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Celebrating the Birthday of **Dr. Anuradha Desai**

who Never Dreamed about Success She worked for it

The power woman of the Indian Poultry Industry is very much a chip of gem. That is to say that her zeal, drive and determination match that of her father Padmasree Dr. B. V. Rao who is known as the father of the modern Indian poultry industry. She not only retains the status of Venkateshwara Hatcheries Group also known as VH Group as the premier companies in the country's organized poultry sector, but also, to make life easier for the thousands of farmers who have aligned their lives with those of poultry industry's player. That is why see is often referred to as the Voice of Indian Poultry Industry. Of course, along the way she added her own flavor to the style of leadership and functioning while retaining to a great extent Padmasree Dr. B. V. Rao's stamp. It is said that in early days she spent most of the time in her family poultry farm and engrossed with birds, doing things like feeding them and getting herself acquainted with the nitty gritty of poultry hygiene. Looking at the promises she exhibited, it was perhaps the master stroke by visionary Padmasree Dr. B. V. Rao in entrusting the mantle of taking forward the business to Dr. Anuradha Desai. For she excelled in not only living to the expectation of Padmasree Dr. B. V. Rao but also, she even did what many may not have thought possible.

Dr. Anuradha Desai is law graduate from the University of Pune. She was brought in to family business in 1988 by her father who had immense faith and conviction in her capabilities. What Padmasree Dr. B. V. Rao did to the Indian Poultry Industry is unparalleled in the history of country's business echelons. He was the architect of unifying the country's poultry sector and more than that brought a set of standard and practices that provided a level playing field for all the poultry players in the country. It was not surprising then that the great visionary and one of the most successful entrepreneurs of the country considered Dr. Anuradha Desai as the natural choice if it ever came to leadership of the group.

That day did come in her life in 1996 when Padmasree Dr. B. V. Rao passed away and the mantle of overseeing the already leading poultry business in the country in to the 21st century and beyond Dr. Anuradha Desai became the chairperson and Managing Director of Venkateshwara Hatcheries Group in the year 1996 and right after assuming the responsibility, some of her initial tasks were to make sure that the group recoups from the loss of the patriarch and founder- which she did with the help from her brothers Mr. Venkatesh Rao, Mr. Balaji Rao. The she set about putting in to place plans for growth of the company as well as expansion in to various other affiliated and external business fields. Today the company is diversified in to over 30 fields- Poultry, Processing, Animal Vaccines, Pharma and Health care, Poultry feed, Animal feed, Egg, Egg Powder, Vaccines, Biotech, R & D and even in Sports and Entertainment. One of the many things she did was to improve the company's chicken export besides of course fighting for the rights of domestic poultry farmers who were up against global competition when country open up for global chicken market.

A campaigner and pillar of strength for the domestic egg and chicken market, she uses everything in her power to help local farmers in their fight against so many problems such as disease outbreak, entering of the foreign companies in the Indian market, etc. just like her father Padmasree Dr. B. V. Rao did. While Dr. Anuradha Desai and her husband Mr. Jitendra Desai, an accomplished Charted Accountant and her brothers Mr. Venkatesh Rao and Mr. Balaji Rao are always there to maintain the stability and the momentum of the company. Dr. Anuradha Desai herself is recognized by many for her visions and thoughtful leadership and why not- figure this- under her leadership, VH Group has grown to become the largest fully integrated group in Asia, with its operations spread across many countries.



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Race to zero use of Antibiotics Policy may not be Sustainable Adopt Strategy to Replace - Reduce and Refine - M.K. Vyas

Antimicrobial agents are medicines used to treat infections, particularly bacterial infections. These medicines are essential protect human and animal health, as



well as animal welfare. Excessive or inappropriate use can lead to the emergence of resistant bacteria which do not respond to antibiotic treatment, as seen in recent decades. This called phenomenon, antimicrobial resistance (AMR), poses a threat to disease control throughout the world. For this reason, AMR is a global concern. In poultry production Antibiotics are needed by poultry farmers to treat infections when necessary, to maintain the health and welfare of flocks. The rise of antibiotic-resistant bacterial infections now being experienced in poultry farming across most countries threatens the future of all poultry production. Urgent action is needed by poultry producers and poultry veterinarians to preserve the efficacy of those antibiotics which are critically important for the health and welfare of poultry flocks, and for human health. Putting in place some fundamental best practices in all stages of poultry production will improve bird health and welfare, and flock productivity, and will reduce the need to medicate with antibiotics. However, this is not a race to zero use of all antibiotics. Such a policy would not be sustainable as farmers and

veterinarians have a duty of care to prevent pain and suffering in the birds under their management which may entail treatment of infections if they occur. Poultry producers can adopt the strategy to Replace-

Reduce-Refine as under: REPLACEreviewing where and why antibiotics are currently used and replace with interventions such as vaccination, changes to husbandry, improved bio security, reduction of stress, control of coccidiosis. Reducing the moisture in the house will result in better litter quality, reduced coccidiosis, better gut health and thereby reduced antibiotic usage.

REDUCE – Reducing the number of birds receiving treatment, through effective monitoring of every crop, by production system . An action plan identifying reasonsfor-use for farms using high levels of antibiotic should be put in place to help improve their management structure and reduce their usage.

REFINE - continuously refining existing strategies using usage data collection, new technologies, new vaccines, probiotics, prebiotics etc. Poultry producers must ensure that Birds are provided with optimal nutrition suitable to meet their needs especially in breeding flocks in order to optimize breeder health, chick quality and viability and gut health. Body weights should be monitored to ensure the birds are on target for age and breed. 🔒

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Kemin Employees in India Participate in Multiple Earth Day Activities



n April 22, Kemin employees in India took part in several activities to celebrate Earth Day. Dr. R Sureshkumar, President, Kemin Animal Nutrition and Health - South Asia ; Dr. RC, Technical Head; and Dr. Tanweer Alam, Marketing Director, spoke to students at a school in Gummidipundi, Tamil Nadu, India, on the significance of celebrating Earth Day. Twelve students also presented their views on the subject, emphasizing the importance of food, water supply, and conservation. Team members at Kemin's manufacturing facility in Gummidipundi planted 61 tree saplings on the surrounding lawn. In observance of Kemin's "61 Since '61" anniversary campaign, the trees planted will contribute to Kemin's sustainable development goals. At both its regional headquarters and production plant, Kemin launched a "Manja Pai" campaign with the Government of Tamil Nadu. The awareness campaign encourages the use of yellow cloth bags – Manja Pai, as they are known in Tamil Nadu – as a more eco-friendly, reusable option, replacing disposable plastic bags. For more details, write to us at mail.india@kemin.com 🔒



Russia-Ukraine war-Consumers will also have to brace for unprecedented rise in prices of Chicken

ndian Poultry Industry is Lalready suffering heavily due to sharp drop in poultry production due to scratching heat wave across the country. Margins of India's poultry industry are further expected to contract sharply due to high input costs. Prices of soybean and maize, the two key inputs that are used as livestock feed in the poultry industry, are rising sharply due to the conflict between Russia and Ukraine. The main driver of rising feed costs has been soybean. As we know Feed accounts for over 70% of in poultry production of which and maize forms 60-63% of the feed while soy meal forms 25-27%. India imports de-oiled cake - which is used in chicken feed. But imports from Ukraine have stopped due to the conflict with Russia, which is why prices have again started shooting up. Even though corn is produced in abundance in India, prices have shot up. This is because, Ukraine is not exporting corn to the rest of the world right now, and other countries have turned to India for their demand. With demand for Indian corn shooting up, prices have increased which has had an impact on corn feed too, another item that is used to feed chickens. Growing export of Indian corn has led to farm gate price of corn to rise from Rs 19.50 per kg to Rs 22 per kg. Chicken prices have also gone up 25% since January and industry experts expect a further increase of 10% to 50% in different parts of the country in March and April due to acute shortage of feed. Consumers will also have to brace for unprecedented rise in prices of animal protein. 🔒





NECC Appeal to Allot Damaged Wheat, Paddy and Broken Rice for use in Poultry Feed to Tide Over the Crisis

National Egg Coordination Committee (NECC) has appealed to the Government of India to allot at least 2.0 million tons of damaged Wheat, Paddy and/or Broken Rice - unfit for human consumption - for use in poultry feed, as a partial substitute for maize so as to enable the farmers to tide over the unprecedented crisis caused due to acute shortage and steep increase in the price of maize and soya meal in the domestic market. It's one of the worst crisis in the History of the Poultry Industry. NECC sources said that during the past few years, and particularly during the past one year, there was a significant increase in the price of Maize due to various reasons beyond the control of farmers, such as increased volume of exports and diversion of significant volumes of maize for production of bio-fuel in Bihar, which is a major maize-producing State. The price of maize in the domestic market has increased from Rs.18,000/- per ton during the last year, to approximately Rs. 25,000/- per ton presently - and" it is expected to increase further to Rs.30,000/- per ton.

NECC has stated that due to such increase in maize price, the average cost of production has gone up from Rs.4.00 per egg last year, to Rs.4.75 -Rs.5.00 presently. However, average farm gate price is hovering around Rs.3.50 per egg. thus resulting in a net loss of Rs. 1.50 to 1.75 per egg for the farmers. Unable to withstand such continuous losses, thousands of small and marginal farmers, and even breeders have already shut down or suspended or scaled down their operations. Most of the farmers and breeders are on the verge of insolvency. Under these circumstances' partial substitution of maize with other cheaper commodities is the only viable option to help the farmers to retain their means of livelihood, as well as to ensure that eggs and chicken would continue to be available to the poorer sections of the consumers at an affordable price. NECC sources said - "we are hopeful that the Government would respond favorably to our appeal and come to the rescue of farmers and allot the damaged grains for production of poultry feed, and enable the farmers to tide over the crisis and continue to retain their only means of Livelihood"

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Sanjeev Kumar Balyan asked the Poultry Industry to Focus on Research for Reducing Import Dependence

A ddressing a CII conference, Balyan recommended the reconstitution of the poultry advisory committee for connecting all stakeholders. He also urged the industry to focus on integration of small farmers for a vibrant and sustainable poultry sector, Sanjeev Kumar Balyan asked the poultry industry to focus on R&D towards offsetting import dependence for vaccines and feed additives.

Atul Chaturvedi, Secretary, Department of Animal Husbandry & Dairying, said the industry needs to come up with effective and sustainable solutions towards making our products competitive such that we not only meet protein requirements in India but also export to the world.The focus also needs to be given on availability of quality feed at affordable prices towards creating an economically viable and sustainable poultry industry, He added.

Poultry is one of the fastest growing segments of the agricultural sector in India today, with production of eggs and broilers rising at a rate of 8 to 10 per cent per annum. As a result, India is now the world's fifth largest egg producer.To identify key growth drivers and suggest a road map for an economically viable and sustainable poultry sector, the CII organised the National Conference on Poultry & Poultry Products.





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Hyderabad, May 2022



Workshop on Feed Requirements for Livestock Sector: Opportunities and Challenges held on April 12, 2022 at Hyderabad



In India the livestock sector particularly poultry, cattle and aqua is growing at a rate of 8-10% and thereby the requirement of feed is also increasing, as it constitutes 65-70% of the production cost. In the recent past the industry has faced challenges with respect to availability and high cost of inputs viz. soyabean meal, maize etc. The potential feed requirement in the coming years is expected to increase further in view of changing food habits, increase in protein demand etc. Technological interventions are urgently needed to ensure availability of enough quantities and good quality feed in cost-effective manner for the survival and growth of the animal husbandry sector.

In view of the above, All India Poultry Breeders Association and Biotech Consortium India Limited (BCIL) along with Animal Nutrition Society of India (ANSI) organised a knowledge sharing "Workshop on Feed Requirements for Livestock Sector: Opportunities and Challenges" on April 12, 2022 at Hotel Avasa, Hyderabad. More than 80 participants from poultry industry, seed industry, scientists from research institutions and universities, nutritionists, officials from central and state animal husbandry department, media and other stakeholders participated in the workshop.

Dr. O. P. Chaudhary, Joint Secretary, Department of Animal Husbandry and Dairying, Government of India indicated that contributions of livestock sector in total agriculture and allied sectors has increased significantly. He indicated that the issue of supply and availability of soyabean meal and maize has been brought to the notice of the government as also price volatility. He assured that government is committed to support the livestock industry and several initiatives have been taken including permission to import GM soyabean meal. He appreciated this initiative and requested to send the recommendations to the department.

Mr. Suresh Chitturi, MD, Srinivasa Farms and Vice President, A11 India **Poultry Breeders** Associationand Mr. D. Raghava Rao, MD, Kohinoor Hatcheries Private Limited shared detailed information on the current feed requirements and potential demand over next decade. It was stressed that the industry holds great potential not only to increasing domestic meet requirement, but also can lead the exports of animal products. However, this requires consistent supply of feed to make it competitive in the International market.For example, the gap in supply and demand of protein meals is estimated at approx..4 MMT in 2022 and likely to increase to 7 MMT by 2025. The gap is expected to increase over time as the demand for milk, eggs and meat continues to grow as the Indian economy grows.

It was opined that all options including the use of GM crops and novel derivatives should be

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explored. They also stressed that adoption of GM crops be encouraged so as to increase the productivity which will bring benefit not only to farmers but also to the livestock farmers and industry. The industry participants desired those imports may be permitted in the short term to meet the current demand and at the same time streamlining of policies and investments in research for facilitating use of GM crops for increasing productivity for tapping future potential.

Dr. Vibha Ahuja, CGM, BCIL spoke about safety and nutritional aspects of GM crops. She informed that state of the art internationally methodologies accepted are available for pre-market safety assessment of GM Crops and indicated that there are no confirmed reports of any adverse effect from the use of GM crops in the last 25 years in more than 70 countries. She also clarified various myths prevalent regarding the use GM crops by the feed industry and provided factual information.

Dr. S. V. Rama Rao, Principal Scientist (Animal Nutrition) from ICAR-Directorate of Poultry Research spoke about nutritional requirements of Poultry and how research can contribute to enhancing productivity.

Mr. Ram Kaundinya, Director General, Federation of Seed Industry of India and Dr. Paresh Verma, Executive Director -Bioseeds Division, DCM Shriram Limited, Hyderabad informed that India has



been lagging behind in the area of GM crops despite highly successful experience with Bt Cotton, which turned India into second largest exporter of cotton in the world from an importing country. They highlighted several issues and sought urgent interventions from the Government to introduce well proven technologies in the country to meet the demand from livestock sector.

Senior representatives from US Grains Council and US Soyabean Council provided information on the global scenario that included use of by-products such as DDGS as a source of high protein and high phosphors and also introduced tools such as nutritional calculator for improving the nutrition for the livestock industry.

Participants shared their views and requested the associations to prepare strategic plans and approach the government for time bound decisions so that the industry can benefit from the use of new technologies such as GM crops.

The workshop was well received and recommendations will be forwarded to the Department of Animal Husbandry for their consideration.

Multiple Mycotoxin Syndrome The Ever Increasing Threat to Poultry, Aqua and Livestock Industry and their Performance

Agior problem with the Poultry, Livestock and Aqua industries today is the Multiple Mycotoxin Syndrome or MMS, a large variety of mycotoxins, that were not tested earlier, are now being studied, evaluated and recorded on regular basis but by a very few laboratories around the world. A 2017 – 18



Survey (Provimi-India) revealed more than 95 % of the samples tested were contaminated with Multiple Mycotoxins.

There are nearly 54 detectable mycotoxins, that can be tested , most of these are not routinely tested by laboratories or regulated by the governments. Their incidence and co-existence is regularly increasing and causing damage to the production and performance of the animals and birds, while the experts in the Industry and Government/ICAR/Universities and private companies look the other way. These Mycotoxins are here and will stay as long as the grains , their products and their by-products are being used for the feeding of the above mentioned types of animals and birds. The fact is more than 90% of the poultry and livestock problems today are directly or indirectly related to the presence of MMS, all other problems like the bacterial, viral, parasitic diseases, nutrition, vaccinations and disease control, management, hygiene and sanitation etc., together come to hardly 10 %, MMS is neither properly understood nor studied, and the market situation might not change for several years to come.

Today validated and patented biomarkers are available to test 36 different mycotoxins in blood using the FTA cards, enhancing the accuracy and helping the detection of minute quantity of mycotoxins that will escape the normal test procedures or go undetected. For several years, mostly and only aflatoxins are being tested and reported, other mycotoxin testing has not been taken up by the laboratories for various reasons.

Dr. S. K. Maini from Vesper Group is of the view that Farmers and their Associations, and all other Associations connected with the Poultry Farming Business should impress upon the Central Government, the State Governments, and private laboratories to start testing the various mycotoxins in the feed and feed ingredients used and detecting their metabolites in the body fluids and blood, that cause damage to the birds and their performance and end up in the human food chain, for the safety of both the birds and the people who consume their products.

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Padmasree Dr. B. V. Rao

Implementation of commitment Trading of Eggs in Hyderabad will help Poultry Farmers to fulfill the Dream of Dr. B. V. Rao of "MY EGG - MY PRICE"

For last few months Indian poultry industry is witnessing a complex situation. The Chicken rates are getting firmer with every passing day where as the egg rates are struggling to remain remunerative. It is surprising that farm gate price of egg is still low, despite the fact, that there is no resistance from the consumers who are still buying eggs at the rate of Rs. 6 per egg.

The question is why it is happening?

To get the answer we will have to go few decades back. In early 80s poultry farmers from across the India were in deep crisis. This was also the time when slowly but surely poultry farming was taking the shape of organized farming, consumption was consistent, availability was also adequate but the egg market was very volatile. It was totally in the hands of few traders. Rate used to be declared by traders and there was no provision of commitment to purchase the eggs from farmers. Open market was working as free for all influenced by few traders, without considering the production cost of eggs.

Because of this the Indian Poultry industry suffered an unusual series of crises, as the selling price had become lower than the production cost. Many of the poultry farmers shut down their farm operations as a result of heavy losses. Dr. B. V. Rao founder of V. H. Group was observing those things very closely and could not see the Indian poultry farmers in the clutches of mischievous persons who were procuring the eggs from farmers at their whims and fancies. Seeing the miserable conditions of poultry farmers in India Dr. B. V. Rao and Ch. Jagapati Rao decided to act and act very fast. A group of farmers motivated by Dr. B. V. Rao and Ch. Jagapati Rao traveled across the country, organizing over 300 meetings with groups, individuals, and traders. Their objective was to unite poultry farmers from all over India and take control of their own destiny. In May 1982, NECC was formally registered as a trust under the Indian Societies Registration Act.

To day National Egg Coordination Committee (NECC) is an association of poultry farmers in India with a membership of more than 25,000 farmers. In the past three decades, NECC has played a significant role for the betterment of the poultry industry in general, and the egg industry in particular, through its various programmes like market intervention, price support operations, egg promotion campaigns, consumer education, market research, rural market development and liaisons with the government on vital issues concerning the industry. NECC also took initiative to convince the farmers and traders to go for commitment to buy the eggs to create mutual trust between farmers and traders and also to avoid manipulation of rates by creating artificial gap between demand and supply.

Things were going well with farmers, traders and consumers as farmers were getting the remunerative price for their product, traders were getting reasonable commission for selling the eggs and consumers too were getting the eggs on affordable price. But in last few years the concept of commitment started diluting and few big farmers and handful of opportunist traders started advocating for open market. Result of that the payment system which was well in place for all these years also started crumbling. Traders started exploiting the concept of open market and insisted for long credit and huge price cut on farm gate price suggested by NECC. The payment for farmers by traders started pilling up and a well thought process put up by Dr. B. V. Rao of commitment trading started crumbling.

TO day after close to three decades Indian Poultry Farmers are once again at the cross road and staring to loose heavily because of skyrocketing prices of raw material and sliding farm gate prices of eggs. Farmers are now once again looking after the person who can motivate thousands of farmers with one slogan that Dr. B. V. Rao had given "MY EGG- MY PRICE".

Hind Poultry still feels that Indian poultry farmers need not look for another such person and can still get the remunerative price of their eggs only by following the path shown by Dr. B. V. Rao. The recently concluded meeting by South Zone coordination committee with commitment traders where it was mutually agreed up on to support and trade on NECC suggested price without deviation is a good step of taking away the open trading. Poultry Farmers too have the lager responsibility to make sure that their eggs are not available for open trading and on long credit. Farmers should also sit with NECC and Traders to create a mechanism where the system of selling eggs in open market and on credit is eliminated.

The recent meeting called by Mr. D. Sudhaker, Mr.K. Narayan Redyy, Mr. KSN Raju and Mr. G. Shekhar Reddy with commitment traders of Hyderabad is a step towards creating mutual trust between traders and farmers. The continuity of such meetings and implementation of commitment trading of eggs in Hyderabad will surely help poultry farmers to fulfill the dream of Dr. B. V. Rao where poultry farmers can say with pride: "MY EGG - MY PRICE". Melina Bonato, R&D Manager at ICC Addresses about Immunonutrition and other Factors Affecting the Health and Performance of the Birds



The Convention Center of Camino Real Hotel, in the city of Santa Cruz de La Sierra, Bolivia, was the scenario for PANA 2022, a technical meeting organized by Seminars PaP – ITESO Agriculture that is held every two years to promote a discussion of advanced and current topics among poultry professionals from Latin America, professors and other distinguished professionals in the sector.

Representing ICC, Dr. Melina Bonato, Research & Development Manager at the company, shared her knowledge and brings details about the event: "It is an advanced academic course which includes a wide range of aspects related to animal nutrition. It is promoted by ITESO and dedicated to poultry professionals who are currently working in the market and have extensive experience in the area", highlights Melina.

In total, the expert gave three classes on March 22, all involving related topics: "Influence of nutrition on the immunology and intestinal health: Immunonutrition", "Main challenges of intestinal health: The microbes that cause most of enteric infections in poultry", and "Strategies to reduce the use of antibiotic growth promoters and the use of feed additives in poultry diets".

"It was rewarding to be part of this meeting. More than 150 professionals attended the event and ICC could share topics that are current and relevant to the poultry production chain. The activities in a class format allowed us to have an in-depth understanding of the discussed topics and also generated positive interactions among the attendees. The immunonutrition class raised the greatest interest since this is a broad topic which includes various areas of knowledge and virtually all factors affecting the health and performance of the birds. And it is precisely for addressing this concept that ICC has been standing out as a reference", adds the speaker.







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Novus International's Asia leadership team in India inaugurated its new corporate office in Bangalore



The new space was officially opened on 21 April 2022 in Bangalore, the capital and largest city of the Indian state of Karnataka located in the country's southwestern region. Having a corporate office in Bangalore has the advantage of being in proximityto manycustomers. While a large city that is home to more than 8 million people,

Bangalore is centrally located with major livestock and poultry hubs like Coimbatore, Namakkal, Hospet, Hyderabad, Pune, etc., contributing more than 60 percent of the poultry anddairy markets. The location also facilitates frequent engagement with customers, which will result in enhanced customer intimacy, improved services, and business growth. On the 20thof April, Novus South Asia team hosted the customer meet-and-greetfeaturing Sr. Director of Global Strategy Marketing Abishek Shingote andVice President and Asia Managing Director Dr. Vaibhav Nagpal from Novus Headquarters in the U.S. The evening started with the welcome address by Neeraj Kumar Srivastava, managing director for South Asia & Southeast Asia, followed by the leadership messages from Dr. Nagpal, Shingote, Sr. Vice President and COO Ed Galo, and the company's CEO and President Dan Meagher.

In his speech, Srivastava highlighted the importance of shifting the corporate office to Bangalore and he thanked all customers and business partners for their support. He spoke about growth, collaboration, trust and new beginning for Novus in the region. He also emphasized the opportunities in the region and the commitment of Novus to serve its customers with the right solutions and services. Galo thanked all customers and business partners for their continuous support, stating that Novushas built asustainable business over the years in the Indian market, and company leadership ispleased and proud of its position in the country.





Nagpal.Vaibhav



Dan Meagher



Neerajkumar Srivastava



Ed Galo



Abhishek Singote

"In return, we are committed to supporting themarket to help feed the world and continue bringing nutritional health and solutions forbest-in-classanimal protein production to the market," Galo said. Meagher congratulated Srivastava and the entire team ofNovus South Asia for their renewed commitment to country and its animal protein producers.

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

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



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

Many prominent animal nutrition andhealth companies are located inand are operating out of Bangalore. The area isalso a hub for the software andbiotechnologyrelated industry in India and is known as the "Silicon Valley & Biotech Capital of India." Recently, Bangalore has emerged as the startup capital with almost 32 entrepreneurial companies located there. With this investment in the city, Bangalore has an advantage overother cities in attracting and retaining talents.

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

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Nutritional Interventions to Manage Heat Stress in Poultry

Heat stress is a major issue for Indian Poultry producers in India, predominantly aa tropical country, where temperature can be as high as 45-50°C. During this summer season, most of the poultry producers in India faceheat stress and thereby implement various practices to handle its effects on poultry. Modern poultry birds are more susceptible to heat stress due to their greater metabolic activities leading to greater body heatproduction in combination with less heat dissipation capacity due to lack of sweat glands. Heat stress has been classified into acute and chronic based on the duration of exposure of heat. High humidity adds toworsens the effects of high temperature, making the bird feel more heat than that of the actual temperature. So, temperature and humidity index are the ideal indicator to measure heat stress as depicted in Fig. 1.

Heat stress index (temperature in Fahrenheit + relative humidity) of 160 or more indicates that the bird is under heat stress.

During periods of heat stress most of the birds consume less feed and more water and most of the energy is diverted towards the maintenance of body temperature which results in oxidative stress induced immunosuppression, predisposing birds to various Mahesh G R, Technical Manager, Trouw Nutrition India



Fig. 1: Temperature and humidity index chart

infectious diseases and high mortality rates. Heat stress has drastic impact on body weight, egg production, egg weight, shell quality etc. (Barret *et al.*, 2019). Owing to its impact on productivity and profitability of poultry operations, it becomes critical to manage heat stress and its related effects on poultry, in hot weather conditions. There are various strategies to minimize heat stress in poultry like, changing their physical environmental conditions, genetic modifications, and nutritional modulations. Of these, nutritional strategy is more viable during heat stress as it is based on diet balancing to cover the needs of stressed birds for nutrients at required concentrations. However, recently new techniques are evolving to produce heat resistant chicks either throughselective breeding of high-performance heat resistant birds or In-Ovo feeding (Elnesr*et al.*, 2019) practices, which are still nascent and under trial stage.

1. Heat stress and its effects

The most common symptoms exhibited by birds are distended wings, crouched position on the floor, slowness, lethargy, wet feces, increase in water consumption, decrease in feed consumption, panting, deviation of blood from internal organs to the skin, and finally Increase in mortality (fig 1a).



Fig. 1a: Response of birds to heat stress

It is a proven fact that feed intake reduces by 1% for each degree rise in temperature up to 32°C. Awad and coworkers (2019) reported 8-9% and 17% reduction in feed intake and body weight gain when birds were exposed to 34°C for 6 hours daily from 22 to 35 days of production. Birds rely on conduction, convection, radiation and panting to reduce heat stress impact. Heat stress has a negative impact on gut health by damaging enterocytes and tight junctions (Fig. 2), which predisposes birds to other systemic infections like salmonella, clostridium, and E. coli due to compromised immunity (Zhang *et al.*, 2017). Loss of tight junction integrity also leads to "leaky gut" conditions and wet litter in poultry.



Fig. 2: Impact of heat stress on tight junctions in gut

Birds increase the corticosteroid secretion in response to heat stress. Higher levels of circulating corticosteroids increase the free radicals by altering oxidative metabolism, causing impairment of cellular functions and thus damage to the cell membrane leading to muscle wasting and retarded growth.During panting of the birds in heat stress situations (Fig. 3), there is an excess loss of blood CO_2 levels below their normal concentration, which leads to the increase in the blood pH, producing metabolic alkalosis. To restore the depleted levels of CO_2 in blood, body mobilizes calcium carbonate (Ca_2CO_3) from the bones to the blood and kidneys excrete bicarbonate (HCO_3 -) to fight metabolic alkalosis. This compromises the ability of the hen to produce enough calcium carbonate to form the eggshell.



Fig. 3: Panting as a response to heat stress

During these times, it is key to maintain enough calcium reserves in the bones through optimal calcium intake and further absorption in the intestine. On the other hand, when these reserves deplete, calcium deficiency takes place, which Because calcium deficiency leads to increase in number of broken eggs, cage layer fatigue and femoral head fractures. Hence, to combat the ill-effects of heat stress on birds', poultry producers should resort to an integrated approach combining farm, health, and nutritional management measures.

2. Strategies to reduce heat stress

2.1. Farm and health management

Farm management comprises of a combination of verticals like management outside the shed, and inside the shed, water and feeding management. The house design as per standard dimensions with sufficient overhang and tree cover (Fig. 4) will reduce effective temperature to a great extent.



Fig. 4: Afforestation as measure to handle heat stress

Insulation of roofs with thatches and/or heat reflective painting combined with increased ventilation through fans/foggers/sprinklers/evaporative cooling pads, will help to withstand hot weather conditions along with reduced stocking density. Modification of housing, ventilation, and cooling systems needs high initial investments and recurring costs and needs to be judiciously adjusted.

The water consumption of birds increases to the tune ofby 2.5-3.5 times of feed intake, during summer and they do not consume warm water well as withprefer consuming cool water. Hence, measures need to be taken to provide as cool water as possible, through insulation of water tanks, pipelines, use of good quality ice etc. In terms of water management, increasing the number of drinkers, pipeline flushing, addition of water supplements like water acidifiers, electrolytes, vitamin C, B complex vitamins, vitamin E, aspirin, etc., will help. To compensate for reduced feed intake, birds need to be fed in cooler times of the day, and practices like midnight feeding, increasing feeder numbers, adequate feed bag storage etc. needs to be adopted.

Biosecurity and vaccination protocols need to be followed strictly, for maintainingas immunity is compromised in heat stressed birds, and these measures will be aid in alleviating those challenges.

2.2 Nutritional interventions

Nutrient density:

It is important that the diets are balanced with respect to important nutrients such as amino acids,

calcium, sodium, phosphorus, or vitamins, especially the water-soluble ones. Include highly digestible ingredients in feed, to provide all the necessary nutrients for better absorption, despite the reduction in the feed consumption.

- Feed should be made denser with major nutrients, vitamins, and minerals to compensate for reduced intake.
- Protein level in feed should be reduced aptly with concomitant increase in digestible amino acid levels.
- Proteins from vegetable source have lower heat increment and are rich in Arginine, and the absorption of latter is compromised in heat stress conditions.
- Fats should be increased by 2 to 3% at the cost of carbohydrates without changing Metabolizable Energy (ME), due to the less heat increment of fats.
- Calcium levels need to be increased without disturbing the Ca:P ratios.
- Micro-nutrients like trace minerals and vitamins need to be increased by 1.25% to compensate for lower intake.

Vitamins:

Heat stress reduces the synthesis and increased utilization of Vitamin C, making its supplementation (@150-250 g per ton feed) essential during summer. Sahin&Kucuk, 2003 reported that supplementation of vitamin A, C and E in hot climate helped in enhancing the egg production, fertility along with a reduction in egg breakage and mortality. In heat stress, there is excessive oxidative metabolism and release of free radicals in the body damages all types of biological molecules, and cells of vital organs, more so of immune system. Vitamin E has free radicals scavenging activity that attacks the free radicals and acts as the first line of defense against lipid peroxidation. Furthermore, it helps in improving fatty acid composition, feed intake, feed efficiency, egg production, egg quality, and oxidative stability of thigh muscle in broilers and quail under heat stress.

Trace Minerals:

Better forms of trace minerals play a critical role in dictating their bioavailability and thereby their utilization in vital metabolic functions. Trace minerals like zinc, manganese and copper have profound effects

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on eggshell quality, due to their role as co-factors in enzymes involved in eggshell and membrane formation. Hydroxy trace minerals from Trouw Nutrition, Intellibond, is an innovation in trace mineral history and has proven to improve egg production and reduce cracked eggs, as shown in Fig. 5.

Zinc and selenium, when supplemented in appropriate forms, play an important role in suppressing free radicals because both works as a cofactor for superoxide dismutase and glutathione peroxidase respectively and inhibits NADPH-dependent lipid peroxidation. Supplementation of IntelliOpt, anoptimal combination of hydroxy (Intellibond) and chelated (Optimin) trace mineral technology, at appropriate inclusion levels, has provedshown to improve enhance poultry performance in heat stress conditions.

A combination of vitamins and minerals has a synergistic effect in reducing the effect of heat stress on chickens. Increased body weight, improved feed conversion, and carcass quality were observed in heat stressed birds when supplemented with a combination of vitamin E with Zn in diets (Sahinet al., 2006). While a combination of Zn and vitamin C supplementation resulted in the reduction of blood glucose and cholesterol levels under heat stress (sachinet al., 2009; Yanchevet al., 2007).

Electrolytes:

Electrolytes help in regulating the acid base balance, osmotic pressure of cells and neuromuscular functions. There is increased excretion of electrolytes during heat



conditions in gut, improving the tight junction integrity, thereby reducing the susceptibility of birds to infections, consequently improving the birds' growth and productive performance. Also. probiotic and prebioticsupplements



Fig. 6: Effect of betaine on broiler performance

stress, and addition of appropriate electrolyte salts supports in balancing this loss. Sodium bi carbonate has positive impacton water intake and reducing systemic acidosis. Inclusion of Sodium bicarbonate at 0.4% (4 kg/ ton) + Sodium chloride at 0.25% (2.5kg/ton) could balance sodium and chloride levels in feed.

Osmolytes:

There is excessive loss of body water in heat stress. and restoring this water balance is an energy consuming process. Supplementation of osmolytes supports in maintaining the body water balance improving the nutrient influx into cells. Betaine, an osmolyte and methyl donor acts as an anti-heat stress agent by promoting favorable gut microbiota, protecting internal organs, and increasing fatty acids catabolism in chickens leading to improved broiler performance (Fig. 6).That said, the form of betaine been supplemented plays a pivotal role, in its aforesaid mechanisms of action, with the betaine from natural source been a better and reliable form than synthetic ones.

Gut Health promoting concepts:

Inclusion of select combination of organic acids (like Selacid GG MP) helps in achieving eubiotic

were used in heat-stressed birds to reduce the detrimental effects of heat stress by promoting the growth of beneficial bacteria, which in turn leads to reduction of harmful bacteria (Sohail*et al.*, 2011 and Deng *et al.*, 2012). Immunosuppressed birds in heat stress can be prone to multiple mycotoxin challenge, that could challenge the gut health status of birds. Addition of apt broad spectrum mycotoxin binders along with immune boosting concepts, as in Toxo XL, can help in improving gut health in heat stressed birds.

In-Ovo Feeding:

In-Ovo feeding is a novel solution adopted in eggs right after laying and has been used for supplementing various nutrients such as carbohydrates and trace minerals to the developing embryo (Goel *et al.*, 2016). Supplementation of In-Ovo L-Leucine or methionine enhances the thermotolerance by increasing feed intake, body temperature, immunity-related genes and modifying antioxidant indices in chicken (Elnesr *et al.*, 2019). However, it's still at budding stage so, commercial application needs to be validated.

3. Conclusion

Heat stress contributes to a series of physiological changes, including systemic immune dysregulation, endocrine disorders, respiratory alkalosis, and electrolyte imbalance, which affects the health and performance of the chickens leading to lowered performance and profitability. Heat stress leads to challenged gut health conditions and oxidative stress through generation of Reactive oxygen species (ROS). A holistic approach comprising of strategies to optimize farm, feed, and health, must be adopted to handle challenges arising out of heat stress. Supplementation of various dietary additives in right concentrations will help in reducing the adverse effects of heat stress.



Emerging Threats to Poultry & Live Stock Production





Dr. T. Kotaiah Indbro Research & Breeding farms pvt.ltd, Hyderabad, India.

A lready, raising cost of Inputs like feed ingredients and fuels are putting pressure on the industry. Environmental vagaries and emerging new diseases are a threat to livestock industry. Changing market trends are constantly putting few people out of business every now and then. A time has come for those involved in livestock industry to reexamine their existence and expansions. Here are some of the new issues emerging, which will have far reaching consequences on animal industry.The issues are not pessimistic.

Animal Welfare

The talk on Bird welfare is here to stay. Points of interest as expressed by the welfare activists.

Living area –confinement- Welfare groups are actingvehemently against bird confinement.Welfare activists could convince the judiciary, policy makers and consumer groups about the cruelty to birds in confined cages. Poultry industry and poultry scientists could not effectively counter their argument. Cages are a result of 100 years research, to avoid cannibalism, achieve better productivity, less faecalborn diseases and food safety by way of clean egg production.

As a result, the farming practices are changing and many countries have given an outer date for removing the cages totally. The welfare groups are suggesting 1. Ample place to birds to flutter the wings without touching the other birds. 2. Place to Perch and 3. Provision for a dust bath.

Alternatives worked out are -

- Aviaries/ Enriched cages which are doorless cages with freedom for bird to move around. The system is very expensive.
- Traditional Deep litter housing with perches and nest boxes. More space and labour.
- Deep litter houses supplemented with a run, around the houses for bird movement during "Happy Hours"
- Extensive system with movable houses and nests provided in green grazing lands.

Result – The cost of production has gone up. Will the consumer pay? Traditional litter-born diseases avoided on wire floor will be back. The area required is huge and there can be exposure to wild birds and predators. The eggs cannot be as clean as in Cages and food safety issues will be more.

Beak Trimming – Is an excellent way to avoid cannibalism related injuries, which is opposed by welfare groups. Cutting a part of the body hurts and is inhuman. Infra Reddebeaking, which is less painful has been tried. Feeders fitted with metal bottoms keep rubbing the beaks slowly, because of which the beaks are rounded off. Useful especially for broiler breeders fed with limited feed. The beaks touch the bottom daily. Evolving genetically less aggressive strains by breeding companies. The new strains of birds have less tendency to interfere with other birds.

Male Chicks Killing – For every million layer females produced, there are one million male chicks born. The male layer type chicks are not economical for rearing. These chicks are usually killed at day one and converted in to animal food etc. Lot of research has gone in to evolve sexing of eggs as early as 4th day of incubation. The eggs having male chicks are removed before the pain palpable chick is formed. Few countries like Israel have developed machines for quick identification of eggs with male chick. These machines can operate fast on large number of eggs. Countries like France have imposed a dead line, as early as, end of 2022 to prevent production of male chicks.

Meat of Fast Growing Broilers has come under scrutiny. Woody breasts, white stripes on large breast portions are not acceptable for the consumers. The fast growing compact meat of the broilers is also found to be less tasty. The efficiency of white broilers has been improved to reduce the production cost. The short production cycle is well organized to improve the efficiency. Broiler chicken consumption has been increasingly steadily and sale price has not gone that high.

Slow growing coloured broilers are being encouraged as an alternative. Though less efficient, the consumer is ready to pay higher price for the taste and welfare. Leading poultry breeders started working on special strains to suit this concept. Fast growing white broiler may take a back seat. Compulsory stunning of birds before slaughter is being imposed even by small countries with less availability and consumption.

Providing more space, feeding less dense feed can delay the growth but the other parameters are notbetter.

Antibiotics For Promoting Growth And Usage For Treatment

Consumers and health professionals are concerned about Anti microbial resistance. Antibiotics were fed to poultry and animals at low levels in feed to prevent multiplication of bacteria in the gut, some time back. Keeping gut active bacteria under control, helped better growth and feed efficiency in the animals. Antibiotics must be used for animal treatment but in right dosage and for stipulated time.

Alternatives are being looked in to.

- Probiotics and prebiotics when harmless bacteria are encouraged to multiply in the gut, the pathogenic bacteria multiply slowly. For treatment, use proven antibiotics recommended by Veterinary authorities only.
- Use of organic acids- keep the harmful bacteria under control.
- Phytogenic nutrients like Neem are supposed to keep the growth of bacteria and fungi low.
- Bacteriophase is a virus like organism, which forage on bacteria and kill them. They are live organisms fed to birds early to prevent diseases.
- Boosting parent immunity and keeping the breeder flocks free from vertically transmitted bacterial.
- Good hatchery management to prevent contamination of chicks.
- All in all out housing & strict biosecurity. Can reduce the need for use of Antibiotics.

Environmental Issues

Animal industry is under fire for different reason. Animals take Oxygen and emit, CO2, Methane and Ammonia.

Animals require space, water and feed ingredients thus competing with human beings. It also involves killing of animals at the end of the growing cycle, which is considered in humane.

Though animal protein is close to human body and is accepted at valuable food, vegetarianism and bloody involvement is instigating some groups to act against the animal industry. Gene modifications to impart meat flavor to vegetable proteins is catching up to reduce the animal protein. Plant based proteins with meat taste. Lab grown meats from few cells of the animals are getting popular. In advanced countries, the poultry and animal producers are investing money in those companies instead of opposing them.

(Dr.Kotaiah is a senior veterinarian and industry watcher. He can be contacted at drkotaiah@ indbropoultry.com)



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Enriching Animal Wealth

Antimicrobial Resistance: A Major Global Challenge By Dr Krishna Sahoo

A ntimicrobial Resistance (AMR) both in human and veterinary medicine has reached alarming levels in most parts of the world and has now been recognised as a significant emerging threat to global public health and food security. Overuse of antimicrobials and improper use in many parts of the world are recognised as key drivers of the emergence and spread of AMR. Antimicrobials are used in food animals for treatment and for non-therapeutic purposes and play a critical role in saving lives in both humans and animals. Over the last decade, global livestock production has been growing rapidly and has moved increasingly towards industrialized systems where antimicrobial use (AMU) is an integral part of production.

An antimicrobial is an agent that kills microorganisms or stops their growth. Antimicrobial medicines can be grouped according to the microorganisms thev act primarily against. For example, antibiotics are used against bacteria, and antifungals are used against fungi. They can also be

classified according to their function. Agents that kill microbes are microbicides, while those that merely inhibit their growth are called bacteriostatic agents. The use of antimicrobial medicines to treat infection is known as antimicrobial chemotherapy, while the use of antimicrobial medicines to prevent infection is known as antimicrobial prophylaxis.

It is now known that increased antimicrobial resistance in recent decades is primarily influenced by an increase in usage of antimicrobials for a variety of purposes, including therapeutic and non-therapeutic uses in animal production.

Mechanisms of spread of antimicrobial resistance between animals and humans

Both pathogenic and non-pathogenic resistant bacteria can be transmitted from livestock to humans via food consumption, or via direct contact with animals or their waste in the environment. Any mechanism that helps spread bacteria has the potential to transfer resistant bacteria. Resistance may also be conferred by the exchange of genetic elements between bacteria of the same or different strains or species, and such transfer can occur in any environment where resistant bacteria have the opportunity to mix with a susceptible bacterial population, such as in the human or animal gut, in slurry spread on agricultural soil, or in aquatic environments. If resistance develops in environmental bacteria, this can create an animal or human health problem when such bacteria contaminate water, food crops or animal feed, introducing the opportunity for bacterial mixing with commensal or pathogenic species in the animal or human gut. Many antimicrobial preparations used for livestock are given orally so that antimicrobial residues excreted



in animal faeces have the potential to exert selection pressure on bacterial populations in soil or water. However, evidence is scarce as to how important this mechanism is in transferring resistance and different antimicrobials have different fates in the environment. It must be considered that residues resulting

from human treatment with antimicrobials or from pharmaceutical manufacturing can also exert selection pressure on environmental bacteria.

Antimicrobial resistance in food production

Food plays an important role in the development and spread of AMR. The presence of AMR microorganisms in our agricultural production systems and food chains is a potential route of exposure for everyone. Good hygiene practices in agriculture, fundamental in achieving food safety, are also key to addressing antimicrobial resistance.

Ingestion of AMR organisms via food can, if they are pathogenic, result in human illnesses — and those illnesses might not respond to available antibiotics or other treatments. Moreover, even if the microorganisms are not themselves pathogens, they can contribute to a reservoir of antimicrobial resistance within our food supply. And given the widespread movement of food products, they may contribute to the spread of AMR as well as transmit resistance to other pathogenic organisms. A growing world population and the resulting increase in demand for food is putting added pressure on our food supply chains and systems. The innumerable niches these systems provide for microbial populations foster conditions that can favor the selection of antimicrobial resistant microorganisms, which can directly cause human illness or indirectly damage food production. That is especially the case if imprudent use of antimicrobials in food production – including livestock, aquaculture, and crop production – is prevalent. The use of sanitizers and biocides through the food chain may further contribute to AMR.

Antimicrobial resistant microorganisms in food are not only a major public health challenge, but also represent an economic risk. There are cost implications involved in adapting or changing practices in order to reduce their presence and proliferation. They also have the potential to affect market access, either through health regulations or consumer purchasing behavior. These economic risks need to be assessed in a broad manner due to the capacity for AMR to spread across borders. Food is likely to be quantitatively the most important potential transmission pathway from livestock to humans, although direct evidence linking AMR emergence in humans to food consumption is lacking. There is a theoretical risk of widespread dissemination of AMR due to the increasingly global nature of food trade and human travel. This would mean that strains of resistant bacteria could now very quickly reach parts of the world where they had previously not been present. Agricultural systems in emerging economies such as China and India have changed radically in recent years, becoming increasingly intensive in order to meet growing domestic and global demands for animal protein. This is likely to heighten the occurrence and spread of infectious diseases in these systems, thereby leading to increased AMU and therefore resistance.

Antimicrobial resistance - a global concern

The emergence and spread of drug-resistant pathogens that have acquired new resistance mechanisms, leading to antimicrobial resistance, continues to threaten our ability to treat common infections. Especially alarming is the rapid global spread of multi- and pan-resistant bacteria (also known as "superbugs") that cause infections that are not treatable with existing antimicrobial medicines such as antibiotics. Antibiotics are becoming increasingly ineffective as drug-resistance spreads globally leading to more difficult to treat infections and death. New antibacterials are urgently needed – for example, to treat carbapenemresistant gram-negative bacterial infections as identified in the WHO priority pathogen list. However, if people do not change the way antibiotics are used now, these new antibiotics will suffer the same fate as the current ones and become ineffective.

The cost of AMR to national economies and their health systems is significant as it affects productivity of patients or their caretakers through prolonged hospital stays and the need for more expensive and intensive care. Without effective tools for the prevention and adequate treatment of drug-resistant infections and improved access to existing and new quality-assured antimicrobials, the number of people for whom treatment is failing or who die of infections will increase. Medical procedures, such as surgery, including caesarean sections or hip replacements, cancer chemotherapy, and organ transplantation, will become riskier.

Can further spread of antimicrobial resistance be stopped?

The consequences of the recent dramatic global changes in food consumption, international trade, agricultural production systems, and human travel in terms of AMR spread and circulation are as yet scarcely known. Given our current limited knowledge of transmission pathways, options to mitigate the global spread of AMR involve controlling its emergence in various environment and minimizing the opportunities for AMR to spread along what may be the most important routes. There are clearly numerous opportunities for AMR to spread at local and global scale, and there are still large knowledge gaps as to what the most important routes are. Mitigation strategies are indeed possible, and require a joint approach based on agricultural, medical and environmental interests.

The author is Global Product Manager, Proteon Pharmaceuticals, a subsidiary of Proteon Pharmaceuticals SA Poland. ProteonPharmaceuticalsfocuses on precision biology for microbiome protection to improve animal and human health, increasing environmental sustainability and eliminating the unnecessary use of antibiotics.

References available on request

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Managing gut health, a multi-factorial approach

With the understanding of gut health growing every day, managing it properly has become more and more of a priority. One key point has been clear since the beginning: gut health is a complex multi-factorial concept, and as such improving and maintaining it requires a holistic approach. Luckily the tools to do so have evolved as well, and new methods emerge frequently.

BY BEN DEHAECK, DVM GLOBAL PRODUCT MANAGER ANTICOCCIDIALS AND TER VAN DER VEKEN, GLOBAL PRODUCT MANAGER PROBIOTICS AT HUVEPHARMA

wo major gut health issues are coccidiosis and necrotic enteritis (NE). Although caused by different pathogens, there definitely is an interaction between the two challenges: the presence of coccidiosis is often an important predisposing factor for the development of NE. Because of this link, it is very likely that the current rise of NE problems in the field is linked to suboptimal coccidiosis control. The practical implication is that both challenges should be dealt with at the same time. However, monitoring the actual coccidiosis pressure is difficult and a challenge in itself. It is therefore crucial to have a good and validated coccidiosis control programme in place, including the use of anticoccidials and product rotation in order to maintain their efficacy.

The mentioned coccidiosis program above ties in with having a good NE control program, of which supporting gut integrity and its microbiota is a crucial part. With this goal in mind, probiotics form an interesting tool to achieve this, especially as the pressure on the use of classic antimicrobials is increasing. Depending on the strain selected, these viable beneficial bacteria are able to influence the gut and its microbiota in multiple ways. An example of this is minimising the risk of pathogens, such as perfringens. A well-known Clostridium probiotic to do so is B-Act®, which has proven its efficacy under many different conditions.



The probiotic recently obtained an extension to its current European approval for use in broilers and pre-laying birds, by adding turkeys and minor avian species to the list of registered species. The specific Bacillus licheniformis strain in B-Act[®] has a unique mode of action, based on the concept of competitive exclusion. This goes a lot wider than just competition for space and nutrients - even though Bacillus spp. are often only given credit for this. For example, its capacity to produce antimicrobial compounds should not be neglected. This unique mode of action allows the probiotic to mitigate challenges efficiently, which would have otherwise led to severe NE and dysbacteriosis. Keeping this and the possibility to combine the probiotic with Coxiril® (chemical anticoccidials) in mind gives B-Act® a competitive advantage, especially in those situations where producers might worry about not applying ionophores. Approaching gut health and its management as a multi-factorial challenge and dealing with it in a similar fashion is the way forward. This includes using multiple products to work on the same challenge from different perspectives, ensuring various aspects of general gut health effectively.

The well-known probiotic B-Act® recently obtained an extension to its current European approval for use in broilers and pre-laying birds, by adding turkeys and minor avian species to the list of registered species.

To know more, please contact Huvepharma technical team Huvepharma SEA. (Pune) Pvt. ttd. 42; 'Haidwar', Road 2 A/B, Kalyani Nagar, Pune 411006 Customer Caré Contact: -91 20 2665 4193 Email: salesindia@huvepharma.com Website: www.huvepharma.com

Poultry Scientists should Effectively Counter their Argument and Convince the Benefit of Cage Farming - M. K. Vyas

Indian poultry industry is passing through a very challenging situation. In past we have discussed the situation arising out of skyrocketing prices of feed and also the antibiotic resistance issue in poultry farming. For last few years Indian poultry industry is facing another challenge from the Animal Welfare groups in India.

Welfare groups are acting vehemently against bird confinement. Welfare activists could even convince the judiciary, policy makers and consumer groups about the cruelty to birds in confined cages. The welfare groups are suggesting

- 1. Ample place to birds to flutter the wings without touching the other birds.
- 2. Place to Perch and
- 3. Provision for a dust bath.

But the fact is other way around that cages are a result of 100 years research, to avoid cannibalism, achieve better Productivity, less faecal born diseases and food safety by way of clean egg production. But Poultry industry and poultry scientists could not effectively counter their argument. As a result farming community are changing and many countries have given an outer date for removing the cages totally.

Following alternatives are also being worked out but these will result in its own consequences such as:

- Large and Enriched cages which are door less cages with freedom for bird to move around. The system is very expensive.
- Traditional Deep litter housing with perches and nest boxes. More space and labor.
- Deep litter houses supplemented with a run, around the houses for bird movement during "Happy Hours" Extensive system with movable houses and nests provided in green grazing lands. Result – The cost of production will go up.

Now the question is:

- Will the consumer pay?
- Will not traditional litter-born diseases avoided on wire floor will be back.
- Will there not be the area required is huge and there can be exposure to wild birds and predators.
- Will eggs available for consumers be as clean as in Cages and will food safety issues not be compromised.

This is the high time that Poultry industry and poultry scientists should effectively counter their argument and convince the benefit of cage farming with some modification, if necessary. Last but not least this issue is lingering on for last several years and has already resulted in slowing down the growth of Indian poultry industry and issue needed to be addressed collectively on every platform right from judiciary and policy makers to consumer groups.

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CLFMA Webinar on "Decorticated Cottonseed Meal A Rich Source of Protein for Milch Cattle, Poultry and Aqua"

The webinar was moderated by Dr. Devender Hooda. On behalf of CLFMA and AICOSCA, Dr. Hooda welcomed all the speakers and the participants to the webinar. He said that, India is producing about 25% of the worlds cotton seed and it is a key ingredient for animal protein. The purpose of this webinar was to discuss in detail the importance of cottonseed meal, which is a rich source of protein for milch cattle, poultry and aqua.

CLFMA Chairman Mr. Neeraj Kumar Srivastava delivered the Opening Remarks. He thanked all the participants, industry colleagues, CLFMA Members and eminent speakers for joining the webinar, which was jointly organized by CLFMA and AICOSCA. AICOSCA is the premier body of the Cotton Seed processing industry in the Country. CLFMA's endeavour has always been to support the members and industry associates by bringing efficiency and improving performance at farm leval thus contributing to sustainable livestock farming.

Mr. Srivastava highlighted that, our industry is facing severe protein challenges both in terms of quality and availability at right prices. Soya prices are on the higher trend and hence creating a huge impact on the cost of production of animal feeds thus incurring huge losses to the customers. He said that it is important to look into the possibilities of the using Cotton Seed Meal as feed for milch cattle, poultry and aqua. He thanked all the eminent speakers and the participants for joining the seminar.

AICOSCA Chairman Shri. Sandeep Bajoria delivered the Opening Remarks and thanked all the participants for joining the Webinar. He also thanked the Speakers, all CLFMA eminent office bearers, CLFMA Members and participants. He explained in detail cotton seed meal, its yield, its importance in feed as alternate source of protein. He also talked about its production status of this year and scope of increasing availability of cotton seed meal. He insisted to use cotton seed meal as alternate raw material for reducing feeding cost and increasing efficiency. He said that, AICOSCA would answer all the queries related to usage of cotton seed meal as animal feed.

The First Speaker of the Webinar was Shri. R. D. Bohra, Hon. Treasurer, AICOSCA, who has been associated with the cotton seed industry for the last 50 years. He gave very good insights about "Use of Cotton Seed Meal as a Protein Rich and Economical Feed Ingredient for Milch Cattle, Aqua and Poultry". He said cotton seed industry has survived due to its' large usage as fish feed.















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Second Speaker of the Webinar was Dr. S. V. Rama Rao, Principal Scientist (Nutrition), Directorate of Poultry Research, ICAR Directorate of Poultry Research, Hyderabad. He is a knowledgeable scientist in Poultry Science. Dr. S. V. Rama Rao delivered presentation on "Cottonseed Meal in Poultry Diet" - A Potential Alternate to Soybean Meal", which was appreciated by all. He discussed about - What is protein? what is the ideal protein source that is available? what is the practical feasibility and limitations of using cotton seed meal in poultry? and how best we can make use of Cotton Seed Meal as a protein source in Poultry Diet. Some of the nutritional limitations of Cotton Seed Meal was also covered in his presentation. Overall it was a very informative session which was appreciated by all.

Third Speaker of the Webinar was Dr. R. H. Balasubramanya, Retd. Principal Scientist, Central Institute for Research on Cotton Technology (CIRCOT-ICAR). He presented on the topic, 'Value Addition to Cottonseed By-Products" with emphasis on "Cottonseed Meal". He explained in detail tray culture, fermentation, separate room for storage, sterilization process, feed mixture method to be adopted by small players, etc.

Fourth and the last speaker of the Webinar was Dr. D. Srinivas Kumar, Professor and Head, Department of Animal Nutrition, College of Veterinary Science, Sri Venkateswara Veterinary University, Garividi, Vizianagaram (Dist) and he delivered a presentation on "The Potential of Cottonseed Meal as Cattle Feed Ingredient" in detail. He presented that, Cotton is the fourth largest oil crop in the world after soybean, rapeseed and oil palm and India is the largest cotton producer in the world followed by China and USA. He presented the state-wise area production, productivity of cotton seed, major trading centre of cotton seed in India and explained in detail cotton seed meal, production status in India, advantages of cotton seed meal, it's nutritive value in detail, nutrient composition and its by products from the cotton seed crushing, proximate principle and gossypol of Cotton Seed Meal(CSM) in comparison with Soybean Meal(SBM), mineral profile of CSM in comparison with SBM, Amino Acid Profile of CSM in comparison with SBM, Proximate principles and gossypol of cotton seed meal in comparison with cotton seed cake and he insisted that, CSM is a cheaper source of protein. He also discussed the comparisons of Cotton seed meal v/s other cotton seed by products, etc.

After completion of the presentation by Dr. D. Srinivas Kumar, Forum was opened for the Q & A Session, questions asked by the participants were satisfactorily answered by the Speakers very well.

The Webinar ended with the summarization and vote of thanks by Mr. Peravali Kotirao, Hon. Secretary, AICOSCA.

The Webinar was in association with AICOSCA was appreciated by the participants. Almost 242 registered for the said Webinar and 131 participants attended the Webinar.

Ongoing challenges with respect to limited availability of Maize and Soybean present significant challenges for Poultry and livestock sector

The livestock plays a significant role in the economy of India. Wide range of products obtained from livestock sector include milk, eggs, various type of meats and animal skins etc. The Indian Livestock market has



been reported to be value of more than 900 billion in 2020 and is expected to grow of more than 6% during 2021-2026. India is the largest producers of milk and buffalo meat where as it is number 3 in egg production in the world. India is also exporting poultry products mainly to middle east and also to European countries. Demand for various livestock based products is increasing significantly due to increase in income, urbanization, taste, preference and increased awareness about food nutrition.

Feed Requirement by Livestock Sector:

The feed is one of the main drivers of livestock production, in addition to good animal breed and maintaining animal health. Feed account doe up to 70 percent of the total cost of the livestock. The growing market at both global and national level has propelled the growth of livestock sector in India. The demand for feed for poultry sector was 28.4 Million Metric Tonnes (MMT) in 2019 and by 2025 it is expected to be 30.8 MMT. It has been estimated that the value of Indian animal feed market was Rs. 874 billion in 2021 and expected to grow at the rate of 9.6% in next five years with estimated value of 1500 Billion.

The exponential growth is resulting in shortage of supply of fed ingredients and increase in pricing. Add to this relatively slow growth in agriculture is affecting the livestock sector. The production of Maize and Soybean has not been commensurate to the demand of poultry industry.Therefore limited availability has led to escalation in the cost of feed, and consequently the cost of eggs and poultry meat. This has also affected competitiveness of the Indian Poultry sector in the international market.

Ongoing challenges with respect to land degradation and climate change along with food feed competition present significant challenges for livestock sector especially against the backdrop of increasing animal source food consumption.

IRIS Fillet Inspection Secures Food Quality

Today, good food quality is on every consumer's mind. Everybody wants to know exactly what's on their plate and that it is of high quality. As the global leader in food processing solutions, Marel is investing heavily in securing food quality. IRIS Fillet Inspection is the latest addition to Marel's food quality program for poultry processors. This IRIS FI camera solution is an excellent tool for quality assurance of chicken fillets.

Quality control is an essential aspect in today's poultry processing plants. Instead of incorporating human bias into quality inspection, it makes more sense to assign this job to an intelligent automated system. Marel's IRIS FI (Fillet Inspection) camera offers such a visual quality assessment. Because of its ability to detect defects such as bruises, fat and skin, IRIS FI takes the lead in supplying highest quality poultry meat.

Trimming

In a processing plant, a typical fillet line will feature a deboning system, a trimming station and a bone scanner. Additionally, IRIS FI offers the option to secure the visual quality. Installed after the trimming station, it can check in real-time whether the trimmed fillets, that are on the conveyor belt at that moment, meet the quality requirements of the customers. If trimming is done too intensely, too much valuable meat weight will be downgraded. Too mild trimming can lead to customer complaints and a lower order intake.

मनमें पहले जातर में मझे आहीरण

दिया कि पोल्टी का विजनेस करो।

Wat does IRIS Fillet Inspection see?

For fillet inspection, it is easy to set IRIS FI's allowed tolerance threshold of individual bruises, total bruise area, fat defects and total fat area. Deviant fillet shapes can also be taken into account. Among the fat defects, residual skin –not removed by a skinner– is also detected. Detected bruises can be subcutaneous bleedings or blood clots –visible as sharp, red dots that can simply be wiped off. As a result of inferior wing separation, the wing pit is notably a critical spot where several defects may occur, such as blood spots or remaining tendons. On the other hand, too enthusiastic trimming in this area will result in odd fillet shapes and too much good meat spoiled.

Distribution options

IRIS Fillet Inspection can be combined with Innova distribution software and a fillet distribution system, allowing to filter out the products that don't meet the criteria. Trimmers could miss a slice of fat or cut off too much, leaving an odd-shaped fillet. Such products are unwanted in a retail tray and should be directed to a different process stream. The camera and the software cooperate in assigning a certain quality to the fillets and this quality information can be used for decision-making for downstream distribution. In every situation, IRIS Fillet Inspection is the perfect tool to select poultry fillets of the best possible quality.

सेंटल बैक ऑफ इंडिया ने पोल्टी कारोबारी अचिन बैनर्जी को विशेष रूप से सम्मानित र्डमानदारी को डनाम किया है, यह सम्मान उनकी मेहनत, ईमानदारी और दुरदर्शिता के लिए दिया गया पाच हजार लान लंकर शुरू साल पहल टनअ ज्याहेट फेर्म्पली में सती सिरी रिपोर्टर, रापपुर महीने में ही चुका दिया। उसके बाद हम दे रहे फ्री एजकेशन थे। तमारे यहां सभी पोस्ट 25 हजार का लोग लिपा। जब तीसरा सेंट्रल बेक ऑफ इंडिया क्षेत्रीय ग्रेज़रट थे, नौकरी करते थे। स्टेकिन सीन १.५४ साम बर सिप, उस मयप एक बच्चा इसरो में मुझ नीकरी नहीं करने थी। में कुछ मेरी सारी मुर्गियां घर गई। ऐसे ही दो में ज्यादा बार हुआ जब मुझे जीने से भाषांत्वय में हे पत्र इंडम्प्रीन राषपर के मैनिजिंग डायरेक्टर अधिन धैनती अलग करना चाहता था, इम्सीलर 11वी अधिन ने बतवा कि मेरे मात-शुरू करना पड़ा। लेकिन मेंने हर नहीं पित चाहते थे कि मैं पद-लिखकर को मेहनत, इंम्प्रनदारी और द्रस्टशिता के बाट पहाई छोड़ सी। इसके बाट मानी और धीर-धीर दोबाग बिजनेस आलमारी बनाने को फेसट्टी में काम अधिकारी चन्, सेकिन मैंने पहाई में उद्योग जगत में ऊंचाई हासिन करने को खड़ा किया। मैंने चौधी बार 3.50 के लिए सम्पर्धनेत किया। चेंक के प्रबंध करने लगा। तब 300 रुपए महीना नहीं की। उनकी इच्छा भी इसलिए साख सोन सिया और 1987 में निदेशक एवं मुख्य कार्णकारी अभिकारी यिलता था। लेकिन किसी कारण से जरूरतमंद बच्चों की मदद करते एमधी राव में उन्हें सम्पानित किया। यतां से मुद्दे निकाल दिया गया। सब खुद को 100 बाग 30 की शेठ में रहत हूं। अभी कंपनी में काम बेनजीं मध्य भारत में कुक्कुट पालक मही लोफर ममहाते थे। इसके बाद पोल्ट्री शुरू को। आज ९ पोल्ट्री फॉर्म पिरदा, छेरीखोड़ी, कोटेश्वर, गोड़ी और करने काले कर्मचारियों के 278 में ज्यादा बच्चों की पहाई, आने-जाने के क्षेत्र में आएगी और सफल उद्यमी पर-पर जाबर लॉटरी टिवट बेचने का खर्च, कॉपी, पुस्तक, ढ्रेस आदि सभी तरह के खर्च कंपनी बने हुए हैं। उन्होंने कुक्कुट पालन करने लगा। प्रति टिकट 25 पैसे मिलते सिनील में हैं, जो 250 एकड़ में फैसी मेंट्रल बेंक से सबसे पहले 1982 में थे। इसके साथ पंचर दुकानों में घूम-घूम कर सोल्यूरान भी सरनाई काला है। यहां मुनियों और अंद्रों को नियमित बेंक के प्रबंध निदेशक एमजी राथ अचिन को सम्मानित करते हुए। 5 हजार का लोन लिपा था जो जांच के लिए अल्प्राधुनिक लेख है। उठाती है। यहां के एक बच्चे का 51 करोड़ तक पहुंच गया है। चैनजी रताः फिर मनितरी की दुकान में काम मैंने अपने दोस्त के साथ पोल्टी का का प्रायंत्र सालाम रहा हिएक चयन इसरों में भी हुआ है। ये 5000 हजार का लोन मिला। येंक ने अब तक सभी प्रत्यों को समय पर किया। होली में रंग और चिल्ला-विजनेस शुरू किया। विजनेस आपे को भरोरत नहीं था, इस्तीलए बेंबज्बामी करोड़ में ज्यादा का है। कंपनी में 600 सिलसिला 2003-04 में लगातर विल्ला कर राखी भी बेची। रुप पर चल रह है। इसके अलावा रायपुर वुकता कर एक उत्कृष्ट आणी के रूप बढ़ाने के लिए 1982 में लोन के लिए मेरे साथ काम देखने आणा करते थे। में ज्यदा सोन काम का रहे हैं। अभी बेक गया। शुरू में बेंक ने लोन देने से कंपनी में मेरा खेटा धनराज धेनजी भी अन्य प्रतीषाची के दिना आहरणे प्रस्तन में मेतमानों के लिए महिंगा रसतों थे। किराय पर 20 बाग 20 की जगह के पास दरभा गांव के 13 तकह

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UNLOCK THE IMMUNITY AT THE RIGHT TIME, WITH THE RIGHT STRAIN



'CATCHING UP WITH THE FUTURE'



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