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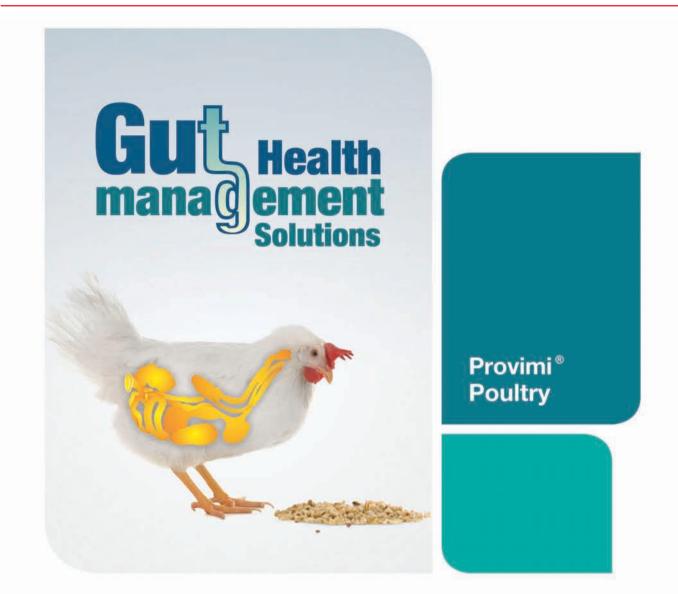


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Its time to give attention on the use of Antibiotics!



Dear Readers, The May 2019 issue of *Poultry Fortune* is in your hands.

Although it is not concerned with poultry industry, I have chosen to publish a feature

titled "A Rendezvous with the Gandhi Ladies" in this issue. Usually, children in political and other rich societies grow in a different atmosphere and develop soft or arrogant attitudes depending on the parents how they bring up their children. I still remember how Indira Gandhi was killed and the decent pilot Rajiv Gandhi had to accept to become the Prime Minister of India, and how he was killed near Chennai when his children Rahul Gandhi and Privanka Gandhi were teen agers. Rajiv Gandhi's wife Sonia Gandhi brought up her two children Rahul Gandhi and Privanka Gandhi in a simple way and the Italian lady has taken care of her children not less than any Indian mother. There were fears those days that Rahul and Priyanka would also be killed.

Rahul and Priyanka Gandhi had their education like any other common children and grown up with good habits and attitudes. Some people say that Rahul Gandhi is a "Pappu" and immatured person, but what we have to see is whether the person who is wishing to become the Prime Minister is good or bad person in nature and in habits. If given an opportunity, "Pappu" may learn and can do good and wonders as the Prime Minister of the country. Who knows what would happen sooner or the later !

Kemin Industries Inc, the US based global animal nutritional products and ingredients manufacturer expanded its manufacturing facilities in India located at the SIPCOT Industrial Estate near Chennai. With strong research and development facilities, Kemin Industries is steadily progressing with its sales and services network in different parts of the world, besides production facilities in some selected countries. Kemin Industries has a special preference for India due to its knowledgeable and dedicated Indian team. Some of the key positions at the global headquarters in USA were given to Indian professionals which shows Kemin's confidence on Indian intellectuals in the concerned profession.

Research from Germanwatch found more than half of tested chickens contained antibiotic-resistant bacteria. Research on behalf of Germanwatch found 56 percent of tested chickens contained resistant pathogens. For every third chicken, some contained bacteria which was even resistant to antibiotics of the highest priority for humans. Germanwatch is calling for a ban on the use of the most important antibiotics for humans in poultry, a levy on all other antibiotics in animal husbandry as well laws for better animal welfare on the farm.

Pune-based Nutrient Bio-Agro Tech Pvt. Ltd. (NBPL) has formed a joint venture with Spainbased company Norel on 1st April 2019. The new venture Norel NBPL India Private Limited is registered at Pune. Mr Karan Singh is the Managing Director and Mr Juan Jose Mallo Revilla is the Chief Commercial Officer of NOREL S.A. NBPL founded in 2008, is supplier of animal feed additives leading in the segments of Antioxidants, Mycotoxin Binders, Organic Minerals, Health and Performance booster.

In the Article section, article titled "Nutritional Interventions in Managing Gut Health Of Chickens" by Yasir Bashir discussed about in recent times, gut health management has gained a renewed importance in poultry production and a core factor for deriving ideal performance of birds. Gut health can be broadly defined as a dynamic equilibrium of complex interaction between diet quality, microflora population and intestinal mucosa, ensuring proper digestive function and lack of pathology. Strategic use of nutraceutical compounds like enzymes, probiotics, prebiotics, organic acids and phytobiotics in poultry nutrition can result in positive influence on gut microbial ecosystem, immunity and performance of birds.

M.A.Nazeer Editor & Publisher Poultry Fortune Poultry Fortune Our Mission

Poultry Fortune

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

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

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

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

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EW Nutrition highlights Optimization of Feed Cost in Challenging Period

farm and MrPravesh Verma of Jabalpur region were also a part of the esteemed gathering. The event was further enlightened bythe

Today, poultry industry is facing a major challenge in terms of rising prices of feed ingredients and limited availability of quality raw material. EW Nutrition India hosted a technical seminar in Jabalpur on 29 March 2019 to discuss on the optimization of feed cost through nutritional intervention in this challenging period. The key speaker in the program was Dr Mahendra Chaudhari, a leading poultry consultant with over 26 years of experience in the industry. The program was jointly

Nutrition.

Dr Shirish Nigam, Managing Director, EW Nutrition South Asia, infused confidence in the audience by addressing them as "Partners in Progress". He highlighted the importance of services offered by EW Nutrition like **Routine Technical Services** in Field, Audit of farm, Hatchery audits, Disease diagnosis, Mycotoxin risk assessment at doorsteps and also other services including Gut Health Surveillance- FITC markers etc. He assured that EW



inaugurated by Mr Sumit Kalia and Mrs Gaura Dubey, Director, Phoenix Poultry.

The event was kick started by a welcome address delivered by Dr Sadanand Karale, Zonal Business Manager (West).

Dr Chaudhari with vast experience and nutritional expertise deliberated on the choice of right ingredients, replacement options and suggested nutritional interventions for enhanced performance to keep the feed cost under control. This was followed by question and answer session. The audience enquired about feed optimization and nutritional manipulations during heat stress. This was explained and resolved by the technical team of EW

Nutrition would always stand in thick and thin situations with its customers and work towards achieving the goal, thus achieving a win-win situation for all. Another major highlight of the event was the discussion on the importance of probiotics in early life of chicks, which was explained by Dr Amrita Singh from the Product Management Team. Apart from this, an



Dr Shirish Nigam, MD, EW Nutrition South Asia

innovative and advanced probiotic applicatorrecently developed by the EW Nutrition was also showcased.

The delegates included technical staff and members from Phoenix Poultry presence of dignitaries from Jabalpur Veterinary College Dr J.L Vegad and Dr R.P.S Baghel.Mycotoxin Analytical Reader was also displayed and was a center of attraction for customers.



Jabalpur including Dr S.C Mishra, Mr Bharat Lal Patel and Mr Prabhakar Ayer. Mr Jayant Chaudhary fromJoy Poultry farm, Mr Raj Kumar Bajaj from Bajaj poultry

Mr Sunil Bhindwale from Phoenix group extended the vote of thanks to the distinguished guests before concluding the event.



A view of participants

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A Rendezvous with the Gandhi Ladies



Pinky Reddy, National President FLO 2018-19, hosted the event 'A mother daughter journey' with Sonia and Priyanka Gandhi recently in Delhi. Six hundred women turned up, minus their phones and bags (for security reasons) to listen to the Congress leader and her daughter talk about their personal life, Rajiv Gandhi the husband and father, Indira Gandhi,

Sonia Gandhi, Priyanka Gandhi Vadra and Pinky Reddy, the National President, FLO 2018-19, who hosted and moderated the event.

dealing with tragedies and growing up Gandhi. They even posed with everyone who wanted a picture with them. Watching Sonia and Priyanka open up to the audience and gracefully chat about their personal lives was a treat. Sonia Gandhi fondly recalled how it was her cravings for some Italian food in Oxford that led her to meet her future husband.

"There were no Italian restaurants, but a Greek eatery was serving a few dishes that were similar to Italian cuisine, so I went Former president of Congress Sonia Gandhi and her daughter Priyanka Gandhi Vadra, bared it all at the recently held FICCI ladies organisation event.

there. A German friend of mine was also there with my husband. That's the first time he saw me and asked our common friend who I was."

Rajiv Gandhi almost immediately knew he had met the "one" because he was soon writing to his mother Indira Gandhi, the then Prime Minister about Sonia.

When Indira Gandhi came to England to meet her son, she asked to meet Sonia and they conversed in French. While the Gandhis took a

"Priyanka is my best friend," says Sonia. This doesn't mean she does not play the mother card though, as Priyanka laughingly spoke about how her mum will still glare at her and Rahul when she feels they are not saying the right thing and comment on her dressing.





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shine to Rajiv's girlfriend and had no objections to them getting married, Sonia's father did not feel the same. When she came to India for the first time. her father, "Bought me a return ticket back to Italy and made me promise that I would make no decision till I spoke to him first," revealed Mrs Gandhi. But Rajiv was due to start his pilot training in Secunderabad and Indira was keen to see her son married before that.

The couple had no issues with this, but Sonia was not the one to break this news to her family. "They found out through the Italian radio," she laughed adding natural thing for Priyanka because she grew up in a matriarchal household. "My grandmother, the Prime Minister, was such a strong person, someone whom ministers, officers... All these powerful men were also looking up to her."

SONIA, THE HOUSEWIFE

After Indira Gandhi lost the election, there was some upheaval as the family had to look for a new home to move into. They finally settled into a place owned by a friend, but they had to struggle with staff issues. "For some reason staff were scared to come work for us," says Priyanka. So, Sonia did the cooking.



The Brother & Sister friendship : Rahul and Priyanka Gandhi

her father was so upset about not being consulted by her that he refused to attend the wedding and only came to India to see his daughter after the birth of Rahul Gandhi. Priyanka revealed, "They were so in love. Sometimes it would get embarrassing in front of my friends because dad was always hugging and kissing her.

ON INDIRA GANDHI

The thought of having Indira Gandhi as a mother-in-law can be very intimidating, but for 21-year-old Sonia, she became a mother. Female empowerment is a normal,

INDIRA'S ASSASSINATION

It was a happy, stable home till Priyanka was 12. After her grandmother's assassination she says things changed. "We were home schooled after that. All our classes like riding, martial arts... came to an end, we were not even allowed to go to the same place more than a few times. It was isolating." For Sonia this assassination was doubly hard to cope with because she was the only one at home when Indira Gandhi was shot. "It was my mother who ran to her and took her to the hospital," says Priyanka.



Priyanka replying to queries as Sonia Gandhi looks on

RAJIV GANDHI'S ASSASSINATION AND AFTERMATH

It was Rajiv and Sonia's strong marriage that ensured everyone at home coped with the tragedy. But Sonia was not happy about her husband joining politics because she was terrified that he too will be killed. Seven years later when her worst fears came true, it was left to Priyanka to break the news to her mother. "It completely broke her," said Priyanka. "I should have been looking after Priyanka but she looked after me," reveals Sonia. For Priyanka, stepping up was the natural thing to do because her dad would always tell her and Rahul to look after their mother.

MEETING THE ASSASSIN

For Privanka the decision to go meet Nalini Sriharan, a conspirator in her father's assassination, in jail was a life changing moment. "I went there thinking I could forgive her. But after meeting her I realised she was as much a victim of tragedy as I was. I was 19 when my father died, she was 23. She fell in love with the wrong person, got pregnant, was jailed for life and had her child taken away from her."

MOTHER-DAUGHTER BOND

"Priyanka is my best friend," says Sonia. This doesn't mean she does not play the mother card though, as Priyanka laughingly spoke about how her mum will still glare at her and Rahul when she feels they are not saying the right thing, or ask them why they have given their opinions at meetings (even though she took them there for their opinion) and comment on her dressing.

Priyanka's style is casual and everything dressy in her wardrobe is courtesy her mother and husband. What is sweet is while she is critical of her daughter in front of her, when Priyanka is not around, she doesn't shy away from telling people how wonderful her child is, as Pinky discovered when she went to invite her for the event.

MUM'S ANNOYING HABIT

Priyanka's pet peeve against her mum is the constant WhatsApp calling and not understanding that there is terrible signal. "She will just continue saying 'Hello, Hello...'. She won't understand that I can't hear a thing."

A PRIVATE LIFE

The Gandhi's are not your regular Indian family, but Priyanka says, you can be a public figure and lead a private life at the same time if you want to. "I go to the movies, to Khan market, everywhere and am not bothered." Even social media is not an issue if your accounts are private, she says.

Courtesy: Deccan Chronicle.

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Palaniswami promises separate board for poultry in Tami Nadu



Tamil Nadu CM Edappadi Palaniswami and AIADMK candidate P. Kaliappan campaigning in Namakkal.

AIADMK leader and Chief Minister of Tamil Nadu State Mr Edappadi K. Palaniswami on April 11 assured that a separate board would be set up for poultry industry in Tamil Nadu.

Hitting the road to canvass votes for his party's Lok Sabha election candidates P. Kalliappan (Namakkal) and K.R.S. Saravanan (Salem) he said, "Namakkal is known for poultry farming and to cater to the needs of poultry farmers here, a separate board for poultry will be formed."

Ahimsa mutton? India's 1st lab-meat project takes off

Hyderabad: India's first laboratory meat project took off on Thursday with the Hyderabad-based Centre for Molecular Biology (CCMB) and National Research Centre on Meat (NRCM) coming together to produce "ahimsa meat". With an initial funding of Rs 4.5 crore by the department of biotechnology, scientists will develop mutton and chicken from stem cells, without animal rearing. The clean meat, CCMB scientists said, is nutritionally equivalent to conventional animal meat and it tastes, smells, looks and feels the same

Experts said using the technology and producing meat in the lab would mean there would be no need to raise and slaughter animals for meat. It not only gives food security, but will help in animal welfare and carbon footprint reduction. India is among few countries where the government is funding the project to produce fat-free boneless meat.

During a summit on the future of protein and food technology revolution held in August 2018, Union minister

Maneka Gandhi had advised CCMB to make cell-based ahimsa meat on commercial scale in the next five years. CCMB director Rakesh Mishra on Thursday said the institute will develop technology to take laboratory cell culture process to cell-based meat production, so that it can be used at industry level.

"The investment made by the Centre in this project is the biggest investment by a government in this technology," said Alokparna Sengupta, deputy director of Humane Society International-India — the organisation promoting ahimsa meat.

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Cheap chicken a major health risk, finds study

Research from

Germanwatch found more than half of tested chickens contained antibioticresistant bacteria.

Research on behalf of Germanwatch found 56 percent of tested chickens contained resistant pathogens. For every third chicken, some contained bacteria which was even resistant to antibiotics of the highest priority for humans. Germanwatch is calling for a ban on the use of the most important antibiotics for humans in poultry, a levy on all other antibiotics in animal husbandry as well laws for better animal welfare on the farm.

The study of Berlin of chicken meat samples from large discounters was commissioned by the environmental and consumer protection organisation Germanwatch and has revealed alarming findings: 59 portions of chicken meat - purchased from Lidl, Netto, Real, Aldi (North and South) and Penny - or more than every second sample (56 percent) is contaminated with antibiotic-resistant pathogens. Every fifth sample has several different resistances and more than every third sample is contaminated with bacteria resistant to reserve or human critical antibiotics special antibiotics that have to work in sick people in an emergency when other antibiotics stop working.

"Our samples show alarmingly high chicken meat resistance rates, suggesting that the federal government has failed to combat antibiotic resistance from factory farming," says Mr Reinhild Benning, agricultural expert at Germanwatch.

Minister of Agriculture Mr Klöckner said that bacteria resistant to antibiotics and even multi-resistant germs [was found] on meat destined for the kitchens of consumers, restaurants and hospitals. Benning said: "The requirements for the use of reserve antibiotics are much too lax. There are also high-risk gaps in the recording of antibiotic consumption. This opens backdoors for the misuse of antibiotics in industrial animal husbandry in Germany."

Dr Gerd Ludwig Meyer, specialist in internal medicine in Nienburg / Weser, illustrated the risks for consumers and residents: "People can capture antibiotic-resistant germs from factory farming, among other things, via food or via emissions from animal factories. Resistance rates will only drop when the federal government finally complies with its duty of care and prohibits veterinarians from compensating for the consequences of catastrophic housing conditions and turbobreeding in the production of cheap meat and cheap milk by prescribing antibiotics," said Meyer.

According to the World Health Organization, around 700,000 people worldwide die every year from infections that are no longer helped by antibiotics and, according to the Robert Koch Institute, up to 4,000 people die in Germany each year.

No slaughterhouse company consistently offers uncontaminated chicken meat

Of the five discounters, twelve portions of conventional chicken meat were purchased from each. A sample from Penny was damaged during shipment and not examined. Over 80 percent of samples were contaminated at Penny, 75 percent at Aldi, over 50 percent net, and every third sample at Lidl and Real. They all come from the four highest-grossing slaughterhouse groups in the chicken meat sector: the PHW Group, the Sprehe Group, Plukon Germany and the Rothkötter Group. None of the slaughterhouses offered consistently unpolluted chicken meat.

Meat from farm butcheries shows hardly any contamination

In addition, Germanwatch conducted eleven test purchases at farm slaughterhouses from all over Germany. Here, only one chicken meat sample was found to contain one MRSA germ (9 percent). No resistant pathogens were detected in the six organic chicken meat samples from artisanal slaughter. These sampling results point in the same positive direction as the representative monitors of the Federal Office of Consumer Protection (BVL), who also found significantly lower antimicrobial resistance on broiler chickens from organic farms.

Despite halving the use of antibiotics in Germany since 2011, more than twice as many antibiotics per kilogram of livestock are still administered in Germany than in livestock farms in Denmark, Great Britain or Austria. Above all, Germanwatch calls for a ban on the particularly important reserve antibiotics for animal husbandry. In addition, the consumption of veterinary antibiotics must be fully

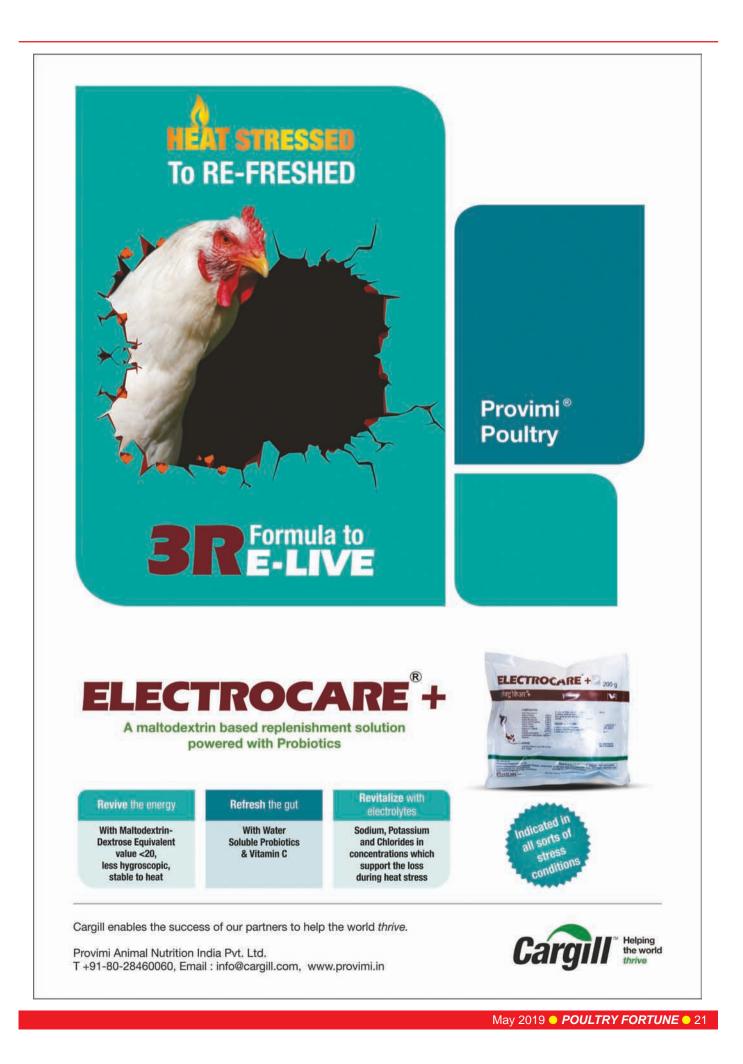
covered, including in the animal feed industry. With statutory minimum prices for veterinary antibiotics Minister Klöckner must ensure that investment in more animal-friendly forms of housing will be cheaper than the hitherto dominant mass animal husbandry with high antibiotic needs, because it affects a lot more animals and the high consumption promotes the formation of resistance.

"The Federal Government has a special responsibility not only for the health of its own population, but also beyond Germany, and in the past year alone almost one million tonnes of chicken meat were exported," explains Mr Reinhild Benning. "The poultry meat industry is also exporting antibiotic resistance and related health risks, not least to countries with very weak health systems."

Germanwatch demands labeling of the livestock form on food

Germanwatch demands that the form of keeping be indicated on animal food, so that consumers can avoid meat from industrial livestock. "Only a legal labeling scheme modeled on egg marking gives farms the long-term security for animal welfare investments in the barn," says Mr Benning. Supermarket companies would have to end their competition for the lowest food price. The associated exploitation of humans and animals increasingly produces risks, for which antibiotic resistance is an example.

Note: All samples were examined by the Laboratory for Pharmacy at the University of Greifswald on behalf of Germanwatch. It is a sample examination. Stateof-the-art zoonotic monitoring has been used in tests in anonymised supermarkets and at slaughterhouses for comparable results in chicken meat resistance rates.



Amid new cases, poultry experts conduct workshop to address VND

Poultry experts urge preventative action to limit additional spread of deadly avian disease.

Top poultry experts from the California Department of Food & Agriculture (CDFA), academia — the University of California-Davis (UC-Davis) — and private industry (Foster Farms), along with nearly 100 urban farmers and backyard poultry owners, gathered April 15 in Dublin, Cal., to discuss ways to prevent further spread of the highly contagious virulent Newcastle disease (VND).

Although only a single case was recently diagnosed in northern California's Alameda County and is no threat to human health, more than 1.1 million birds have been lost to VND in southern California since May 2018, with additional cases confirmed in the past week.

The poultry experts are urging preventative action to limit any further spread of this deadly avian disease. Spread of VND to California's Central Valley could be catastrophic to local economies, farming communities and backyard poultry enthusiasts, according to an announcement from Foster Farms.

California is home to more than 100,000 backyard chicken flocks, and northern California houses 95% of the state's commercial poultry industry, the announcement said. Effects of this disease are equally devastating to backyard poultry and commercial flocks and pose a risk to the food supply, state economy and many northern California communities that depend on poultry and egg production.

The VND outbreak has prompted strict quarantines across Los Angeles, San

spread of VND.

"In partnership with Foster Farms and the California Poultry Federation, we are bringing together some of the best minds in the poultry industry to provide the latest information to

disease."

Foster Farms, a familyowned poultry company based in Livingston, Cal., and the California Poultry Federation hosted the workshop to increase public awareness and provide access to critical resources. The seminar covered standard biosecurity measures, signs and symptoms of VND and resources available to backyard poultry owners should birds become



Bernardino and Riverside counties in California and \$45 million in emergency funding from the U.S. Department of Agriculture. In the first week of April, VND was detected in Arizona and is believed to be linked to the current outbreak in California.

The last major California VND outbreak in 2002-03 cost nearly \$170 million to eradicate, and nearly 4 million birds were depopulated.

At the meeting, California state veterinarian Dr Annette Jones reinforced the importance of a collaborative approach, increased vigilance and biosecurity in stopping the owners and give them useful tools and tips to safeguard birds and report concerns," Mr Jones said. "Although Foster Farms flocks have not been affected, our commitment as veterinarians is to ensure that all birds are protected," said Mr Robert O'Connor, a veterinarian with Foster Farms and one of the workshop speakers. "That is why, along with the California Department of Food & Agriculture, the **California Poultry Federation** and UC-Davis, we are sharing our knowledge and experience with backyard poultry enthusiasts. We all have a part to play in keeping our flocks safe and containing this deadly avian

sick. Organizers issued an infographic outlining steps to prevent VND and encouraged participants to share the information on social media.

Additional resources include the websites of CDFA, USDA's Animal & Plant Health Inspection Service and the California Poultry Federation.

Besides Mr Jones and Mr O'Connor, the workshop featured Foster Farms veterinarian and biosecurity expert Dr Charles Corsiglia, poultry science specialist Dr Maurice Pitesky and veterinarian pathologist Dr Asli Mete from UC-Davis and the California Animal Health & Food Safety Laboratory.

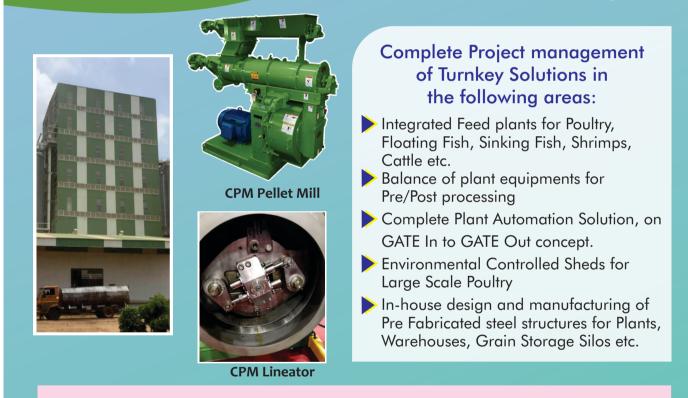


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Livestock sector looks to increase exports

Hanoi (VNA) – The livestock sector produces more than 5 million tonnes of meat each year, meeting domestic demand, but the target is to increase export, according to Minister of Agriculture and Rural Development Mr Nguyen Xuan Cuong.

At a recent conference on promoting the production and export of poultry products, Minister Cuong said the ministry plans to focus on poultry, to 250-340 in neighbouring countries such as Thailand and Indonesia.

According to Mr Nguyen Van Trong, deputy director of the Department of Livestock Husbandry, the poultry industry has been shifting from small to big scale, with rising productivity and product quality. The total poultry flock is increasing by an average 6 percent a year, with annual output reaching more than 1 million tonnes



The livestock sector looks to increase egg exports.

considering the big room for development when poultry products account for only 2 percent of total meat output.

Poultry consumption in Vietnam is also lower than the world average, which means demand will continue to rise.

Acting director of the farm produce processing and market development Nguyen Quoc Toan cited statistics that show average consumption of eggs in Vietnam is at 110-120 per person a year, compared of meat and more than 11 billion eggs at present. Vietnam has exported between 10-15 million salted duck eggs each year, and began to ship abroad processed chicken in September 2017, with nearly 8,000 tonnes exports in 2018. The country also exports several poultry products such as canned quail eggs, braised black chicken, and egg powder.

Among problems facing the poultry sector, experts particularly pointed to the poor quality of breeding stock, and a lack of linkage between farming and slaughtering and processing in the production chain.

The agriculture minister urged local authorities to exercise strict control of the production process in livestock farming, and invest more in processing.

Regarding export, the sector was advised to focus on processed products to avoid quarantine and food hygienic barriers in target countries.

Experts recommended some suitable markets for Vietnam's poultry meat products such as Japan, China and the Philippines based on existing favourable conditions such as free trade agreements and near distance. Meanwhile, egg export should target Northeast Asian and Southeast Asian countries.-VNA

Organic meat and Poultry market to reach \$15.6 billion by 2026

The global organic meat and poultry market is expected to reach \$15.6 billion by 2026, according to a new report.

The increasing number of government regulations to support organic livestock and poultry globally is a significant factor influencing market demand, according to the report, from Reports and Data.

Flexible rules and regulations associated with the production and packaging of organic products have led to the smooth functioning of the organic sector. For example, in Europe, the Regulation (EU) 2018/848 of May 30, 2018, governs the organic production and labeling of organic products.

However, the high cost of organic products is expected to be a key factor restraining market growth. A study published by the USDA in 2016 showed that between 2004-2010, organic eggs accounted for the largest fluctuations in price premiums, which ranged between 66 and 173%. A similar study showed that between 2015 and 2016, there was a 114% price premium to conventional at the end of the fourth quarter of 2015. However, in early 2016, the premium widened and the number was above 200%, which was significantly higher than the historical average.

Asia Pacific is expected to be a key revenue generating region in the forecast period. The market is projected to grow at a CAGR of 9.6% in the forecast period. The region is gradually shifting towards organically produced fresh products through major economies such as India, China, and Japan among others. In 2016, the Japanese market for organic fresh food was estimated to be around USD 5.91 billion. Eggs were among the top organic fresh food with a share of around USD 75.3 million.





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H&N International holds its Distributors Conference 2019 at Phuket



Dr A.K. Rajput making his presentation in H&N International Distributors Conference 2019 held at Phuket in March 2019.

New Delhi: Dr A.K. Rajput participated as one of the distinguished speakers in the second edition H&N Distributors Conference 2019 held at Phuket in March 2019. Delegates from different countries across the world took part in the conference organized by H&N International, Cuxhaven, Germany.

The topic on which Dr A.K. Rajput gave his presentation was "The Value of Service & Market Intelligence". The presentation was supported by PPT. Since the topic was new and very challenging, its presentation was attracted by everyone in the audience.

Dr A.K. Rajput was also one of the panelists in the round table discussion held on Improve Sales

(Marketing Approach). The discussion went for 30 minutes and every panelist put forth his points and it was followed by a Q&A session.

Good Gesture!

The company has presented Euro 1000 cheque as an honorarium to Dr A.K. Rajput as an international >>



Expert panellists during H&N Distributors Conference at Phuket.

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Centre to release draft rules on better practices in poultry

New Delhi: Acting on order of the, the Centre will soon come out with draft rules on protection of hens from a practice of keeping these poultry birds in 'battery cages' and seek objections, if any, from stakeholders (industry, experts within a certain timeframe before finalising legally valid guidelines under the Prevention of Cruelty to Animals (PCA) Act.

"We have finalised the draft rules. It'll now be issued for getting suggestions and objections from stakeholders any day latest by April 20," said an official from environment ministry which has been working on the issue for long in the wake of certain petitions on the issue in the court will take note of the legal position, law laid down, the scientific data and the constitutional mandate and reports of the Law Commission and various other material and analyse as to whether the draft rules meet the requirements of law," said the order of the HC bench of Chief Justice Rajendra Menon and Justice Anup Jairam Bhambhani. Moved by the plight of poultry hens who are confined to cramped

>> speaker. It is proud to mention that Dr A.K. Rajput donated this Euro 1000 to the International Egg Forum. The International 'battery cages', retired judges of the Supreme Court and Delhi high court had in March written to environment ministry urging it to come out with relevant rules that provide more humane options of keeping the poultry birds, which would help in preventing diseases to the hens and also benefiting healthy commercial egg production in the country.

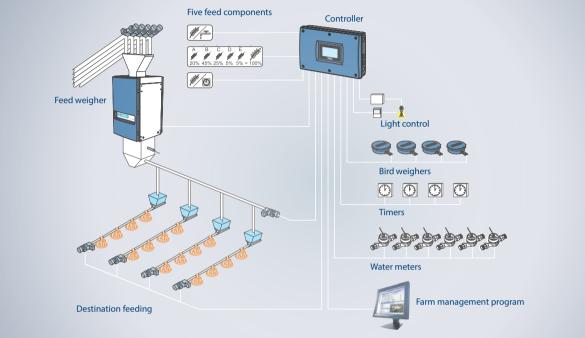
Retired Justices A K Sikri and S N Dhingra in their separate letters to environment secretary C K Mishra last month highlighted that 'battery cages' were being used by the poultry industry in violation of the PCA Act and it was necessary to notify the rules at the earliest as per recommendations of the law commission of India which thoroughly examined the issue.

Close on the heels of retired judges' requests, animal rights activists early this month submitted a petition, signed by more than 50,000 people, to environment ministry demanding framing of strict rules to end the cruel practice of keeping egg-laying hens in battery cages.

Source: Times of India

Egg Forum is working for helping to improve nutrition, health and education in poor/under developing countries.





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Government Allows Import of Maize for Poultry Sector, Huge Shortfall Persists



KPFBA President K.S. Akhilesh Babu, Inayath Ulla Khan and the team meeting with D.V Sadananda Gowda.

Bangalore: With the poultry sector hit by severe short supply of maize, the

Government of India on April 3, 2019 has notified to import one lakh metric



Meeting with Suresh Prabhu

tonnes of Yellow Maize (feed grade) under the TRQ (tariff rate quota) scheme. The Karnataka Poultry Farmers and Breeders Association (KPFBA) which made a representation to the government, while thanking the Minister reduction in cultivable areas as in Bihar'.

Following the notification, the MMTC floated a global tender for import of Yellow maize (non-genetically modified organism or GMO) under the TRQ Scheme at 15 per cent Customs Duty and meant only for actual users and not for trading on 15 April 2019.The KPFBA has already given a consolidated list of its actual users.



KPFBA team meeting with PEC Ltd

of Commerce, Dr Suresh Prabhu for the notification, has estimated that there is still a huge shortfall of 15 lakh metric tonnes for immediate use.

The Government notification itself mentions that there is 'unprecedented' shortage of feed grade maize (for poultry sector) mainly because of 'drought, pest attacks and significant The notification issued by the Joint Director General of Foreign Trade, Mr S.P.Roy said "as all corns are classified under the same HS code (Exim code 10059000) wherein the BCD (Basic Customs Duty) is 60 per cent, import of feed grade maize becomes cost prohibitive." Secondly, import under TRQ (5 lakh MT) has been suspended due to a High Court of



Pan India Poultry Members meeting held by KPFBA recenty



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NEWS



Meeting with MMTC Bangalore



Meeting with DGFT



KPBFA office Bearers Manjesh K. Jhadav, Mohan Gada and others with Radha Mohan Singh

Hyderabad of December 31, 2014 on classification of corn. The poultry sector had requested the government to separately classify feed grade maize from the popcorn grade maize and allow import of the former under TRQ.

The Ministry has said the process of classification has commenced wherein feed grade and popcorn grade will get different HS codes.

The President of KPFBA, Mr K.S.Akhilesh Babu in a letter addressed to the Minister of Commerce has stated, "The shortfall in Karnataka alone is over 3 lakhs metric tonnes and the all India requirement is estimated to be over 15 lakhs metric tonnes. In contrast to this the permission to import one lakh metric tonnes is not helpful. It will not be sufficient to meet the needs of even a single State. The poultry farmers will continue to suffer from the shortfall of maize."

Mr Akhilesh Babu has also urged the government to exempt the poultry farmers from payment of 15 per cent customs duty as the sector is going through severe crisis. Due to the short supply of maize, the market price for maize is at its highest point, leaving many farmers to starve their poultry, maize being the

most preferred feed.

Mr Akhilesh Babu further said, "We would continue to push the government to increase the quantum of import at zero per cent customs duty and also to bifurcate the classification of HS codes for feed grade maize and popcorn grade maize, at the earliest."

About KPFBA

Karnataka Poultry Farmers & Breeders Association [KPFBA] is an Apex body, representing Poultry Farmers and Breeders of Karnataka, India. It was established in 1991 to promote the development of poultry breeding and farming in Karnataka, where the occupation is a major activity. The association is registered under the Karnataka Societies Act 196, u/s 12 A (a) 80G of the Income-tax Act 1961. **KPFBA** aims at providing facilities for exchange of information and opinion of interest to poultry breeding farms and poultry farmers. It believes in the advantages of united action to accomplish goals

where individuals will not be

in a position to accomplish

on their own.

Government mulls rules to improve poultry living conditions

New Delhi: Your table eggs may soon become tastier as the government

is working to put in place rules that will uplift the living conditions of poultry in India.

New rules to be implemented by the government may change the way

poultry is reared and consumed in India. The industry says that it is ready

to roll out the changes. "We are open to dialogue. If the government brings in new rules, we are ready to implement them. However, in several

developed markets, poultry farming includes battery cages because the practice is more efficient and reduces risk of diseases," said B

Soundararajan, chairman and MD of Coimbatoreheadquartered Suguna Holdings, one of the largest poultry companies in India.

Animal welfare organisations, however, do not agree. "Chickens are inquisitive and interesting animals whose intelligence in

some cases surpasses that of small children. They, like all animals, have a biological need to exercise and move about. Yet,

these smart birds are among the most abused animals on the planet. They are kept in wire cages for eggs so cramped that

they cannot even spread a wing. Instead of giving them more space, the industry slices off their beaks with a hot blade as they

peck at each other in frustration. The urine and faeces of the birds in rows of cages above often falls on the ones below," said

Nikunj Sharma, associate director of policy at PETA India.



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NBPL Announces Joint Venture with NOREL

PUNE: Pune-based Nutrient Bio-Agro Tech Pvt. Ltd. (NBPL) has formed a joint venture (JV) with Spainbased company Norel on 1st April 2019. The new venture Norel NBPL India Private Limited is registered at Pune. Mr Karan Singh is the Managing Director and Mr Juan Jose Mallo Revilla is the Chief Commercial Officer of NOREL S.A.

NBPL founded in 2008, is a privately held, global supplier of animal feed additives leading in the segments of Antioxidants, Mycotoxin Binders, Organic Minerals, Health and Performance booster.

NOREL is a Spanish company whose business is to develop, manufacture and marketing feed animal additives and raw materials to boost animal performance through nutrition and scientific innovation. With more than 35 years of experience and present in more than 70 countries around the world, Norel is a leader in poultry, ruminant, swine, pet and aquaculture segments with their range of specialized product. Madrid Spain headquartered Norel has several factories and R&D units in many provinces in Spain, Mexico, Egypt & USA. Norel has expanded its production facilities in Egypt and USA recently. In the



Karan Singh, Managing Director, Norel NBPL India Pvt Ltd

future, Norel is also planning their production facilities in Asian subcontinents.

The company designs products to ensure improved nutrient absorption and bring out the best performance with minimal resources. Norel, Spain and NBPL, India have been marketing partners previously since the last 3 years, but understanding the growth module of the animal

health sector in terms

of nutrition in India and

neighbouring countries such as Bangladesh, Nepal and Sri Lanka, a bigger picture and perspective has been envisioned to cater to huge demands from the emerging markets. The concept of localised production module would cope with the demand and supply paradigm.

NOREL already has an existing brand value in the Indian subcontinent, but with this JV, a larger scale and scope of business can be created and value added, along with immense expertise in research and development in nutrition based products. A complete range in nutrition in the animal health sector will help cater from the ground level.

The Company launch event was conducted at Karnal, Haryana on 22 April 2019 and Coimbatore on 24 April 2019.

Prof Gonzalo G. Mateos was invited as a subject matter expert speaker. Prof Mateos is Professor of Animal Science at University of Madrid and works as a consultant for the animal feed industry. Prof Mateos made a presentation on "Nutritional and feeding strategies for broilers: New Advances" and highlighted the importance of mineral nutrition to optimize immune response and fast growth performance and the serious threat to immunosuppression by Mycotoxins.

During the launch event, Mr Juan Jose Mallo Revilla presented briefly on "Gut Health – the impacting paradigm of broiler poultry business".

In an interaction with the press, Mr Juan Jose Mallo Revilla is the Chief Commercial Officer of NOREL S.A. presented the company's history, vision, mission and future goals.

Could you please briefly outline the history of your company?



A view of participants in the meeting



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Better Nutrition Through Biotechnologies



Juan Jose Mallo Revilla and Karan Singh responding to queries

Norel was founded in 1980, with the aim of delivering non medicated feed ingredients for animal nutrition. After two years as trading company Norel started production operations in Spain (Organic Trace Minerals and Spray dry fat concentrates); soon after that, Norel started the production of bypass fats, which is one of our biggest products, and where Norel is leader Worldwide. Still in the `80, Norel purchased Enco in México, first step outside Spain. Norel increased its portfolio merging with Nature, another Spanish origin company that had been founded in 1970; Nature provided the knowledge on production of butyrates, mold inhibitors, antioxidants and flavors amongst others. Afterwards, Norel started operations in Egypt, and continued expanding internationally because of how adequate the products Norel delivers is for today's animal production.

What is your role in the company? Vision & mission of your company ?

I work as the Chief Commercial Officer in Norel and I lead the business development of the company. I work the commercial team, where we rely a lot on local people, either directly hired, or with distributors; the technical team, that develops products that fulfill the necessities of the market, the regulatory team, that registers them all around the globe and the marketing team, that positions them from the sales point of view.

Could you describe your product range with specific reference to food safety & feed safety?

Norel product range includes feed ingredients. mainly produced for ruminants (bypass fats), and additives, that work for all species, and that are key for the food chain, as they promote a healthier growth of the animal, and reduce the excretion of pollutants to the environment. Norel can produce technological products like mycotoxin binders, mold inhibitors, salmonella killers, antioxidants and pellet binders, that ensure that the feed reaches the animal in perfect conditions, reducing the possibility of the animal falling sick because feed poisoning. Besides, Norel produces Organic Trace Minerals, that delivers the most concentrated and available organic trace minerals to the market, improving they disponibility for the animal, and allowing the nutritionist to reduce



the levels of these essential ingredients in the diet. Norel produces as well butyrate's, the most effective organic acid for the animal in terms of productivity, as it works directly in the intestine, improving animal immune response, feed digestibility and control of possible pathogenic bacteria, it can be combined with essential oils or with medium chain fatty acids, which have synergistic effect with the first one. Norel produces flavours, and essential oils, that provide better acceptability to the diet at the same time as they can have a positive effect on animal health and performance. Last, Norel produces a range of products for ruminants that reduce the acidosis cases in high production cows.

What new products have you recently introduced or are you going to launch in the coming future ?

Norel has recently launched a range of encapsulated ingredients for ruminants, that again, help the animal to utilize better these ingredients, reducing the wastage, and improving animal performance and fertility.

Norel dedicates more than 6% of its turnover to R&D, and it is key for the success. We are continuously developing solutions that fit the market.

Which are the areas of the world representing the greatest potential for growth in livestock sector ?

It is quite clear that world population is growing at a very fast pace, and that



we need to feed the world with dedicated, precise and high quality products that improve production while reduce wastage. US market is one of the fastest growing markets, as their population is very worried about those facts, but Asia Pacific, and India, especially is growing at an even faster pace, as populations are much bigger, and also have very good, dedicated professionals, that know



Juan Jose Mallo Revilla, CCO, Norel S.A.

how to provide what the customer needs.

What are the main advantages your products offer to your clients?

Efficiency and precision. Our products have an extremely good quality, and work in the way we describe. We offer the maximum concentration of active principle available, with the best vehicle that will make it work where it needs to work.

What makes Norel different from its competitors in the market ?

Devotion. We know what we do is right, and we dedicate all our efforts to help our customers, and



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NEWS

reach as many of them as possible, so that they can all get advantage of what we do.

If there were three things you would like to see being changed in the global feed and livestock industry, what would they be ?

Respect, we are feeding the globe, yet our industry is very critiqued for how we do things, and mainly because of ignorance. General public should be educated on how the food is produced and the love all producers dedicate to their animals.

I also believe there should be a real control of how antibiotics and medicines are used in the industry, as it affects directly human health. I do not mean that we should not medicate the animals, on the contrary, we need to treat them if they are sick, but very often we see problems caused by overuse of antibiotics when they were not necessary.

Reduction and recycle of wastage. Our industry is still not efficient enough, and there are many activities, economically viable (even profitable), that would help tremendously to reduce our wastage.

How do you compare the challenges and opportunities between developing markets like India to that of the developed markets ?

In a global market like the one we live in, there are challenges that affect all of us. It is a challenge to cope with the increasing demand of protein from animal origin, and it is an even more difficult challenge to be able to increase production in a sustainable way. There are opportunities in those very



Prof Gonzalo G. Mateos challenges for companies with the correct knowledge to contribute to the industry to do things in the right way.

Here in India, just like in USA or Europe, antibiotics are under increasing criticism and feed additives can play a role in their replacement. What is your opinion on that ?

It is indeed because of this trend, and the fact that we must not abuse of antibiotics in animal production that Norel is successful round the globe. A production with limited use of medicines is possible, but needs the use of additives to help the animal perform as much as the genetics allows it.

In a freewheeling interview Mr Karan Singh, Managing Director, Norel NBPL India Pvt. Ltd. shared his vision for the company. The interview is reproduced below:

How do you plan to service your clients in the Indian subcontinent market ?

We have a dedicated team of sales and technical personnel who travel across the region regularly and interact with customers and ensure delivery of appropriate inputs and products. We also plan to have several technical services, support for which will be provided by Norel's expert team. We have channel partners forming our distribution network which will expand from time to time.

Which will be the main future challenges in your sector in the coming years ?

The main challenge will be, on one hand, to keep up with the increase of demand that we will see, and on the other, to continue improving animal production efficiency.

What is the secret behind Norel products becoming the leading choice of feed & food industry in India ?

Quality and reliability. We are committed to deliver products of a constant, excellent quality, that improve the competitiveness of the user.

Where do you see Indian Poultry Industry after 10 years?

The demand of poultry products is increasing in India, I expect the consumption per capita to increase in at least 50%. Besides, India being a producer itself of soya and corn, and with very good production indexes, India can start thinking about increasing exports of poultry products to other markets.

What is the role of Nutrient Bio Agro Tech Pvt. Ltd. (NBPL) in Norel and how do you foresee this joint venture becoming a leader in Indian Livestock sector ?

Nutrient Bio Agrotech Pvt. Ltd. (NBPL) is Norel's partner for the region and we bring market knowledge to position Norel here, we will share inputs about demand for an incredibly complex market like the Indian subcontinent's poultry industry.

What is your take home message to consumers?

Norel NBPL is very excited to be operating in India and bringing the best of our knowhow to this industry. We are here to help our customers and consumers at large grow in a sustainable, efficient and more profitable way.



The team of Norel NBPL India Pvt Ltd during its joint venture Launch meet

CLFMA holds regional technical Seminar at Karnal

Karnal: Following the success of technical seminar in Pune CLFMA organised similar seminar at Vivaan Resort in Karnal on April 17 under the leadership of CLFMA Chairman Mr S.V. Bhave with support from Poultry Federation of India and Broiler Breeder Association, North India.

Around 200 delegates from North India, Central India attended the Seminar.

Dr Devender Hooda, North Zone President of CLFMA welcomed the delegates.





S.V.Bhave, Chairman, CLFMA CLFMA.

Dr Sujit Kulkarni, Managing Committee member of CLFMA and Convenor of the program introduced agenda of program and introduced technical speakers.

Dr Sudheer Rukadikar, well

Gurminder Bisla



Dr Sujit Kulkarni different disease conditions, which causes immuno suppression, bacterial diseases, viral diseases, mycotoxins, Coccidiosis, poor management, etc. Further, Dr Sudheer Rukadikar explained how to



Dr N.K.Mahajan



Balaram Bhattacharya

prevent immunosuppression

by good quality feed, good

control over mycotoxicosis,

better management.

Dr Ajay Deshpande,

Director, Siddivinayak

Farms & Breeders from

Pune . in his presentation

on "Breeder Farming – An

vaccination etc.

Art. Skill and Dedication". quoted basic management of breeder farming as one of key factors of success. Selection of Vaccination, accurate feed formulation and most important record keeping and analysis or review of all records is very crucial.

Third and last speaker was Dr N.K.Mahajan, Dean of College of Dairy Science and Technology Hisar. His presentation was on

"Recent development in Al and its impact on Poultry" He started his presentation with history and origin of AI virus and how its mutation happen in different strains.

In prevention program he highlighted about vaccination program, biosecurity management etc.

After technical seminar short note given by PFI Treasurer Mr Ricky Thapar and North India Broiler Breeder Association President Mr Gurminder Bisla.

As a token of love, CLFMA presented mementoes to all the speakers, PFI president, North India Broiler Breeder Association President and to the sponsors by Mr S V Bhave, Mr Naveen Pasuparthy, Treasurer, Mr Divya Kumar Gulati, Secretary, Mr Suresh Deora, West Zone President, Dr Saikat Saha, Mr Balaram Bhattacharya, Managing Committee Member, CLFMA. Dr Sujit Kulkarni thanked participants, speakers and sponsors. Lunch was hosted to the participants with good social networking.



Dr Devendra Hooda



Divya Kumar Gulati

Mr S.V.Bhave, Chairman of CLFMA of India introduced about CLFMA and highlighted its recent activities for Indian poultry industry. He emphasized on present situation of raw material crisis and assured further discussion with Government authority from

Dr Sudheer Rukadikar **Ricky Thapar**

Dr Ajay Deshpande

known poultry consultant explained about "Immuno suppression – Reasons & solutions for most critical condition of Poultry Farming." He shared useful information about how immunosuppression has negative impact on performance of poultry,



A view of participants in CLFMA of India seminar at Karnal

Naveen Pasuparthy giving away memento to a sponsor of the seminar held at Karnal

Kemin Expands India Facility to Increase Manufacturing Capabilities

Additional plant capacity will help meet increasing demand for animal protein industry in South Asia



Dr Chris Nelson, President & CEO, Kemin Industries Inc. dedicating the new facility near Chennai, India on March 23.

GUMMIDIPUNDI, Tamil Nadu, India: Kemin Industries, a global ingredient manufacturer focused on improving the quality of life for more than half the world's population, announced recently the expansion of its manufacturing facility in India, located in the SIPCOT industrial estate. This will allow Kemin to better serve the increasing demand for specialized nutritional ingredients that address the region's rapidly growing animal protein industry.

"South Asia plays a very important role in the global animal feed market, producing more than 35 million tons of compound feed. Due to rapid economic growth in India, Bangladesh, Sri Lanka and Nepal, the overall demand for animal protein is increasing in the region," said Dr Chris Nelson, President and CEO, Kemin Industries Inc."For this reason, we decided to invest and grow the capacity at our existing Gummidipundi plant near Chennai. Keminis always

seeking opportunities to better meet our customers' needs regionally and provide high-quality products and solutions. This expansion is yet another example of how Kemin puts customers first."

The new state-of-the-art facility is one of the most sophisticated plants in the global Kemin portfolio to produce metal propionate trace minerals. The new facility's "Integrated **Organic Mineral Production** System" ensures highly efficacious organic trace minerals in different combinations for animals. The production facility for liquid products is also significantly improved in the new facility. The facility has also received new certifications and endorsements to better serve Kemin Food Technologies customers in Asia.

"For more than 20 years, Kemin has established a strong footprint in South Asia feed production," said Mr G S Ramesh, Group President, Kemin Animal Nutrition and Health. "As the demand for meat production increases in South Asia, the need for our value-added products is also growing tremendously. The additional capacity in Gummidipundiwill equip us to meet the ever-increasing demand for Kemin's highquality feed ingredients. As we begin outputting new products at this facility, we aim to work closely with our customers for the collective purpose of improving animal production efficiency."

The new food and manufacturing certifications for the Kemin Food Technologies – Asia business unit include the following:

- ISO 9001:2015

 Development,
 manufacture, marketing
 and supply of feed and
 food additives.
- ISO 22000: 2005

 Manufacturing
 (processing, blending
 and packaging) of animal
 feed additives and food
 additives packed in bulk
 and retail packs.
- FSSC 22000 : 2005
 Manufacturing (processing, blending)



Rendering of the new Kemin Animal Nutrition and Health – South Asia manufacturing plant in the SIPCOT Industrial Estate of Gummidipundi, near Chennai, Tamil Nadu, India.



Speakers in Kemin Knowledge Day held in Chennai on March 24

and packaging) of animal feed additives and food additives packed in bulk and retail packs.

HALAL India and



R. Sureshkumar



R. Kannan

KOSHER Certificate -Manufacturing endorsement.

• Export Inspection Council Approval - To process and pack food additives for export to NON-EU countries.

With regional head quarters in Chennai, India, Kemin has been serving the animal protein industry in South Asia since 1998. The current head quarters includes a full-fledged manufacturing facility, quality control labs, research and development farms and a small pellet feed mill.

"We are excited to bring new technologies into our production facility so we can provide customers the maximum benefits of our products," said Dr R

Sureshkumar, President, Kemin Animal Nutrition and Health – South Asia. "I am very glad that we have added capacity to meet the growing regional expectations."

In the Kemin Knowledge Day conference held on March 24, Dr Chris Nelson made a presentation on "Together Towards Tomorrow: How Kemin has Evolved".

Mr Sunny G. Verghese, Co-Founder & Group CEO, Olam International Ltd and Dr Susanne Kirwan, Product Manager, Kemin Industries Inc spoke on the occasion. Mr Rahul Kumar, Managing Director, Lactalis India (Safe Feed: Safe Food) said that feed quality assurance laws

are still not very effective in India. FCI is disposing bad quality raw material which is not of use for the industry. GMP and HACCP should be made mandatory in all feed plants in the country, he stated. Dr C. R. Behl of IB Group spoke on 'Prospects of Meat Processing and Exports Opportunities'.

Mr R. Kannan, Director Marketing, Kemin India welcomed. Kemin India team made excellent arrangements and hospitality to the participants during the 2-Day programme.







K. Philip



Kemin Industries team pose for a photograph during the launch of the expansion of its manufacturing facilities in India - located near Chennai



A One Day Conference

Topics for Presentation in 'UPDATE Knowledge on Poultry'

- Scenario of Egg and Broiler industry development globally. And state wise in India.
- Advanced models / practices in poultry sheds construction for Layers & Broilers.
- Technology advancement in Cages, Feeders, Waterers & Egg Collection systems etc.
- Advantages of Automation for better productivity and long term saving in costs in Layers & Broilers.
- Feed & Nutrition, Bio-security & Management.
- Diseases: Prevention & Control.
- Chicken & Egg Processing.
- Branding & Marketing of Eggs & Chicken to promote consumption.

Note: Knowledgeable Speakers on the subject with good communication skills are invited to contact us to make presentation in "UPDATE" on the above topics on or before 5th April 2019.

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- 6. Best Broiler Integrator Award
- 7. Best Egg & Chicken Consumption Promotion Award
- 8. Best Manager in Production in Poultry Award
- 9. Best Marketing Man in Poultry Award
- 10. Best Poultry Scientist Award
- 11. Best Poultry Equipment & Automation Award
- 12. Best Poultry Healthcare Products Manufacturer Award
- 13. Best Poultry Feed Miller Award
- 14. Best Layer Breed Award
- **15. Best Broiler Breed Award**
- 16. Best Young Entrepreneur Award
- 17. Best Executive with Long Service Award
- **18. Best CEO in Poultry Industry Award**
- **19. Life Time Achievement Award**

PF International Awards 6:30 PM to 8:00 PM

Venue: CIDCO Exhibition & Convention Center, SION-Panwel Highway, Swami Pranabananda Marg, Sector 30-A, Vashi, Navi Mumbai - 400 703, Maharashtra, India.

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Efficacy of Frankolin (Tiamulin 10%) & Bremulin 80 (Tiamulin 80%) on Egg Production in Layers of Namakkal Region: Customer Feedback Report

Dr S Muthukumar, Technical Manager-Zydus AH, Namakkal

Introduction:

The modern strains of commercial layer chicken with their genetic potential to lay greater number of eggs during laying period make them susceptible to different types of reproductive tract disorders. In Namakkal, most of the layer farms are affected with Mycoplasmosis, which causes severe production drop and egg shell apex abnormalities leading to huge economic losses. Zydus AH has devised LMC program based on baseline titer level of Mycoplasma synoviae in IDEXX platform, unique pharmacokinetic properties of pleuromutilin derivates and robust monitoring tool to reduce risk of mycoplasmosis in layers. The present review is customer feedback report of LMC program highlighting efficacy of Frankolin (Tiamulin 10%) and Bremulin 80 (Tiamulin 80%) in layers of Namakkal region.

Mycoplasmosis – Briefreview

Mycoplasmas are members of the class Mollicutes, Order I, Mycoplasmatales. Genus I, Mycoplasma, has more than 120species, a DNA G+C content of 23–40%, a genome size of 600–1350 kb, requires cholesterol for growth, occurs in humans and animals, and has a usual optimum growth temperature of 37°C. Avian mycoplasmosis is mostly caused by Mycoplasma gallisepticum (MG) and M. synoviae (MS), were most important to cause clinical and economical losses. MG infection is a chronic respiratory disease of chickens and causes infectious sinusitis in turkeys. Symptoms

include respiratory rales, coughing, nasal discharges and, in turkeys, frequently include sinusitis. MS infection is commonly known as infectious synovitis, an acuteto-chronic disease for chickens and turkeys involving primarily the synovial membranes of joints and tendons sheaths. However, during recent years, MS has been less frequently associated with synovitis, while, more incidences of egg-shell apex abnormalities and egg production drop were caused by emerging salpingotropic (oviduct tropism) MS strains(Khalifa et al., 2013). Transmission of the etiological agent occurs through transovarian route, respiratory aerosols and direct contact. Following infection birds become persistently infected with MS and remain carriers for life. With the expansion of poultry farms and the concentration of large, multiage production complexes within a restricted geographic area, it is becoming more difficult to maintain flocks that are free of MS. It is leading to tremendous economic losses in poultry production as a result of decreased hatchability and egg production, reduced quality of day-old chicks, reduced growth rate, increased costs of eradication procedures (site cleaning and depopulation), and increased costs of medication and vaccination (Ferguson-Noel and Williams, 2015).

Effect of Tiamulin on Mycoplasmosis

Tiamulin hydrogen fumarate is a semisynthetic derivative of the diterpene antibiotic pleuromutilin (Egger and Reinshagen, 1976) and is effectively used in the treatment of airsacculitis, which is primarily caused by Mycoplasma spp. Recently, MIC data from Europe (Pridmore, 2008) on 32 isolates of M. gallisepticum and 21 isolates of M.synoviae showed that Tiamulin was highly active against these etiological agents. After oral gavage of the medicine at 25 and 50 mg/kg of BW, Tiamulin rapidly reaches peak serum concentrations of 1.7 and 3.6 µg/mL, respectively, in chickens at about 2 h; the levels

Highlight Points

- 1. Interactions of NDV, IBV & Mycotoxins with Mycoplasma synoviae - worsen production losses in layers.
- 2. Zydus AH devised LMC (Layer Mycoplasma Control) programme - strategically controls mycoplasma in chicks, growers and layers
- 3. LMC programme through right combination of antibiotics Frankolin (Tiamulin 10%) & Bremulin 80 (Tiamulin 80%) at therapeutic concentration.
- 4. Evaluation of stressors (interaction of NDV, IBV, Mycotoxins & managemental problems) in flock beyond mycoplasmosis with periodic monitoring.

declined over a 12- and 24-h period depending dose on (Laber and Schutze, 1977). With predominance of salpingotropic MS strain (oviduct tropism), it has become indispensable to select anti having higher tissue distribution in genital organs besides respiratory tract. In this context, following are the tissue distribution analysis of two leading classes of antibiotics.

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Usage of HERBAL C

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- $\checkmark\,$ To improve FCR and weight gain in broilers, egg production and shell quality in layers.
- ✓ To prevent stress induced depletion of vitamin C and to overcome the ill effects of heat stress.
- ✓ Improves survivability during stress conditions.
- ✓ To optimize and maintain immune-competence.
- $\checkmark\,$ To maintain fertility and hatchability at optimum levels in breeders.
- ✓ To optimize bioavailability of dietary calcium, iron and other minerals.
- ✓ Optimizes meat quality attributes during summer stress.

Feed inclusion rate :

100 gm of **Herbal C** can be used in place of 100 gm synthetic Vitamin C with higher stability and better activity.

HEAT & OXIDATIVE STRESS

Water inclusion rate : Broilers & Layers : 10 ml per 100 birds or as advised by the poultry consultant. Double quantity is recommended for breeders.

Presentation : Powder: 1 Kg, 5 Kg & 25 Kg Liquid: 1 Ltr & 5 Ltr

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			Tissue distribution (active metabolite)			
Sr Antimycoplasma No. agent	Class	Upper Respiratory Tract	Lower Respiratory Tract	Genital organs (oviduct)	Egg	
1.	Erythromycin	Macrolide	+++	+	+	- (Inactive metabolites only)
2.	Azithromycin	Macrolide	++++	++	+	- (Inactive metabolites only)
3.	Tylosin	Macrolide	++++	++	++	+
4.	Tilmicosin	Macrolide	+++++	++	+	- (Inactive metabolites only)
5.	Tylvalosin	Macrolide	+++++	++	++	+
6.	Tiamulin	Pleuromutilin	+++++	+++	+++	++ (50% active)

Tiamulin has impressive tissue distribution in both respiratory & genital organs where in later it has highest tissue distribution. In laying & breeder hen, 50% deposits in its active form (Tiamulin) and 8 -alpha-hydroxymutilin, hence, effectively counteracts MS tropism in oviduct and thereby production drop. In addition, advantage of least MIC value range against different M.synoviaeisolates as 0.006 – 0.5, Tiamulin is proven to be least resistant over longer duration (Valk and Burch, 2002; Islam et al., 2009). Only Tiamulin residues in egg do not conflict with human food chain as it (pleuromutilin) is not used in human antibiotic medication. On the contrary, antimycoplasma agents like Tylosin, Tilmicosin&Tylvalosin poses resistance threats through its residues below MIC value over longer duration and higher trends of cross resistance (macrolides for human use).

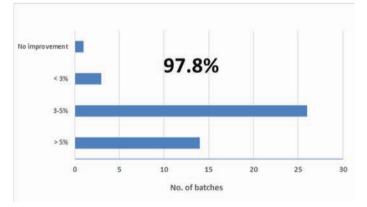
Layer Mycoplasma Control program: An overview in Namakkal

Zydus AH has devised layer mycoplasma control (LMC) program based on critical baseline titer against MS in IDEXX platform, unique pharmacokinetic properties of pleuromutilin & macrolides in combination at different phases of layer and robust monitoring tool as tracker. The value proposition of the program for layers are immense in terms of efficacy, return on investment and avoidance of resistance by preventing indiscriminate use of antibiotics during rearing period. The program stresses on periodic monitoring of MS infection status in flock and treatment in right dosage is recommended only whe ninfection status (titer) crosses the critical baseline for MS. Layer mycoplasma control (LMC) program has been successfully adopted by many layer farms in India with impressive customer satisfaction and feedback.

In Namakkal, total 13 farms and 47 batches used adopted LMC program (either Bremulin 80 or Frankolin) where post

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adoption egg production improvements were classified into three categories, viz, >5 %, 3 - 5% and < 3%. In summary, > 5%, 3-5% and < 3% improvement in egg production were recorded in 14, 26and 6 batches respectively. The success rate of prediction for MS infection status based on baseline titer level > 10000 (IDEXX) and thereby positive response to treatment accounted to 97.8%.



Conclusion:

Namakkal contributes largely to egg production in India. The tremendous pace of growth in egg production also accounts for simultaneous losses owing to uncontrolled proliferation of *Mycoplasma synoviae* (salpingotropic strains) in laying hens. Furthermore, the interactions of Newcastle Disease Virus, Infectious Bronchitis Virus, Mycotoxins with *Mycoplasma synoviae* worsen production losses in layers. In this context, Zydus AH devised LMC program strategically control mycoplasma in chicks, growers and layers through right combination of antibiotics at therapeutic concentration and evaluation of stressors (interaction of NDV, IBV, Mycotoxins & managemental problems) in flock beyond mycoplasmosis with periodic monitoring.

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Histomoniasis: what the experts say An overview of transmission, diagnosis, control and prevention

Jose J. Bruzual and Colin Adams

Introduction

Histomoniasis or blackhead is a complex disease process. Although primarily affecting turkeys with lesions in the ceca and liver, blackhead can also have a significant impact on chickens (where lesions are often confined to the ceca only).

Blackhead is caused by the protozoan flagellate, *Histomonas* (H.) meleagridis, which has a broad host range, infecting gallinaceous birds including, pheasants, partridges, and bobwhite quails, in addition to chicken and turkeys.

With the ban on many of the drugs used to fight the disease, and changes in animal husbandry like reusing litter and/or increased stocking density, blackhead has re-emerged in many areas including North America and Europe. The focus for control of blackhead is now on prevention and the use of new diagnostic methods to better understand how to manage and eradicate the disease.

Vectors (carriers of disease) and transmission

- 1. Ingestion of the adult common cecal worm (Heterakis gallinarum) or their embryonated ova (eggs) infected with H. meleagridis. Heterakis gallinarum is the only worm known to serve as an intermediate host for blackhead. After a series of divisions, a uniquely adapted, very small form of *H. meleagridis* actively invades the reproductive tract of the cecal worm and is subsequently shed within the infected worm egg. Cecal worm eggs are extremely resistant to environmental conditions and may remain infective for 2-3 years; there is some anecdotal/circumstantial evidence of a link between ground works (e.g. disturbing the litter to decake or during clean out or any other general disturbance of the ground) and histomonas breaks (the ground works may recirculate buried caecal worm eggs).
- 2. Transport of the infected cecal worm egg by one of several other potential disease carriers or transport hosts. These include earthworms (which may ingest the eggs) or mechanical disease carriers such as flies or rodents which may simply transport the sticky eggs on their bodies. PCR (Polymerase chain reaction; a technique that allows analysis of DNA) has shown that black/darkling beetles (*Alphitobius diaperinus*) may contain *H. meleagridis* DNA, providing evidence of their role as a potential vector. People and equipment can also act as disease carriers and flood water may act as a trigger for increased earthworm activity.
- Direct transmission of H. meleagridis through cloacal drinking. Proven in turkeys only, this may be the reason why spread of disease appears to be more rapid in turkeys

compared to chickens. Experimental direct oral inoculation of H. *meleagridis* (direct administration of the protozoa itself) has low success due to the parasites' susceptibility to the acidic crop and gizzard. However, when *H. meleagridis* is administered in turkeys *intracloacally* or via *"cloacal drinking"* blackhead disease manifests.

Outside the host (or intermediate host: *Heterakis gallinarum*), *H. meleagridis* has a low persistence and survival time, although it has been shown to survive for up to 9 hours in water or faecal material. There is also some evidence that a cyst like stage can develop allowing the protozoa to survive for extended periods in the environment, although this is as yet unproven.

Clinical signs and diagnosis

Turkeys suffering from blackhead disease show ruffled feathers, drooped wings, apathy and sulphur coloured (yellow) droppings. Clinical signs in chickens may be less clear than in turkeys, or even go unnoticed, but can result in high mortality. Cecal discharge (droppings) may contain blood. Uniformity may be affected by a blackhead challenge in rear and, in lay, a drop in egg production may occur.

Clinical signs normally develop 7-14 days after infection although in experimental infections pathology can be seen between 5 and 19 days post infection. Field observations suggest that co-infection with coccidia, mostly E. tenella, may increase clinical signs. Initially the ceca will become swollen with a thickened wall; in more advanced cases, cecal cores develop (accumulations of clotted blood and tissue). Liver lesions are highly variable, but typically manifest as circular depressed target-like areas up to 1 cm/o.4 inch in diameter. However, in chickens, liver lesions do not always develop despite the development of cecal cores.

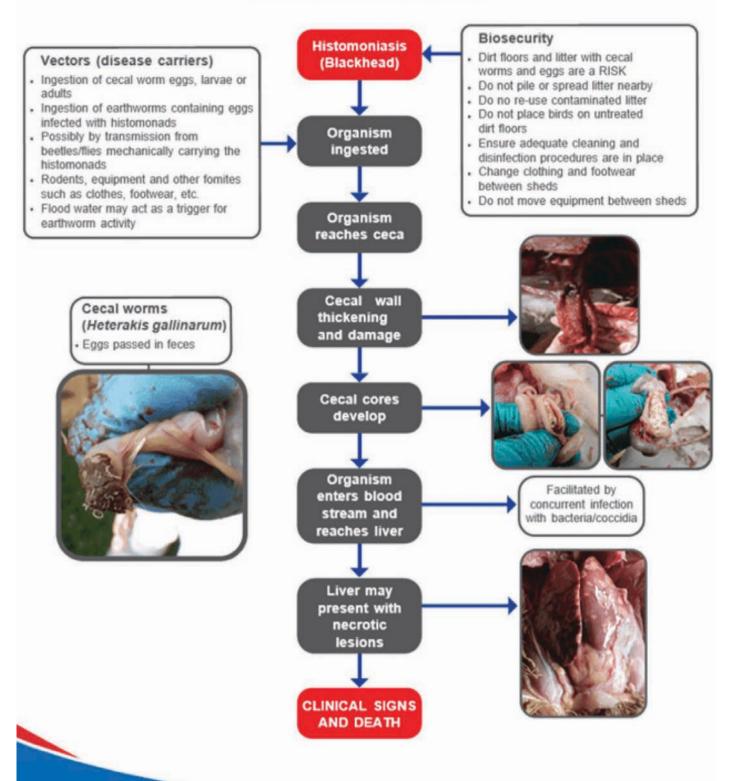
If blackhead is suspected, birds should be submitted to a diagnostic lab for post mortem examination.

- Macroscopically (via necropsy/autopsy). It is important to differentiate between infections with agents such as salmonellosis and coccidiosis as the lesions created by these infections can be easily mistaken for Histomoniasis lesions (all three entities can produces cecal cores). However, cecal lesions together with liver lesions are representative of a blackhead infection.
- Microscopically. The protozoa can easily be found in affected ceca and livers. This should be confirmed with histopathology (taking tissues samples to confirm the presence of histomads), at least for the first case in an outbreak.



ARTICLE *Histomoniasis: what...*





Studies within Europe have found two different genotypes of *H. meleagridis* -Genotype 1 and Genotype 2. The differences between these two genotypes and the effect this has on the severity or harmfulness of the disease (virulence) between and within the genotypes needs further research.

Other diagnostic / screening tools

1. Diagnostic examination of blood serum (serology) -

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Indirect sandwich ELISA (Enyme Linked Immunosorbent Assay; a technique to measure the presence of antibodies) is available but, as yet, not sufficiently reliable as a sole diagnostic tool due its potential to produce false positives. Currently this is not an effective screening test.

 PCR – Several substrates have been trialed including boot and cloacal swabs, but dust appears to be the substrate

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that is most suitable for a house diagnosis. Blackhead PCR kits vary in their sensitivity and specificity and the kit selected should be chosen following the most up to date scientific advice available. Flocks confirmed positive for blackhead with autopsy and histology will nearly always have a positive PCR result. However, positive PCR results are also possible when there are no clinical signs in the current flock and this can make interpretation challenging. These positive PCR results may be false positives or cross reactions; frequently there is a good correlation with previous blackhead outbreaks on the farm despite current flocks being clinically normal.

Control and prevention

Due to the limited number of drugs available for treating blackhead prevention is key.

- Biosecurity. Good biosecurity between and within sheds is paramount. Outside clothing and footwear should be completely changed before entering poultry sheds; it is recommended that footwear is changed before entering each house using a biosecurity barrier system (a physical barrier prior to entry to the shed between which footwear must be changed). Movement of equipment between houses and on and off farms should be considered carefully and avoided if possible. Any equipment that does need to be moved should be thoroughly cleaned and disinfected. In areas with gallinaceous wild birds in the farm environment the risk is likely to be higher.
 - If blackhead is diagnosed in one shed, then good between shed biosecurity will help to prevent the disease from spreading to other sheds. Increasing the temperature in the shed to dry the litter may also reduce the survival of the Histomonads in the litter.
- Litter removal. The complete removal of litter between flocks is recommended, especially after an outbreak and appropriate cleanout and disinfection procedures should be in place. Any sheds affected by blackhead should undergo a thorough and detailed cleanout and disinfection, possibly requiring extended cleanout time, and including the use of disinfectant products particularly effective against cecal worm eggs like sodium hypochlorite, quaternary ammonia and phenols. Litter should be removed from the sheds with as little contamination of the area outside the sheds as possible. Flaming and filling in cracks, together with removing dust from all areas of farm (not just sheds), may also help to reduce infection pressure.
- Cleanout protocols which include deep cleaning with industrial sweepers, the use of iodine, lime and also salting floors (granular feed grade only) in addition to using new litter have proven essential and successful even for dirt floors under field conditions. However, caution is advised, as salt has the potential to rust metal.
- Reducing primary disease carriers/intermediate hosts (i.e. cecal worms). This is one of the key steps in the strategy for blackhead control. Consistent, early, and scheduled worming following veterinarian advice will help reduce exposure to cecal worms/eggs and the Histomonads they carry.

- Treating for more than one day (3-5 days) has been shown to be more effective in some situations.
- There is evidence that using the same wormer for each treatment can lead to the development of resistance. To avoid this product rotation is recommended; avoid using the same product for more than three consecutive wormings.
- Vermin control. Consistent and effective rodent and insect control should be a core part of the biosecurity strategy for the farm. Besides cecal worms and earthworms, other organisms could serve as mechanical disease carriers. Therefore, control measures should also include actions to reduce darkling beetles, flies, and rodents among others. Measures should be taken to minimise the possibility of flooding as this will increase the presence of earthworms.

If flooding does occur disinfection of the flooded area must take place due to the potential increased presence of earthworms in dirt floor houses.

- **Coccidiosis** caused by *E. tenella* has been identified as an aggravating factor for blackhead.
 - Blackhead is more likely to spread to the liver when coccidiosis is also present.
- The number of birds with severe lesions is increased when both Histomonads and *E. tenella* are present in the bird. As such, strategies to keep *E. tenella* under control are important.
- In many instances, there have also been blackhead cases identified right after *E. necatrix, E. brunetti* and *E. maxima* active infections.
- Vitamin supplementation, especially with fat-soluble vitamins A, E, D3, and K is a good practice. Absorption of fat soluble vitamins is decreased when intestinal diseases, such as blackhead occur.
- Good intestinal health. With the withdrawal of effective treatments, there is increasing interest in the development and use of alternative intestinal health products to mitigate blackhead disease issues. Nutritional products include: prebiotics, probiotics, organic acids, plant extracts, essential oils, enzymes, and volatile fatty acids, among others.
 - Currently these products are supported by limited research, with results on their effects on blackhead being conflicting. For example, oregano-based products are reputed to have some limiting effect on the impact of blackhead but it has been difficult to prove this in the field.
- **Control of E. coli.** Although H. meleagridis is described as the causative agent of blackhead, it has been demonstrated that the parasite fails to cause clinical disease in the absence of bacteria. When E. coli and H. meleagridis were given to turkeys with no other bacteria present, the disease manifested. Several control strategies for E. coli had been used. The use of live and killed E. coli vaccines, organic acids via feed or water and the use of yeast cell based products that trap the bacteria and minimise their

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replication at the ceca, appear to decrease the severity of blackhead and may be helpful in the face of an outbreak.

• Vaccination. Histomonas vaccination based upon an attenuated clonal strain of H. meleagridis has been shown to be highly effective in experimental trials. However, further efforts are needed to standardise the production and optimise the administration of the vaccine in the field, and currently there is no commercially available vaccine.

Conclusions

Histomoniasis (blackhead) is a complex disease and much is still to be learned about the parasite that causes it. Introduction into a flock can occur in different ways and transmission between birds can occur with or without a disease carrier (vector; the role of cyst like stages still needs to be determined).

Since there are no available drugs to treat the disease, a multifactorial approach is required to try and reduce or eliminate blackhead from an affected farm and prevent the problem including:

- 1. Improving biosecurity and having suitable cleanout procedures in place is essential.
- 2. Reducing buildup of cecal worms as the intermediate host and other potential vectors, e.g.,
 - have an strong insect and rodent control program in place.
 - deworm birds regularly (have a deworming protocol in place).
 - thoroughly clean, disinfect and change litter after an outbreak.
 - consider the use of specific floor treatment protocols.
- 3. The use of prebiotics, probiotics, phytogenics, organic acids and E. coli vaccines appear to help decrease the presentation of the clinical disease.
- 4. Having a plan of action with the local or company veterinarian to deal with the local situation and challenges is always good.

Nutritional Interventions in Managing Gut Health of Chickens

Yasir Bashir, Kemin Industries South Asia Pvt. Ltd.

Introduction

High growth rate and optimum feed efficiency are the twoforemost objectives of the modern integrated broiler production. Factors responsible for deriving the optimum production and performance of bird are genetic potential, feed quality, nutrition, disease management, etc. In recent times, gut health management has gained a renewed importance in poultry production. Gut is an essential organ system which facilitates digestion of food to extract and absorb energy,and it is also a major site of potential exposure to environmental pathogens. Hence, a healthy gut

is a core factor for deriving ideal performance of birds. When the gut health and functionare hindered, the digestion and absorption of nutrients are affected thus impacting the performance of birds. Maintenance of gut development and its health are important to enhance the performance of chickensorganism.

Gut health can be broadly defined as а dynamic equilibrium of complex interaction between diet quality, microflora population and intestinal mucosa, ensuring proper function of digestive system and lack of pathology. Consequently,

maintaining overall health requires a healthy gut that is free from diseases such as dysbacteriosis, infections and inflammation. Healthy gut also provides a barrier between hostile lumen contents and internal tissues of the host. In this context, intestinal mucosa plays an important factor of gut health and performance of chicken. To support this protective function of gut mucosa, dynamic balance between epithelial cells, mucus layer, intestinal microbiota and immune cells in the gut is vital. A range of factors and infectious agents affect this dynamic balance in the gut, ultimately the health status and production of birds.

Highlight Points

- In recent times, gut health management has gained a renewed importance in poultry production and a core factor for deriving ideal performance of birds
- Gut health can be broadly defined as a dynamic equilibrium of complex interaction between diet quality, microflora population and intestinal mucosa, ensuring proper digestive function and lack of pathology.
- Strategic use of nutraceutical compounds like enzymes, probiotics, prebiotics, organic acids and phytobiotics in poultry nutrition can result in positive influence on gut microbial ecosystem, immunity and performance of birds.

Extensive use of subtherapeutic dose of antibiotic and antibiotic growth promoters (AGP's)has been used in poultry industry for decades to maintain the ecosystem balance in gut and the growth performance of chicken. However, due to increasing chances of antibiotic resistance in chicken, this practice has been guestioned andhence, alternate to antibiotics is much needed in the poultry industry to enhance performance.

Commensal microbiota

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in the gut seem to have an important role in gut health and performance of chicken. It helps in directing the development of gut structure and morphology, modulate the immune responses, offer protection from luminal pathogens, aid digestion and utilization of nutrients. Some feed ingredients have been reported to modulate the gut microbiota and immune system which can be beneficial for birds are referred as nutraceuticals. Strategic use of nutraceutical compounds like enzymes, probiotics, prebiotics, organic acids and phytobiotics in poultry nutrition can result in positive influence on gut microbial ecosystem, immunity and performance of birds.

Enzymes

In a typical corn soya diet of broilers there is a substantial amount of anti-nutritional factors called non-starch polysaccharides (NSP's) like β -glucans, xylans, arabinoxylans, pentosans, pectins and mannans that can negatively affect the normal digestion and absorption of nutrients in gut. This shows the ability of NSP's to increase the digesta viscosity and prevent the optimum enzyme activity in the gut lumen. The increased viscosity due to soluble NSP's reduces physical contact between the endogenous enzymes and nutrients acting as a barrier that decreases movement of enzymes and substrate molecules. Also, soluble NSP's change the physiology and ecosystem of gut which is mainly related to slower digesta rate. A slow moving digesta with low oxygen tension in small intestine could provide a stable environment where fermentative microflora can establish.

It was documented that the increased dietary soluble NSP leads to the onset of necrotic enteritis (NE) in poultry. In this context, the exogenous enzymes like arbinoxylanases, beta glucanases and mannanases are used to correct the lack of specific endogenous enzymes for digesting certain nutrients in feedstuffs or to hydrolyse the anti-nutritional factors in feed ingredients. Supplementationof non-conventional ingredients (containing anti-nutritional factors and fibre) in poultry diet reduce the feed cost and encourage the use of exogenous enzymes, as they cannot be digested fully and utilized by chickens. Consequently, increased intestinal viscosity due to high-fiber diets depress feed passage rateand increase pathogenic microbial population in small intestine. Dietary incorporation of exogenous enzymes to degrade these NSP's leads to the reduction of gut viscosity, better digestion and diffusion of nutrients through the gut wall.In addition to NSP's, presence of undigested protein in the gut can also impact gut health by reducing protein fermentation in large intestine. Most of the bacterial population present in the hindgut is able to ferment undigested protein resulting in toxicity, tissue damage and inflammatory response directly or as a result of the harmful metabolites produced by protein fermentation such as indoles, biogenic amines, branched chain fatty acids, and ammonia. Therefore, reducing the supply of undigested protein by enhancing the protein digestibility is an important factor in maintaining optimal gut health in poultry birds. A holistic approach involves the use of multi enzyme combinations like NSPases and protease to effectively combat the negative effects of the antinutritional factors which will result in improved gut health and performance.

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Probiotics

Direct fed microbials, called as probiotics aresingle or mixed culture of live microorganisms which when administrated in adequate numbers exert healthbenefits for the host by improving the host intestinal microbial balance, enhancing colonization resistance against pathogensand improving the immune responses. The main probiotics used in poultry nutrition includesLactobacillus spp., Bifidobacterium spp. and Bacillus spp.These probiotic preparations act by maintaining a healthy balance of bacteria in the gut by competitive exclusion through which they exclude potential pathogenic bacteria by competing for attachment site in the intestine. Thisis performed by the process of antagonism, whereby, the antagonistic activity towards pathogens can be attributed to the production of bactericidal substances including bacteriocins and organic acids. Bacteriocins are active proteinaceous substances produced by variety of gramnegative and gram-positive bacteria that have bactericidal action. The bactericidal action results in the production of organic acids like lactic acid associated with pH reduction in intestinal tract and inhibiting the growth of exogenous pathogens. Dietary incorporation of probiotics promotesgut maturation and integrity. Alteration of bacterial population in the gut by probiotics also refers to the production of digestive enzymes, reduction in bacterial enzymes and suppression of ammonia production.

Prebiotics

Prebiotics are classified as feed ingredients that benefits the host gut health by stimulating the growth and activity of beneficial bacteria present in the gut. To improve the host microbial balance, prebiotics provides energy for the growth of endogenous favorable bacteria in the gut, such as Bifidobacteriaand Lactobacilli.Nutritionally, addition of prebiotics benefits the overall gut health and compliment the effect of probiotics which favor the growth of commensal bacteria that already adapted to the gastrointestinal tract(GIT). The mechanism by which prebiotics exert the beneficial effects is due to the increase in number of lactic acid bacteria in gut that may aid competitive exclusion of pathogens from GIT of birds. The increased production of short chain fatty acids(SCFA's) with prebiotics, resulting in increased intestinal acidity may also contribute to the suppression of pathogens in the chicken gut.Prebiotics have been reported to enhance the immune response of chicken, resulting in rapid clearance of pathogens from the gut. This may be due to direct interaction between prebiotics and gut immune cells, and indirect action of prebiotics via preferential colonization of beneficial microbes and microbial products that interact with the immune cells. The most common prebiotics used in poultry are oligosaccharides including inulin, fructo-oligosaccharides (FOS), mannanoligosaccharides (MOS), galacto-oligosaccharides (GOS), soya-oligosaccharides (SOS), xylo-oligosaccharides (XOS), pyrodextrins, isomalto-oligosaccharides (IMO) and lactulose.

Organic Acids

A renewed focus is laid upon the use of organic acids like lactic, acetic, tannic, fumaric, propionic and caprylic acids in poultry feed to maintain optimum gut health, improve nutrient utilization and growth performance. They have been used for more than 50 years to reduce bacterial growth and mold in feedstuffs, thus preserving the hygienic

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quality of feed. Apart from improving feed hygiene, many studies demonstrated that organic acids stabilize the gut microfloralbalance and also have an effect on feed digestion and absorption. These weak acids are added to feed in subtherapeutical dosage and believed to have the capacity to improve growth performance, nutrient utilization and health.

Postulated mode of action of organic acids is directly related to the ability to reduce intestinal pH, followed by alterations in intestinal ecosystem. Supplementing organic acids lowersthe intestinal pH, control microbial growth and colonization, andlowersthe nutrient competition. Apart from the positive effect on growth performance and nutrient digestibility, organic acid has favorable impact on gut histomorphology. It has been reported that dietary incorporation of organic acids increases the villus width and height, area of duodenum, jejunum and ileum of broiler chicks.Organic acids lead to decreased thickness of muscularis in all the segments of small intestine. This helps in improving the digestion and absorption of nutrients, since the thickening of mucous layer on intestinal mucosa contributes to reduce digestive efficiency and nutrient absorption. In addition, organic acids have beneficial effect on gut microbial population. Subtherapeutic doses of organic acids modulate the natural microbial population in the gut by decreasing the adhesion of bacteria such as: Escherichia coli, Campylobacter, Clostridium perfringens, Salmonella kedougou and Salmonellagallinarum.

Phytobiotics

Phytobiotics are plant derived bioactive compounds, mostly secondary metabolites of plants and can be categorized as: phenolics and polyphenols (phenolic acids, quinones, flavones, tannins, and coumarins), terpenoids and essential oils, alkaloids, lectins and polypeptides.Phytobiotics are classified based on the biological origin and chemical description into 4 groups as:

- 1. Herbs -derived from flowering, non-woody and non-persistent plants
- 2. Botanicals entire or processed parts of a plant like root, leaves and bark
- 3. Essential oils hydro distilled extracts of volatile plant compounds
- 4. Oleoresins extracts based on non-aqueous solvents

The exact mode of action by which phytobiotics provide benefits on the gut remains unclear.But the possible mechanism may be due to modulating the cellular membrane of microbes leading to the membrane disruption of pathogens, increasing the hydrophobicity of microbial species that influence the surface characteristics of microbial cells and thereby affecting the virulence properties of microbes. Another way is by stimulating the growth of favorable bacteria such as Lactobacilli and Bifidobacteria in the gut, and by protecting the intestinal tissue from microbial attack. Phytobiotics stimulate the proliferation and growth of absorptive cells in GIT which results in greater villus height and deeper crypt and, influence the production and/ or activity of digestive enzymes like increasing the activities of amylase and protease, thus improving the growth performance of birds. Positive effect of phytobiotics on gut health and growth performance may differ based on the composition of biological factors (plant species, growing location and harvest conditions), manufacturing process (extraction/distillation, stabilization) and storage conditions

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like temperature, oxygen tension and time.

Conclusion

Gut health and development are affected by various complex interactions between diet, microbial colonization and intestinal mucosal integrity. Optimum gut health may affect the way feed nutrients are partitioned and utilized for organ development, tissue growth and immune functions. Consequently, healthy gut assumes a pivotal role for successful production system in poultry.Traditional use of AGP's to maintain the gut health is not a complete and holistic approach, owing to their resistance and problems associated with residues in meat and eggs. Therefore, strategic nutritional use of nutraceutical compounds have been used to improve the gut ecosystem of birds, growth promotion and to prevent the enteric infections in poultry.

Monthly Average Egg Prices all over India and Prevailing Prices at Various Production Centres (PC) and Consumption Centres (CC) - Source: NECC

For April 2019

NECC Prices		
Name of the Zones	Month Average Price in Rs	
Ahmedabad	345	
Ajmer	291	
Banglore (CC)	343	
Chennai (CC)	363	
Chittoor	356	
Delhi (CC)	305	
East Godavari	314	
Hyderabad	292	
Mumbai (CC)	348	
Mysore	348	
Nagapur	320	
Namakkal	350	
Pune	337	
Punjab	298	
Vijayawada	314	
Vizag	328	
West Godavari	314	
Warangal	301	

Prevailing Prices

Name of the Zones	Month Average Price in Rs
Allahabad (CC)	328
Barwala	286
Bhopal	313
Hospet	308
Jabalpur	314
Kanpur (CC)	333
Kolkata (CC)	349
Luknow (CC)	344
Raipur	323
Varanasi (CC)	344

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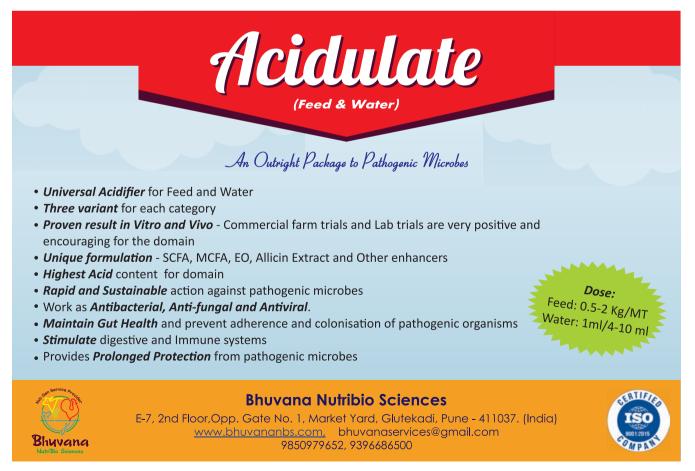
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