and egg quality are common, and nephritis can be caused by some strains.

Diagnosis relies on viral isolation and characterization. For virus characterization, recent methodology using genomic amplification (PCR) and sequencing of products, will enable very precise description of strains, according to the oligonucleotide primers designed and target gene. Methods for IBV antigens detection may employ labeled antibodies, such as direct immunofluorescence or immunoperoxidase. Antibodies to IBV may be detected by indirect immunofluorescent antibody test, ELISA and Haemagglutination inhibition test. Prevention by vaccines represents a modified or selected strain of the infectious bronchitis virus and therefore the vaccine used should contain specific virus known to be present in the area. All vaccines contain live virus and those that give the best protection unfortunately can also produce clinical signs of disease and the vaccine virus will spread to other susceptible birds. Vaccine is usually added to the drinking

water, but may be dropped into the eye or nostril or used as a spray.

6. Infectious laryngotracheitis(ILT)

ILT is an acute, highly contagious, herpes virus infection of chickens characterized by severe dyspnea, coughing, and rales. It can also be a subacute disease with nasal and ocular discharge, tracheitis, conjunctivitis, and mild rales. The disease is caused by Gallidherpes virus 1, commonly known as infectious laryngotracheitis virus (ILTV). In the acute form, gasping, coughing, rattling, and extension of the neck during inspiration are seen 5–12 days after natural exposure. Reduced productivity is a varying factor in laying flocks. Affected birds are anorectic and inactive. The mouth and beak may be bloodstained from the tracheal exudate. Mortality varies but may reach 50% in adults and is usually due to occlusion of the trachea by hemorrhage or exudate. Signs usually subside after 2 wk, although some birds may show signs for longer periods. Strains of low virulence produce little or no mortality with mild respiratory signs and a slight decrease in egg production. Laboratory diagnosis is required for ILT, because other diseases cause similar clinical signs and lesions, such as infectious bronchitis, Newcastle disease, avian influenza, infectious coryza, and mycoplasmosis. ILTV infection can be confirmed using several methods, including virus isolation and DNA detection. For ILTV isolation, the CAM inoculation of 9-to-12-d-old embryos and primary cell culture are used.

The disease is controlled by implementation of biosecurity measures and vaccination. Vaccination is done with live attenuated vaccines and viral vector recombinant vaccines. Live vaccines originated from virulent isolates that were attenuated by consecutive passages in embryos or tissue culture.

7. Avian influenza

This is a notifiable viral disease and caused by Avian Influenza virus A that causes coughing, depression, anorexia, egg drop, cyanosis of the combs and wattles, diarrhoea, ocular and nasal discharge, and



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death. Avian influenza A viruses are classified into the following two categories: low pathogenic avian influenza (LPAI) A viruses, and highly pathogenic avian influenza (HPAI) A viruses. Infection of poultry with LPAI viruses may cause no disease or mild illness (such as ruffled feathers and a drop in egg production) and may not be detected. Infection of poultry with HPAI viruses can cause severe disease with high mortality. Both HPAI and LPAI viruses can spread rapidly through poultry flocks. Avian influenza outbreaks are of concern in domesticated birds for several reasons:

- the potential for low pathogenic H5 and H7 viruses to evolve into highly pathogenic viruses
- the potential for rapid spread and significant illness and death among poultry during outbreaks of highly pathogenic avian influenza
- the economic impact and trade restrictions from a highly pathogenic avian influenza outbreak
- the possibility that avian influenza A viruses could be transmitted to humans

The diagnosis of avian influenza (AI) virus infections, even highly pathogenic AI (HPAI), represents a considerable challenge due to the lack of pathognomonic or specific clinical signs and their variation in different avian hosts plus the marked antigenic variation amongst influenza A viruses. There is an overwhelming demand for rapid results. More and more, molecular biological techniques are being used and in particular reverse transcriptase-polymerase chain reaction (RT-PCR) and real-time RT-PCR technologies are being employed for rapid diagnosis. The affected birds have to be destroyed to control the spread. Infected birds can shed avian influenza A viruses in their saliva, nasal secretions, and feces. Susceptible birds become infected when they have contact with the virus as it is shed by infected birds. They also can become infected through contact with surfaces that are contaminated with virus from infected birds.

8. Wing Rot /Gangrenous dermatitis (GD):

GD is also known as “gangrenous cellulitis,” “wing rot” or “red leg.” GD usually starts with the appearance of aberrations and haemorrhages on the skin, progressing to involve large areas. The problem is more common in caged pullets because of sharp claws or over crowding cages. It is mainly caused by soil bacteria *Clostridium perfringens* and other bacteria such as streptococcus and staphylococcus in an immuno-suppressed birds (CAV, IBD). Gross lesions consist of dark reddish purple to green, weepy areas of the skin. Affected areas usually include abdomen, breast, wings, or legs. Areas of affected dermis and subcutis are characterized by extensive blood-tinged edema, with or without gas (crepitus). Infection may extend into underlying musculature, which may be discolored and contain edema and gas and hence the name Blu Wing Disease. Total cleanout, bunning and disinfection of cage-houses has reduced or eliminated gangrenous dermatitis infection on farms with historical problems. GD has been treated effectively with administration of many broad-spectrum and gram-positive antibiotics.

9. Avian encephalomyelitis

This is either egg drop (a small drop in egg production lasting up to two weeks) or a virus causing tremors, depression, nervous signs and crouching on to the hocks. There is no treatment for the condition, but a vaccine is available for breeders.

10. Fowl pox

This is a viral disease that causes skin lesions and/or plaques on combs and wattles, caseous deposits in the mouth and depression. There will be drop of production. There is no treatment, but vaccines are available.

11. *Mycoplasma Gallisepticum* and *M. Synoviae* (MG/MS)

These diseases are causing chronic respiratory disease and synovitis in laying hens. Both infections are causing loss of productivity up to 20-25%. Treatment is with tilmicosin, tylosin, spiramycin, tetracyclines or fluoroquinolones, and

vaccines are available.

12. Fowl cholera

A serious and highly contagious disease, this is caused by *Pasteurella multocida*. The disease can range from acute septicaemia to chronic and localised infections, and the morbidity and mortality may be up to 100 per cent. Long-term treatment with sulphonamides, tetracyclines, erythromycin, streptomycin or penicillin is necessary. Vaccines are available.

13. E.Coli Infection:

If the oviduct occluded or infected with E.Coli infection it ruptures and the fully formed egg accumulates in the abdomen. There may be six to eight eggs in the abdomen. Swollen abdomen is the first sign. The bird dies with peritonitis.

14. Egg Peritonitis

Egg peritonitis occur when the yolk comes out of ovaries and failure to catch by infundibulum because of nonfunctional oviduct. The yolk is deposited in the abdomen. Since the yolk is a good medium it promotes bacteria to grow, multiply and cause peritoneal infection. Swollen abdomen is the symptoms of Egg Peritonitis. Treating with antibiotics may fight with the infection and drain the abdomen but, in most cases, the laying hens die with *Escherichia coli* peritonitis,

Sub clinical coccidiosis, necrotic enteritis, *Mycoplasma gallisepticum*, calcium depletion-tetany, infectious bronchitis, and cannibalism have been listed as diseases of concern in cage system of rearing. Some of these diseases are considered to be regional, whereas cannibalism is often reported in caged hens because of improper debeaking and over loading of cages with more number of hens per cage. Several surveys report cannibalism and feather pecking as the primary causes of mortality in commercial cage laying hens.

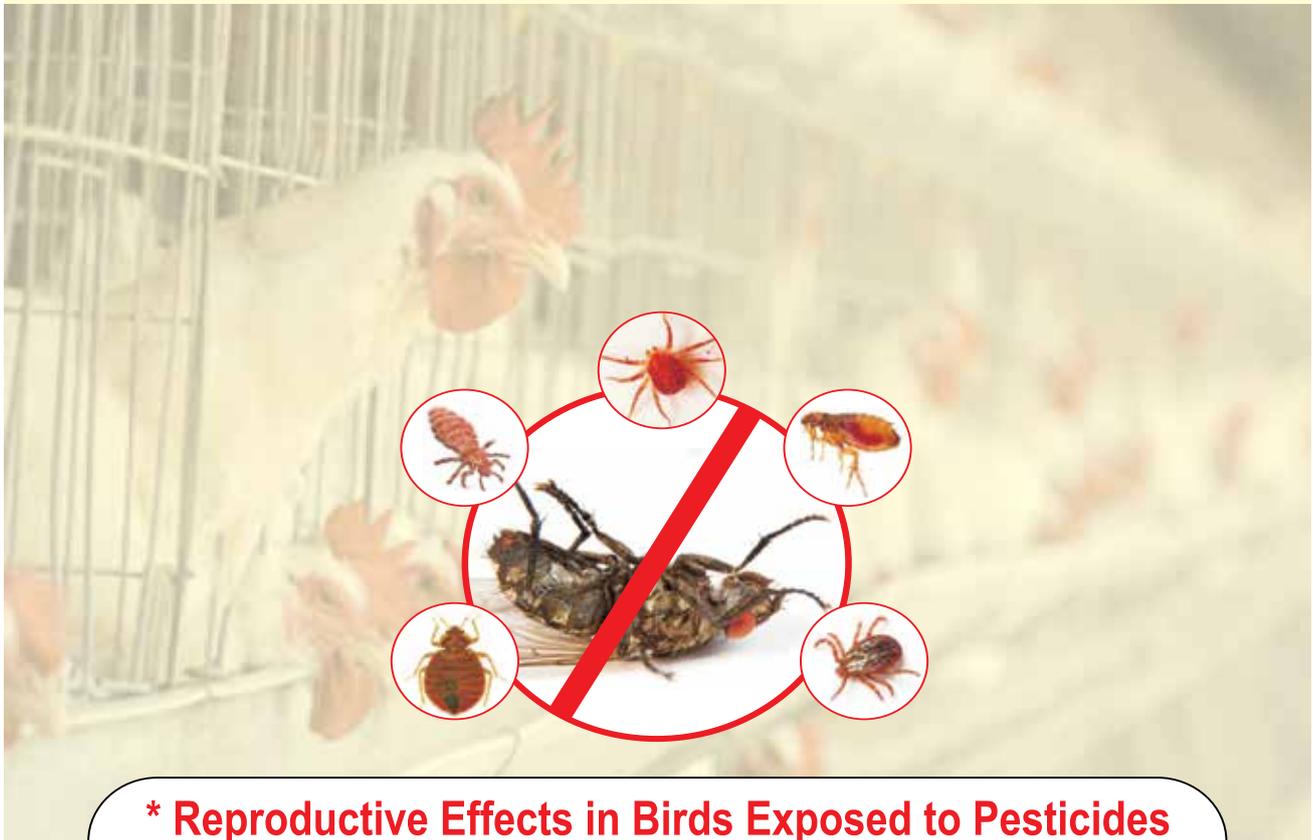
The diseases are not very common in cage system of poultry rearing

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*D. Michael Fry - Department of Avian Sciences, University of California, Davis, California - Environ Health Perspect 103(Suppl 7):165-171 (1995)

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BIO-SECURITY MEASURES IN POULTRY FARMING

Dr. Sandeep Kour, Dr. Sunil Kumar and Dr. Asma Khan

Faculty of Veterinary Sciences, Sher e Kashmir University of Agricultural Sciences and Technology, R.S.Pura, Jammu

1. Burglary is the common problem in poultry farm because there is no fencing or watchmen around the periphery of shed or farm site. It is recommended to have a fence not only to avoid theft problem but to address unwanted visitor problems.

2. Generally, we plant trees around the shed to maintain temperature. No doubt trees help to reduce micro environment temperature but it also become threat to poultry birds. Trees may fall on shed in heavy wind or it may attract wild birds which transmit deadly diseases in the flock.

3. Water sources should be covered because they may attract wild birds and introduce havoc in the flock.

Bio-security is a method of preventing the spread of disease in the poultry farm. It is accomplished by maintaining the facility in such a way that there is minimal traffic of biological organisms (viruses, bacteria, rodents, etc.) across its borders. Biosecurity is the cheapest, most effective means of disease control available. No disease prevention program will work without it

Biosecurity is based on 2 fundamental principles:

- Preventing the introduction of a disease agent onto a farm- referred to as 'bio-exclusion'.
- Preventing the spread of a disease agent on a farm- referred to as 'bioconfinement'

Types of Biosecurity

- Conceptual Biosecurity
- Structural Biosecurity
- Functional Biosecurity

Conceptual Biosecurity

Conceptual biosecurity are the measures considered while planning of poultry business / Poultry shed. Important points are as follows;

1. Poultry shed should be at least 1 Km away from other poultry farm. Optimum distance for breeder farm is 3Km because these birds are way sensitive as compared to layer / broilers.
2. Distance between two shed should be 100 feet minimum to maintain ventilation in the farm.
3. Sufficient distance should be

maintained for Hatcheries, slaughter house / burial pits to avoid cross infection. In my experience construction of hatchery unit and burial pits should be on other side of the farm in the direction of wind.

4. Farm site should be well connected with roads but caution is for highways. Due to dust and air pollution from highway transport, birds suffer from respiratory diseases.
5. Poultry farm should be 1Km away from residential colony / village area. Ammonia Odour, Noise of poultry bird or litter are certain problems which need to be addressed
6. Checking water supply is very important aspect of biosecurity because it spread water born diseases in the flock leads to heavy losses.

Structural Biosecurity

Structural biosecurity measures are important to keep poultry birds safe in the premises.

1. Burglary is the common problem in poultry farm because there is no fencing or watchmen around the periphery of shed or farm site. It is recommended to have a fence not only to avoid theft problem but to address unwanted visitor problems.
2. Generally, we plant trees around the shed to maintain temperature. No doubt trees help to reduce micro environment temperature but it also become threat to poultry birds. Trees may fall on shed in heavy wind or it may attract wild birds which transmit

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In commercial integrations, poultry diseases occur separately or in combination with other infectious agents and management problems. Immunosuppressive infections with agents predispose flocks to the effects of respiratory viruses. Opportunistic bacteria including virulent E. coli, often complicate these infections. The fight against these agents will be an on-going effort and biosecurity measures must be the first line of defence in this battle. By implementing the biosecurity steps at all the stages of farming will help to avoid outbreak of diseases.. A solid biosecurity programme is essential for a company to survive and remain profitable in the poultry business.

3. Water sources should be covered because they may attract wild birds and introduce havoc in the flock.
4. Wire nets avoid wild predator / birds to enter in the poultry shed.
5. Rodent proofing of shed is very important as far as biosecurity is concerned. Land around the shed should be kept free to keep surveillance on rodent activity.
6. Dead birds must be disposed properly.
7. Facility of Vehicle washing and changing room for staff is to be created to avoid entry of outside infection.

Functional biosecurity

Functional biosecurity is also called as operational biosecurity because all measures in this group are related to day in day out activity of poultry farm.

1. Keep separate labor for different sheds (Chick, Grower and Adult birds) to avoid cross infection or limit the frequent entry in the different sheds.
2. Staff should change their cloths and wear suitable personal protective equipments(apron, gloves, mask, hair net etc.) . If possible should take shower at the entry level itself.
3. For the very same reason, vehicles coming from outside should be washed before they enter in the premises.
4. One must avoid visitors in the farm as far as possible.
5. Every farm should have operational manuals/ SOP (Standard Operating Practices), HACCP Manuals to deal with the emergencies.
6. Disinfection of shed after each batch followed by resting period (15 days) is mandate to destroy contamination cycle.
7. Daily / weekly removal of equipments for cleaning and disinfection is recommended unless it is automatic and can be done through water disinfection.
8. Foot bath (Lime Powder) is a mandatory before entering into the shed.
9. Vaccination and other medication should be done with minimum disturbance to the birds.
10. There should be a fixed schedule for vaccination, feeding, egg collection and AI.

11. In some farms, problem of insects, Rodents and even wild birds are at par. One must give attention and take precautionary measure as early as possible. Destroy flies with pesticides spraying or baiting, sprinkle bleaching powder for 5ft around the shed when there are flies. Pesticides (0.05% of sumicidin) for lice infestation.
12. Morbidity and Mortality record is important to implement frequent control measures.
13. Changes in management according to season is must as it may increase morbidity and even mortality.
14. Proper disposal of dead birds are important as they may act as reservoir for deadly infections.
15. Litter management is important as far as operational biosecurity is concerned, Wet litter may create ammonia (>25ppm) which causes respiratory problems in birds.
16. Water quality can be maintained using water sanitiser available in the market. The physiochemical quality standards of drinking water are listed below:

- pH 5.5 to 6.5 °
- Hardness (TH) (Calcium level) 10- 15°TH
1°TH=4 mg calcium/ liter
- Nitrates <50 mg/ liter
- Iron <0.2 mg/ liter
- Sulfates <300 mg/ liter
- Chlorine <250 mg/ liter

Conclusion

In commercial integrations, poultry diseases occur separately or in combination with other infectious agents and management problems. Immunosuppressive infections with agents predispose flocks to the effects of respiratory viruses. Opportunistic bacteria including virulent E. coli, often complicate these infections. The fight against these agents will be an on-going effort and biosecurity measures must be the first line of defence in this battle. By implementing the biosecurity steps at all the stages of farming will help to avoid outbreak of diseases.. A solid biosecurity programme is essential for a company to survive and remain profitable in the poultry business.

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COMMONLY USED MOLECULAR CLONING STRATEGIES IN CONSTRUCTION OF RECOMBINANT VIRAL VACCINES

Ranjani Rajasekaran, J. John Kirubakaran, P. Shilpa and M. Vidhya
Department of Veterinary Microbiology, Madras Veterinary College, Chennai.
Tamil Nadu Veterinary and Animal Sciences University

In order to get a successful recombinant clone using restriction ligation cloning, proper choice of RE sites is important. There are numerous restriction enzymes available that facilitate digestion of RE sites. The restriction enzymes can be classified into type I, II, III and IV based on their cleavage position, sequence and composition. Among these various types reported, the restriction enzymes that are widely used in the present-day molecular cloning work belongs to Type II. While using restriction ligation cloning, it is essential to know the details of sequence, cleavage position, methylation activities, incubation temperature, inactivation temperature and compatibility of two restriction enzymes.

This cloning technique was used to construct full-length cDNA clones of the RNA viruses of different sense for the purpose of reverse genetics.

“For scientists, the real joy, the real excitement, is what recombinant DNA methodology enables you to do experimentally, compared to the way you did things ten years ago” – David Baltimore

Almost seventy years ago, a simple experimental procedure was used to demonstrate the occurrence of genetic recombination in bacteria (Lederberg and Tatum, 1946). Posthumously, this simple experiment turned out to be a breakthrough discovery that underpinned the construction of a recombinant bacterial plasmid (Cohen et al., 1973), unearthing the arena called recombinant DNA technology or molecular cloning. Ever since then, the research prospects in molecular cloning is evolving continuously. Today, molecular cloning has put down roots in every sector that involves vaccine production, therapeutic intervention and transgenic alteration. Of these sectors mentioned above, this paper provides brief information about the following molecular cloning strategies used in the construction of viral vaccine recombinants:

1. Restriction ligation cloning
2. Restriction free cloning or splicing by overlap extension PCR

Restriction ligation cloning is a molecular cloning methodology that involves digestion of restriction enzyme (RE) sites using restriction enzymes and ligation of the digested ends using DNA ligase. It is a nage-old strategy that yielded successful synthetic human insulin

and growth hormone recombinants. As this technique relies on digestion and ligation of RE sites, absence of unique RE sites in gene of interest and plasmid limits its usage. Also, blunt end RE sites cannot be used in this cloning method. Despite the limitations posed, this technique is one of the most reliable methods to clone longer lengths of gene of up to 6kb (Sambrook et al., 2001).

In order to get a successful recombinant clone using restriction ligation cloning, proper choice of RE sites is important. There are numerous restriction enzymes available that facilitate digestion of RE sites. The restriction enzymes can be classified into type I, II, III and IV based on their cleavage position, sequence and composition. Among these various types reported, the restriction enzymes that are widely used in the present-day molecular cloning work belongs to Type II. While using restriction ligation cloning, it is essential to know the details of sequence, cleavage position, methylation activities, incubation temperature, inactivation temperature and compatibility of two restriction enzymes.

This cloning technique was used to construct full-length cDNA clones of the RNA viruses of different sense for the purpose of reverse genetics:

1. Negative sense reverse genetics: The entire genome of Newcastle disease virus (NDV) D58 strain was cloned into modified pBR322 vector as six fragments using the naturally occurring unique restriction sites in the NDV genome (Gururaj, 2013). The various RE

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sites that were used in this study include *AscI*, *SacII*, *Apal*, *MluI*, *AgeI* and *BlnI*.

2. Positive sense reverse genetics: The entire genome of Infectious bronchitis virus (IBV) was cloned into pMD19 plasmid as thirteen fragments. The RE sites used include *BamHI* and *BsaI*. (Shilpa, 2017)

Restriction free cloning

Restriction free (RF) cloning or splicing by overlap extension PCR (SOE-PCR) cloning has gained importance in the recent past. It is being used extensively to create specific modifications like deletion, substitution or insertion of nucleotides in a known DNA sequence (Ho et al., 1989). RF cloning involves cloning of gene of interest into destination plasmid vector in two PCR steps – primary PCR and secondary PCR (Landtet et al., 1990). The primary PCR involves amplification of gene of interest that is flanked on either side with nucleotides (20 – 30 bp) homologous to destination plasmid vector, to yield the megaprimer. In the secondary PCR, the megaprimer consisting of the insert has been reported to anneal to the circular plasmid vector and extend as a linear amplification product. Upon completion of the secondary PCR, the parental circular plasmid vector was denatured using *DpnI* enzyme, as they are methylated. The newly synthesized plasmid vector with insert gene has been reported to be unaltered by *DpnI* enzyme (Geiser et al., 2001). This technique has been reported to be highly efficient in inserting smaller inserts of up to 1kb, whereas for inserts more than 1kb, it has been reported to be inefficient (Bond and Naus, 2012).

This cloning technique was used in the following research studies:

1. Modification of pBR322 plasmid vector to suit the construction of NDV D58 minigenome (Gururaj, 2013; Vidhya, 2016)

2. Insertion of an immunodominant epitope in the non-essential region of NP gene of NDV D58 strain (Vidhya, 2016)

3. Insertion of polylinker sequences in pUC19 plasmid vector to construct fowlpox virus transfer plasmid vector (Ranjani, 2018)

Apart from these two cloning methods, the other commonly used techniques

include gateway recombinational cloning (Walhout et al., 2000), assembly cloning methods like Gibson cloning, in-fusion cloning, HiFi DNA assembly cloning and TA cloning (Marchuk et al., 1991). The assembly cloning involves amplification of overlapping genomic fragments which are then linked together in one PCR reaction. Although this technique seems to ease the strenuous procedural steps involved in other cloning techniques, the optimization required here is meticulous.

For any cloning strategy to be successful, the proper choice of plasmid vector is crucial, because it involves decision of gene insert length, copy number and antibiotic selection (Preston et al., 2003). Plasmid vectors can be classified as: (i) high copy and low copy plasmids, based on the expected number of copies produced; and (ii) cloning and expression vectors based on the function.

High copy plasmids are those that produce high levels of protein and can accommodate longer lengths of gene insert without altering plasmid stability. Low copy plasmids are those that produce low levels of protein, and are mostly preferred when the expression of the insert is predicted to be toxic to the bacterial cells.

Cloning vectors are those that are used only for cloning purposes and to store DNA fragments for long-term usage. Expression vectors are those that are used for protein expression studies.

Plasmids use antibiotic resistance as selectable markers for maintenance. The choice of antibiotic is sometimes restricted due to vector modifications or when some strains are inherently resistant to some antibiotics (Preston et al., 2003). Antibiotic resistance of plasmid vector and competent cell used must be the same. The commonly used antibiotics in selection of recombinants include ampicillin, carbenicillin, tetracycline and chloramphenicol.

In conclusion, the proper choice and use of cloning strategies are integral towards obtaining a successful recombinant clone. Decades earlier, it was stated that molecular cloning 'is a philosopher's stone, a new way of gaining important knowledge.' As per this statement,

molecular cloning has helped us to understand viruses at molecular level.

References

1. Bond, S.R and C.C. Naus. 2012. RF-Cloning.org: An online tool for the design of restriction-free cloning projects. *Nucleic Acids Res.*,40: W209 – W213.
2. Cohen, S.N., A.C. Chang, H.W. Boyer, R.B. Helling. 1973. Construction of biologically functional bacterial plasmids in vitro. *Proc. Natl. Acad. Sci. USA.* 70 (11): 3240 - 3244.
3. Geiser, M., R. Cebe, D. Drewello and R. Schmitz. 2001. Integration of PCR Fragments at Any Specific Site within Cloning Vectors without the Use of Restriction Enzymes and DNA Ligase. *Biotechniques.*,31: 88 – 92.
4. Ho, S. N., H. D. Hunt, R. M. Horton, J. K. Pullen, and L. R. Pease. 1989. Site-Directed Mutagenesis by Overlap Extension Using the Polymerase Chain Reaction. *Gene.*,77: 51–59.
5. Landt, O., H.P. Grunert and U. Hahn. 1990. A General Method for Rapid Site-Directed Mutagenesis Using the Polymerase Chain Reaction. *Gene.*,96 (1): 125–128.
6. Lederberg, J, and Tatum, E L. 1946. Gene recombination in *Escherichia coli*. *Nature*, 158, 558.
7. Marchuk, D., M. Drumm, A. Saulino, F.S. Collins, 1991. Construction of T-vectors, a rapid and general system for direct cloning of unmodified PCR products. *Nucleic Acids Res.*, 19: 1154.
8. Preston, K. E., E. M. Graffunder, A. M. Evans, and R. A. Venezia, 2003. Survey of Plasmid-Associated Genetic Markers in Enterobacteriaceae with Reduced Susceptibilities to Cephalosporins. *Antimicrob. Agents Chemother.*,47 (7): 2179–2185. doi:10.1128/AAC.47.7.2179-2185.2003.
9. Sambrook, J. and D. W. Russell, and T. Maniatis. 2001. *Molecular Cloning: A laboratory manual*. Cold Spring Harbour Laboratory Press, New York.
10. Walhout, A.J., G. F. Temple, M. A. Brasch, J. L. Hartley, M. A. Lorson, S. van den Heuvel, and M. Vidal, 2000. GATEWAY Recombinational Cloning: Application to the Cloning of Large Numbers of Open Reading Frames or ORFeomes. *Methods Enzymol.*,328 (1998): 575–592. doi:10.1016/S0076-6879(00)28419-X.



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DOES POULTRY CORONA VIRUS INFECTION SPREAD TO HUMAN BEINGS?

*Prof.Dr.R.N.Sreenivas Gowda
Veterinary Pathologist , poultry specialist and First Vice-chancellor,
Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar.*



There seem to be some confusion and psychic fear among the people that consuming poultry products will spread corona viral infection to human beings. This is what we are hearing. Hence this note is to clarify some of their doubts in the poultry business.

It is better to clarify the nature of the

coronavirus for better understanding of the infection in various animals and human.

What is Corona virus?

The name of this virus comes from the Crown like spikes it has on its surface — “corona” is Latin for “crown.(Fig1)” Corona viruses are a large group of viruses that infect mostly bats, pigs and small mammals. In rare

cases, they are zoonotic, meaning they can be transmitted from animals to humans. Corona viruses are circulating in animals and some of these corona viruses have the capability of transmitting between animals and humans. We call this as “spillover” phenomenon. The present outbreak of corona virus infection in humans is a classic example.

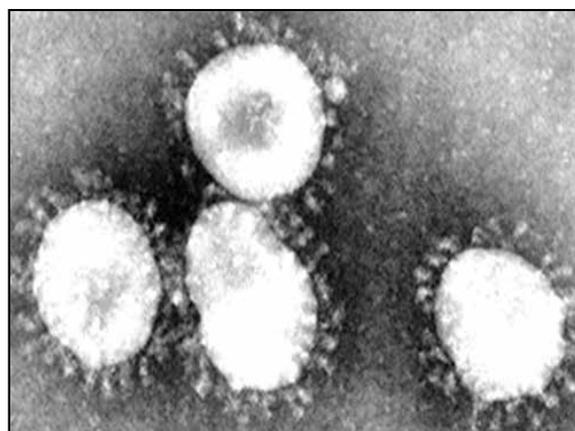
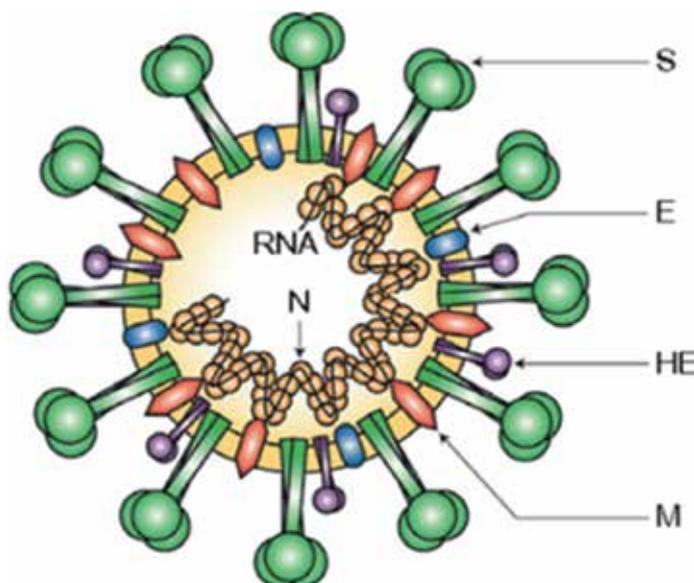
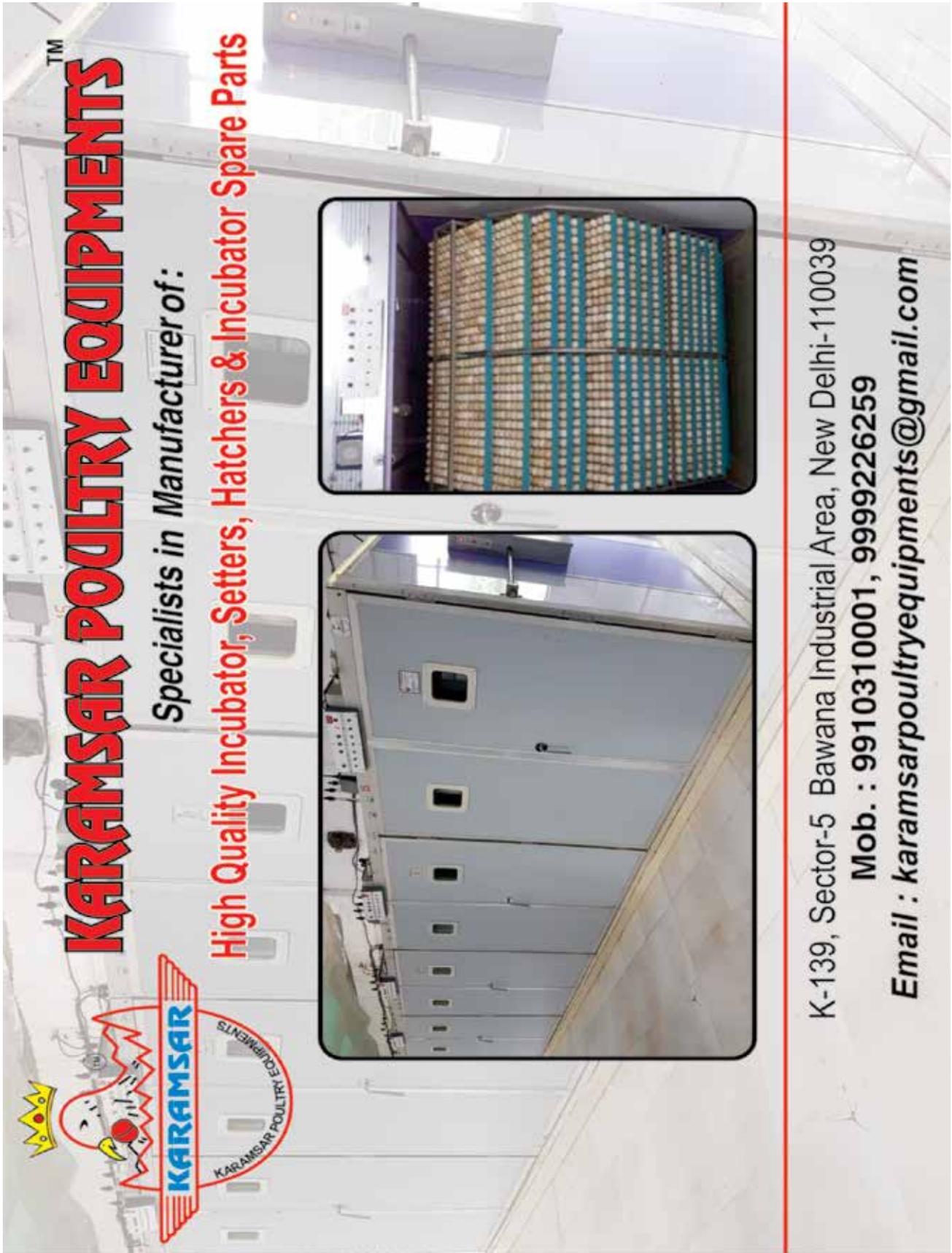


Fig1. Electronic microscopic picture of Corona Virus



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Which other animals prone get this infection?

Corona virus and corona virus-like infections are described in animals such as swine, cattle, horses, Camels, cats, dogs, rats, birds, bats, rabbits, ferrets, mink, and various wildlife species, although many corona virus infections are subclinical or asymptomatic, meaning without causing any disease. Several important diseases are caused by CoVs in animals and birds. Infectious bronchitis virus (IBV) was the first CoV identified (in the 1930s) in Chickens. A pig corona virus caused the deaths of millions of piglets in the United States in 2014. The feline CoV (FeCoV) causative agent of FIP, a deadly disease of domestic cats. A rodent Corona virus, mouse hepatitis virus (MHV), has served for many years as a useful model system for investigating CoV replications and pathogenesis. Canine Respiratory disease CRCoV is a relatively newly identified cause of contagious respiratory disease in dogs.

Corona virus disease was first described in 1931, with the first corona virus (HCoV-229E) isolated from humans in 1965. Until the outbreak of severe acute respiratory syndrome in late 2002, only two human corona viruses (HCoV) were known – HCoV-229E and HCoV-OC43. Once the SARS corona virus(2002) (SARS-CoV) had been identified, two further human corona viruses were also identified. Three groups of corona viruses exist: group 1 (HCoV-229E and HCoV-NL63), group 2 (HCoVOC43 and HCoV-HKU1), group 3 (no human CoVs as yet). SARS-CoV is an outlier to all the three groups, although some place it in group 2.

The evolution of novel corona (nCoV2019) virus causing devastating respiratory disease in humans in Wuhan city of China, is the reason for mortality of more than 1200 people and 45,000 patients remaining critical with infection which has created panic world over. The disease is spreading from person to person through aerosol contamination and hospital contamination throughout the world in more than 25 Countries.

Is nCovid-19 is similar to SARS and MERS?

In humans, corona viruses are included in the spectrum of viruses causing the common cold, and also recently found that human pathogens can cause lethal zoonotic infections like Severe Acute

Respiratory Syndrome(SARS) 2002 and Middle East Respiratory Syndrome (MERS) 2012. Even though these are related the strain of nCoV is different from both SARS and MERS. The nCov is newly evolved from wild animals and reptiles.” The emergence of new virus was predicted by scientists (Vincent et al 2007) way back in 2007it self. The presence of large reservoir of SARS Co-like virus in horse shoe bats, together with culture of eating exotic mammals in south China is a time bomb. WHO declared it as a new strain and named as nCovid-19 meaning “novel corona virus disease

Is nCovid-19 present in India?

On 30 January, the Union Ministry of Health and Family Welfare in an official statement said that a student from Kerala, who was studying at Wuhan University and travelled to India, has tested positive for the corona virus. Presently they are free from infection and out of danger.

Does poultry suffer from Corona Virus?

The answer is yes, but these are different strains of corona virus causing three distinct health problems in chicken. In chicks it causes bronchitis called as Infectious bronchitis (or familiarly called IB infection). IB caused by Avian RNA Corona virus-Infectious Bronchitis Virus (IBV).The IBV infected chick gasps for breath and shows respiratory distress. In egg laying birds (Layer birds) it cause 5 to 10 per cent drop in egg production, production of irregular corrugated shells and thin watery egg albumin. This is because of oviduct infection. In broiler chicken, the variant IBVv causes severe kidney damage–Nephritis and cause 15 to 20 percent mortality among the infected chicks.

Turkey birds also suffer from corona virus infection. Turkey Corona virus were first recognized in turkeys in the United States in 1951 and were associated with various enteric disease syndromes, variously termed as “blue comb disease,” “mud fever,”“transmissible enteritis” and “corona viral enteritis.” This disease is present throughout the world, essentially wherever turkeys are raised. The virus can also infect turkeys of all ages, but the most severe enteric disease is evident within the first few weeks of life.

How the corona virus Evolved:

Development of several new IBV strains is due to genetic recombination. Presence of 793 B variants in broiler breeders is an example. Pathotype IB variants are having tissue tropism that they infect in specific tissues such as respiratory, oviduct, kidney and muscles.(neck muscles of baby chicks).

There are several Corona virus strains originate from different parts of the world IB produces Viral quasi species, which are the mutant distributions (also termed mutant swarms or mutant clouds) that are generated upon replication of RNA viruses, thereby producing more than 50IB Variants.

The Control of Infectious Bronchitis respiratory disease in poultry caused by IB Viral strains through manufacturing particular Vaccine that suits the control a particular strain.(MA5, H120, AusT)

What types of Vaccines are available to control IB?

The Commercial IB Vaccines are available world over and are manufactured in India also. Therefore IB Vaccine is regularly used in poultry operations in our country. Live and Killed Vaccines are available. Live vaccines are applied through drinking water, either by spraying or via eye drops, while killed vaccines are applied intramuscularly.

The frequently asked questions by poultry entrepreneurs and consumers are:

If a person consumes poultry meat of infected birds will it cause respiratory disease in humans? If the person handle the IB sick birds gets infection?Will IB directly infect farmers ? How safe to eat the meat of IB infected birds?

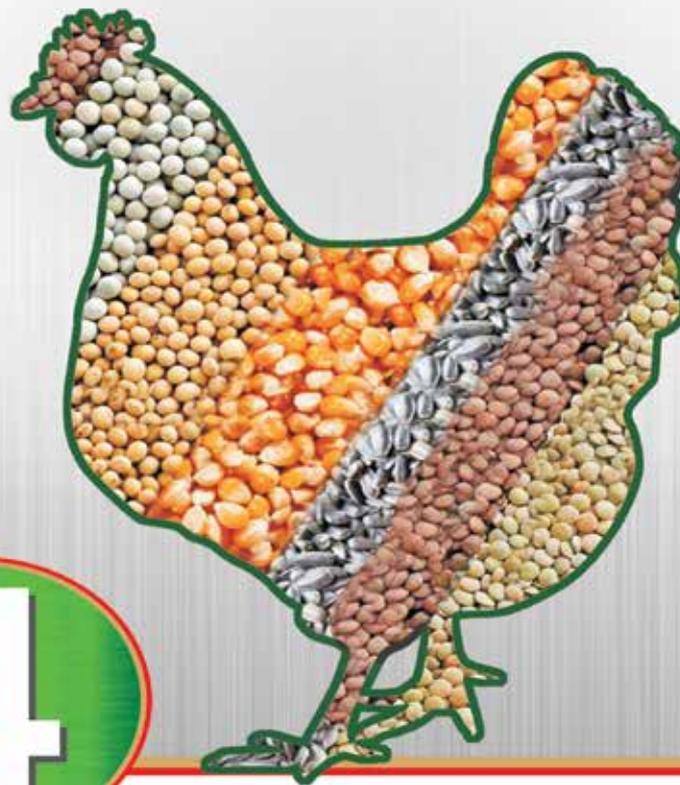
The answer for all the above is no. No risks to human health are suspected or have been demonstrated to arise from poultry corona virus IBV. Neutralising antibodies have been detected in people working with commercial chicken flocks, but the significance of this remains unknown. Possibility of transmission of virus from human to human or human to animal has no evidence. Humans can only transmit IBV to chicks by mechanical means. Further the Indian cooking habits kill almost all the infectious agents and hence poultry meat is safe and nutritious.

(All the above facts have been taken from scientific articles published world over and reports from WHO/CDC documents).

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CAN BACTERIOPHAGES BE THE VIABLE ANSWER TO RESISTANT BACTERIAL DISEASES?

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*Dr. Bhushan
Bhavsar,
Managing
Director,
Vetphage
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In 2019, a team of scientists reported treating a life-threatening infection in a young cystic fibrosis patient in London with the use of genetically engineered bacteriophages -- viruses that attack and destroy bacteria. The patient who was struggling with a multidrug-resistant Mycobacterium infection was cleared of the infection six months after she began receiving a cocktail of bacteriophages. This case is among a very few such episodes of bacteriophages being used as a last resort treatment of drug resistant bacterial diseases. However, it offers a new ray of hope to humanity struggling with the rapid evolution of disease-causing bacteria.

The term 'bacteriophage' literally translates into "bacteria eater". It is a type of virus that attaches itself to a bacterium and infects the host cell, subsequently destroying it. These microorganisms destroy their host cells through a natural process without interacting with human or animal cells. Since these viruses attack only bacteria; phages are harmless to people, animals, and plants. This makes the solution natural and highly safe. Researchers in different fields including medicine and animal husbandry are realizing the potential benefits of using bacteriophages in our collective war against bacterial diseases. While the use of bacteriophages in humans is still a rarity in modern medicine, their usage in animal husbandry, rearing poultry and fish is already showing positive results.



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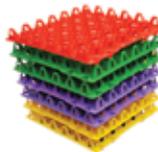
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It is estimated that at least 700,000 people die every year due to drug-resistant diseases, including 230,000 people who die from multidrug-resistant tuberculosis. According to a report by the UN Ad hoc Interagency Coordinating Group on Antimicrobial Resistance, as many as 10 million deaths annually could occur every year due to drug resistant diseases by 2050 if no action was taken to resist this challenge. The same report estimated that by 2030, drug resistance could push to 24 million people into poverty. This is where the role of phage therapy as a possible alternative becomes important. Phages are everywhere, i.e. on human hands, skin, in the animal gut and in the soil.

A weapon against antibiotic resistance

Antibiotic resistance is arguably one of the biggest healthcare threats of this century. The rate of evolution of bacteria has surpassed the rate of creation of new antibiotics resulting in superbugs that are practically untreatable with the help of known antibiotics. This menace has not only made treatment of several diseases difficult but has also invaded our food systems and food chain.

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This is where the role of phage therapy as a possible alternative becomes important. Phages are everywhere, i.e. on human hands, skin, in the animal gut and in the soil. They are the oldest and most numerous organisms on Earth and have been protecting humans and animals from bacteria for 3.5 billion years. Phages not only eliminate selected bacteria harmlessly, they also do so without causing any damage to the gut microbiome of animals (and humans).

Bacteriophages: Ensuring Safety of Poultry Animals

One of the most important sectors where the use of bacteriophages has emerged as very important is the poultry and aquaculture. Bacterial diseases cause multi-billion-dollar economic losses for the livestock industry. It is estimated that Salmonella and Campylobacter infections that are rampant in poultry together account for 9 in 10 reported cases of bacteria-related food poisonings globally. Diseases resulting from Escherichia coli bacteria are another significant health concern recognized as a major cause of morbidity and mortality in chickens. Often, mass culling's are necessitated to curb such infections causing huge losses to the industry. To treat such diseases, poultry farmers are compelled to use significant amounts of antimicrobials. Globally, 70% of all antibiotics used are used in animal farming, and only 30% are used directly in humans. This overuse of antibiotics leads to antimicrobial-resistant bacteria, creating multi-tiered human health, food safety, and environmental risk.

Though Bacteriophages were first discovered more than 100 years ago but using them in an industrial animal farming environment has been difficult for two main reasons: firstly, the ability to identify the right phages, and engineering solutions that would ensure their stability in an industrial animal farming environment. Proteon, the parent company of Vetphage Pharmaceuticals, has been the first to overcome both of these technological challenges and deliver highly effective phage products. By directly eliminating pathogenic bacteria and without any harm to the microbiome, Proteon's products are revolutionizing the approach to bacterial control in food animal farming, helping prevent many of the diseases currently plaguing animal farming industry. As bacteria evolve and develop defense mechanisms, phages also adapt in response to counter the altered host systems. This ensures the bacteria do not become resistant to this approach.

With food-borne pathogens a major concern for food safety, the use of phage therapy to tackle bacterial diseases and promote food safety is expected to emerge as a viable approach on a larger scale, particularly at a time when antibiotic resistance is a significant health concern.

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Essential oils and their benefits in poultry

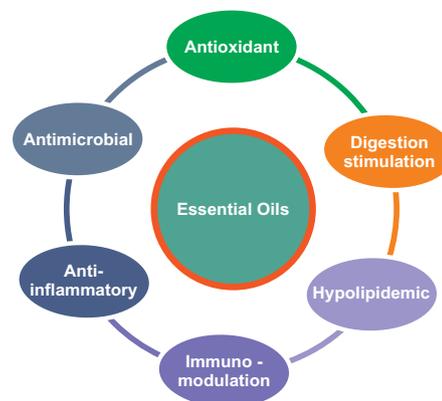


Fig. 1. Actions of essential oils

INTRODUCTION

Resistance of pathogenic bacteria to commonly used anti-microbials has forced the poultry industry to explore alternative solutions like prebiotics, probiotics, organic acids, bacteriophages, anti-microbial peptides, lysozymes, lactoferrins, phytochemicals / essential oils (EOs), etc.



One of the safest and efficient alternatives is essential oils, also called as zoo-technical additives. Essential oils are less toxic and typically more residue-free compared to synthetic antibiotics, thereby ensuring animal welfare and food safety. Recently, use of essential oils along with short chain fatty acids (SCFAs) in broilers, layers and breeders has gained importance.

OVERVIEW OF ESSENTIAL OILS

The term “essential” does not mean that these are essential (Oyen and Dung, 1999) but denotes the essence (flavour) they obtain from different parts of the plants like root, stem, bark, fruit, flower, etc. Currently, there are over 3,000 known essential oils with approximately 300 being commercially relevant (Diaz-Sanchez *et al.*, 2015).

Quality of essential oils depends on environmental condition, climate, harvesting time, part of the plant, soil type and extraction method. Essential oils can be obtained through various methods like fermentation, extraction or expression but most common method is steam distillation (Raut and Karuppaiyl, 2014).

Essential oils are a mixture of fragrant and volatile compounds, sensitive to heat and light and are chemically comprised of two major classes, namely terpenes and phenylpropenes (Cooke *et al.*, 1998).

Essential oil constituents are quickly absorbed after oral administration and are either metabolized or eliminated by the kidneys in the form of glucuronides or exhaled as CO₂. Their accumulation in the body is unlikely due to rapid clearance and short half-lives (Lee *et al.*, 2004). Essential oils are found to have antibacterial, antifungal, antiviral and also exhibit antioxidant, anti-inflammatory, anti-carcinogenic, digestion stimulating & hypolipidemic activities (Viuda-Martos *et al.*, 2010). Besides, other beneficial effects of essential oils include appetite stimulation, improvement of endogenous digestive enzyme secretion and immune response activation.

Recently, essential oils along with SCFAs are used to improve body weight gain, feed conversion, egg production and disease resistance in poultry. As essential oils are highly reactive and possess strong odour & taste, they need to undergo micro-encapsulation process which will help them in sustaining pelleting temperature and increasing their shelf life.

PROPERTIES & ACTIVITIES

Antimicrobial activity

Antibacterial activity is not an outcome of a specific mode of action but it is a cumulative effect of various mechanisms which are dependent on pH, chemical structure, presence of functional groups (Farak *et al.*, 1989), dose of active ingredient and quorum of microbes (Burt, 2004). Essential oils are very effective against *Salmonella*, *E. coli*, *Clostridium* and other pathogenic bacteria, (Cosentino *et al.*, 1999) virus and fungi (Smith-Palmer *et al.*, 1998). Cinnamaldehyde, Carvacrol, Citral, Thymol and Eugenol exerts fair antibacterial effect (Dormans and Deans, 2000). Essential oils can potentially reduce the incidence of *Salmonella* in broiler carcasses and in the broiler house with a positive impact on food safety (Bento *et al.*, 2013).

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Table 1. Actions of Essential Oil Components

Components	Mode of Action
Terpenoids & Phenolics	Bacterial Cell membrane disruption
Phenols & Flavonoids	Metal ion chelation
Alkaloids	Bacterial growth inhibition

(Cowan, 1999)

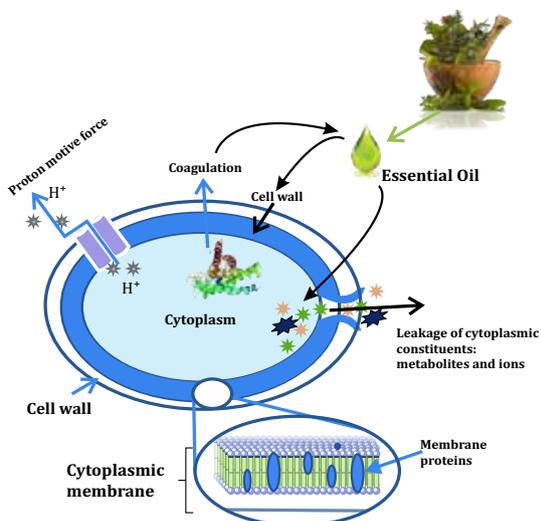


Fig. 2. Antimicrobial activity, by affecting different elements of the pathogen

Cinnamaldehyde exerts antifungal activity by acting on sulfhydryl groups (Kurita *et al.*, 1979) and inhibits fungal cell wall synthesis (Bang *et al.*, 2000) which is necessary for fungal growth. Microbes use quorum-sensing to orchestrate collective population behaviour including bio-film formation and/or virulence factors secretion which is dependent upon the production and release of specific chemicals / signals at a population-wide scale. Phytochemicals derived from medicinal plants of the Myrtaceae family like Clove, Guava, Eucalyptus (Musthafa *et al.*, 2017) and Cinnamaldehyde (Pande *et al.*, 2013) inhibit quorum sensing and overcome the increasing virulence factors of pathogenic bacteria.

Antiparasitic activity

Essential oils are potent botanical products which either interfere directly with parasitic metabolism or indirectly by enhancing the host immune response and antioxidant defence system for the effective control and eradication of parasitic invasion. They also help in reducing intestinal lesions and faecal oocyst shedding in the litter. Phenols have oocysticidal action, control coccidiosis infection (Williams, 1997) and endoparasites in the gut.

It has been suggested that EOs are an effective alternative to coccidiostats, on the basis of improvements in performance & significant reduction in the post infection faecal blood discharge. Carvacrol and Thymol have anti-coccidial action against *E. tenella* and mixed *Eimeria spp.* infection (Oviedo-Rondon, 2003).

Antioxidant property

Essential oils have an inherent ability to donate electrons to the free radicals produced during the process of lipid peroxidation (Fernandez-Pancho *et al.*, 2008). They increase the keeping quality of meat by attenuating oxidative injury and improving redox balance in blood, muscles and tissues. They also influence the in vivo antioxidant defence systems such as Superoxide dismutase and Glutathione peroxidase. Phenolic EOs have potent antioxidant activity than Vitamin E, Vitamin C & Vitamin A and improve the hepatic concentration of Coenzyme Q10 (Rice-Evans *et al.*, 1997). Thymol, Carvacrol and other essential oils can act as antioxidants in egg and meat of chickens when introduced in the diets (Lee *et al.*, 2004). Supplementation of Carvacrol, Capsaicin and Cinnamaldehyde can increase the number of goblet cells and secretion of mucin on the surface of villi, providing better protection against invading infectious agents.

Stimulation of Digestion

Essential Oils improve digestion by stimulating secretion of bile, mucus and various digestive juices like trypsin, amylase and jejunal chyme (Manzanilla *et al.*, 2004). They significantly increase the villus width and surface area, indicative of improved nutrient absorption (Geyra *et al.*, 2001) and performance (Choct, 2009) and reduce the adherence of pathogens. Cinnamaldehyde helps to increase the bile secretion (Harada and Yano, 1975).

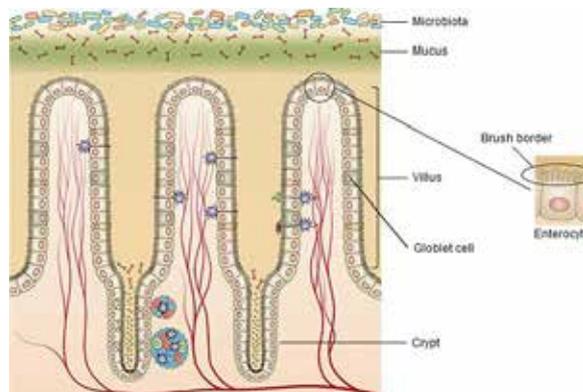


Fig. 3. Stimulation of digestion by improving villi and microvilli growth

Anti-inflammatory activity

Essential oils have been used traditionally for centuries to alleviate symptoms associated with eczema, dermatitis and other pronounced irritations (Kamatou and Viljoen, 2010). The major EO substances having anti-inflammatory abilities are the terpenoids and flavonoids. They suppress metabolism of inflammatory prostaglandins and reduce inflammatory conditions (Craig, 2001). Other essential oils (eucalyptus, rosemary, lavender, millefolia) and other plants (pine, clove and myrrh) have been used in mixed formulations as anti-inflammatory agents (Darsham and Doreswamug, 2004). They contain phenolic compounds that are known to possess strong anti-inflammatory properties. These substances suppress the metabolism of inflammatory prostaglandins.



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Lipid metabolism

The hypolipidemic effect of essential oils is carried out through the inhibition of HMG-CoA reductase activity, a key regulatory enzyme in cholesterol synthesis (Crowell, 1999). Essential oils significantly reduce serum cholesterol level of broilers (Gopi *et al.*, 2012).

Immunomodulatory activity

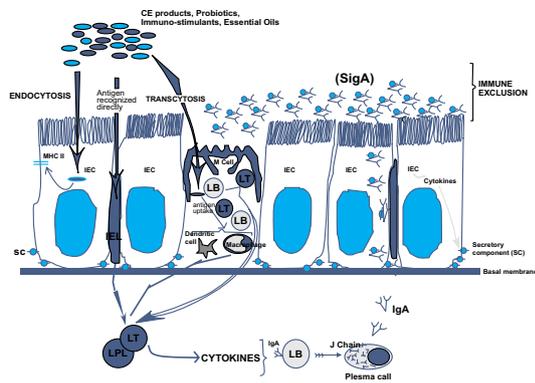


Fig. 4. Immunomodulatory activity of Essential Oils

This activity is a result of optimizing production of interleukins, γ interferons and $TNF\ \alpha$. Essential oils increase phagocytic activity of macrophages and Antigen Processing Cells (APC) (Hanieh *et al.*, 2010). Another mode of improving immunity is through increasing weight and activity of immune organs like bursa of fabricius and spleen (Rahimi *et al.*, 2011).

There will be an increase in IgG, IgA, IgM, CD3 and CD4 serum levels and ND titre values when birds are provided with essential oils (Rezaei-Moghadam *et al.*, 2012). It is well known that many diseases, that have immunomodulated components, can be treated by administration of biological compounds that activate key pathways in the immune system. They strengthen the defence and immune mechanisms of the body and can be used for stimulating the non-specific immune response (Awaad *et al.*, 1999).

Positive effect on gut microbiota

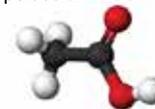
Many essential oils stimulate growth of beneficial microbes and reduce the number of pathogenic bacteria in gut (Wenk, 2000). Similarly, Capsaicin, Carvacrol and Cinnamaldehyde will have a positive impact on gut microbiota and growth performance (Jamroz *et al.*, 2005). Activity of intestinal microbiota leads to synthesis of SCFAs as a result of digestion of indigestible fibre which provides additional source of energy for the host (Li *et al.*, 2012). Essential oils also increase the proportion of SCFAs, butyrate in the caecum which is known to provide energy to colonic mucosa (Roediger, 1980) and thus have potentially important implications for intestinal immunity (Hamer *et al.*, 2008).

Effect on Growth Performance

Dietary essential oils may act not only on intestinal microflora, but also on nutrient utilization (Bento *et al.*, 2013) in broilers, layers and breeders. Essential oils improve growth performance by stimulating the secretion of digestive enzymes leading to improved nutrient digestion, rate of gut passage or feed intake (Jamroz *et al.*, 2005).

SHORT CHAIN FATTY ACIDS

Short chain fatty acids (SCFA) with sodium, potassium and calcium salts are commonly used for controlling susceptible pathogenic bacteria particularly gram negative ones. Butyric, propionic, formic and acetic acids are commonly used SCFAs in poultry for performance elevation. Salts / uncoated SCFAs will get neutralized easily in the foregut and very less antibacterial activity will be retained due to their dissociation but gut acidification will be taken care to some extent.



Coated or esterified SCFAs / organic acids are used which are more resistant against being neutralized in the foregut and provide good action in the hind gut against susceptible bacteria but acid available in undissociated form in the hind gut is highly variable. The use of organic acids has been reported to protect the young chicks by competitive exclusion (Mansoub *et al.*, 2011), enhancement of nutrient utilization, growth, feed conversion efficiency, immunity and performance in broiler and laying hens (Luckstadt and Mellor, 2011). SCFAs are also involved in prevention of diarrhoea (water and Na^+ absorption), pH control within the gastrointestinal tract, and defence against pathogens (colonization resistance). SCFAs are helpful in decreasing intestinal *E. coli* and *Salmonella spp.* (Hassan *et al.*, 2010).

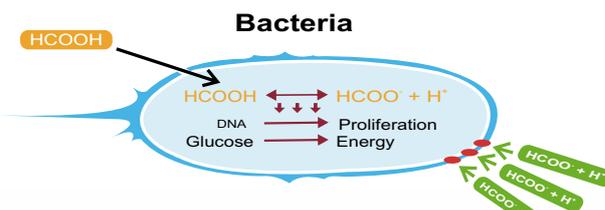


Fig. 5. Mode of action of short chain fatty acids / organic acids

It has been shown that SCFAs inhibit the growth of *Salmonella* (Van Immerseel *et al.*, 2003), *Aspergillus* (M.A. Coaker *et al.*, 2006) and *Penicillium* (Mariko ERA, 2015). SCFAs reduce cytoplasmic pH and stop metabolic activities of susceptible bacteria. SCFAs will cause death of susceptible organisms by acting on cytoplasmic membrane by neutralizing its electrochemical potential and increasing its permeability. Once hydrogen ion is injected through the lipopolysaccharide layer on the cell wall of susceptible bacteria, pH of intracellular contents will be reduced and this process consumes a great amount of energy to maintain intracellular homeostasis and causes bacterial cell death. SCFAs will improve gut health by reducing damage of intestinal cells by pathogenic bacteria and improve birds' performance in terms of body weight gain, FCR, maintain egg production, reduce egg shell contamination, and reduce litter contamination in broiler, layer and breeders.

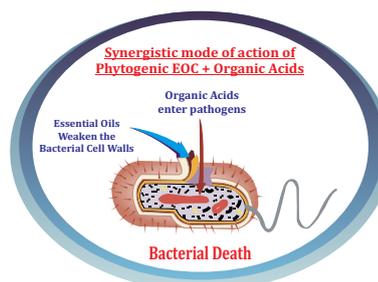


Fig. 6. Synergistic action of Essential oils and short chain fatty acids



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MEDICINAL ACTIVITY OF COMMONLY USED HERBS AS EOs

Name of the Herb	Major Active Ingredient	Medicinal Property	Reference
Oregano <i>Origanum vulgare</i>	Carvacrol & Thymol	Anti-bacterial, anti-fungal, anti-parasitic, anti-viral, anti-inflammatory, immuno-stimulant, hepatoprotectant and anti-oxidant activity	Joseph Nordqvist, 2017
Cinnamon <i>Cinnamomum verum</i>	Cinnamaldehyde	Immuno-modulatory, anti-oxidant, anti-viral, anti-microbial, lipid-lowering, anti-inflammatory, anti-tumor, gastroprotective, neuroprotective and blood purifying properties.	Steiner, 2010; Toghiani <i>et al.</i> , 2011
Clove <i>Syzygium aromaticum</i>	Eugenol	Anti-microbial, anti-fungal, anti-inflammatory, anti-carcinogenic, anti-parasitic and anti-oxidant effects	Mitsch <i>et al.</i> , 2004; Kamel, 2001
Eucalyptus <i>Eucalyptus globulus</i>	Cineole	Anti-microbial, anti-viral, expectorant, decongestant, mucolytic, immuno-modulatory and activity against heat stress	Farhadi <i>et al.</i> , 2016
Capsicum <i>Capsicum frutescens</i>	Capsaicin	Improves stimulation of pancreatic, intestinal enzymes and bile acid secretion	Abdel Salam <i>et al.</i> , 2005; Platel and Srinivasan, 2004,
Ginger <i>Zingiber officinale</i>	Gingerol	Digestion stimulation, anti-oxidant, anti-microbial and immune stimulation	Morakinyo <i>et al.</i> , 2011
Pepper <i>Piper nigrum</i>	Piperine	Anti-microbial, anti-inflammatory, digestive stimulant, anti-oxidant, immune stimulant and hypolipidemic	Khalaf <i>et al.</i> , 2008; Mittal and Gupta, 2000; Reddy <i>et al.</i> , 2004
Garlic <i>Allium sativum</i>	Allicin	Anti-bacterial, anti-fungal, anti-parasitic, anti-viral, anti-oxidant, anti-cholesteremic, anti-carcinogenic and vasodilator characteristics	Hanieh <i>et al.</i> , 2011
Turmeric <i>Curcuma longa</i>	Curcumin	Anti-oxidant, anti-protozoal, anti-microbial, anti-inflammatory, anti-carcinogenic, liver health and immuno-modulatory	Amalraj <i>et al.</i> , 2017
Cumin <i>Cuminum cyminum</i>	Cuminaldehyde & Thymoquinone	Anti-inflammatory, anti-carcinogenic, immune stimulatory, gastroprotective, digestive stimulant, hepatoprotective, nephroprotective, and neuro-protective activities.	Srinivasan, 2018
Peppermint <i>Mentha x Piperita</i>	Menthol	Anti-coccidial, anti-stress, anti-microbial, insect-repellent, analgesic and anti-oxidant	Arab Ameri <i>et al.</i> , 2016

CONCLUSION

Controlling of gut pathogens can be done by using essential oils and its main purpose is to attain good gut health and keeping the stressor agents at bay. Synergistic effect of essential oils with SCFAs will exert broad spectrum antimicrobial effect and help in reducing clinical and sub clinical infections caused by Salmonella, E. coli, Staphylococci and Clostridium in the gut as well as systemically. In broilers, it helps in improving bird performance, health status, immunity and feed conversion. In layers and breeders, it is employed for improving

egg production and egg quality, health status of birds, feed efficiency, immunity and reduction in the percentage of cracked / broken eggs. Application of essential oils with SCFAs in the poultry diet could be used as antimicrobial, antioxidant, immuno-modulating and anti-inflammatory agents to produce low cholesterol meat, juicy and tender meat, fortified eggs and improved productivity with better survival rate.

Essential oils serve as an effective performance enhancer and an excellent alternative to AGPs due to their unique, traditionally used components like herbs

/ spices and thus play a huge role in the poultry industry development. The efficacy of any performance enhancer is partially dependent on other factors like effective rotation / shuttle programme of coccidiostats in feed, hence proper attention should be paid towards coccidiosis control programme. No agent is ideal unless proper management, feeding, brooding conditions, feed form (pelleted / mash), preventive vaccination and strict bio-security are maintained at farm level.

References are available on request.

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WHY WEIGH BROILERS?

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About 8.8 % of the population in India. India has vast livestock resources. The livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP. Poultry farming is the form of animal husbandry which raises domesticated birds such as chickens, ducks, turkeys and geese to produce meat or eggs for food

To meet processors' demands, you need to get your broilers into the factory on the preprogrammed day, close to target weight. Factories are now getting more precise as to what they want growers to achieve. On farm weighing helps you to meet these requirements.

There are two types of weighings

A) Spot weighings

These are occasional weighings and give a snapshot picture of the situation at the time they are taken. They may be used in the last week or two, just to check that your broilers will be bear to the final target weight. Or they can take place at intervals through the crop to check that the weight for age is in line with the breeder' target for that age. In other words, to see if they are growing along the growth curve recommended by the breed company supplying the birds.

The logic of this is that if you can keep them on or close to this prescribed growth curve all the time, they WILL be on target weight at kill!

B) Regular daily weighings

If you can weigh birds every day, you not only see if they are on the target weight for that day, BUT you can also see that the daily Live Weight Gain (LWG) is on target. Any fall off in daily LWG can give an early sign of impending disease or of a management problem.

How to weigh broilers

1) Hand weighing

Young broilers can be weighed in groups of 10, 20, 40 etc depending on their age and size of the container you use to weigh them in. This is normally slung or suspended from a mechanical scale from the ceiling. This method is reasonably quick, and does not stress the birds too much. We only need to know the average weight, so weighing the container full of birds, then subtracting the weight of the container empty and dividing this by the number of birds in the container, will give you the average weight. If you do this a number of times in different parts of the house, you will get a series of average weights. Taking the average of these will give you the best estimate of the house average. Bigger broilers need to be weighed individually. Some people put a loop of cord round their two feet and suspend them upside down from a scale hung from the ceiling. Broilers don't like this and struggle and flap, making it difficult to read the scale properly. It is also very stressful to the birds and it takes them time to get over the trauma before they start growing normally again. There are openended weighing cones on the market, which hang from the scale. You put a bird into this head first, and the sides of the cone stop their wings flapping.

Practical problems

A) The procedure is stressful to birds and slows their growth.

B) It is a time consuming and labour intensive method, not suitable for large-scale production.

Statistical problems

A) Number of birds

All birds in the flock do not weigh the same. Normally about two thirds of the birds are within 10% of the flock average, with about one sixth being more than 10% better than



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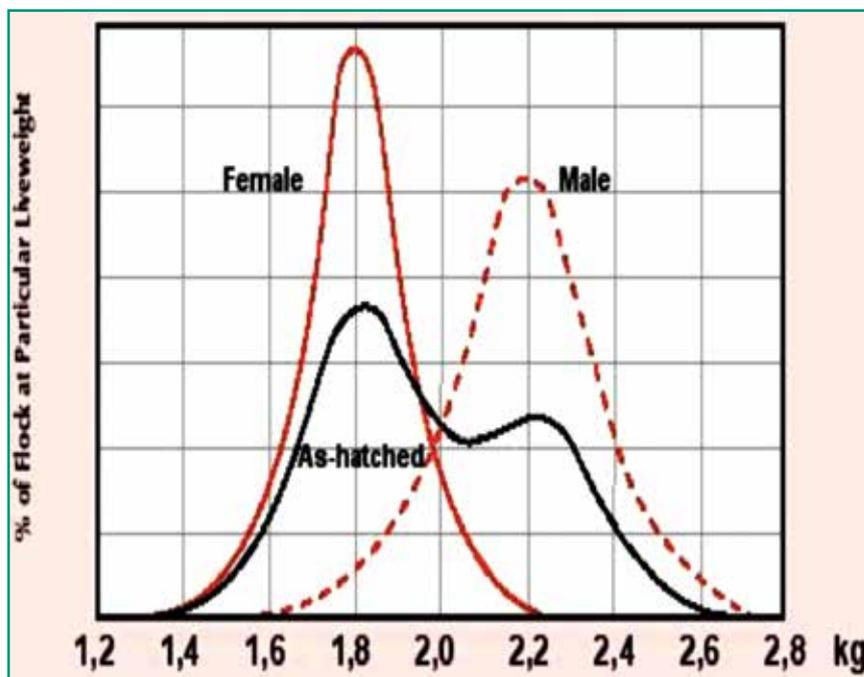
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average and one sixth being more than 10% worse than average. We want to estimate the average weight of all the birds in the house by weighing a sample.



Distribution of live-weights in a flock of as-hatched broilers (source: Ross)

How many to weigh?

If you only weighed just one bird at random, then clearly, 2/3 of the time your estimate would be only within 10% of the true flock average. This is not good enough, so you must weigh more. Table 1 shows you how your estimate of the house average improves the more you weigh. So, for example, if you weigh 100 birds at random, you will get an average within 1% of the true house average within 2/3 of the time.

B) Bias

Catchers tend to catch heavier birds because the smaller ones get away! So the estimate of flock average may be too optimistic.

2) Automatic bird weighing

Advantages

- 1) No stress on the birds. Some scales are attractive to the birds because they like to hop up to a higher level.
- 2) Can get weights every day.
- 3) Large numbers are weighed, so the estimate of the house average is good.
- 4) Better mathematics can be built into the software programme involved to estimate the true average better.
- 5) Data can be observed on the control box in the broiler house or on a computer in your office via a cable linked to a large number of control boxes in different broiler houses.
- 6) These weights can be shown as graphs. For example:
 - Actual daily weights compared to the breed target growth curve.
 - Percentage deviation from each day's target.
 - Daily LWG compared to breed target.
- 7) Data and graphs can be accessed, via a modem from a remote computer, (say in the farmer's house or a company head office).

8) Can be incorporated into management and nutrition control systems for profit optimisation.

DISADVANTAGES

There is a capital cost of installation of the equipment, though maintenance cost can be low.

Types of automatic weighers

A) Platform weighers

These are normally metal boxes, which are placed on the litter and are linked by a cable to a control box in the broiler house. They weigh one bird at the time and are self-taring when no birds are on the scale. In other words the empty weight of the scale is zeroed each time to allow for build-up of muck on the scale.

When a bird gets on the scale, the scale records a higher weight. It allows for oscillation in the recorded weight, and when the weight is stable, it will be recorded if it meets certain criteria.

The weight has to be within a set percentage of the expected weight for that day. If it is not, (for example, if two or more birds go on the same time), the weight is discarded as not valid weight. These scales can give reasonable accurate estimates of the average weight.

Disadvantages of a platform weigher



1) The scale has to be empty of birds before the next bird weight is recorded. So if several birds stay on the scale for some time, no weighings are possible before they ALL get off!

2) The load cell and the electronic equipment in the platform weigher itself are near the litter where a build up of dampness and ammonia may take place. Over time, this can get into the electronics



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and cause failure.

3) A cable has to lead from the scale to the control box. At least part of this is on or under the litter, and can be damaged by birds or otherwise.

B) Hanging scales

These work on a different principle. They comprise a larger, 50 cm round platform suspended via load cell and electronics from the ceiling. The platform is fixed in the centre which enables the birds to get on and off from all directions (see picture). Many birds can be on the platform at the same time, depending on their size.

A weight is recorded when a birds gets OFF the scale! As before, a stable weight has to be recorded before and after the bird gets off, and the weight has to be within a prescribed bandwidth. So if two birds get off together, no weight is recorded. Build up of muck on the scale does not matter, as it is the difference in weight that is recorded.

Advantages

1. Produces more valid recorded weights than floor scales so the estimate average is

better.

2. Broilers like to hop up to a higher level, so the scale is occupied most of the time.

3. The electronic and load cell are in the ceiling, well out of wet and ammonia, and is in situ between crops.

4. Cables are permanently fixed from the load cell and electronics, back to the control box, out of reach of the birds and are much less likely to be damaged.

Disadvantages

1. Total weight on the scale can be high, so a really secure fixing to the ceiling is required. A flimsy screw hook can be pulled out.

2. The capital cost may be higher.

Current use of broiler scales

Hundreds are now in use in Europe and in America. Major companies are examining the various options and some are now buying in volume.

The future

We will need to get broilers to market age at more exact weights, (at least to within

2% of the target), to meet supermarket and consumer demand. To do this we will need to exercise better management control of broiler growing.

Whatever the industry, you cannot exercise management control if you do not have accurate management information!

Knowing what your broilers weigh on a day to day basis is essential if you want to get them to market age on the target weight in the best, most cost effective way.

If you see deviations from the proper growth curve starting to develop, you have the opportunity to do something about it quick enough to get them back on the correct growth curve again.

Without this information, you may not even know there is a problem until it may be too late to do anything about it!

What to do about it may involve looking at the daily feed intakes and the daily nutrient intakes of the birds compared to breed targets. There are proven computer programmes available to help you do just that like the OptiLink software from OPTICON.

For further information, contact Herman Fleuren of OPTICON AGRY SYSTEMS

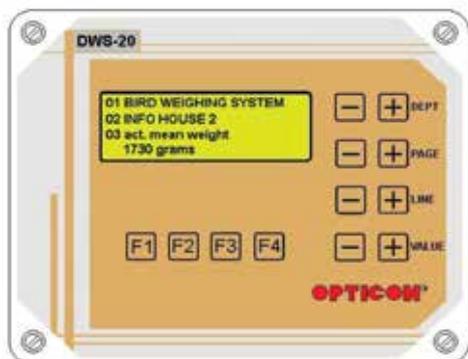
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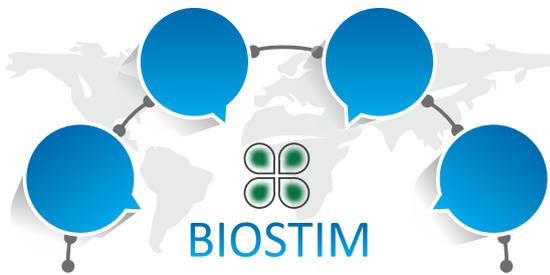
No of weighings Accuracy Percent of time Average weight 400 gram Average weight 800 gram Average weight 1600 gram

- 1 Within 10% 40 g 80 g 160 g
- 4 Within 5% 20 g 40 g 80 g
- 16 Within 2,5% 10 g 20 g 40 g
- 100 Within 1% 4 g 8 g 16 g
- 400 Within 0,5% 2 g 4 g 8 g

No of weighings	Accuracy Percent of time	Average weight 400 gram	Average weight 800 gram	Average weight 1600 gram
1	Within 10%	40 g	80 g	160 g
4	Within 5%	20 g	40 g	80 g
16	Within 2,5%	10 g	20 g	40 g
100	Within 1%	4 g	8 g	16 g
400	Within 0,5%	2 g	4 g	8 g

Table 1 Limits of Accuracy related to Average weight





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CAGE LAYER FATIGUE IN LAYING BIRDS

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The poultry sector is one of the most rapidly growing livestock sectors worldwide. The poultry industry consists of two major elements, the egg industry and the poultry meat industry. In the former, the majority of birds are reared in cages housed in large commercial units. However, there is an increasing interest of free-range and open-barn systems. In the poultry meat industry, the birds are raised entirely on deep litter in large sheds. Over the past several decades improved poultry production systems have contributed to significantly enhanced performance traits like egg production and growth rate and economical production of poultry products. However, the poultry industry is also increasingly being challenged to address consumer and general public concerns about animal welfare.

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Abstract

Cage layer fatigue is the important disease which is more prevalent in India the disease is more frequently occur in laying hens which kept in cage. The conditions develop of Exercise birds Breaking strength of bones of layers in cages is less than that of the birds reared on litter floor. Poor bone strength is the single greatest factor responsible for cage layer fatigue leading to loss of production and death of birds in severe conditions of osteoporosis.

Introduction

The poultry sector is one of the most rapidly growing livestock sectors worldwide. The poultry industry consists of two major elements, the egg industry and the poultry meat

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industry. In the former, the majority of birds are reared in cages housed in large commercial units. However, there is an increasing interest of free-range and open-barn systems. In the poultry meat industry, the birds are raised entirely on deep litter in large sheds. Over the past several decades improved poultry production systems have contributed to significantly enhanced performance traits like egg production and growth rate and economical production of poultry products. However, the poultry industry is also increasingly being challenged to address consumer and general public concerns about animal welfare. The commercial applications in agriculture of new breeding technologies, as well as conventional breeding strategies, have the potential to influence animal welfare in both positive and negative ways. The term cage layer fatigue was first time used in North America is characterized by leg weakness in high producing egg producing hens kept in cages. Caged layer fatigue (CLF) is an extreme condition they loss of calcium from bone particularly

from vertebrae and leads to spinal collapse and paralysis. These conditions characterized by inability to stand on their feet with fragile bones. It is occurred in young layer hens kept in cages in the period of peak egg production.

Etiology

- Insufficient amount of intake of calcium, phosphorus and vitamin D3 supplementation.
- Deficiency of the calcium and phosphorus in feed.

Alter the absorption of calcium and phosphorus from gut.

- Poor feeding system, generating separation of fine particle limestone in the feeders.
- Overcrowding in cage, improper feeder space and fewer feeding periods can generate competition for calcium intake and contribute to CLF in dominated birds.
- Lack of exercise

Signs

Paralysis of hen due to collapse of spinal bone after achieving peak egg production which is maintained in cages. Birds become to unable to stand on her feet's, thin egg shell, death of bird due starvation and dehydration they can't reach to feed and water

Caged layer fatigue is a related condition observed in caged laying hens, usually around peak egg production, that may also be associated with osteoporosis, a condition causing brittle bones as a result of reduced bone density.

Treatment and Management

Cage layer fatigue is easy to prevent through proper management practices. Affected birds will recover if moved to the floor. A high incidence of cage layer fatigue can be prevented by ensuring the normal weight-for-age of pullets at sexual maturity and by giving pullets a high calcium diet (minimum 4.0% Ca) for at least 7 days prior to first oviposition.

Diets must provide adequate quantities of calcium and phosphorus to prevent deficiencies. However, feeding diets

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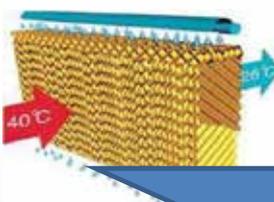
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For normal bone calcification, calcium and phosphorous need to be supplied in adequate amounts as well as in a ratio of 2:1. Excess of either calcium or phosphorous can cause rickets. In addition to proper nutrition, cage layer fatigue is easy to prevent through proper management practices. Controlling stress and keeping it to a minimum is an important way to prevent CLF. Hens should be kept in comfortable, clean conditions. If a layer house is too warm, the hens will begin to pant. When they pant, they do not properly utilize calcium and therefore make the condition worse. Additionally, the hens should be routinely checked for parasites—including worms, lice, and mites. Parasites can cause unnecessary stress and discomfort, which can further aggravate CLF.

that contain >2.5% calcium during the growing period produces a high incidence of nephrosis, visceral gout, calcium urate deposits in the ureters, and sometimes high mortality, especially in the presence of infectious bronchitis virus. Eggshell strength and bone strength can both be improved by feeding ~50% of the dietary calcium supplement in the form of coarse limestone, with the remaining half as fine particle limestone.

Offering the coarse supplement permits the birds to satisfy their requirements when they need it most, or allows the coarse material to be

retained in the gizzard where the calcium can be absorbed continuously. A readily assimilable calcium and/or calcium phosphate supplement is effective if started very soon after paralysis due to calcium deficiency develops. Adding a vitamin/electrolyte supplement to drinking water is recommended in any age bird suffering from this condition.

Vannamin feeding is proved to be booster for improving egg shell structure, improving bone health, minimizing effects of cage layer fatigue. Vannamin - feeding has succeeded improving egg production,



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Prevention and treatment of cage layer fatigue

● For normal bone calcification, calcium and phosphorous need to be supplied in adequate amounts as well as in a ratio of 2:1. Excess of either calcium or phosphorous can cause rickets. In addition to proper nutrition, cage layer fatigue is easy to prevent through proper management practices. Controlling stress and keeping it to a minimum is an important way to prevent CLF. Hens should be kept in comfortable, clean conditions. If a layer house is too warm, the hens will begin to pant. When they pant, they do not properly utilize calcium and therefore make the condition worse.

Additionally, the hens should be routinely checked for parasites—including worms, lice, and mites. Parasites can cause unnecessary stress and discomfort, which can further aggravate CLF.

● Preparing pullets for the demands of high egg production is another important consideration in preventing CLF. Pullets should reach their ultimate frame size before they are brought into production. Failure to feed a higher calcium diet during the pre-lay period is a major predisposing factor to CLF in highly productive layers. Flock supervision is crucial because sexual maturation must be observed in order to know when to increase calcium rations.

If pullets aren't given higher calcium rations soon enough, they may be at a higher risk for layer fatigue.

- Vitamin D3 plays a critical role in regulating the absorption and metabolism of calcium.
- Therefore, in addition to ensuring that poultry diets have an appropriate level and balance of calcium and phosphorous, they must be adequate in vitamin D3.
- Bone mineralization is a constant

mycotoxins can be treated by replacing the toxin-contaminated feed and by supplementing vitamin D3 to three or fourfold of the usual levels.

● There is a higher incidence of bone calcification problems in high producing layer hens housed in cages rather than floor-based housing systems, hence the term cage layer fatigue. This indicates the role of exercise in preventing or treating this condition.

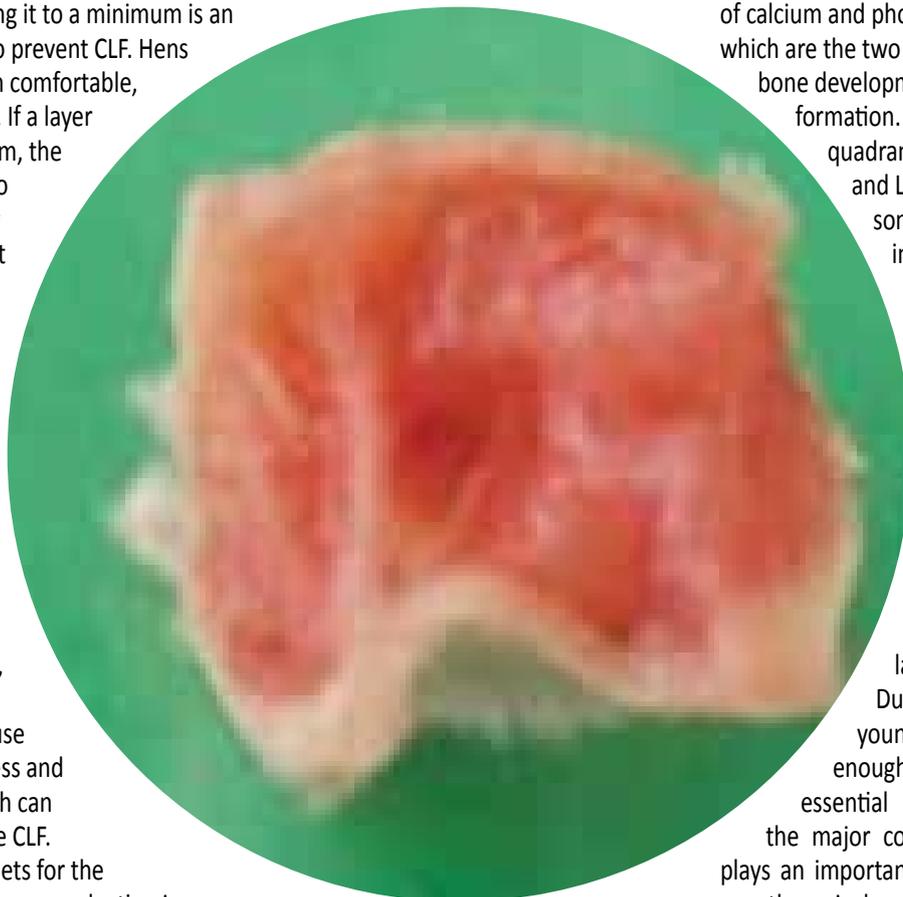
● Ayurved's herbal products are useful for poultry and for the improvement of calcium and phosphorus utilisation, which are the two key minerals in bone development and egg shell formation. Herbs such as *Cissus quadrangularis*, *Uraria picta* and *Lepidium sativum* are some of the herbs that increase the absorption and assimilation of both calcium and phosphorus in the body.

Conclusion

Calcium is the critical factor for better health and production at an early as well as at later stages of life. Due to selective feeding young birds cannot get enough calcium and other essential nutrients, which is the major contributing factor that plays an important role in CLF. In older age there is less or no production of calbindin (calcium binding protein) that is a deciding factor for the absorption of calcium from the gut. Supplementation with Ayurved's Ayucal-D ensures utilization and absorption of calcium in both early as well as old age of the bird and is thus helpful in the prevention and treatment of CLF, along with various other parameters such as egg production and egg shell quality.

process and therefore correction of dietary deficiencies or imbalances can ease the condition if identified early enough.

● Mould or fungal toxins, called mycotoxins, can have a range of effects on poultry including interference with the absorption of nutrients. Rickets caused through the presence of dietary



CHRONIC RESPIRATORY DISEASE IN POULTRY

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 1Ph.D. Scholar, ICAR-National Dairy Research Institute
 2ICAR- Indian Veterinary Research Institute

Introduction

This disease is also known as Mycoplasma gallisepticum infection. It is a chronic slow-spreading contagious disease in poultry characterized by cough, sneezing and tracheal rales. The endemic form is most common in India and this disease reported almost in all country.

Etiology

The disease caused by Mycoplasma gallisepticum. The ideal temperature for growth is 37-39 OC. It can propagate through embryonated eggs. Chicken and Turkey are the most susceptible host but this disease can occur in Pheasants, Quail, Ducks and Geese.

Transmission

The transmission of the disease occurs mainly in three ways-

Contact

Bird to bird contact so also known as horizontal transmissions.

Eggs

Vertical transmission through infected eggs of chicken and turkey. The oviduct of fowl is heavily infected as the organism can be isolated from the site.

Aerosol

Nasal discharge act as media for transmission. Infection may spread through

droplet's infection or inhalation.

Pathogenesis

Susceptible birds may harbour the organism without showing much clinical sign except mortality in very young chicks. Overcrowding, malnutrition, bad hygiene and bad sanitation may responsible for infection setup. Entire respiratory tract gets involved including all the air sacs. The infection spread to the liver, pleura, pericardium and rest of the abdominal cavity.

Clinical Signs

The clinical signs include tracheal rales, sneezing, coughing nasal discharge and respiratory distress. Young birds show sign of conjunctivitis with lachrymation. Reduction in egg production but eggs is not abnormal. Hatchability may be reduced. Ataxia and lameness accompanied by enlargement of the hock joint. There are two forms of this disease in the turkey. With the "upper form" the birds have watery eyes and nostrils, the infraorbital become swollen, and the exudate becomes caseous and firm. With the "lower form", infected turkeys develop airsacculitis.

Lesions

Mainly observed in liver, lungs and respiratory organs.

Liver- Serofibrinous exudate discharge.

Trachea-Thickening of the mucosa,

congested and caseous exudate, granular appearance with nodular growth due to lympho nodular hyperplasia.

Lungs- Pneumonic changes and granulomatous.

Reproductive tract- Salpingo-peritonitis. Hyperplasia of the lymphoid follicle of isthmus, magnum, oviduct and vagina.

Diagnosis

Clinical sign as reduced feed intake, coughing, sneezing and reduced egg production. Isolation of organism in specific PPLO media. In case of live birds, the sample can be collected from cloacal swab, trachea and pharynx whereas in case of dead birds' sample can be collected from the nose, air sac or lungs.

Treatment

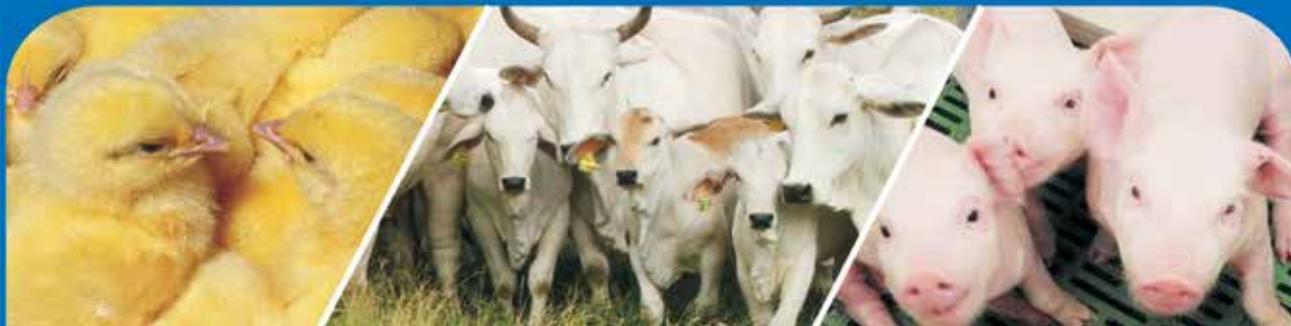
- Tylosin tartrate@1g/litre in water for 24-72 hrs.
- Tiamulin@0.025% in water for 3 consecutive days.
- Lincomycin feed mix@ 1g/kg of feed.

Control

- Use of live culture vaccine.
- Segregation of infected birds.
- Hatching of eggs can be made free from infections.
- Dipping of eggs in tylosin or erythromycin solution before incubation.

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Technical Update

Srinivasa



EFFECTS OF GROWING PERIOD LIGHTING PROGRAMS ON LAYING PERFORMANCE

Lighting programs are one of the key management tools in determining layer hen growth and laying performance. Light duration influences body weight profiles from hatch throughout the grow and until the hen reaches mature body weight in the lay period. Lighting programs also have a strong impact on the onset of sexual maturity, egg weight, and production performance.

In this study, we evaluated the impact of two common light applications on W-80 commercial bird growth and lay performances. The first treatment was the Hy-Line standard step-down (SD) lighting program starting with 20 hours of light during the first week; afterward, the light was decreased each week to reach 12 hours light at 7 weeks. The pullets were held at 12 hours light until 17 weeks of age. The second treatment (24/12) started with 24 hours of continuous light until 7 weeks of age. At 7 weeks the light was reduced to 12 hours and held until 17 weeks. The second application mimics common practice among Indian commercial layer farms. Parameters such as rearing period weekly body weight, age at sexual maturity, and production performance (hen-day %, hen-housed eggs, egg weight) were recorded and compared.

Results from the study indicate that the 24/12 lighting program reduces body weight, delays sexual maturity, limits production performances, and in general, limits genetic potential compared to the standard SD program.

TRIAL DESIGN

Hy-Line W-80 commercial strain was subjected to two different lighting practices: SD and 24/12.

- 600 chicks for each group were subject to experiment. Management practices followed the W-80 Commercial Guide for both groups.
- Birds were individually wing-banded at hatch for detailed data collection.
- Pullets were reared in floor-pens.
- No beak trimming was applied.
- During the growing period, bi-weekly body weight and mortality data was recorded.
- During the production period, body weights, mortality, production, and egg weight information was recorded.

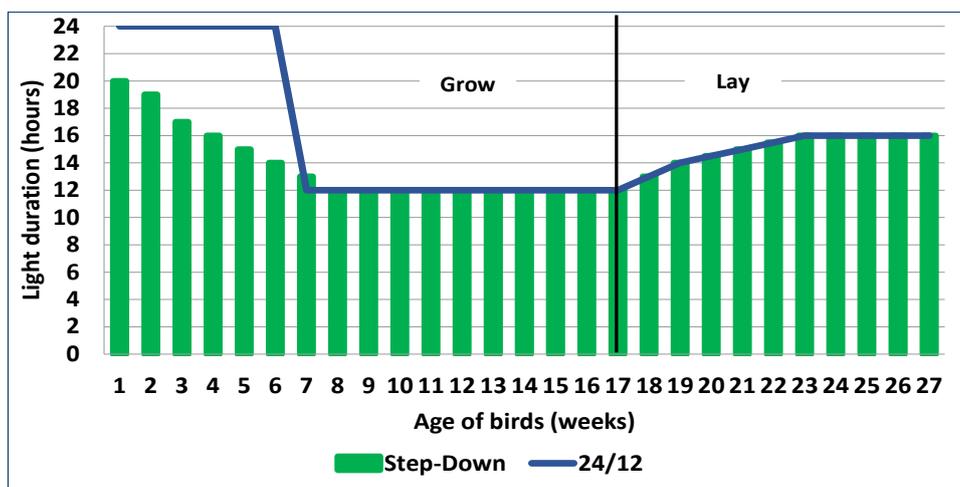


Figure 1. Lighting practices used in the study.

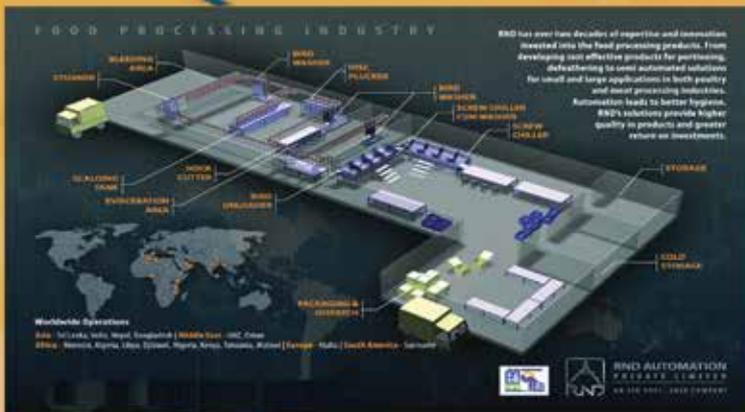


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RESULTS

Growing Period Body Weights

- **24/12 lighting program:** Birds from this group showed a good start for body weights up to 4 weeks of age and after showed reduced weekly body weight gain.
- **Step-down lighting program:** The body weight gain in this group was steady and on target compared to W-80 standard throughout the rearing period. Body weights were 49 grams above the 24/12 lighting program birds at 18 weeks.

All results were tested at P<0.05 significance level.

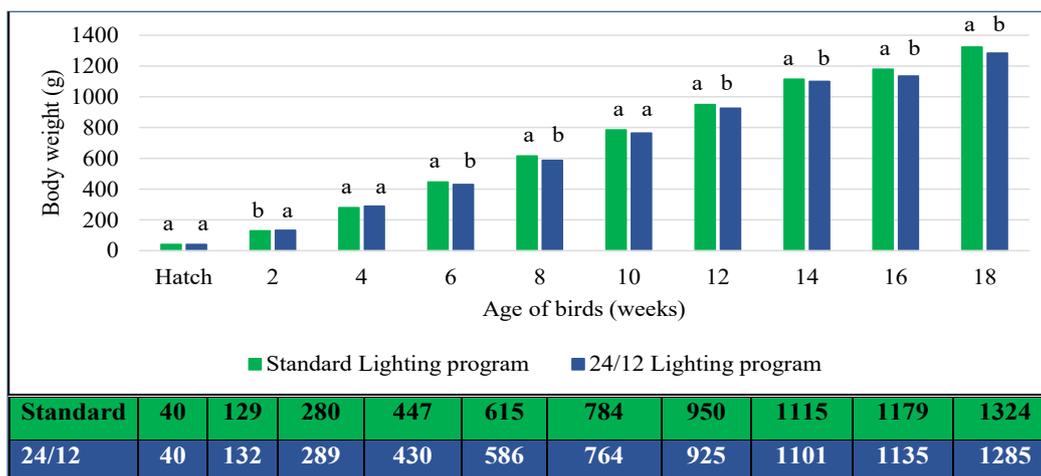


Figure 2. Comparison of body weight gain.

Sexual Maturity

Lighting programs had a significant impact on bird maturity. Birds under the step-down lighting program attained maturity 6 days earlier than 24/12 lighting program.

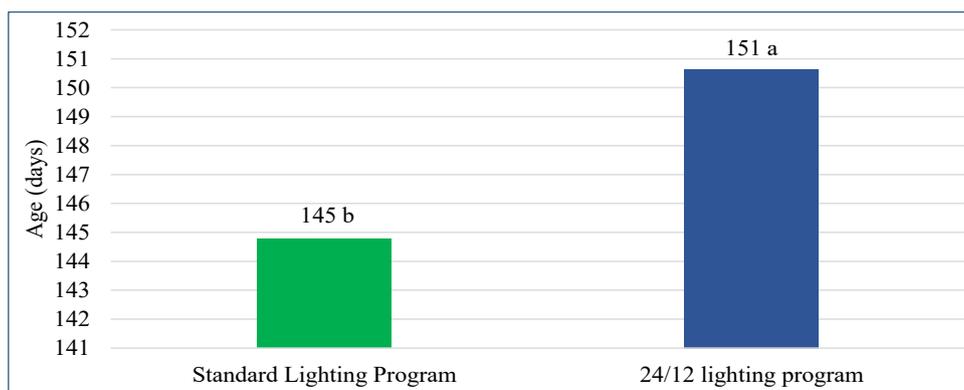


Figure 3. Comparison of sexual maturity.

PRODUCTION PERIOD RESULTS

Hen-Housed Eggs	18-30 weeks	40 weeks	60 weeks
24/12 lighting program	84 ^b	138 ^b	269 ^b
Step-down lighting program	95 ^a	149 ^a	281 ^a

Onset of lay was six days earlier for birds under the step-down lighting program. By 30 weeks of age, the step-down group had 11 more eggs compared to 24/12 program. At the end of 60 weeks, birds under the step-down lighting program laid 12 eggs more than birds under 24/12 lighting program group.

Egg Weight

Birds with the 24/12 lighting program had 1.3 to 0.5 g heavier egg weight profile starting from the first egg. In both groups, egg weights were higher than the W-80 breed standard.

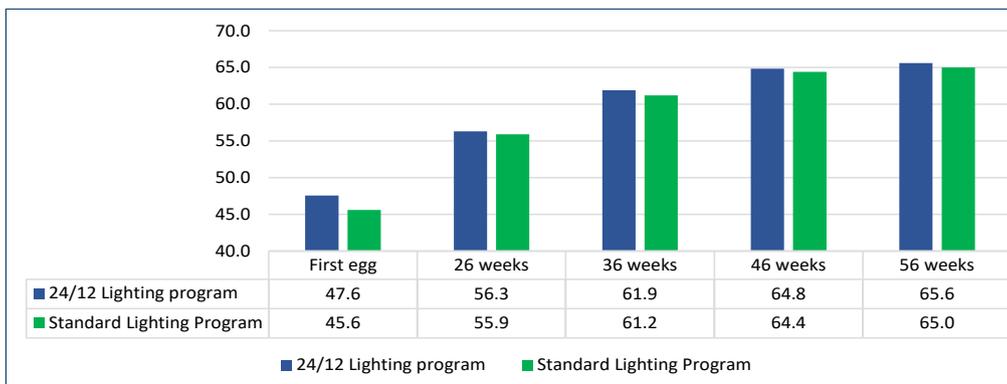


Figure 4. Comparison of egg weight.

SUMMARY

- This study shows that lighting programs in the growing period have a significant impact on body weight profiles during the rearing period, age of sexual maturity, number of eggs produced per bird, and egg weight throughout the hen’s life.
- From the above study, step-down lighting program had good body weight development during rearing period. In the production period, the hens came into production 6 days earlier and by 60 weeks had 12 more saleable eggs than the birds of 24/12 hours lighting group. The heavier eggs with the 24/12 program are likely due to delayed maturity.
- The egg weight profile of the standard lighting program matches the Indian market.

CONCLUSION

Good production performances can be achieved by using the Hy-Line standard step-down lighting program during the rearing period. This program provides good resting time to the baby chicks to establish their circadian rhythm. Therefore, the supported hormone system gives a boost to muscle, bone, and intestinal development. Additionally, there is an energy-saving component by not using 24 hours of artificial light for 7 to 8 weeks. In this study, we kept birds at 12 hours of light to mimic day length; however, in an open-sided environment, we recommend no artificial light after 7 weeks, only daylight.

Recommended lighting program for Hy-Line W-80 birds in open-sided houses in India:

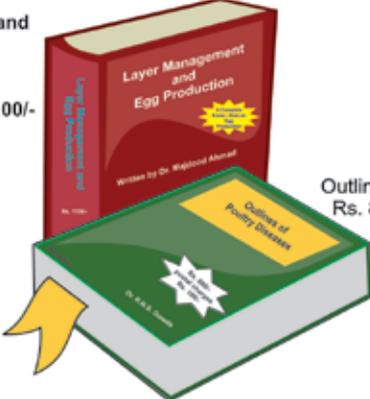
Growing Period		Stimulation and Laying Period	
Age in weeks	Light hours	Age in weeks	Light hours
1	20	17	BW=1100g with 85% Uniformity
2	19	18	+1 hr
3	17	19	+ 1hr
4	16	20	+1/2 hr
5	15	21	+1/2 hr
6	14	22	+1/2 hr
7	13	23	15-16
8 to stimulation	daylight	24	15-16

Day lengths vary seasonally (more than 12 hours in summer and less than 12 hours in winter). This seasonal variation may affect the onset of production. When the day length is more than 12 hours during the rearing period, it is recommended to keep the longest day length for the entire rearing period. Light stimulate the flocks once they have 1100 grams minimum body weight with 85% uniformity and only after moving the birds to production houses. In the case of uniformities less than 85%, light stimulate the flock after attaining 1200-1250g body weight.

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QUAIL FARMING

AN EMERGING RURAL EMPLOYMENT

Quail were first introduced in India in 1974 from California. The Japanese quail is the largest species, it is much smaller than pigeon. Quail requires smaller house compare to chicken. Mostly, commercial chicks are kept in multitier cages, thereby increasing labor efficiency and better utilization of land space. Another species of quail, Japanese quail (coturnix japonica) have created a big impact in recent years and many quails farms have been established throughout the country both for egg and meat production. It is due to this fact that increasing consumer awareness for quality meat, it demanded the production of better quality broiler quail meat. It is of great importance to select the stocks, which have the inherent capacity to yield better quality meat and egg.

**Mir Mudasir, Sumeet kaur, Rizwana Zargar, Manzoor Ahmad Bhat, Azhar Shuaib Badoo, Moin Javaid, and Sachin Dogra F.V.Sc & A.H, RS Pura, SKUAST-Jammu-181102.*

Quail is a collective name for several genera of mid-sized birds generally placed in the order Galliformes. Old World quail are placed in the family Phasianidae, and New World quail are placed in the family Odontophoridae. The species of button quail are named for their superficial resemblance to quail, and form the family Turnicidae in the order Charadriiformes. The quail also known as Bateer in hindi terminology. It is a small medium size game bird related with pheasant family. In India two species occur namely Black breasted quail found in jungle (*Coturnix Coromandelica*) and other one Brown color Japanese quail (*Coturnix Coturnix Japonica*), which is bred for meat or the one used for commercial quail production. Quails are generally solitary birds and spend most of their time either on their own or in a pair with just one other quail. During the mating season it is common to see large flocks of quails as family groups convoy together in groups of upto 100 quail individuals. Quails do not tend to migrate and therefore spend their lives within the same area. In some parts of the world, quails are kept as poultry birds for the small amount of meat and for the brightly coloured eggs. These tiny coloured eggs are seen as a delicacy in some parts of the world and can often be found on menus in posh restaurants. The quail has many natural predators, mainly due to its small size. Snakes, raccoons, foxes, squirrels, coyotes, bobcats, skunks, dogs, cats, hawks, owls, rats and weasels are all known to hunt either the quail itself or its vulnerable eggs. Humans are too predators of the quail but tend to eat those that have been reared in a commercial manner

Quails reach maturity at the age of 2 months. Quails tend to breed in more open areas such as farmland and lay their eggs in nests. Quail clutch sizes can vary between one and 12 eggs depending on the species of quail and the baby quail chicks hatch out of their eggs in less than a month. Quails start laying eggs at about 6 weeks to continue to give high egg production up to 24 weeks of age. The egg size is about 10 g. From the quails egg can make different recipes like Boiled egg and egg pickles.

Adult Japanese quail weigh up to 250 gm and lays 250 eggs a year. The meat is used as ready to cook meat, pickled meat & tandoori quail. A broiler (meat purpose) quail can be sold at 5 weeks. It requires smaller house for rearing. About 10 quails require space is equal to require space for one chicken.

Quail were first introduced in India in 1974 from California. The Japanese quail is the largest species, it is much smaller than pigeon. Quail requires smaller house compare to chicken. Mostly, commercial chicks are kept in multitier cages, thereby increasing labor efficiency and better utilization of land space. Another species of quail, Japanese quail (*coturnix japonica*) have created a big impact in recent years and many quails farms have been established throughout the country both for egg and meat production. It is due to this fact that increasing consumer awareness for quality meat, it demanded

If the parents quail suffering from vitamin and mineral deficiency, resulting the chicks obtained from their fertile eggs are often lean with weak legs. To control this problem in female breeders should be supplemented feed with optimum minerals and vitamins. Quails are immune to infectious diseases than chicken. Hence there is no vaccination required for disease protection. Proper management of quail chicks, disinfecting farm premises, providing clean drinking water to quails and feeding of quality concentrate feed will prevent disease outbreaks in quail farms

the production of better quality broiler quail meat. It is of great importance to select the stocks, which have the inherent capacity to yield better quality meat and egg.

Benefits of quail farming

Quail is fast growing bird with a short generation gap, require minimum space for rearing and small capital. Birds can sale at the early age of five weeks. It becomes mature at the age of six to seven weeks then start laying eggs. High rate of clutch up to 280. Quail meat is tasty other than chicken and has low fat content. It promotes body and brain development in young ones. As per the nutritional criteria, the quail eggs are far better compare to that of chicken eggs. It has low cholesterol percentage. Quail meat and eggs are good for the pregnant women and infant feeding womens.

Employment

Quail farming is a cheap enterprise compare to chicken farming. It is useful as choice of food. Quail is the important bird for scientific research. This species can be reared at interior places. It does not require the vaccination and medication. Quail litter has high fertilizer value and can be used for increasing yield of crops. Quail weighs up to 100 gm and lays 100 eggs a year, the Japanese quail weighs up to 250 gm and lays 250 eggs a year.

Quail meat

From a healthy quail, we get dressed meat upto 70-73% of their body weight. A Quail has 140 gram body weight gives the 100 grams of dressed meat.

Components of egg

<i>Water</i>	<i>Protein</i>	<i>Lipid</i>	<i>Carbohydrates</i>	<i>Total Ash</i>	<i>Calorific value</i>
74%	13%	11%	1%	1%	649 k J/100g liquid

The comparison between quail and chicken meat (uncooked meat):

<i>Meat</i>	<i>Moisture</i>	<i>Protein</i>	<i>Fat</i>	<i>Carbohydrate</i>	<i>Minerals</i>
Quail	73.93%	20.54%	3.85%	0.56%	1.12%
Chicken	73.87%	20.66%	3.61%	0.78%	1.08%

Health problems in quail farming:

If the parents quail suffering from vitamin and mineral deficiency, resulting the chicks obtained from their fertile eggs are often lean with weak legs. To control this problem in female breeders should be supplemented feed with optimum minerals and vitamins. Quails are immune to infectious diseases than chicken. Hence there is no vaccination required for disease protection. Proper management of quail chicks, disinfecting farm premises, providing clean drinking water to quails and feeding of quality concentrate feed will prevent disease outbreaks in quail farms

Hurdles in quail farming:

Male quails usually make a different sound which is usually disturbing to the human. When rearing the male and female quails together the male quails peck the other quails and make them blind.

Requirements for harvesting high returns from quail farming

- 1) Protection from predators
- 2) Scientific feeding of quails
- 3) Provision of clean drinking water
- 4) Optimum space to the birds and avoid overcrowding
- 5) Proper hygiene and disinfection of the surroundings
- 6) Proper veterinary care.



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Non starch polysacc -harides (NSPs) are polymeric carbohydrates which differ in composition and structure from starch (Morgan et.al,1995) and possess chemical cross linking among them therefore, are not well digested by the poultry birds. They include cellulose, pectins, gums, glucans, inulin, chitin exclude lignin (Trowell, 1985)

Dietary fibre should be defined for the purpose of food labeling as NSPs since this give best index of plant cell wall polysaccharides, is precisely measurable and is in keeping with the original concept of dietary fibres (Englyst et al,1987)

For any commercial livestock enterprise feeding strategies play a crucial role in determining the returns. Feed contribute about 70% of total expenses required for rearing of a poultry bird in general. The concept of Phase feeding is much popularized which focuses on feeding of different quantity of nutrients with different stages of life/specie/breed/commercial type (broiler/layer/pets).

The major constraint associated to poultry feeding is consistent increases in prices of various feedstuffs thus as a consequence cheaper and non conventional feed ingredients have to be used which contain higher % of NSPs (soluble and non soluble crude fibre) along with starch complex with them.

Feeding of these NSPs on a minimal amount may produce beneficial results but there excess feeding is problematic often.

Non starch polysaccharides (NSPs) are polymeric carbohydrates which differ in composition and structure from starch (Morgan et.al,1995) and possess chemical

Insoluble Non starch polysaccharides: Constitute major portion of diet. They affect gut functions and modulate nutrient digestion. Present in non viscous cereals in more quantity like corn, sorghum, rice, millet they increase digestibility of starch and digesta passage rate and thus better gut motility. The effect of insoluble fibre on gut functions stems from its ability to accumulate in the gizzard, which seems to regulate digesta passage rate and nutrient digestion in the intestine (Minganchoct, University of New England).

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Classification of NSPs is done into three groups (Chemically)

1. Cellulose- Sole component of Plant cell wall consisting of beta 1,4 glycosidic bonds
2. Non cellulosic polysaccharides – Encompasses numerous polysaccharides which were traditionally under the term hemicelluloses because these polysaccharides could't be extracted together (Neurkon et al,1967; Neurkon 1976) include Arabinoxylans (Pentosans), mixed linked with beta Glucans, Mannanas, Galactans, Xyloglucans and Fructosans
3. Pectic polymers/Polysaccharides- consist mainly of Polygalacturonic acid substituted with Arabinan Galactan and Arabinogalactan.

(Sasaki et al) Classified them into Water Soluble and Water Insoluble fractions which delineate their functions and chemical structures and is perhaps the most pivotal classification in context to Poultry feeding.

Soluble NSPs : Soluble portion of NSPs in viscous cereals- Rye, Wheat, Barley, Oat, Triticale increases intestinal viscosity and thereby interfere with the digestive processes and exert strong negative effects on nutrient utilization.

Being more susceptible to biological hydrolysis, especially in the last component of bird's GIT such as Caecum with the increased viscosity of feed digesta passage rate being slower reducing feed intake and digestibility (Kamdev Sethya et al CoVsc. Orissa University of Agriculture & technology).

It cause modification of gut physiology that results in enlargement of the GI tract which then reduces the formation of enzyme substrate complex is hindered to decrease surface area compared to volume. And also exposure of digested feed /simple absorbable forms cannot be made hindering absorption.

Soluble NSPs also reduce blood and body cholesterol as soluble NSPs hinder the action of bile on digesta thus most bile is excreted out of body. Thus to compensate it more bile salts produced by metabolising the cholesterol. Liver increases its LDL receptors thus further absorbing cholesterol from blood lowering the cholesterol level of animal body. The concept being exploited for production of lean meat in broilers upto an extent.

Insoluble Non starch polysaccharides: Constitute major portion of diet. They affect gut functions and modulate nutrient digestion. Present in non viscous cereals in more quantity like corn, sorghum, rice, millet they increase digestibility of starch and digesta passage rate and thus better gut motility. The effect of insoluble fibre on gut functions stems from its ability to accumulate in the gizzard, which seems to regulate digesta passage rate and nutrient digestion in the intestine (Minganchoct, University of New England).

Thus it can be drawn out from the above discussion that NSPs can't degraded by endogenous enzymes / actions and thus reach to colon almost undigested inspite of being having a good reserve of nutrient particularly the complexed Starch. They possess a sort of Anti nutritional property by either encapsulating nutrients or by depressing overall nutrient digestibility

Xylamax is one such commercially available enzyme that is chemically an endo 1,4 beta xylanase that releases 130kcal ME/kg of corn based diet and 150 kcal ME/kg in wheat diet. It is GH11 xylanase that hydrolyses both soluble and insoluble xylans, maximizing release of nutrients from feed grains, it is developed to function at peculiar pH of 5.7-7.0 of poultry's small intestine where major digestion occur. Accelerate digestion by reducing digestion viscosity and increase passage rate. It also improves gut health, lessens pathogen, lessen necrotic lesions, increase villi height, reduced mucosal MDA (indicator of oxidative stress), prebiotic effect, FCR improve by 4-6 points, Improvement of average bird finished weight and flock uniformity, thermostable at pelleting at 85 degree celsius.

through GIT modification.

Benefits of NSPs without giving treating with any Additive like Enzyme etc..

1. Soluble NSPs have cholesterol lowering effects.
2. Insoluble NSPs provide better passage rate and gut motility and hence good nutrient absorption.

Impediments of NSPs

1. Soluble NSPs – Increase viscosity decrease digestion and passage rate decreasing absorption of nutrients.
2. Non soluble NSPs -Encapsulate all other nutrients rendering them undigested. Very high level of NSPs as non soluble part may cause pathogenesis of gut mucosa and may give way to secondary bacterial infections. Inflammation of renal and GIT lining compromises water and nutrient transfer which increase the amount of water, mucus and non digested nutrients in the excreta.

Poultry feed ingredients and NSPs : NSP content in the feed grains can represent almost 25% of total dry matter content of poultry feed. On basis of above classification cereals are classified into

- a. Viscous cereals : Rye Wheat Barley Oat Triticale
- b. Non viscous cereals: Corn Sorghum Rice Millet

NSP content of corn, wheat, barley and rye is primarily composed of Arabinoxylans. Soyabean has diverse range of NSPs. Rice bran is rich in Arabinoxylans and cellulose. Differential concentration of various NSPs is Arabinoxylans the most – 50% of total followed by cellulose 25% and beta glucans 5%. It is seen that a typical broiler diet containing 60% corn and 30% Soyabean meal is dominant at 43% followed by cellulose at 27%. In diet having 60% wheat and 30% soyabean meal has Arabinoxylans 47% and cellulose 23%.

Use of enzymes in mitigating the ill effects of NSPs and increasing nutrient utilization is much popularized in recent years. Because the concentration of Arabinoxylans is most prevalent NSPs (43-47% in broiler) therefore inclusion of high quality Xylanase works by two mechanisms of action one by breaking down the component of cell wall which release encapsulated nutrients. Reducing digesta viscosity increases passage rate. Overall endogenous enzymes provide improved access to nutrients and reduce bacterial proliferation in small intestine. For cellulose no enzyme till date is available that could efficiently and cost effectively release glucose from cellulose. Xylanase reduces GIT length duodenal (2.9 v/s 1.7) ileal (14 v/s 3.9) jejunum (4.6 v/s 2.3) & AME (P<.01) of wheat & starch digestion (P<.5) in jejunum and ileum (Choct M., Hougher, R.J., Bedford M.R. 1999). It is hypothesized that single enzyme act better than multiple ones.

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Knowledge of NSPs allow us to use Non conventional feeds in efficiently increasing profit however proper knowledge about their anti-nutritional must be there .Use of enzyme like Xylanase glucanase etc. in poultry feed is thus of much importance in commercial poultry rearing as this could substantially reduce the rearing cost and make the business overall more profitable....



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MONTHLY EGG RATES
FEBRUARY 2020

Name Of Zone \ Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
NECC Prices	490	491	482	472	458	457	458	458	450	440	433	433	418	420	423	426	426	420	405
Ahmedabad	425	400	390	390	380	375	375	378	381	384	400	415	425	425	427	430	430	405	375
Ajmer	330	330	330	315	300	305	321	330	340	355	375	375	375	375	377	377	362	325	325
Asansole	383	380	380	380	380	371	366	361	361	376	400	428	452	452	452	452	452	452	442
Barwala	332	332	332	332	295	295	307	323	333	345	365	373	373	373	374	362	355	351	320
Bengaluru (CC)	390	390	380	380	375	360	360	360	365	370	395	410	425	435	440	445	445	430	410
Brahmapur (OD)	377	377	362	362	352	337	337	337	337	352	372	392	407	412	417	420	420	405	390
Burdwan (CC)	400	390	390	380	368	360	360	363	368	393	418	448	468	473	473	473	473	465	435
Chennai (CC)	400	400	400	400	390	390	380	383	380	380	405	420	435	445	450	455	455	440	420
Chittoor	393	393	393	393	383	383	373	373	373	373	398	413	428	438	443	448	448	433	413
Delhi (CC)	365	365	350	342	325	325	325	333	343	355	375	383	383	383	384	384	372	361	361
E.Godavari	365	350	350	340	325	325	325	325	330	345	365	385	400	405	410	413	413	398	383
Hyderabad	355	345	345	330	315	315	315	320	325	350	365	380	390	395	401	401	385	365	340
Ludhiana	346	340	334	329	327	309	301	309	322	335	353	367	367	367	367	373	373	373	361
Midnapur (KOL)	400	390	390	380	368	360	360	363	368	393	418	448	468	473	473	473	473	465	435
Mumbai (CC)	417	417	405	405	395	380	380	380	380	380	405	420	435	445	450	455	455	440	420
Muzaffarpur (CC)	395	390	390	381	371	357	357	348	381	395	405	419	424	424	424	424	419	409	400
Mysuru	394	394	394	384	380	368	368	368	371	376	401	416	431	441	446	450	450	435	415
Nagpur	357	353	353	345	330	323	323	332	340	370	380	380	393	395	395	393	-	-	-
Namakkal	360	360	350	350	335	335	335	340	345	370	385	400	410	415	421	421	405	385	375
Patna	390	386	386	381	367	357	357	348	386	405	414	419	424	424	414	412	409	400	395
Patna (CC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pune	417	410	405	400	395	380	370	372	375	382	410	425	440	450	450	455	455	440	415
Ranchi (CC)	409	406	405	395	400	381	381	390	390	409	419	424	428	433	428	428	428	419	409
Vijayawada	365	350	350	340	325	325	325	325	330	345	365	385	400	405	410	413	413	398	383
Vizag	400	375	375	375	375	375	375	375	375	380	400	405	410	410	415	417	417	417	417
W.Godavari	365	350	350	340	325	325	325	325	330	345	365	385	400	405	410	413	413	398	383
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