# Poultry Fortune

Production • Nutrition • Management • Marketing

**July 2021** 

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Editorial: Nationally, Egg production came down from 30 Cr to 24 Cr, while consumption is on rise due to pandemic

AIPBA organises webinar on 'Building Disease-Free Indian Poultry Sector'



Anne-Marie Neeteson receives British Poultry Council's Special Merit Award

CLFMA & NCDEX organise webinar on Hedging Price Volatility of Feed Ingredients using Commodity Derivatives

Alltech ONE Ideas
Conference launches with
exclusive access to insights
from agri-food experts

Eggs may vanish from the poor's platter

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Major challenges encountered by rural poultry farmers in developing countries



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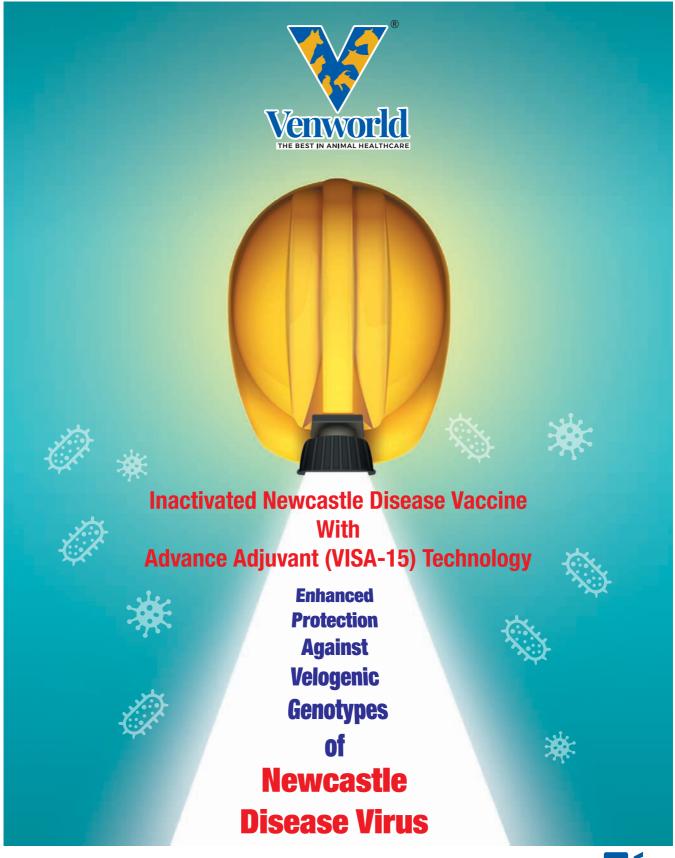
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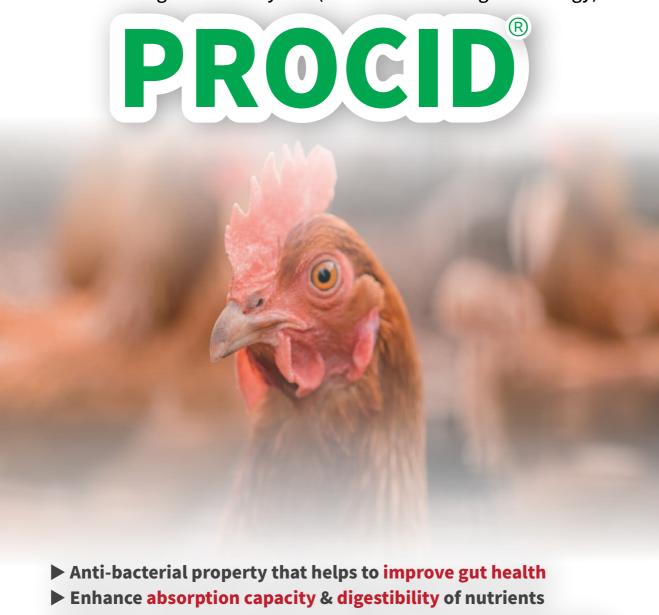
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- Editor



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#### Nationally, Egg production came down from 30 Cr to 24 Cr, while consumption is on the rise due to Covid pandemic

All India Poultry Breeders Association organized a webinar on the topic "Building a Disease-Free Indian poultry sector". AIPBA felt that one of the major challenges of poultry farmers are the diseases and damages caused by it in the sector and this causes huge losses and failures year after year. Disease-free poultry production is the only way to increase farmers' income.



Dear Readers,

The July 2021 issue of Poultry Fortune is in your

In the News section, you may find news about -

The All India Poultry Breeders Association organized a webinar on

the topic "Building a Disease-Free Indian Poultry sector" on June 22 to discuss the concern of diseases in the poultry sector and problems faced by the stakeholders with the policymakers of the Ministry of Fisheries, Animal Husbandry and Dairying, Government of India in an attempt to develop disease-free Indian poultry sector. This will ensure better economic returns to farmers and will also help in making Indian poultry sector disease-free to reduce economic losses.

The Breeders Association felt that one of the major challenges of poultry farmers are the diseases and damages caused by it in the sector and this causes huge losses and failures year after year. "Diseasefree poultry production is the only way to increase farmer's income".

The webinar was organized also to discuss serious issues of the sector and to explore possible solutions to the problems faced by poultry farmers. Many representatives associated with poultry sector and from the ministry, Indian Council of Agriculture Research and other stakeholders participated in the event.

According to AIPBA, more than 1500 poultry farmers through webinar apps and 3572 poultry farmers through Facebook and YouTube in social media were able to join the discussion and witnessed the discussions between various stakeholders, scientists and policymakers.

An interesting point was discussed in the webinar held by Natural Remedies recently. Due to the high prices of protein sources, the suppliers are adulterating the raw material with things like Melamine. What kind of negative impact would it have on the broiler and breeder's performance?

Mr Vijay Sardana, a member of the commodity derivatives advisory committee for SEBI, pointed to the obvious and said that the FCR would suffer. Since the poultry bird physiology doesn't consider the level of protein on the label of the packaging; all that matters to them is the amino acid profile. He advised poultry farmers to be cautious before signing agreement with vendors and to put up a penalty clause in it. He also urged poultry farmers to get involved and make personal visits to the suppliers and do random sampling of the raw materials based on the FCR and inspect the suppliers instead of looking at the reports. Do thorough study / research before selecting the right vendor.

A webinar held on "Hedging Price Volatility of Feed Ingredients using Commodity Derivatives" by CLFMA of India in association with National Commodity and Derivatives Exchange (NCDEX). In the recent past, commodity prices have seen high volatility which has impacted the normal operations of business in the livestock industry.

Novus gives and receives 2021 Poultry Science Association Awards. Dr Vivek Kuttappan, Novus research scientist, was named recipient of the Early Achievement Award for industry. This award recognizes the achievements of Poultry Science Association (PSA) members in the early stages of their career in poultry industry. Each year Novus also sponsors its Outstanding Teaching Award, which goes to a top researcher educator. This year's winner is Andrew P. Benson with the University of Georgia.

Aviagen announced that Anne-Marie Neeteson, Global Vice President of Welfare, Sustainability & Compliance for Aviagen Group, has been honoured with the British Poultry Council (BPC) Special Merit Award for 2019. The award recognizes Anne-Marie's work in representing the industry on a global level to promote the causes of animal welfare and sustainable development. According to her award letter from the BPC, she has been invaluable in progressing the science around these issues and helping the industry take a leadership role in addressing them.



#### **Poultry Fortune**

#### **Our Mission**

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

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

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

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

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

Contd on next page

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EDITORIAL From the Editor...

The Alltech ONE Ideas Conference launched virtually to unite thought-leaders and changemakers for an exploration of the power of science, sustainability and storytelling. Now in its 37th year, Alltech's flagship event continues to be an invaluable industry resource with unmatched content and innovative ideas, inspiration and motivation from world-class speakers. Dr Mark Lyons, President and CEO of Alltech, in his opening remarks said, "We are on the brink of a new beginning, and I don't believe that is just a new beginning for Alltech. I think it's a new beginning and a new golden era for agri-food, and it's led by what we believe is a bold vision". They want to deliver smarter and more sustainable solutions for their customers and for all of agri-food.

Alltech and the International Federation of Agricultural Journalists (IFAJ) announced Kallee Buchanan of Australia and Craig Lester of Canada as the recipients of the 2021 IFAJ–Alltech International Award for Leadership in Agricultural Journalism. The award recognizes excellence and leadership by young agricultural journalists and was presented during the Alltech ONE Ideas Conference.

**Avitech Nutrition** recently launched the Avitech Know-Edge Nutrition Podcast. The Avitech Know-Edge Nutrition Podcast is an initiative to promote and enhance knowledge in the animal nutrition industry. The Avitech Know-Edge Nutrition Podcast will be uploaded on the Avitech Nutrition website and You Tube

Egg, the poor man's protein, is now hardly available for the poor, thanks to the mad rush created by the COVID-19 pandemic. Its price has reached never-before proportions, with a dozen eggs costing close to ₹75 across shops. This is probably the first time that the price of an egg has crossed ₹6. National Egg Coordination Committee attributes the high price to the increase in the cost of poultry feed. Prices of soyabean cakes and maize have increased phenomenally and production cost has risen by 40% for poultry farmer. Production has come down as many farmers have shut down business due to high costs. For 3.7 crore production in Telangana, now only 3 crore eggs are being produced. Nationally, the production has come down from 30 crore to 24 crore, while the consumption has been on the rise due to the pandemic.

**India has** stepped up corn exports as a rally in global prices to their highest since 2013 has made shipments from India competitive, easing concerns about rising food inflation in Southeast Asia. Indian exporters have signed deals to sell around 4,00,000 tonnes of corn for shipment in June to July to animal feed producers in Vietnam, Malaysia, Sri Lanka and Bangladesh, according to two Singapore-based feed grain traders. Cheaper corn supplies from India would keep the cost of animal feed lower for consumers of meat and chicken in Asia, who are among the most vulnerable to high food prices. Benchmark Chicago corn futures have more than doubled since August on rising Chinese demand and declining production in key exporter Brazil. In early May, prices hit their highest since March 2013 at over \$7 a bushel. Its time that leaders of poultry industry in the country represent the government and do the needful to first meet the corn requirement of domestic poultry sector.

I am glad to know that my friend Mr K. Narender Reddy, who started his career 30 years ago as Sales Representative with Natural Remedies got promoted as the Chief Operating Officer from his current position of Commercial Director. Interestingly, he did not change the company in his career and stood with one company, Natural Remedies, which has suitably recognised him. Congrats Mr Narender.

#### In the Articles section -

- ▶ Article titled *Major challenges encountered by rural poultry farmers in developing countries* written by Dr Simran Singh, Dr Dibyendu Chakraborty and Dr Harshit Verma highlighted that rural poultry farmers in developing countries like India are facing various problems such as unavailability of superior germplasm in rural areas, Irregular supply of chicks at competitive price, lack of advance scientific knowledge about poultry production, adverse effect of climate change etc. In rural areas poultry production is based on low input production system and mainly reared by landless or marginal farmers as a key source of income generation and protein supplement. If the problems are overcome that will be helpful for sustainable poultry production.
- ▶ Article titled *Poultry produce A potential tool to eradicate malnutrition and anaemia in India* written by Dr Vijay Kumar, Dr B. Prakash and Dr U. Rajkumar highlighted the nutritional and anaemic status of children and adult men & women in the country and role of poultry to mitigate the situation. Chicken and eggs are cheapest and good sources of protein and other vital nutrients, which are important to maintain a healthy weight, help in anaemic condition and also recommended by experts to incorporate into our diets. Eggs have biological value of 93.79 % and act as growth promoter in children and maintain good health to all.
- ▶ Article titled *The impact of dietary sodium diformate on the performance of layers A short review* written by Christian Lückstädt and Sarah Mellor highlighted that the use of organic acid salts in the diet clearly has a range of beneficial effects in layer production. Improving nutrient availability by including dietary organic acids in the diet, also plays a role in the number of eggs produced, as healthy, well-conditioned birds are more productive.
- ▶ Article titled *Trypsin Inhibitor, the hidden enemy in Soyabean Meal* written by Dr Koushik De highlighted as global animal production has rapidly shifted towards reduced Antibiotic free, "Gut health" has become a popular expression and all-encompassing concept in the scientific community. The shift to antibiotic free production or better gut health often results in the increase of soybean meal inclusion as there are limited in the number of efficacious protein sources that successfully reduce soybean meal content.

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

M.A.Nazeer Editor & Publisher Poultry Fortune





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#### **National Annual Poultry Development Day 2021**

All India Poultry Breeders Association holds webinar on

# 'Building Disease-Free Indian Poultry Sector'

One of the major challenges of **poultry farmers** are the diseases and damages caused by it in the sector and this causes huge losses and failures year after year. "Disease-free poultry production is the only way to increase farmer's income".

All India Poultry Breeders Association (AIPBA) organized a webinar on the topic "Building a Disease-Free Indian Poultry sector" on 22 June 2021 in online mode to discuss the concern of diseases in poultry sector and problems faced by the stakeholders with the policymakers of the Ministry of Fisheries, Animal Husbandry and Dairying, Government of India in an attempt to develop disease-free Indian poultry sector. This will ensure better economic returns to farmers and will also help in making the Indian poultry sector disease-free to reduce economic losses.

The webinar was organized to discuss serious issues of the sector and to explore possible solutions to the problem faced by poultry farmers. Many representatives associated with poultry sector and from the Ministry of Fisheries, Animal Husbandry and Dairying, Indian Council of Agriculture Research, and other stakeholders participated in the event.

It was "the biggest" poultry event in the country, more than 1500 poultry farmers through webinar apps and 3572 poultry farmers through Facebook and YouTube in social media were able to join the discussion and witnessed the discussions between various stakeholders, scientists and policymakers. The Webinar was hosted and conducted by Mr Gulrez Alam, Secretary, AIPBA & Director, IB Group, informed a press note from AIPBA.



Bahadur Ali

The opening remarks during the webinar was made by Mr Bahadur Ali, Chairman, All India Poultry Breeders Association, and Managing Director of IB Group. All the panelists and officers of the Animal Husbandry Department including Dr Praveen Malik, Animal Husbandry Commissioner, Dr o. P. Choudhary, Joint Secretary (NLM/PC), Mr Upamanyu

Basu Joint Secretary (LH) were invited as special guests and all were heartily welcomed by Mr Bahadur Ali.

While welcoming the guest and the audience, Mr Bahadur Ali said that the concerns of the farmers should be discussed before and with the policymakers of the Government of India to overcome the problems of the poultry sector and overcome at the earliest. From Dec 2019 onwards the situation remained very difficult for the poultry farmers. He thanked the Ministry of Fisheries, Animal Husbandry and Dairying, Government of India for extending all possible help, yet there are many problems in the sector like the spread of diseases in poultry birds hurting



Suresh Chitturi

farmers very badly. Today, through this webinar discussions, policymakers, Scientists and poultry sector representatives will be able to exchange ideas for a better understanding of the problems of poultry disease and to provide steps towards appropriate solutions.

Welcoming all the participants, Suresh Chitturi R, Vice President, (AIPBA) said that about 5 million farmers are associated with the poultry sector and the poultry sector also provide direct and indirect employment to more than 10 million people. The purpose of forming this association had been to express the voice of poultry farmers to the



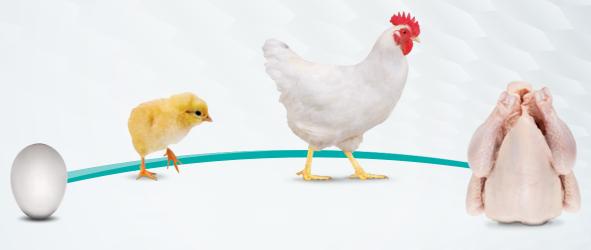
Dr Praveen Malik

government and bridge the gap between farmers and government bodies so that the poultry sector can create more employment opportunities and should contribute to the economic development of the country. This webinar is very important for poultry because the poultry farmers will be able to put their problems directly in front of the policymakers and hopefully the proper solutions to the problems will also be discussed.

As a special guest Dr Praveen Malik, Animal Husbandry Commissioner, Govt of India, while addressing stated that few diseases like Influenza and Mycoplasma in Indian Poultry often trouble the farmers and it is our endeavor that the poultry diseases should be eradicated instead of just controlling it. For this, biosecurity, hygiene, and proper waste management



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must be followed, so that the sector can be saved from unnecessary losses. The poultry sector will have to cooperate with the government, only then will we be able to make the Indian poultry sector disease-free.



Dr O. P. Choudhary

By taking forward the subject Dr O. P. Choudhary, Joint Secretary (NLM/PC) Animal Husbandry Department expressed various steps taken by the government to help poultry farmers and also said that it is very important to develop vaccines following OIE standards to avoid disease occurrence. This



Upamanyu Basu

basic need for the poultry sector must be discussed in detail with probable solutions.

Mr Upamanyu Basu, Joint Secretary (LH), Department of Animal Husbandry said that vaccination is very important because it is the most effective way to control any viral disease from the root, but along with vaccination, all the scientific methods and steps should betaken by farmers and poultry sector for maintaining the hygiene, which is important and required for the overall betterment of the sector.



Prof. P. K. Shukla



Vijay Sardana

The moderator of the webinar Prof. P. K. Shukla, Dean and Registrar DUVASU Veterinary University, Mathura and former Joint Commissioner, Government of India, and Mr Vijay Sardana, Advocate, Techno-legal expert, and Advisor, AIPBA conducted the respective technical sessions webinar efficiently.

In Panel Discussion-1,



G. B. Sundararajan "Diseases in Poultry and its impact on Poultry Farming and Farmers' Income leading poultry sector names were there. Mr G. B. Sundararajan, MD, Suguna Foods Pvt. Limited said that there are many uncertainties in the poultry sector. The poultry farmer does not know whether he will get the right price or not for his birds the next morning. Due to the rumors about the poultry sector, small farmers suffer the most. The diseases in poultry add to the problems of our growth. The government should do something to end the uncertainty to support poultry farmers.



**Dr Balram Singh Yadav** 

Raising important issues, Mr Balram Singh Yadav, MD, Godrej Agrovet Limited said that the poultry sector needs to think from the consumer's

point of view also so that the image of the poultry sector can be improved further. In the last 1-2 years, the poultry sector has suffered a loss of about 25-30 thousand crores every year, because whenever any viral outbreak is there, maybe covid or bird flu, it affects our sector the most due to misinformation and lack of consumers education. The poultry sector will have to be made profitable, only then the related infrastructure will be strengthened. Domestically and Globally Indian poultry sector can stand at number one, we



Dr R. K. Jaiswal

just need to work together. This sector can turn around the rural economy of the country.

Talking about the technical aspects, Dr R.K. Jaiswal, President, IB Group said that in the last few years there has been a rapid spread of viral diseases that cannot be stopped through biosecurity alone. These diseases are economically very harmful. LPAI (low pathogenic avian influenza), is one of the main diseases. Due to this one disease, thousands of farmers have lost crores of rupees and it affects all types of poultry species at a mass

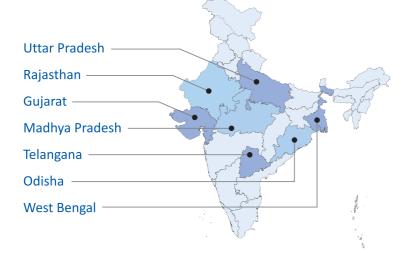
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scale whether it is broiler, layer, or breeder. There has been massive mortality. Mortality is mainly due to the non-availability of a useful vaccine against this disease. It is a demand from our government that like other countries, early permission for the development or import of useful vaccines in India may be given and the correct antigen may be provided to the vaccine manufacturers by collaborating with NISHAD (National Institute of High-Security Animal Diseases) Bhopal and there should be a mass vaccination done in poultry too in the whole country like Covid vaccination. This will be the first step for the betterment of poultry farmers.



**Paul Gittens** 

Mr Paul Gittens, Advisor, Aviagen India, said that biosecurity and proper vaccines are the basic needs of the animal protein sector. Keeping the health of the birds in mind the government should allow the production and vaccination against those diseases so that the poultry sector can be protected from Avian Influenza etc. Mr Gurminder Singh Bisla, President, Broiler Breeders Association-North said Avian Influenza is the most damaging disease problem



**Gurminder Singh Bisla** 

of the poultry sector in North India and said that vaccination is the most effective way to prevent the disease. The spread is from migratory birds to poultry birds and there is nothing farmers can do except vaccination. It is also very important to correct the policy for the poultry sector concerning disease control.

Panel Discussion-II discussed the "Possible alternatives to reduce the adverse effects of Poultry Diseases" and it was moderated by Sh. Vijay Sardana.



Dr S. K. Garg

To initiate the discussion, Dr S. K. Garg, former Vice-Chancellor, DUVASU Veterinary University, Mathura said that the vaccine should be developed after studying the pattern of disease occurrence in the poultry sector in different parts of the country. Government should make such labs that can detect and diagnose these diseases and be able to forecast easily. Talking about the feed used in poultry, the number of antibiotics used by some feed manufacturers should be avoided because they reduce the export quality of meat.



Dr Suresh S. Honappagol

Dr Suresh S. Honappagol, Icitz former Vice-Chancellor kur of Karnataka **Veterinary University** and former Animal Husbandry Commissioner, Government of India, said that the poultry sector is well organized but at the time of any emergency, the required data is not available. This hurts the planning process for the poultry sector. There must be a serious effort to collate all data for the poultry sector. For that, a National Poultry Register should be made so that with the help of realistic data, the proper decision can be taken and proper relief can be planned for the poultry farmers whenever necessary.

Dr Ashok Kumar, ADG (AH), ICAR, New Delhi said that we can benefit the sector by using modern technology and by creating more awareness



among the farmers about biosecurity and good practices, then only the problems of the poultry sector will be solved. Talking about disease surveillance, disease diagnostics, and forecasting, Dr A.K. Tiwari, Director, Central Avian Research Institute, Izatnagar, while expressing his views he said that only migratory birds are not responsible for all diseases. With the right



Dr A. K. Tiwari

research and proper and timely interventions, the diseases of poultry can be prevented. It is necessary to maintain biosecurity and hygiene. Diseases in poultry can be prevented to a great extent by surveillance, diagnostics, and forecasting, this can be done by creating a system in collaboration with the poultry sector.

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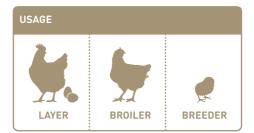


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Dr N. K. Mahajan

Dr N. K. Mahajan, Member of Empowered Committee to monitor Animal Health, Animal Husbandry Department, and Govt. of India said that broiler, breeder, and layer are all three categories of birds. These viral diseases cause a lot of damage, but to avoid it, giving a lot of antibiotics causes more damage. Vaccination is the only option to avoid this loss, as well as other important points like biosecurity and hygiene should also be taken care of. Mr Mahajan also said that as per OIE and WHO guidelines a proper certification of vaccination can be helpful even for the exports of poultry, and the Indian poultry sector will be able to grow more through exports.

Making a closing remark, Mr Jagbir Singh Dhull, President of All India Poultry Breeders Association thanked all the panelists, poultry experts, and farmers for joining the webinar and expressed hope that this discussion will help in making the right policies in the interest of the poultry sector.

All the panelists were unanimous that there should be biosecurity, hygiene, and most importantly vaccination in the poultry sector so that the small farmers of our poultry sector can avoid the massive economic loss caused by the disease.

All the officers present from the Animal Husbandry Department also supported this initiative of the Association and said that such a discussion between the government, scientists, stakeholders, and the poultry farmers have taken



**Jagbir Singh Dhull** 

place for the first time. The officials assured that all the key points of the webinar would be considered for redressal so that the poultry sector and small poultry farmers could be saved from the repeated economic losses every year.

#### Follow-up Activity:

Based on the outcome of the webinar, All India Poultry Breeders Association (AIPBA) will take up the relevant issues with policymakers to ensure that the development of the poultry sector continues and poultry farmers and related stakeholders like corn farmers and soybean farmers should also continue to benefit from the poultry sector.

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# CLFMA & NCDEX organise webinar on Hedging Price Volatility of Feed Ingredients using Commodity Derivatives

14 June 2021: CLFMA **OF INDIA,** the apex organization and the voice of the Country's dynamic livestock industry in association with National Commodity and Derivatives Exchange (NCDEX) organized Webinar on hedging price volatility in feed ingredients using commodity derivatives. In the recent past, commodity prices have seen high volatility which has impacted the normal operations of business. It was thus imperative to understand how to manage this risk using the derivatives platform. The webinar was chaired by the Chairman of CLFMA OF INDIA Mr Neeraj Srivastava. It included eminent panelists from the industry, Mr Kapil Dev, CBO NCDEX, Mr Sumit Gupta, Business head, South Asia and South EA, McDonald Pelz, Mr Rajjib Saha, Agri derivatives

66

Securing raw material purchases through far-month commodity futures contracts not only gives the protection from potential rise in prices at a later date but also raises the efficiency of capital through leveraged transactions

Manager, ITC ABD Ltd, and Ms Rajini Panicker from Phillip Capital. All the panelists have an average experience of more than 15 years in the industry. The event was moderated by Dr Sujit Kulkarni, Managing Committee Member of Clfma of India and the vote of Thanks was given by Mr Suresh Deora, Hon Secretary of CLFMA OF INDIA.

Key objective of the Webinar was to discuss on anomalous rise in prices of Soybean seed and Soybean DOC and Corn which in turn enormous production cost leads to challenging circumstances for livelihood of livestock farmers of India. Webinar highlighted on the following topics:

- Hedging Practices in Global & Domestic Markets
- Price risk management using commodity derivative tools
- Hedging mechanism A Case Study



Dr Sujith Kulkarni, Moderator, MC Member, CLFMA

The Webinar started with a welcome address by Dr Sujit Kulkarni, who also moderated the sessions. Dr Sujit Kulkarni said that since last almost 3 to 4 months our industries have seen the volatility and the unusual spike particularly in Soyabean which led to increase in the feed cost. Almost 80% price rise in Soyabean meal price was observed and there was a huge spike in soyabean seed also. So, CLFMA thought it prudent to support the Industry in this crucial time and hence arranged the webinar with NCDEX and invited the commodity market experts to deliberate the issue.



Neeraj Srivastava, Chairman, CLFMA

**CLFMA OF INDIA** Chairman Mr Neeraj Kumar Srivastava welcomed all. Mr Neeraj Srivastava, in his Welcome Note stated the objectives for the webinar, wherein he highlighted the importance of commodity price risk being a financial risk driven by commodity supply and demand fundamentals. The global commodity markets are facing high volatility due to the supply and demand gaps. It is important to manage this volatility using risk management tools like Futures and Options. The webinar was organized to understand the importance of these tools for effective price risk management and protecting the bottom lines of the business.



Kapil Dev, Chief Business Officer, NCDEX

Mr Kapil Dev was the first panelist to speak on the subject. He highlighted the fact that risk is something that is unknown and uncertain. There is health risk, life risk and wealth risk. While we insure ourselves against the life and health, wealth is something that is not insured. Volatility and uncertainty are always there in business largely driven by unknown and uncertain factors. He cited some of the recent examples, droughts, geopolitical events, biofuel push or logistical bumps like container shortages, Suez Canal blockage for recent volatility in the commodity prices. He explained that these can be effectively managed using the concept of Hedging.



Sumit Gupta, Business Head, South Asia & SE Asia, Mcdonald Pelz

Mr Sumit Gupta was the next panelist to talk on the subject. He further elaborated what Mr Kapil Dev had explained in his presentation. He explained the weather patterns in terms of El Nino and La





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Nina periods and how these largely impact production of Agriculture commodities globally. He mainly focused on Corn and Soybean as these are largely used raw materials as feed ingredients. World corn production should increase to meet the rising demand. Corn prices almost doubled over last year for US farmer while the Indian Corn markets didn't see this kind of rally, this price gap has made Indian corn attractive for exports. He also highlighted the domestic scenario where demand is driven by poultry and starch industry. There has been sharp increase in production and consumption domestically. For Soybean, he stressed on the fact that while the demand was increasing

66

Corn and Soybean, as these are largely used raw materials as feed ingredients. World corn production should increase to meet the rising demand. Corn prices almost doubled over last vear for US farmer while the Indian Corn markets didn't see this kind of rally, this price gap has made Indian corn attractive for exports. He also highlighted the domestic scenario where demand is driven by poultry and starch industry

the yield was constant. The demand for Soybean will continue to increase due to increasing awareness on food preferences and income growth. He mentioned that proper research and analysis of the commodity will help in taking informed price decisions.



Rajib Saha, Manager Derivatives Trading, ITC ABD Ltd

Mr Rajib Saha continued where Mr Sumit Gupta left his presentation and stressed more upon from a business perspective how these price volatilities impact the revenues of business. Corporates must have risk management policy to ensure that planned targets of annual sales, purchases and profitability numbers are attained to satisfy management and shareholders. It is all the more important for corporates who are into commodities as they have a number of risks including risk of change in government policies on tariffs, overseas trade, weather, currency or even hedge funds' strategies. Procurement via futures gives two-way protections, one is fixing the price and another is immunity from counterparty default. Futures also give price signals as they are reflective of what is going on in the markets both globally and domestically. He urged the participants to at least keep following the prices

of futures market to get an understanding of the market fundamentals.



Rajini Panicker, VP, Commodity Head-Phillip Capital India

Finally, Ms Rajini Panicker explained the role of a member in the ecosystem of Futures market. She highlighted how they work with various value chain participants to device customized strategies for them based on their raw material requirement. She also explained in detail the opportunity loss in Soybean if the market participants had hedged Soybean this year. This year being highly volatile, she explained the same for the last year as well, where if hedged the corporate would have saved about 4 - 6 % in their overall procurement costs. She summarized her presentation by saying Securing raw material purchases through farmonth commodity futures contracts not only gives the protection from potential rise in prices at a later date but also raises the efficiency of

There has been sharp increase in production and consumption domestically

capital through leveraged transactions.

Webinar participants actively participated in Question and Answer session and Panelists answered their Questions satisfactorily.



Dr Suresh Deora, Hon. Secretary, CLFMA

Mr Suresh Deora, Hon.
Secretary of Clfma of India concluded the webinar by thanking the panelists for their valuable inputs and the audience for participating and making the event a success. CLFMA OF INDIA will associate for more such programs for the benefit of the feed industry at large.

The event was attended by 270 participants and total registrations received were 317.

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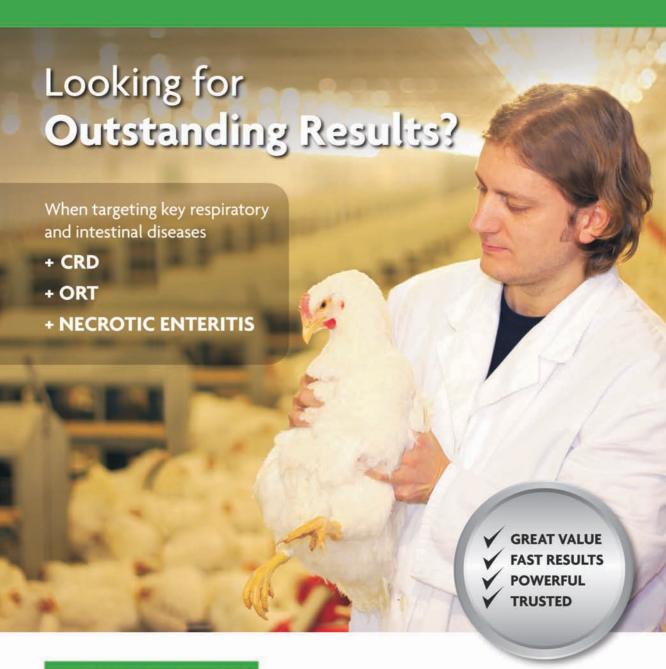
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#### CURRENTLY TRENDING REPORT: Managing Raw Material Prices in Uncertain and Volatile Business Environments

Dr Raina Raj, Head of Marketing, Natural Remedies Pvt Ltd

Bangalore: "Natural is future 2.0" is a webinar series powered by Natural Remedies Pvt Ltd, where it invited eminent speakers across the globe to share their thoughts on the most relevant topics of the animal health industry. In the month of May, Natural Remedies invited Mr Vijay Sardana, a member of the commodity derivatives advisory committee for SEBI, the Government of India as a guest speaker. His discussion was aimed at providing the poultry farming community with an insight into the unprecedented fluctuations in the prices of raw materials for the poultry feed industry especially Soybean and Maize in the past few months.

Mr Sardana started his talk with these quotes. It is needless to say that his talk was about risk management which is the key to the growth of any organization. He pointed out that the Indian poultry industry has been able to manage issues such as feed conversion ratio (FCR) and disease control on par with the international poultry industry, but lags in financial risk management. And that it is time to change perspectives and have more informational discussions around cash

flow, finance and other business management aspects of poultry for a better resilient, sustainable and profitable future.

He emphasised the fact that any business must have an expense management strategy, revenue generation strategy, and risk management strategy to generate profits. With his

"BUSINESS IS
ALL ABOUT RISK
TAKING, MANAGING
UNCERTAINTIES AND
TURBULENCE"

– BY GAUTAM ADANI

"RISK COMES FROM NOT KNOWING WHAT YOU ARE DOING"

- BY WARREN BUFFETT

personal experiences, he explained the importance of developing one's market intelligence, through understanding people dynamics, identifying local market sensors and developing a network of market intelligence, which would give a deeper understanding of the market and help to make more calculated decisions in their businesses. Here are some of the key questions posed by participants and their answers by Mr Sardana.

Why is there a fluctuation

in the raw material prices? What are the major domestic and international factors? How will it vary in COVID times? And how to do risk management?

Mr Sardana suggested that the poultry owners should visualize the industry from different perspectives for a better understanding of the rise in prices. The reason for the rise in the prices could firstly be due to the imbalance in the demand and supply in the market; secondly, the competing forces who may not necessarily be in the poultry or oil industry (the major players) but from the financial business who might use commodity as an asset and stock it for a better market price; looking at it from different perspectives and not only from the poultry or oil industry will give a better understanding of the situation. The scenario is the same irrespective of the national or international market since profit maximization is the goal. A better understanding of the players in the market will help to foresee the market trends and plan a better risk management strategy.

What are your thoughts on using insect proteins and other alternatives along with Soya to manage the cost and mitigate the

#### sudden hike in prices?

He immediately pointed out that the free-range or backyard poultry mostly survives by consuming insects and producing higher quality eggs, so why

Is the Government under discussion for granting duty-free import of 1.2 million metric tons of Soybean? Will this shipment be allowed, and when during this covid situation?

Mr Sardana mentioned that it is under serious consideration, but when it will be approved is uncertain. On the other hand, he urges poultry industry players to contact international non-GM (genetically modified) soybean meal suppliers and be prepared if at all the Government should issue such a notice. So that one has done their research while waiting for the Government notification. Also to keep a business plan ready, while looking for other resources instead of figuring things out at a later stage.

Is the use of soap sticks, glycerol and blood meal good for a high oil and fat diet? Would it be economically viable?

Mr Sardana suggested that the poultry owners should stride carefully in these lines, since it is a decision a nutritionist should make as several aspects need to be considered. These supplements would change the fatty acid profile of the diet. Also, its implications on FCR need to be considered. The use of low-price alternatives may need to be compensated with the inclusion of



other ingredients into the formulation to keep up the nutrient requirements, finally ending up costing more.

Due to the high prices of protein sources the suppliers are adulterating the raw material with things like Melamine. What kind of negative impact would it have on the broiler and breeder's performance?

Mr Sardana pointed to the obvious and said that the FCR would suffer. Since the poultry bird physiology doesn't consider the level of protein on the label of the packaging; all that matters to them is the amino acid profile. He advised the poultry farm owners to be cautious before signing agreements with vendors and to put up a penalty clause in it. He also urged poultry farmers to get involved and make personal visits to the suppliers, and do random sampling of the raw materials based on the FCR and inspect the suppliers instead of looking at the reports. He said, "Do thorough research before selecting the right vendor."

# Why was there a sudden increase in Soymeal DOC (De-oiled cakes) without any speculation, this year?

According to him, there is an imbalance in demand and supply chain. He speculated the following three reasons: firstly, the forecasted production of 12.25 million tons of Soybean for this year was not accurate; The export of Soybean DOC this year was twice as compared to last year; Maybe there has been an increase in protein (Soya) based diet

consumption in humans due to the pandemic, the data for which is yet to be calculated, but can be speculated based on behaviour pattern.

The prices that we are comparing in the Indian market are non-GM (genetically modified) Soya and in the international market is GM Soya. When will the Indian Government allow GM Soya into the market and any strategy for the future?

Mr Sardana suggested to analyse this objectively, the cost of GM Soya in the international market last year (2020) was Rs. 26,000 per ton while non-GM Soya in India was Rs. 36,000 to 38,000 per ton during the season. In such a scenario if GM Soya is allowed into the Indian market, what should happen to the Indian farmers. This will have serious implications.

#### When will the Soya prices come down to normal?

He asked the farmers to wait for the coming season, about 5 months more. He also advised the poultry farmers to manage their business strategies accordingly, probably by placing fewer birds to reduce the pressure.

It was an insightful discussion where Mr Sardana started his talk with the importance of understanding the market and strategizing for risk management; he reminded the simple basics of business, the demandsupply chain; and also gave examples from his experiences in strategizing for the unknown risks that one might encounter.

# Natural Remedies promote K. Narender Reddy as its Chief Operating Officer



K. Narender Reddy, COO, Natural Remedies Pvt Ltd

**Bangalore:** Natural Remedies is spreading its wings to new geographies and is growing at a rapid pace.

In the last year, the company performed exceptionally well and look forward to growing at an accelerated pace in the upcoming years. Helming this growth is no easy task, and this requires the insight and ability of a veteran in this field. In this regard, Mr K. Narender Reddy has been promoted as the Chief Operating Officer from his current role of Commercial Director.

Mr Reddy has been with Natural Remedies for over 30 years and has risen to this position from being a Veterinary Sales Representative.

Mr Reddy will be leading

the organisation by building a strong culture that embodies the vision, and values that NRPL stands for.

According to a note from the company, in this new role as the COO, apart from sales, marketing, formulation & development functions, Narender Reddy will take care of the entire operations for providing strong customer support. He will also oversee strategic customer success and relationships in Asia Pacific and European markets. He will also spearhead the operations in the Australia, UK and US markets as Natural Remedies continues into its next phase of growth. We wish Mr K. Narender

Reddy the very best as he

takes up this monumental

responsibility.









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# Novus Gives and Receives at this Year's PSA Awards

Poultry Science Association Names its Award Winners for 2021

SAINT CHARLES, MO, 8
June 2021: While Novus
International, Inc., has
been a long-time supporter
of the Poultry Science
Association's annual award
ceremony, this year is extra
special with one of the feed
additive company's own
named an award winner.

Vivek Kuttappan, Ph.D., Novus research scientist, was named recipient of the Early Achievement Award for Industry. This award recognizes the achievements of Poultry Science Association (PSA) members in the early stages of their career in the poultry industry.

Dr Vivek Kuttappan wins PSA achievement award Kuttappan, who has worked in poultry physiology with Novus for five years, said he was honored and humbled to

receive the award.

"I joined PSA in 2009 and so many people in the organization have inspired me to keep exploring different ways that science can impact bird growth and health," he said.

Kuttappan's research at Novus focuses on broiler meat quality and poultry gut health – two areas that can directly impact the success of poultry production. Along with his research at Novus, he collaborates with academia to solve gut health challenges in antibiotic-free production



Dr Vivek Kuttappan wins PSA achievement award

and investigates nonantibiotic strategies to control necrotic enteritis, coccidiosis, and salmonella. He holds a patent for a novel molecule to improve gut health in broilers, and his work has been included in scientific publications: 38 peer-reviewed journal articles and 57 abstracts cited by researchers worldwide. As a subject expert in solving poultry meat quality challenges, he has presented to the industry and academic institutions globally.

Kuttappan received his doctorate in poultry science from Center of Excellence for Poultry Science, University of Arkansas and a bachelor's degree and master's degree in veterinary science from Kerala Agricultural University, India.

While he's received several awards for his work, Kuttappan said this is extra special for him.

"My doctoral advisor,



Andrew Benson
Casey Owens from the
University of Arkansas,
nominated me for the
award, which was hugely
validating," he said. "PSA
is filled with people who
really care about the
poultry industry. They are
glad to offer support and
guidance to young and
longtime professionals
alike."

Each year Novus also sponsors its Outstanding Teaching Award, which goes to a top researcher educator. This year's winner is Andrew P.
Benson with the University of Georgia (UGA).

Andrew Benson

Selected by a PSA committee, the Novus Outstanding Teaching Award is presented to a PSA member who has demonstrated outstanding success in the classroom as well as a dedication to professional improvement. Since joining the faculty at UGA's Department of Poultry Science, Benson has taught several courses, including Introduction to

Poultry Science and Avian Anatomy and Physiology each Fall and Spring semester.

Benson himself attended UGA and it's where he first found an interest in poultry science. As an outsider to the industry, Benson said it was his teachers that influenced his career path.

"I know firsthand the impact of effective teaching, so I seize the opportunity to mentor and enthusiastically teach poultry at UGA," he said.

Since arriving at UGA in 2016, he has won the student-voted departmental teaching award each year it has been offered. Outside of teaching, Benson's research focus is to improve fertility in commercial poultry.

For a full list of award winners, visit https://
poultryscience.org/About-Awards-2021. Due to the pandemic, this year's award ceremony will be held virtually on July 19-22, 2021. Novus is a Gold Sponsor of the PSA annual meeting.

PSA is a professional organization consisting of educators, scientists, extension specialists, industry researchers, administrators, producers, and college students who are committed to advancing the poultry industry. Founded in 1908, PSA's member scientists have contributed through their research to the development of safer and more nutritious food product. For more information about PSA, visit www.poultryscience. org.

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#### Poultry Africa comes back in 2022

**Utrecht, 30 June 2021:** The third edition of Poultry Africa is set to take place in Kigali, Rwanda.

#### Cancellation of the 2021 dates

VNU Europe, the organizer of the Poultry Africa Expo powered by VIV worldwide, recently decided not to proceed with the 2021 show that was planned on 1-2 September this year. The decision has been taken due to the current travelling restrictions still present around the world and the continuous uncertainties due to the pandemic.

It is unfortunately not feasible to deliver a very high-quality event for all the stakeholders, as done in the previous two editions of Poultry Africa in 2017 and 2019. Therefore, this press release is to officially inform the industry that the upcoming Poultry Africa 2021 is cancelled as the organizer's priority is to preserve the safety and health of its partners and clients.

#### Poultry Africa new dates for 2022

At the same time, Poultry Africa is pleased to already announce the return to Kigali on 5 – 6 October 2022, at the Kigali Convention Centre, after the successful 2019 edition. The last edition of Poultry Africa Expo presented 128 exhibiting companies from 29 countries at KCC, with the Leadership Conference opening the event one day before.

Poultry Africa 2022 expects to welcome at the same location, KCC, more than 2000 professional visitors of which 40% are estimated to be international poultry professionals from East, West and North Africa. Nutritionists, vets, farmers and food manufacturers are the main target profiles for this event. Details on the concept currently being developed for the 2022 edition will be disclosed in the coming months.

#### Poultry Africa webinar series

Heading to the next event, a number of engaging and interesting webinars are organized by Poultry Africa to bring you useful insights on global solutions for the African market. Experienced and wellqualified professionals are invited to share their knowledge. Poultry Africa team, this year, has already organized 2 sessions respectively focused on animal health practices to overcome biosecurity issues in Uganda, and food security solutions related to the poultry production

value chain in Nigeria.

More inspiring webinars with international speakers will be offered for free to the Poultry Africa network. To join, simply sign-up to the show newsletters via www.poultyafricaevent. com and follow the webinars announcement.

## The most complete international poultry exhibition in Africa

The rescheduling to 2022 provides VNU Europe and regional partners with the best conditions to confirm the positioning of this event as the most complete poultry exhibition for Africa. Poultry Africa 2022 will once again provide a business-driven environment where African and global players will be able to share knowledge, strengthen regional partnerships and initiate promising business relations.

See you on 5 – 6 October 2022, in Kigali, Rwanda at Poultry Africa Expo.

#### Novus Animal Nutrition India Hires Dr Shaveta Sood as National Sales Manager for North, West & Central India

Chennai, Tamil Nadu, 10
June 2021: Novus Animal
Nutrition (India) Pvt Ltd
hired Dr Shaveta Sood as
National Sales Manager
– North, West & Central
India. Dr Shaveta will
be responsible for sales
function for North, West
& Central India region
reporting to Neeraj Kumar
Srivastava, Managing
Director – South Central

Dr Shaveta brings with her 13 years of experience working across the sales, marketing, and product management functions with companies like Vetina Healthcare, Pranav Agro, Polchem hygiene and Animal Husbandry department, Himachal Pradesh. In her last assignment she was titled Business Unit Head - Poultry Business with Vetina Healthcare. She holds a master's degree in animal nutrition from college of Veterinary and Animal Sciences, Palampur and completed Senior

Management Programme with IIM, Kolkata. Dr Shaveta said I am delighted to be part of a wonderful Novus family and would like to express my deep gratitude. A great place with good work culture and wonderful team. I look forward to bringing my experience, skills, and network of contacts to help build on its sterling reputation.

Neeraj Kumar Srivastava, MD of Novus Animal Nutrition (India) Pvt Ltd



Dr Shaveta Sood, National Sales Manager – North, West & Central India, Novus Animal Nutrition (India) Pvt Ltd

said we are very excited to have Dr Shaveta on board, with her experience, technical knowledge, and management capabilities will complement our growing team.

#### **Alltech ONE Ideas Conference** launches with exclusive access to insights from agri-food experts

Virtual conference attracts registrants from 99 countries

LEXINGTON, Ky., 22 June 2021: The Alltech **ONE Ideas Conference** launched virtually to unite thought-leaders and changemakers for an exploration of the power of science, sustainability and storytelling. Now in its 37th year, Alltech's flagship event continues to be an invaluable industry resource, with unmatched content and innovative ideas, inspiration and motivation from worldclass speakers. Registrants from 99 countries have access to a virtual platform that includes on-demand tracks, streaming keynote presentations, live workshops and an interactive networking experience, allowing attendees to connect around the world.

"We are on the brink of a new beginning, and I don't believe that is just a new beginning for Alltech. I think it's a new beginning and a new golden era for agri-food, and it's led by what we believe is a bold vision," said Dr Mark Lyons, President and CEO of Alltech, in his opening remarks. "We want to deliver smarter, more sustainable solutions for our customers and for all of agri-food."

Anna Rosling Rönnlund, Vice President and head of design and user experience at Gapminder and Coauthor of "Factfulness," was one of the opening keynote speakers on



Dr Mark Lyons, President and CEO of Alltech, opened the Alltech ONE Ideas Conference to a global virtual audience.

Tuesday, June 22. Rönnlund designed the user interface of the famous animated bubble-chart tool Trendalyzer, which helps people better understand global development trends. The tool was eventually acquired by Google and is now used by millions of students across the world. Along with her Gapminder co-founders, Rönnlund co-wrote the book "Factfulness," sharing insights on the ten instincts that distort our perspective of the world and prevent us from seeing the truth.

"A lot of things are actually improving, but we're very bad at seeing these slow trends on a global level," said Rönnlund. "We need to have a fact-based worldview, and we need to remember that we need to keep upgrading our worldview, because the world changes, and so has our facts about it."

As a professional photographer, filmmaker

and former photo journalist for National Geographic, Dewitt Jones has made a career of storytelling through images and has travelled the world on a mission to find the extraordinary in the ordinary. Through his compelling stories and captivating photography, Jones shared how changing your lens can change your life.

"These are turbulent times, and the waves of change seem to threaten our very survival. So, what will your vision allow you to see?" Jones asked during his keynote presentation. "Will you look out at a dim, half-colored world where dreams disappear in the distance – a world where goals don't even seem worth striving for? Or will your vision allow you to see a world still full of beauty and joy and possibility?" The Alltech ONE Ideas

Conference keynote sessions, on-demand tracks and Planet of Plenty live workshops launching this week include:

#### Tuesday, June 22

8:30 a.m. ET: Keynote Session

- Dr. Mark Lyons, President and CEO, Alltech
- · Anna Rosling Rönnlund, Vice President and Head of Design and User Experience, Gapminder; Co-Author, "Factfulness"
- Dewitt Jones. Professional Photographer, Filmmaker and Former Photojournalist for National Geographic 10:30 a.m. ET
- All tracks on-demand content available

11:00 a.m. ET: Planet of Plenty Live Workshops

- The Inaccuracy of "Seaspiracy"
- Awarding Sustainability
- Food for Thought
- Where's the Beef? Wednesday, June 23

9:00 a.m. ET: Keynote Session

- David McWilliams, Economist and Professor, Trinity College Dublin
- Dr. Ruth Oniang'o, Board Chair, Sasakawa Africa Association; Professor of Nutrition; Former Member of Parliament in Kenya

11:00 a.m. ET: Planet of Plenty Live Workshops

- Minding Your Cognitive Health
- Let's Not Waste It
- Find Your Story

#### Thursday, June 24

9:00 a.m. ET: Keynote Session

- Shirzad Chamine, CEO, Positive Intelligence, Inc.
- Dr. Mark Lyons, President and CEO,

Alltech

- 11:00 a.m. ET: Planet of Plenty Live Workshops
- Innovation from the Inside
- Farm-to-Fork Sustainability
- A Tale of Two Climate Policies

1:00 p.m. ET: Planet of Plenty Workshop with Shirzad Chamine • Explore Your Positive Intelligence
Over the course of the Alltech ONE Ideas
Conference, more than 70 on-demand presentations will explore challenges and opportunities in aquaculture, beef, business, crop science, dairy, equine, health and wellness, pet, pig, and poultry sectors.

Registration for the Alltech ONE Ideas Conference will remain open, offering attendees 24/7 access to all on-dem and content, including keynote presentations and tracks, until April 2022.

Registrants can engage virtually in many ways during the Alltech ONE Ideas Conference, including the ONE FUNdraising
Run, the Alltech Ideas
Hub and expert-led
mixology sessions. All
are encouraged to share
their experiences on social
media with the hashtag
#ONEbigidea. To learn
more and to register for
the Alltech ONE Ideas
Conference, visit one.
alltech.com.

#### IFAJ-Alltech International Award for Leadership in Agricultural Journalism recipients announced

Kallee Buchanan of Australia and Craig Lester of Canada were recognized during the Alltech ONE Ideas Conference

LEXINGTON, Ky., 22 June 2021: Alltech and the International Federation of Agricultural Journalists (IFAJ) are pleased to announce Kallee Buchanan of Australia and Craig Lester of Canada as the recipients of the 2021 IFAJ-Alltech International Award for Leadership in Agricultural Journalism. The award recognizes excellence and leadership by young agricultural journalists and was presented today during the Alltech ONE Ideas Conference.

"IFAJ shares our commitment to supporting journalists who give a voice to the farmers and producers, the innovators and change-makers, the scientists and scholars all working toward a Planet of Plenty," said Dr Mark Lyons, President and CEO of Alltech. "On behalf of Alltech, I congratulate Kallee Buchanan and Craig Lester as the well deserving recipients of the 2021



Alltech is proud to partner with the International Federation of Agricultural Journalists (IFAJ) to recognize excellence and leadership by young journalists with the IFAJ - Alltech International Award for Leadership in Agricultural Journalism.

IFAJ-Alltech International Award for Leadership in Agricultural Journalism."
This recognition honors Alltech's late founder, Dr Pearse Lyons, who was a passionate storyteller with a great respect for agricultural journalists. The award complements the Young Leader program that Alltech co-founded with IFAJ in 2005 in support of the mentorship and education of leaders who

connect agriculture to a global audience. It's also an endeavor that aligns with Alltech's vision of Working Together for a Planet of PlentyTM, in which a world of abundance is made possible through the adoption of new technologies, better farm management practices and human ingenuity within agriculture.

"As producers throughout the food supply chain are implementing more sustainable solutions. we are in the midst of a new era in agriculture led by science, data-driven decision-making and a passionate dedication to farming with the future in mind," said Dr Mark Lyons. "Agricultural journalists have the ability to share these stories, and through our continued partnership with the IFAJ, we are proud to support these future leaders, who are passionate about connecting our industry to a global audience."

Kallee Buchanan started her career at a regional newspaper in 2008 before joining the Australian Broadcasting Corporation in 2009, where she has worked as a radio and digital journalist, presenter and producer, covering



Kallee Buchanan of Australia is a recipient of the 2021 IFAJ - Alltech International Award for Leadership in Agricultural Journalism.

rural and regional issues. In 2010, she won a Queensland Media Award (Clarion) for Best Radio News Report, and in 2017 she won the radio and digital categories at the Queensland Rural Media Awards and was named the overall journalism winner. She went on to win both the Australian and the International Star Prize for Digital Media, and she won the Queensland radio category again in 2018. In 2019, she was



Craig Lester of Canada is a recipient of the 2021 IFAJ - Alltech International Award for Leadership in Agricultural Journalism.

highly commended in the Emergency Media and Public Affairs Awards for her coverage of the 2018 Central Queensland bushfires.

Buchanan joined the committee of the Rural Press Club of Queensland in 2016 and became its representative on the Australian Council of Agricultural Journalists (ACAJ) in 2018, eventually becoming the secretary of the ACAJ in 2019 and its president in 2020. She is passionate about elevating the issues and industries of regional and rural people and supporting agricultural media communicators in that work. She is committed to developing and retaining new voices that reflect the true diversity of communities outside of the major city centers, as well as the contributions they make to a productive world.

Craig Lester loves connecting people, ideas and resources, and he believes that there is no better place to do that than in agriculture. As president of the Alberta Farm Writers' Association, part of the Canadian Farm Writers' Federation, Lester serves in two key professional roles that are dedicated to sharing information and educating the community with local and industry information. He is a managing editor of 660 NEWS, an all-news radio station in Calgary, Alberta, and is the coowner of Rural Roots Canada, an agriculture media production and distribution company. In his free time, he works on the family farm in Rolling Hills, Alberta.

Lester is also very active as a volunteer in the community, contributing his time to the Calgary Stampede, Alberta Young Speakers for Agriculture and Ronald McDonald House. He is also on the planning committee for the 2023 IFAJ World Congress, which will be held in Alberta.

With a passion for successful succession and empowering the next generation, Lester established an agricultural scholarship and travel bursary at his alma mater, Brooks Composite High School, to support a student pursuing either agricultural-related postsecondary education or an international inperson learning experience.

He is an awardwinning broadcast journalist and received a diploma in broadcast news from the Southern Alberta Institute of Technology.

"In challenging times like these, reliable journalism and information is vital for farmers," said IFAJ President Lena Johansson of Sweden. "Alltech's commitment to professional development for agricultural journalists to promote eminent leaders within our organization is much-appreciated and contributes to enhancing the quality of agricultural journalism – which, in the long run, benefits the entire agricultural sector."

# Acutia, a wholly owned subsidiary of Alltech, launches supplement to support cognitive health, brain function

Acutia Brain Health is the second supplement to be released, following the company's initial launch of Acutia Selenium in March

#### LEXINGTON, Ky., 22

June 2021: Acutia has announced the expansion of its product line with the launch of Acutia Brain Health. By combining selenium, vitamin C and omega-3 DHA, the supplement supports cognitive health and brain function while also providing antioxidant benefits and essential nutrients.

Reflecting the company's commitment to sustainability, the product's unique packaging system helps to reduce waste, while carbon emissions from shipping are offset through a partnership with Nori.

"We are excited to announce the highly-

anticipated launch of
Acutia Brain Health," said
Nikki Putnam Badding,
a registered dietitian
nutritionist and director of
Acutia. "This new offering
furthers our commitment
to helping people sustain
their own well-being and
the health of the planet we
share."

The announcement of the launch was made during a virtual Q&A session at the Alltech ONE Ideas Conference. Putnam Badding shared that Acutia Brain Health is now available for shipment to most regions of the world. Acutia's product line also includes Acutia Selenium, which provides immune system support,

antioxidant benefits and

essential nutrition and helps maintain healthy thyroid function.

The selenium found in Acutia Selenium and Acutia Brain Health is made from a specialized, high-quality strain of brewer's yeast to optimize the quality, absorption, safety and efficacy of the products.

Acutia, a wholly owned subsidiary of Alltech, launched on March 24 when Alltech, a global leader in the animal health industry, announced that it would begin applying its more than 40 years of scientific innovation and proven nutrition expertise to human health. Acutia combines science and sustainability to provide high-quality supplements that enhance everyday nutrition and improve longterm wellness.

"Maintaining optimum

brain health is imperative to our ability to live our lives to the fullest," said Dr Mark Lyons, President and CEO of Alltech. "Acutia Brain Health empowers people to supplement their nutritional needs today while supporting their long term wellness for the future."

Acutia products are backed by the Alltech Life Sciences division, which conducts research on digestive health, cognitive health, brain function and cellular health. In 2019, researchers with Alltech Life Sciences achieved a breakthrough that offers those living with diabetes a possible alternative to current insulin treatments.

Acutia Digestive Health will round out the initial offering from Acutia, with an expected launch slated for later this year.

# New EVP for Perstorp Animal Nutrition Aart Mateboer to realize ambitious plans

Malmö, Sweden, 28
June 2021: Perstorp is
proud to announce that
Aart Mateboer has been
recruited to lead its Animal
Nutrition business, which
is going through a rapid
transformation to fortify its
position as a true solutions
provider for the Animal
Nutrition industry.

Aart Mateboer has been appointed EVP Animal **Nutrition for Perstorp** as of August 1. He is a senior executive with a solid background in the chemical as well as animal nutrition industry. In his latest position he was Vice President Animal Nutrition at IFF - International Flavors & Fragrances, and has prior had several senior positions in companies such as Akzo Nobel, Cargill and Danisco.

"I am excited to join
Perstorp, a company known
for bringing innovative and
sustainable solutions to the
animal nutrition industry.
The recent investments in
the business have laid a solid
foundation for the future
and together with the team
we will make the ambitious
growth plan happen," says
Aart Mateboer.

Aart Mateboer holds a master's degree in organic chemistry from the Free University in Amsterdam, and will be based at Perstorp's production unit in Waspik, the Netherlands.

Jan Secher, Perstorp President & CEO says: "I am very pleased to welcome Aart to Perstorp.



Aart Mateboer, newly appointed Executive Vice President for Perstorp Animal Nutrition

The Animal Nutrition business is continuing to be one of Perstorp's focus segments, and with our ongoing investments as well as product innovations in the area, we have high expectations on even better serving the animal nutrition market. With Aart's solid track record and background, I am confident that we will continue to serve and lead change in the animal nutrition industry."

The ongoing investments at the production unit in the Netherlands enable growth in production capacity to meet the increased demand and shifting customer requirements.

The investments will also be used to make sure that the new portfolio that is currently in the innovation pipeline can be produced when it goes to market in 2022. This portfolio of gut health solutions is based on years of efforts in R&D, using unique in house developed production technologies.

#### **Avitech Know-Edge Nutrition Podcast**

Gurgaon, Haryana: Avitech Nutrition recently launched the Avitech Know-Edge Nutrition Podcast. The Know-Edge Nutrition Podcast will be a series of Q&A sessions conducted by the science team at Avitech Nutrition with industry experts discussing areas of interest in the animal nutrition industry.

Episode - 1 is a session with Dr Rakesh Sikri on gut health management in poultry. Dr Rakesh Sikri is a renowned poultry nutritionist based in northern India.

The Avitech Know-Edge

Nutrition Podcast is an initiative to promote and enhance knowledge in the animal nutrition industry.

The Avitech Know-Edge Nutrition Podcast will be uploaded on the Avitech Nutrition website and You Tube. It can also be accessed through the QR code below.



#### Anne-Marie Neeteson Receives British Poultry Council's Special Merit Award

Recognition for Anne-Marie's steadfast efforts to progress animal welfare and sustainable development

Edinburgh, Scotland, 31 May 2021: Aviagen® is proud to announce that Anne-Marie Neeteson, Global Vice President of Welfare, Sustainability & Compliance for Aviagen Group, has been honored with the British Poultry Council (BPC) Special Merit Award for 2019. The award recognizes Anne-Marie's work in representing the industry on a global level to promote the causes of animal welfare and sustainable development. According to her award letter from the BPC, she has been "invaluable in progressing the science around these issues and helping the industry take a leadership role in addressing them."

Due to COVID-19 restrictions, the formal award presentation was postponed, but the BPC reports that it hopes to hold the event this year, and Anne-Marie will be formally presented with

her certificate at that time. "Anne-Marie is passionate about protecting the welfare of birds and advancing sustainability for the benefit of the planet, as well as our customers and the communities they serve. She works tirelessly, both at Aviagen and through her work with industry and welfare organizations, to implement continuous improvements that have



Anne-Marie Neeteson, Global Vice President of Welfare, Sustainability & Compliance for Aviagen Group receiving British Poultry Council's Special Merit Award

a positive ripple effect on these causes. Anne-Marie is an asset to our team and to the wider poultry industry, and I congratulate her on this latest merit award," commented Alfons Koerhuis, Chief Technical Officer, Aviagen Group.

In 2019, Anne-Marie Neeteson led the International Poultry Council (IPC) working group that adopted five of the United Nations' Sustainable Development Goals (SDGs) as areas where the global poultry meat sector can make a difference. And again this year, as an active and longstanding member of the IPC and proponent of animal welfare, she was appointed as chair to an IPC working group on Animal Health and Welfare. Communication and Food Quality.

Alfons added that, through her extensive

work with the IPC, the BPC and others, Anne-Marie is putting into practice Aviagen's Top 5 Commitment of Transparency, Communication and Engagement, which corresponds with the SDGs prioritized by the IPC, in particular SDG 9: Industry, Innovation and Infrastructure. Essentially, members of the food supply chain must work together, sharing knowledge and experiences to further bird welfare and sustainability.

Aviagen has put together an engaging interactive presentation on the company's efforts toward Breeding Sustainability and Animal Welfare, which are inextricably linked. Learn more: https://aviagen.com/assets/Sustainability/2021/index.html

#### About Anne-Marie Neeteson

Anne-Marie has served as Vice President of Welfare, Sustainability and Compliance for Aviagen Group since May 2015, where she is responsible for poultry welfare and sustainability, and has created a global welfare audit system for chickens and turkeys.

Before joining Aviagen, she directed the European Forum of Farm Animal Breeders (EFFAB), and established and led the European Union (EU)recognized Sustainable
Farm Animal Breeding and
Reproduction Technology
Platform (FABRE-TP). She
has also set up a patent
watch, a Code of Good
Practice for Farm Animal
Breeding Organizations,
and initiated the Animal
Task Force in Europe.

She is a Professional Animal Auditor Certification Organization (PAACO) welfare auditor, as well as a board member of the International Poultry Welfare Alliance and United States Roundtable for Sustainable Poultry, and is involved in several other communication policies and initiatives in the poultry sector. She has represented the IPC on initiatives related to the UN Food and Agriculture Administration (FAO), and has chaired the IPC Environment and Sustainability WG.

Anne-Marie holds a Master's degree in Genetics and Animal Science from Wageningen University in the Netherlands.

#### **About Aviagen**

Since 1923, Aviagen® has been a preferred global poultry breeding company with a mission to help its customers -- the world's chicken meat producers -- supply sustainable, affordable and nutritious protein to their growing communities. Putting into practice its corporate value of "Breeding Sustainability," Aviagen implements efficiencies that make commercial chicken production environmentally and socially responsible and economically beneficial to producers, while at the

same time promoting bird performance, health and welfare.

To meet varied market demands, Aviagen offers a full portfolio of breeding stock under the Arbor Acres®, Indian River® and Ross® brand names. The Rowan Range® and Specialty Males® target slower-growing and other niche market needs. Aviagen is based in

Huntsville, Alabama, US., with operations across the UK, Europe, Turkey, Latin America, India, Australia, New Zealand, Africa and the US, and joint ventures in Asia. The company employs close to 8,000 people, and serves customers in 100 countries. For more information, please visit Aviagen.com, or follow Aviagen on LinkedIn.

#### Eggs may vanish from the poor's platter

A dozen eggs selling for close to ₹75 across shops in the city

Hyderabad, 13 June 2021: Egg, the poor man's protein, is now hardly available for the poor, thanks to the mad rush created by the COVID-19 pandemic. Its price has

Now, I make sure that I eat two eggs per day to boost my immunity," says Sudhakar Reddy, a consumer.

**Production** 

## ease supply worries

An unusual demand for eggs, which are highly recommended by doctors to boost immunity amid the COVID-19 pandemic, has led to a shortage.

## India's corn exports



Vietnam, Malaysia, Sri Lanka, Bangladesh are the key buyers.

Singapore / Mumbai, 9 June 2021: India has stepped up corn exports as a rally in global prices to their highest since 2013 has made shipments from India competitive, easing concerns about rising food inflation in Southeast Asia. Indian exporters have signed deals to sell around 4,00,000 tonnes of corn for shipment in June to July to animal feed

producers in Vietnam,

Malaysia, Sri Lanka and

Bangladesh, according to

two Singapore-based feed

grain traders. Cheaper corn

supplies from India would keep the cost of animal feed lower for consumers of meat and chicken in Asia, who are among the most vulnerable to high food prices.

Benchmark Chicago corn futures have more than doubled since August on rising Chinese demand and declining production in key exporter Brazil. In early May, prices hit their highest since March 2013 at over \$7 a bushel.

Courtesy: The Hindu Business Line, 10 June 2021, reached never-before proportions, with a dozen eggs costing close to ₹75 across shops.

This is probably the first time that the price of an egg has crossed ₹6.

The protein food, which needed constant egging previously, is now the most sought-after source of nourishment. Since the onset of COVID-19, doctors have been advising a diet rich in proteins, especially eggs, in order to fight the infection effectively.

#### **Higher consumption**

While the demand for eggs has decidedly risen among the infected groups, those fearing the infection have also begun to consume them more. "I hardly ate more than 12 eggs per month before coronavirus.

Poultry stakeholders attribute the price rise to the losses incurred the previous year during the covid lockdown. "During last year's lockdown, rotation of the layer chicks had been stalled temporarily because there was no inter-state trade. The entire production of Telangana was locked up within the state, due to which the prices had fallen up to ₹2 per egg. Later, it took some time for production to bootstrap, due to which the prices now have been rising," says P. Vidyasagar, a poultry businessman.

He adds that the unusual demand for eggs has created scarcity, contributing to the price rise. "The communities

#### **Egg Prices at various Production Centres (PC) and Consumption Centres** (CC) June 2021 S. Name of the Zone Month No. Average **NECC Prices** 1 Ahmedabad 550.53 2 Ajmer 505.43 3 Barwala 502.83 Bengaluru (CC) 4 537.17 5 Brahmapur, Odisha 517.27 6 Chennai (CC) 532.5 7 Chittoor 525.5 8 Delhi (CC) 525.4 9 East Godavari 503.93 10 Hyderabad 499.27 11 Ludhiana 502.67 12 Mumbai (CC) 559.07 13 Muzaffurpur (CC) 558.17 14 Mysuru 535.7 15 Nagpur 545.9 16 Namakkal 509 17 Patna 554.07 18 Pune 553.8 19 Ranchi (CC) 564.97 20 Vijayawada 513.93 21 Vizag 527.43 22 West Godavari 503.93 23 Warangal 501.27 **Prevailing Prices** 24 Allahabad (CC) 545.17 25 Bhopal 534.24 26 497.17 Hospet Indore (CC) 27 531.08 28 Jabalpur 526.72 29 Kanpur (CC) 541.33

	Broiler Rates				
S. No.	States	Rates			
NORTH	ZONE				
1	Punjab	92			
2	Haryana	88			
3	Himachal Pradesh	93			
4	Delhi	101			
5	Uttar Pradesh	125			
6	Madhya Pradesh	102			
7	Rajasthan	94			
WEST	ZONE				
8	Gujarat	112			
9	Maharashtra	98			
10	Chhattisgarh	108			
EAST Z	ZONE				
11	Assam	112			
12	Bihar	125			
13	West Bengal	118			
14	Orissa	107			
SOUTH	ZONE				
15	Andhra Pradesh	89			
16	Telangana	90			
17	Karnataka	75			
18	Tamil Nadu	70			
19	Kerela	72			

Source: All India Poultry	<sup>,</sup> Development	and	Services	Pvt
Ltd				

South India Culls Assn. SICA 18.6.2021			
S. No.	Cull Birds Guidance Rate	Rs per kg	
1	Mysore	80	
2	Bangalore	80	
3	Hospet	80	
4	Namakkal	76	
5	Anaparthy	75	
6	Hyderabad	74	
7	Tanuku	73	
8	Vijayawada	71	
9	Pune	70	
10	Visakhapatnam	70	

PA	PALLADAM BROILER PRICE			
S. No.	City	Price per kg		
1	Coimbatore	97		
2	Annur	97		
3	Avinashi	97		
4	Erode	100		
5	Valapadi	100		
6	Karur	100		
7	Jayankondan	101		
8	Perambalur	101		
9	Pudukottai	102		
10	Tanjore	102		
11	Salem	100		
12	Pondy	102		
13	Palani	98		
14	Dindugal	99		
15	Theni	100		
16	Madurai	100		
17	Sattur	100		
18	Tenkasi	100		
19	Tirunelveli	100		
20	Nagarkovil	100		
21	Vellore	100		
22	Krishnagiri	98		
23	Trichy	102		

Source: Broiler Co-ordination Committee

Raw Material Rates Rs/MT				
S. No.	Oil Seeds	June 2021 Average		
1	Soybean (Indore)	71,000		
2	Groundnut (Saurashtra)	61,000		
3	Rice Bran (Punjab)	22,800		
4	Mustard Seed (Rajasthan)	70,750		
5	Sunflower (Maha / Karn)	68,000		

Source: SEA

Raw Material Prices			
S.	Name of Raw	In Indian	
No.	Material	Rupees	
1	Maize	13,001 / Ton	
2	Bajra	18,500 / Ton	
3	Fish meal	35,000 / MT	

Source: India Mart

which would traditionally avoid eggs have started consuming them now, due to the fear of pandemic," he says.

Kolkata, West Bengal

Lucknow (CC)

Raipur

Surat Varanasi (CC) 568.5

566.67

536.1

557.2

563.73

30

31

32

33

Sanjeev Chintawar, business manager of National Egg Coordination Committee, attributes the high price to increase in the cost of poultry feed. "Prices of sovabean cakes and maize have increased phenomenally, and production cost

has risen by 40% for the poultry farmer. Production has come down, as many farmers have shut business due to high costs. For 3.7 crore production in Telangana, now only 3 crore eggs are being produced. Nationally, the production has come down from 30 crore to 24 crore, while the consumption has been on the rise due to the pandemic," he says.

Courtesy: The Hindu

#### Read **Aqua International**

**English monthly on Aquaculture** 

**Annual Subscription Cost: Rs. 800** 

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## Poultry produce -A Potential tool to Eradicate Malnutrition and Anaemia in India

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Human resource is the most important factor for development of any country. A better nutritional status of women and children is an out most important among the population base of any country and that determines the productivity potential of human capital. Malnourished mother can never produce a healthy baby and a malnourished baby for longer time cannot be a healthy adult. Therefore, in the present article, it has been highlighted the nutritional and anaemic status of children and adult men & women in the country and role of poultry to mitigate the situation.

According to National Family Health Survey (2015-16), about 38 % of children under age five years are stunted (too short for their age) in India. This is a sign of chronic undernutrition. About 21% children under age five years are wasted (too thin for their height), which is a sign of acute undernutrition, while 36% of children under age five years are underweight. About 2% of children are overweight. Stunting is higher among children in rural areas (41%) than urban areas (31%). The prevalence of undernutrition is almost the same among girls and boys. The prevalence of stunting in children under age of five years is the highest in Bihar (48%), Uttar Pradesh (46%), Jharkhand (45%), and Meghalaya (44%), and lowest in Kerala (20%) and Goa (20%). Jharkhand has the highest levels of underweight (48%) and wasting (29%).

Anaemia is a condition that is characterized by low levels of hemoglobin in the blood. Iron is a key constituent of haemoglobin, and iron deficiency is estimated to be responsible for half of all anaemia globally. It is a serious concern for children, because, it can impair cognitive development, stunt growth and increase morbidity from infectious diseases. Overall, 59% of children in India had some degree of anaemia (haemoglobin levels below 11.0 g/dl) during the

#### **Highlight Points**

- ▶ In India, 38 % of children under age five years are stunted, 21% are wasted, 36% are underweight and 59% of children are suffering from some degree of anaemia.
- ▶ About 53% of women and 23 % of men of age 15-49 years in India are anaemic and about 23% of women of age 15-49 years are thinner than normal.
- ► Chicken and eggs are cheapest and good sources of protein and other vital nutrients, which are important to maintain a healthy weight, help in anaemic condition and also recommended by experts to incorporate into our diets.
- ► Eggs have biological value of 93.79 % higher than milk (84.5 %) and fish (76 %) and this act as growth promoter in children and maintain good health to all.

study period. About 28% of children had mild anaemia, 29% had moderate anaemia, and 2% had severe anaemia. The prevalence of anaemia among children at the age of 6-59 months is highest in Haryana (72%), followed by Jharkhand (70%) and Madhya Pradesh (69%). The states with the lowest prevalence of anaemia among children are Mizoram (19%), Manipur (24%) and Nagaland (26%).

About 23% of women of age 15-49 years are thinner than normal. The proportion of thin women is higher in rural areas (27%) than in urban areas (16%) and the reverse is observed for the prevalence of overweight or obesity (31% in urban areas and 15% in rural areas). The highest proportion of thin women is observed in Jharkhand (32%), followed by Bihar (31%). The highest proportion of overweight or obese women is observed in Goa (34%), several southern states (33% in Andhra Pradesh, 32% in Kerala, and 31% in Tamil Nadu and all of the union territories except Dadra & Nagar Have-

li). The proportion of thin men is higher in rural areas (23%) than in urban areas (16%), whereas 27 % of men are overweight or obese in urban areas, compared with 14% in rural areas.

About 53% of women and 23% of men of age 15-49 years in India are anaemic. The overall prevalence of anaemia is consistently high, at more than 50%, in almost all of the subgroups of women. Women in urban areas are slightly less likely to be anaemic (51%) than those in rural areas (54%). The prevalence of anaemia among women is more than 60% or more in Jharkhand, Haryana, West Bengal, Bihar, and Andhra Pradesh, and the prevalence is less than one-third in Mizoram (25%), Manipur (26%), Nagaland (28%), and Goa (31%). The prevalence of anaemia is also very high in the union territories of Dadra & Nagar Haveli (80%), Chandigarh (76%), and the Andaman & Nicobar Islands (66%).

Chicken meat and eggs are consumed across the caste, religions, customs with any taboo in the country. In India, people consume about 90 million broilers and 22.5 million eggs per week. Chicken and eggs are good sources of protein and other important nutrients, which are essential for body building. Eating a high-protein diet makes it easier to maintain a healthy weight by supporting the body's efforts to build muscle, active metabolism, and increasing feelings of satiety. Eggs are one of the cheapest sources of animal protein, which contains almost all essential amino acids and providing 18 vitamins and minerals.

The 100g boiled egg contains 74 g water, 12.1 g protein, 11.2 g fat and other vital nutrients. Eggs have biological value of 93.79 % higher than milk (84.5 %) and fish (76 %). The nutritionally balanced and high biological value of the egg act as growth promoter in children. These amino acids serve as a building blocks to repair and rebuild the body. Further, consumption of egg protein supports immune system and promotes healing. Eggs may play a useful role in the diets of those at risk of low-nutrient intakes such as the elderly, pregnant women and children.

In addition, chicken is a good source of protein, vitamins and other nutrients that are vital for metabolism and immune system. Relatively low sales prices of chicken meat, in comparison to other meat, increased its consumption among all section of the people. The 100 g of chicken meat contains 75g water, 22.8 g protein, 0.9g fat and 1.2 g ash. Chicken is a good source of iron and zinc, which are crucial for the production of healthy red blood cells. Now a days, poultry produce is available throughout the country, but price varies depending on supply and demand ratio.

Kadaknath, which is a native breed of chicken, is a good source of iron along with other nutrients, which helps in hemoglobin formation. As per the recommendation of Indian Council of Medical Research (ICMR) every person should consume 180 eggs/year and chicken meat 11kg/year. Presently, per capita egg and chicken consumption is 86and about 4.1 kg, respectively.

A study on household consumption pattern was conducted by National Sample Survey Office (NSSO, 2014) and result showed that only 29.2% of rural and 37.6% of urban households were consuming eggs; and 21.7% rural and 27% urban households were consuming chicken, in a week. However, the report also says that per-capita consumption (in 30 days) of chicken was 178 gm in rural and 239 gm in urban area whereas, the per-capita consumption of eggs was only 1.94 – in rural and 3.18 – in urban area. As par data available, 71% of Indian population take non-vegetarian diet. So, these population should be encouraged to take poultry products in their diet. Diet not only depends on an individual's food choices, but also on the availability and affordability of healthy foods and sociocultural factors. Chicken meat and eggs are highly nutritious and recommended by experts to incorporate into our diets. Therefore, in many of the Indian states eggs were offered to school going children during the mid-day meal to increase the nutritional status.

However, there is need to further promote poultry produce consumption in those states where malnutrition and anaemia is more prevalent specially, Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh and some parts of North-Eastern states. In these sates per capita consumption of poultry produces are comparatively lower, which may be due to lower availability. To increase the availability, we can promote backyard poultry production with improved birds for regular home consumption as well as sustainable source of income in rural area. In urban area, the price of chicken produce is comparatively lower, we can promote chicken produce consumption among them by creating awareness and other schemes.

Consumer demand of specific nutrient enriched chicken produce is high among the elite class population. Therefore, nutrient fortified (designer food products) many are available in the market like Selenium-enriched eggs, Iron-enriched, Zinc-enriched eggs etc. Processed and packed chicken produce such as Chicken and Egg White Protein Powder are also available in many flavors, this protein powder can be used to make delicious food and incorporated in many food items. These food items can also be promoted among consumers to get better nutritive items in their diet to eradicate the menace of malnutrition.

#### Conclusion:

Poultry produce (eggs and chicken meat) are high quality protein food items, easily available and affordable across the regions, religion, caste and creed etc. Eggs and chicken meat are rich source of protein and other vital nutrients like vitamins and minerals. If people consume poultry products regularly, the issue of malnutrition and anaemia, which are prevalent in many parts of the country can be reduced and even completely eradicated. The Govt agencies should create awareness and popularize the poultry products to reach out the last mile i.e., rural and tribal masses of India.

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## The impact of Dietary Sodium diformate on the performance of Layers – A short review

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#### **Highlight Points**

- ► The use of organic acid salts in the diet clearly has a range of beneficial effects in layer production.
- ► Firstly, their application in biosecurity management through the feed assists the bird to combat bacterial pathogens.
- ▶ Their conferred improvements in nutrient digestibility, especially that of minerals like calcium leads to better egg quality. Improving nutrient availability by including dietary organic acids in the diet, also plays a role in the number of eggs produced, as healthy, well-conditioned birds are more productive.

Microbiological integrity of eggs is an important issue, while bacterial pathogens in feed and environment of layer units can have serious consequences for bird health and productivity. Salmonella is the most widely understood bacterial pathogen in egg production, which, according to Farooq (2001) is among the bacterial species influencing higher losses in chicken and was abundantly found in bedding material of chicken (42%), drinkers (36%), feed (28%) and water tanks (17%) of poultry farms. However, opportunistic Gram-negative pathogens such as E. coli and Campylobacter can just as easily take hold. Colibacillosis, a syndrome caused by E. coli, is one of the most common infectious bacterial diseases of the layer industry. Colibacillosis causes elevated morbidity and mortality leading to economic losses on farm especially around the peak of egg production and throughout the late lay period (Linden, 2015). E. coli infections rank among the top two health concerns for both cage-housed and cage-free layers, according to a survey conducted by the Association of Veterinarians in Egg Production in the US (O'Keefe, 2013). The microbiological safety of table eggs remains therefore the overriding concern of consumers. Jones (2011) has suggested the use of chemical additives to control bacterial pathogens in feed - this may primarily involve the use of organic acids.

Organic acids have long been used in animal nutrition to stabilize feed and enhance animal performance. Early studies on these additives were carried out in pig production (Cole et al., 1968); however, they have been increasingly adopted in the layer industry since the early 1990's.

Kirchgessner et al. (1992), was among the first to report the effects of organic acids (in this case fumaric acid) on productive parameters in layer units. Since that time, this knowledge gradually spread through the industry and the use of these valuable additives has also been adopted in the layer industry.

Improving hygienic conditions and poultry performance with the aid of organic acids has been reported by many sources (Desai et al., 2007). An important limitation, however, is that organic acids are rapidly metabolised in the fore-gut (crop to gizzard) of birds, which will reduce their impact on growth performance. More recently, sodium diformate (traded as Acidomix DF+, Venkys, hereafter abbreviated as DF+), has been proven to be effective against pathogenic bacteria along the whole gastro-intestinal tract in the case of Salmonella and Campylobacter, as reported by Lückstädt and Theobald (2009). Under commercial conditions, a large-scale feeding trial in Spain found a 99% reduction in intestinal E. coli contamination in birds fed 0.3% DF+ in the feed between 47 and 50 weeks of age. Furthermore, a

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later study by Kühlmann et al. (2012) found similar E. coli reduction rates, but also that beneficial bacteria in the gut were unaffected.

Pathogenic load in eggs is not the only concern to the layer industry. Poor eggshell quality is a huge hidden cost to the egg producer. It is estimated that more than 10% of eggs produced in the hen house are uncollectible or break before intended use, partly consisting of shell less, cracked or broken eggs, to the extent that they are not suitable for collection. Gupta (2008) stated that 'every effort must be directed towards improving shell quality and reducing egg breakage'.

A commercial study in the Philippines found that feeding 0.2% DF+ between 65 to 69 weeks of age improved egg quality during this period (Table 1). Here, the improved eggshell quality was found to result from the addition of the acidifier to the diet, which increases the availability of the calcium to the bird, as reported by numerous other sources. As a result, the incidence of cracked eggs was reduced by 19% in the diet containing DF+.

Table 1: Effects of 0.2% sodium diformate (DF+) on egg quality in layers, aged 65-69 weeks, in the Philippines

Parameter	Control	0.2% DF+	Δ[%]
N	2162	2132	-
Cracked eggs [%]	1.11	0.90	-18.9
Avg. egg mass [g]	65.3	65.7	+0.6
Avg. shell mass [g]	8.9	10.0	+12.5

These findings were further validated by Kühlmann et al. (2012), who found similar effects on eggshell quality parameters, in this case significantly improved eggshell thickness (0.32 mm and 0.34 mm for control and NDF-fed layers respectively).

Not only is the use of acidifiers in the feed a successful strategy to reduce pathogen load and improve egg quality in layer units, it also has potential benefits in increasing productivity.

This was proven in several studies, carried out under a wide range of climate zones – reaching form dry-hot – as found in India, via hot and humid (Nigeria) to the temperate climate in Europe.

In a 12week study at the Veterinary College and Research Institute in Namakkal, Tamil Nadu, India, the inclusion of 5 different levels of DF+ (0.05, 0.10, 0.15, 0.20 and 0.25% DF+) was tested against a negative control diet, using 270 commercial White Leghorn layers of 50 weeks of age. At the commercially relevant doses of 0.1% and 0.2% DF+, henday egg production was significantly increased, compared to the control diet. This would translate into an increase of 7 or 13 eggs per year and hen, respectively (Table 2). The feed efficiency in this trial was also improved significantly at these doses (Mani et al., 2014, data not shown).

Table 2: Effect of various DF+ dosages on hen day egg production in White leghorn layers (modified after Mani et al., 2014)\*

Parameter	Control	0.1% DF+	0.2% DF+
N	45	45	45
Hen-day egg production [%]	85.5ª	87.2 <sup>b</sup>	88.9 <sup>b</sup>
Difference [%]	-	+2.0	+4.0
Assumed number of eggs [n]	330	337	343

\*Means within a row with no common superscripts differ significantly (P<0.05)

A further trial under much more humid conditions was carried out in Nigeria to validate the aforementioned results. Here, the impact of 0.3% dietary sodium diformate on performance and health in laying hens from 55 weeks of age was studied over a period of eight weeks. The treatment and control groups (1050 birds per group) each received a commercial layer diet throughout the trial (Table 3). Feed intake over the trial period was lower in the birds that received the DF+ diet (119 vs. 122 g/bird/day; P<0.001), while hen-day egg production improved over the same period highly significantly (85.9 vs. 77.7 % in DF+ and control groups, respectively; P<0.001).

Table 3: Performance data of laying hens, aged 55 weeks, fed with or without 0.3% DF+ for 8 weeks (modified after Lückstädt, 2017)\*

	Control	0.3% DF+	Δ[%]
Feed intake [g/d]	121 <b>.</b> 7±1 <b>.</b> 4 <sup>A</sup>	119.5±0.3 <sup>B</sup>	-1.8
$\sum$ laid eggs during trial [n]	51,047±35 <sup>A</sup>	57,518±65 <sup>B</sup>	+12.7
∑ egg weight during trial [kg]	2,910	3,510	+20.6
Avg. egg weight [g]	57.0	61.0	+7.0
Hen-day egg pro- duction [%]	77.7±4.2 <sup>A</sup>	85.9±6.3 <sup>B</sup>	+10.6
Feed [kg] per egg weight	2.46	2.00	[-460 g]
Mortality [%]	3.81 <sup>A</sup>	0.66 <sup>B</sup>	-82.7

\*Means within a row with a different capital superscript differ highly significantly (P<0.001)

The average number of eggs laid over the experimental period was 57,518 in the group given the DF+ diet, compared to only 51,047 in the control group (P<0.001). At the end of the trial, total egg weight was 3510 kg in the DF+ group, compared to 2910 kg in the controls, although due to the collection method, no statistical comparison was possible. Finally, the use of the additive led to a highly significantly reduced mortality (0.67 v. 3.81 % in the DF+ and control groups, respectively; P<0.001).

A Colombian trial under rather subtropical conditions was carried out with Babcock Brown hens. The birds were aged 44 weeks and the trial lasted for 10 weeks. The first 5 weeks without the additive, while from week 49 onwards 0.25% DF+ was added to the diet (Table 4). The daily feed intake was set to 115 g/d.

Table 4: Effect of 0.25% DF+ on the performance of Babcock brown hens\*

	Control (wk 44-48)	0.25% DF+ (wk 49-53)	Δ[%]
N	9619	9619	-
Hen-day egg production [%]	90.8	91.8 <sup>b</sup>	+1.1
Egg weight [g]	59.8ª	61.1 <sup>b</sup>	+2.2
Conversion Feed / Egg [kg/kg]	2.13ª	2.07 <sup>b</sup>	-2.8

<sup>\*</sup>Means within a row with no common superscripts differ significantly (P<0.05)

Layers fed with 0.25% DF+ have a significantly (P=0.015) increased hen-day egg production by 1.1%. At the same time, the egg weight increased highly significantly (P<0.001) by more than 2% - and the percentage of AA-eggs and AAA-eggs of the overall number of eggs (data not shown) was also significantly improved. Finally, the increased production was achieved with an improved feed efficiency by almost 3%, which meant that 1 kg egg weight was produced with 60 g less feed, compared to the control. And all the improved performance parameter were achieved despite the older age of the hens.

A similar impact on the egg weight was noticed at a commercial layer farm in Spain. There, almost 31,000 layers aged 48 weeks had been fed with 0.3% sodium diformate (daily feed intake at 105 g) for 3 weeks only. Within that rather short time, the egg weight increased notably by around 0.5% - and dropped by the same level when the acidifier usage stopped, clearly demonstrating the impact of dietary DF+.

An additional trial on short-term usage in layers was performed in Russia (Table 5). Over a period of only 18 days, the impact of 0.1% DF+ on layer performance under commercial conditions was tested. Hens were aged 50 weeks and almost 119,000 birds were used in the trial.

Table 5: Effect of 0.1% DF+ on the performance of hens aged 50 weeks under large scale commercial conditions

	Control	0.1% DF+	Δ [%]
N	58,500	60,000	-
Hen-day egg production [%]	91.3	93.1	+2.0
Egg weight [g]	62.2	62.8	+1.0
Broken eggs [%]	2.90	2.05	-29.3
Feed price per 1000 eggs	1.31	1.24	-5.3
Mortality [%]	7.5	5.9	-21.3

Layers fed with the acidifier had a considerably increased performance (29% lower number of broken eggs and 21% less mortality), while achieving at the same time a greatly improved feed efficiency, which is reflected in the lower feed costs per 100 eggs by more than 5%, thus saving scarce feed resources.

A recent trial in Europe (Slovakia) proved once more, that the concept of using sodium diformate in layers helps in increasing productivity, especially in aging birds. Figure

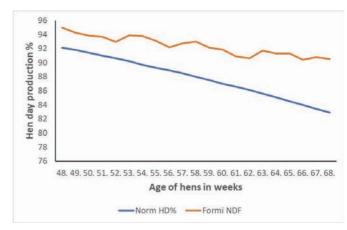


Figure 1: Effect of 0.15% DF+ on hen-day production (%) in Lohmann Brown hens aged 48 weeks

1 shows commercial data of Lohmann Brown hens which were fed between week 48 and 68 during a long-term trial with 0.15% DF+. Data clearly show that the hen-day egg production of the NDF-fed birds is significantly above the norm given for this breed. After 10 weeks of using, productivity was 5.7% above norm, while at the termination of the trial, the DF+ hens had a HD% of 9.2% above the norm for the hens at that age.

The use of organic acid salts in the diet clearly has a range of beneficial effects in layer production. Firstly, their application in biosecurity management through the feed assists the bird to combat bacterial pathogens. Their conferred improvements in nutrient digestibility, especially that of minerals like calcium leads to better egg quality. Improving nutrient availability by including dietary organic acids in the diet, also plays a role in the number of eggs produced, as healthy, well-conditioned birds are more productive.

This concept has been proven the world over and the use of organic acids, their salts – and especially dietary sodium diformate (Acidomix DF+) is irrefutably an effective and sustainable tool to enhance layer performance under all production conditions, in terms of egg quality, safety as well as productivity.



# MAJOR CHALLENGES ENCOUNTERED BY RURAL POULTRY FARMERS IN DEVELOPING COUNTRIES

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#### Introduction

Poultry farming is a growing business in the recent years. It is one of the most promising areas that can relieve the huge amount of demographic pressure on agriculture and global meltdown. It had contributed significantly to food security, poverty alleviation and ecologically sound management of natural resources (Gueye, 2003). In rural areas of developing countries like India, it is still a key source of income generation and protein supplement with unique characteristic of adaptation to the low input production system. It provides cheap, readily available protein enriched white meat and eggs of high quality of digestible protein for immediate home consumption and sale for income generation.

Unfortunately efforts to improve its productivity have not been effective and village chickens productivity is still low (Kondombo, 2005). Poor availability of the quality chicks, lack of extension service, poor veterinary service and improper management are some of the main challenges faced by the rural poultry production system. This makes understanding of rural chicken production system imperative to design and implement poultry based development programme that benefit rural people. It is therefore necessary to take stock of the state of arts for a better understanding of this sector and deduce the main challenges. Some of the major challenges faced by rural poultry farmers are as follow:

#### Availability of superior germplasm

Villages in developing countries like India are far away from the main cities or towns and due to geographical locations some are situated at mountainous hills or desert or sea shore. Due unavailability of superior stock and due

#### **Highlight Points**

Rural poultry farmers in developing countries like India are facing various problems such as unavailability of superior germplasm in rural areas, Irregular supply of chicks at competitive price, lack of advance scientific knowledge about poultry production, adverse effect of climate change etc. In rural areas poultry production is based on low input production system and mainly reared by landless or marginal farmers as a key source of income generation and protein supplement. If the problems are overcome that will be helpful for sustainable poultry production.

to poor communications poultry rearers are depended on the locally available breeding population. Although, these populations are very much well adapted to the particular region but the productivity of the individual birds are very low.

#### **Extension service**

There is low extension support from responsible bodies which hinder the poultry activities in the rural areas. Extension organizations and local institutions should take ample steps to impart information concerning credit facilities to acquire the essential inputs.

#### **Veterinary Service**

The frequent epidemics of diseases cause huge economic loss to the poultry farmers. The availability of vaccines or veterinary services to farmers is generally poor. Vaccination camps should be conducted frequently to prevent the outbreak of diseases.

#### **Predation**

Predator problem is unavoidable unless protection is provided in terms of proper enclosures based on scientific housing pattern especially for chicks. In the absence of such physical protection, predator problem would abound resulting in the looses.



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#### Increasing cost of production

The cost of feed ingredients in the present state of affairs is increasing day by day which has augmented the per unit cost of production of the poultry. This is one of the main challenges for the poor rural farmers.

#### Irregular supply of chicks at competitive price

Quality chicks are the key component for poultry enterprise. Also limited number of hatcheries has resulted in raising the price of chicks. Sometimes transport cost also becomes a major component for increasing chick cost.

#### Lack of advance scientific knowledge about poultry production

Majority of rural farmers are still lagging in advance scientific knowledge required for the successful poultry production and follow conventional system of poultry production. About 95% of small-scale poultry entrepreneurs do not have any formal training on farm management (Acharya and Kaphle, 2015). These points out the need of imparting training in the construction of low cost sheds and improved poultry production practices.

#### Lack of biosecurity measures

Limited biosecurity measures combined with close and frequent contact between wild birds and humans also increase the risk of introduction and spread of diseases and parasites (Ndirangu et al., 2009). However, the effective implementation of biosecurity measures will minimize the disease outbreak and also maintain consumer's confidence in poultry products.

#### Inadequate value or supply chain

There should be strong association among the different related sectors for any enterprise to be successful. Poor coordination among the poultry farmers and value or supply chain is itself a major issue which needs to be strengthen.

#### Instability in poultry's meat price

Frequent fluctuations in the price of meat during different times of year have also resulted in the low success rate of the poultry enterprise. Price of poultry meat varies with seasons as well as depending upon various festivals.

#### Religious and cultural restrictions

Due to the religious and cultural factors, poultry enterprise is not being able to flourish in every community. In some communities consumption of poultry meat till date is not allowed.

#### Lack of quality feed ingredients

Rural poultry farmers are still facing problems related to availability of quality feed and ration balancing. Different factors affecting the quality of feed ingredients like availability of feeds, storage of feeds and the seasonal variations.

#### Climate change

Sometimes high producing breeds are taken for enhancing the productivity of individuals. But due to different climates the adaptability of the individuals used to reduce and the breeding stocks may face different type of stress including heat stress, cold stress which subsequently lead to reduce the fertility and productivity of the birds.

#### Conclusion

Poultry farming is seen as one of the most significant activities of the rural area. It acts as a reasonable source of animal protein besides income generation for the rural masses. For the socio-economic development of the rural poultry farmers, it is important to identify the challenges related to the rural poultry production and suggesting appropriate measures to overcome these hurdles. As rural poultry farming is mainly maintained by the women, therefore, more women involvement will help to flourish the poultry enterprises in rural areas.

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## Nutribiosis is key in post - AGP Gut Health

**Dr Milan Hruby,**Global Applications Senior Manager,
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With the global regulation of antibiotic growth promoters expected to accelerate, what action can animal producers take to correct associated performance losses? Dr Milan Hruby, Global Applications Senior Manager at Danisco Animal Nutrition (IFF), explains how taking a wider view offers a potential solution to this complex issue.

The move to restrict or remove antibiotic growth promoters (AGPs) in feed is one of the most challenging issues to hit the animal industry in recent years. Now, as global health bodies step up efforts to fight the threat of antimicrobial resistance in humans, the use of antibiotics in the food chain is coming under ever greater scrutiny.

It goes without saying that reducing or removing antibiotics from the farm is not an easy task. Taking away this long-established practice has serious implications for producers in terms of the health of their livestock and business. Most importantly, the daily challenge of providing optimal animal performance is severely compromised due to the depletion of available tools to fight against unpredictable diseases, such as necrotic enteritis (NE). According to recent research, such challenges are reportedly on the rise and believed to be contributing to high economic losses.

In considering alternatives to conventional antibiotics, there is no 'one size fits all' replacement. There are too many variables to consider such as farm management, national legislation and feed ingredient availability, to name a few. In addition, the use of antibiotics itself is a complex process. Although they are known to suppress sensitive populations of bacteria in the intestines, it is also recognised that they do not discriminate between beneficial and nonbeneficial types. Viewed in this context, continuing to look solely at nutrition as a stand-alone solution, without also considering the implications of the fields of microbiome and gut and immune function, is no longer an option. Animal performance is always an interaction of three pillars (nutrition, microbiome and gut and immune function) within the gut - a state we refer to as nutribiosis. The aim is to understand how to positively influence all three pillars



to achieve balance in the gastrointestinal tract (GIT) – also known as a 'favourable nutribiotic state' – and so deliver the sought-after positive performance benefits in the animal.

#### Challenges to the nutribiotic state

The removal of antibiotics from feed will naturally challenge the delicate nutribiotic balance, but their use does not allow for a 'favourable state' in the first place. Under challenge the three pillars can become unbalanced and it is this lack of harmony that creates an 'unfavourable state' in the gut; leading to reduced health and performance. This is why taking a holistic approach is vital. It helps to build a deeper understanding of these interconnected relationships and opens up new opportunities to improve overall production.

#### **Nutritional challenges**

Nutritionally, one of the greatest challenges to animal performance is high levels of undigested nutrients. While 100% digestibility can never be achieved, reducing levels as far as possible is a key goal for nutritionists and producers alike. This is partly because undigested feed reaching the terminal ileum provides ideal substrates for non-beneficial bacteria to feed on and thrive - and when the beneficial bacteria becomes outnumbered, it can lead to subclinical diseases, inflammation and gut damage. One opportunity that warrants further investigation is the use of feed enzymes to further remove undigested substrates. One study looking at the impact of xylanase, amylase and protease enzymes on levels of three undigested nutrients (protein, starch and fat) found that this intervention had a positive effect on all three nutrients. Levels of undigested starch, for example, dropped by 43%. Further research is

helping to build on this knowledge; not just in terms of the types of feed or substrate needed for the microbes to work on, but also how to increase the production of shortchain fatty acids and potentially benefit the gut cell or gut microbiome through changes of substrate such as arabinoxylooligosaccharides or AXOS production.

#### Non-nutritional challenges

It is also important to understand the impact of nonnutritional challenges on the nutribiotic state. Danisco Animal Nutrition, now part of IFF, has carried out a number of studies with NE-challenged birds which, unsurprisingly, shown to improve key aspects of gut health including digestibility of key nutrients in broiler diets and enhanced intestinal integrity. Research also suggests this intervention contributes to a significant reduction in inflammation. IL-6 is a key pro-inflammatory cytokine which initiates the acute phase protein response and induces fever, see Figure 2. This cytokine is typically elevated during times of physiological stress.

There are other issues to consider which are subject to further research. Improving the water holding capacity of intestinal cells, with the use of organic osmolytes like

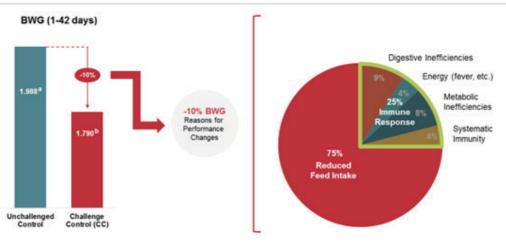


Figure 1: 25% of total performance drop during challenge can be attributed to the immune response of the animal.

demonstrate a significant reduction in performance. A recent study estimates that an immune response can account for 25% of total body weight reduction during a challenge (see Figure 1). A promising way to address these types of non-nutritional challenges is with probiotics. What is interesting from a nutribiosis perspective is that, with

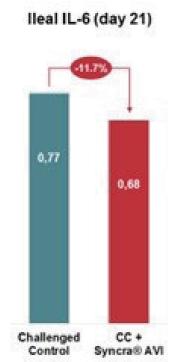


Figure 2: Ileal IL-6 (day 21)

studies demonstrating a positive influence on both microflora and gut health, these helpful bacteria can be seen to work constructively on all three pillars within the GIT. The next step is to demonstrate probiotic value within an antibiotic-free narrative.

#### Multi-pronged approach

While enzymes undoubtedly probiotics offer benefits individually, one of the most exciting areas to explore is what happens when are used together. Our data points to a clear opportunity to considerable gains. Specific probiotic enzyme and combinations have been

betaine, may improve the nutribiotic state. Phytogenics could also be part of an integrated approach. Equally important is effective facilities management; housing, vaccination, education should all play a part in efforts to rectify any performance losses brought about by the reduction in antibiotics. So as the industry evolves towards antibiotic-free production, the understanding of nutribiosis offers a new platform to explore additional opportunities; providing valuable insights for improved animal performance, welfare and gut health – ultimately helping producers make decisions for commercial success.

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## Trypsin Inhibitor, the hidden enemy in Soyabean Meal



**Dr Koushik De,** Director-Technical Services, SCA, Novus International

As global animal production has rapidly shifted towards reduced Antibiotic free, "Gut health" has become a popular expression and all-encompassing concept in the scientific community. The gastro-intestinal tract must provide a barrier function protecting against harmful environmental elements (e.g. toxins and pathogenic microbes), while simultaneously permitting appropriate nutrient absorption. Successful animal performance depends on the interplay between the intestine, microbiota, diet, and a multitude of environmental factors.

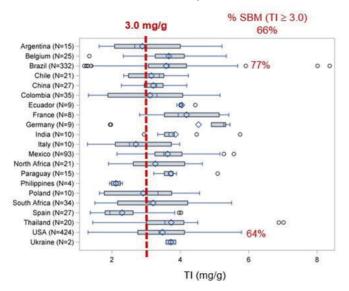
The shift to antibiotic free production or better gut health often results in the increase of soybean meal inclusion as there are limited in the number of efficacious protein sources that successfully reduce soybean meal content. Soybean meal is the most widely used major protein source in poultry production across the world. However, SBM contains various anti-nutritional factors that may affect intestinal homeostasis and impair nutrient utilization

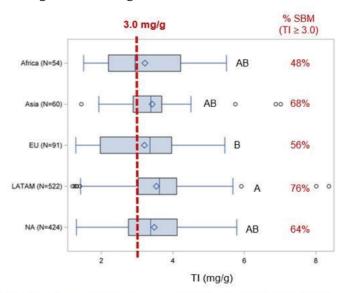
#### **Highlight Points**

As global animal production has rapidly shifted towards reduced Antibiotic free, "Gut health" has become a popular expression and all-encompassing concept in the scientific community. The shift to antibiotic free production or better gut health often results in the increase of soybean meal inclusion as there are limited in the number of efficacious protein sources that successfully reduce soybean meal content.

in poultry. The main anti-nutritional factors in SBM, are trypsin inhibitors (TI), oligosaccharides, such as raffinose and stachyose, and the antigen Glycinin,  $\beta$ -conglycinin and Lectins. Diets that include high levels of soybean meal contain proportionally higher anti-nutritional factors and may pose the risk of impaired performance.

Chen et al. (2016) analyzed the content of TI and Urease Activity (UA) in more than 1000 samples of SBM from all over the world and observed a high degree of variability in the reported ANF values, both within the same country and amongst different origins.





Chen et. al., The Journal of the American Oil Chemists' Society, 2020

The levels of trypsin inhibitor (TI) of solvent-extracted soybean meal samples from different countries and world areas.

The elevated variability and its potential negative impact on performance highlights the importance of knowing the content of anti-nutritional factors in SBM for poultry formulations.

In this article, we will review mainly the role of Trypsin Inhibitors (TI) in broilers.

#### Why Should we care about TI?

Trypsin and chymotrypsin are important digestive enzymes that are secreted by the pancreas as the inactive enzyme precursors trypsinogen and chymotrypsinogen. Trypsin activates itself via positive feedback and converts chymotrypsinogen and other inactive enzymes into their active forms. As Tis are protein in nature and one of the most anti nutritional components of SBM, they compete to bind to trypsin therefore affecting the digestion process. They have been correlated with rapid feed passage and decrease in digestibility of broilers with a relevant economic impact. The analysis is still more expensive, complex and time consuming for TI, for this reason, other parameters are commercially used as indirect SBM quality indicators, such as Urease activity and Protein solubility.

There are two types of TI present in Soya, Kunitz TI which is larger molecule & Bowman-Birk TI which is smaller molecule. But soyabean seed contain around 14% more Bowman Birk TI than Kunitz TI.

#### Consequence of TI for Soya Bean and bird performance:

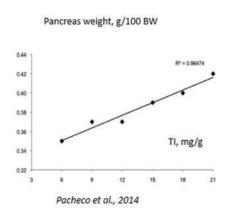
Excessive quantities of TI in feed will cause pancreatic hypertrophy leading to poor growth and decreased performance (Pacheco et al. 2014; García-Rebollar et al. 2016; Rada et al. 2017). This pancreatic hypertrophy is a compensatory modulation by the body to offset the effect of ingested trypsin inhibitors (Liener 1981; Waldroup et al.

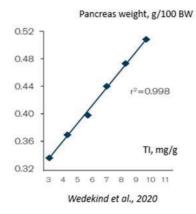
TI also affect the nutritive value of SBM. Because of loss of endogenous protein there is reduced digestionwhich affects the nitrogen balance, gut viscosity resulting into reduced live weight and negative impact on feed efficiency. Palliyeguru et al. (2011) demonstrated dietary soya TI elicited an increased severity of sub-clinical necrotic enteritis. When amino acid digestibility is compromised, the ileal ingesta will have a relatively high content of undigested amino acids that pass into the large intestine and cecal tonsils, where microbial fermentation will occur. C. perfringens, a pathogenic agent of necrotic enteritis, needs specific amino acids and peptides for its proliferation (Nakamura et al., 1968).

Using the Data from the simulation conducted by Havenstein et al.(2003) with "1957" broilers versus '2001" broiler it is possible toestimate the TI intake of the "1957" birds fed 1957 diets and compare it with the estimate of TI intake by the "2001" birds fed 2001 diets.

Because of improvement of modern broilers in terms of average feed intake and body weight they consume more than three times TI than 1957 birds considering the same amount of TI in SBM.

The effects of TIA are particularly strong in young animals. It has been shown that overcooking of soybean meal decreases digestibility of amino acids (Lee and Garlich, 1992; Parsons et al., 1992). The explanation for the decreased amino acid digestibility and reduced growth responses appear to be related to the Maillard reaction with crosslinking involved to a lesser extent.





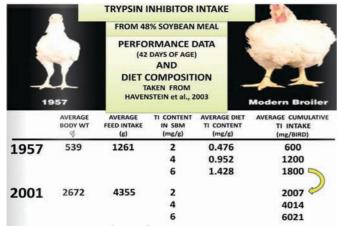


Erdaw et al., 2018: "Anti-nutrients Reduce Poultry Productivity: Influence of Trypsin Inhibitors on pancreas" Linear increase in pancreas size with increasing TI content in SB









Correlation of TI (AOAC) & indirect Parameters for SBM quality:

Currently, the analytical technique most commonly used to measure soybean meal quality is protein solubility, perhaps combined with the urease test. The urease test has been used for some time as a measure of soybean meal processing. Trypsin inhibitors (TI) and urease activity (UA) are the two most relevant quality measurements for soybean products as feed ingredients for animals. TI were reported to be correlated with UA, so feed processing plants use UA as an indicator of TI in soybean meal (SBM). Chen et.al (2019) conducted a study to determine the levels of TI and UA in 414 SBM samples from 19 different countries and to validate whether

TI and UA are correlated. They found that TI were poorly correlated with UA in solvent extracted SBM samples, suggesting that UA should not be used as a surrogate indicator for TI content in soybean products.

#### How to deal with TI in SBM?

Soybean meal (SBM) is the most important source of dietary protein for poultry. Although TI is reduced by heat treatment, overheating has a negative impact on protein quality and amino acid digestibility. Exogenous Protease enzymes can improve digestibility of feedstuffs, lower feed costs and improve animal performance. Proteases improve animal performance and nutrient digestibility by decreasing digesta viscosity, improving endogenous enzyme activity and decreasing pancreas weight (Bedford and Classen, 1993; Bedford and Schulze, 1998; Erdaw et al., 2017a,b; Yan et al., 2017).

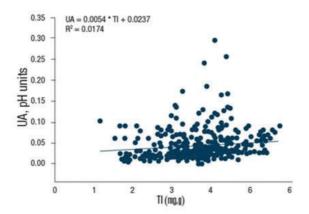
As mentioned earlier the determination in the laboratory

Product type	Unit	Soybean seeds	SBM	Enzyme treated SPC	Alcohol extracted SPC	SPI
Humidity	96	10 - 12	10 - 12	6-7	6-7	6-7
Crude protein	96	33 - 17	42 - 50	55 - 60	63 - 67	>85
Fat	96	17 - 20	0.9 - 3.5	2.5	0.5 - 3.0	0.1 - 1.5
Ash	96	4.5 - 5.5	4.5 - 6.5	6.2 - 6.8	4.8 - 6.0	2 - 3.5
Oligosacharides	0/	14	15	<1	<3.5	< 0.4
Stache	%	4 - 4.5	4.5 - >	<0.3	1-3	<0.2
naffinose	96	0.8 - 1	1 - 1.2	<0.	< 0.2	< 0.1
Trypsin inhibitor TIA	mg/g CP	45 - 60	4-8	1-2	2-3	<1
Glycinin	mg/g	150 - 200	40 - 70	< 0.1	<0.1	< 0.01
8-conglycin	mg/g	50 - 100	10 - 40	<0.1	<0.1	< 0.005
ectins	ppm	50 - 200	50 - 200	<1	<1	<1
Sape ins	96	0.5	0.6	0	0	0
Phytic acid bound	-04	0.0	0.6	0.6	0.6	-

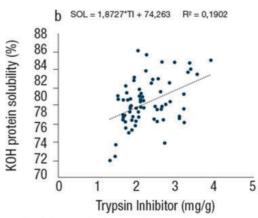
SBM = defatted soybean meal; SPC = soy protein concentrate; SPI = soy protein isolate. Adapted from: Hansen (2003) and Peisker (2001)

of the TI content of SBM and its relationship with AA availability is tedious and time-consuming and provides inconsistent results. Also, the traditional processes of treating SBM can't remove the anti-nutritional factors to

#### 414 SBM samples / 19 countries



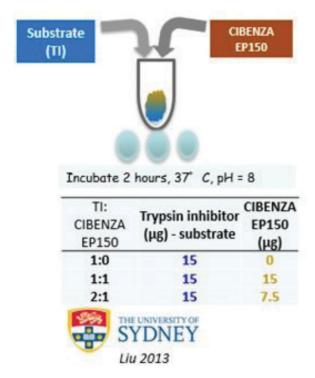
#### > 70 SBM samples / Brazil

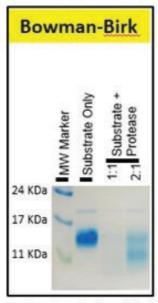


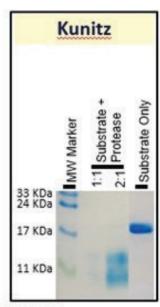
Recent studies shown poor correlation between TI and Urease Activity and a better but still poor correlation between TI and solubility

Araujo et al. 2019
Chen et al. 2019

Araujo et al (2019) conducted similar study to determine the correlation of TI and KOH Protein Solubility.







In vitro degradation of TI with CIBENZA EP150 KDa = molecular mass of the TI

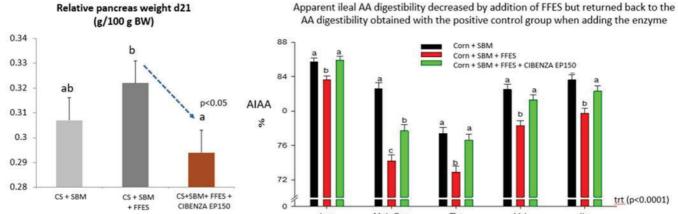
CIBENZA® EP150 can destroy almost all trypsin inhibitors present in soyabean meal (at 1:1 ratio) and Destroy substancially even in higher concentración (2:1) of TI as well

a safe level. Therefore, use of exogenous protease is very effective in reducing the deleterious effect of TI in SBM. Liu et al., in 2013 conducted a study wherein they used a protease enzyme (Cibenza EP150) with different levels of TI and found that protease enzyme was able to destroy almost all trypsin inhibitors (both Bowman-Birk&Kunitz TI) present in soyabean meal (at 1:1 ratio) and destroy substancially even in higher concentración (2:1) of TI as well.

Wedekind et al., in 2020 showed that addition of exogenous protease (Cibenza EP150)in a diet containing FFS(with TI8.15mg/g) improved the amino acid digestibility and at the same time reduce the pancreas weight also indicating a potential amelioration of the negative effect of TI from FFS.

#### Conclusion:

There are lot of scientific evidences on the negative effect of soybean trypsin inhibitors in chickens. They can not only adversely affect the productive performance of chickens but can also impair their intestinal health. The beneficial responses of protease are likely due to decreases in endogenous amino acid losses, but in vitro evidence also demonstrates the ability of protease to hydrolyze Bowman-Birk and Kunitz-trypsin inhibitor proteins. Thus, there might be both direct and indirect mechanisms whereby amino acid digestibility is improved with proteases and so is the bird's performances.



Met\_Cys

AA digestibility obtained with the positive control group when adding the enzyme

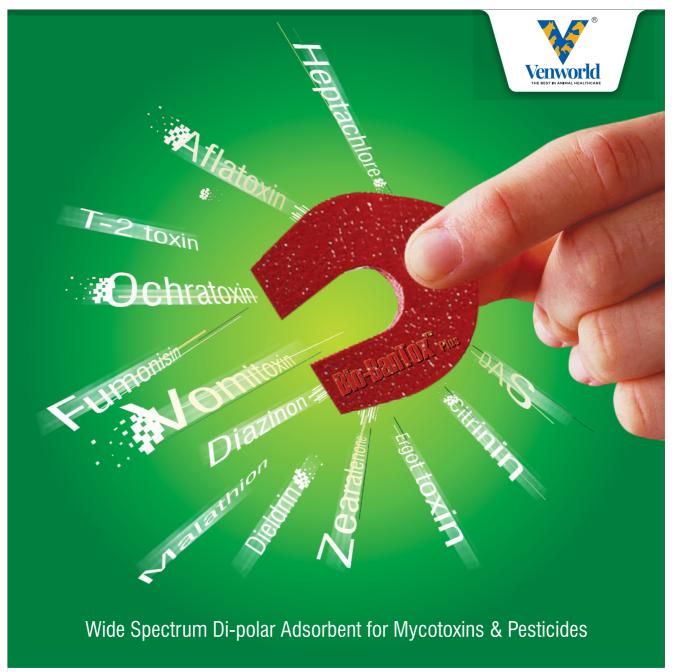
Corn + SBM + FFES

Corn + SBM + FFES + CIBENZA EP150

Full fat extruded soybean with 8.15 mg/g TI was used

Reduction in pancreas weight paralleled the improvement in AIAA indicating a potential amelioration of the negative effects of TI from FFES

Wedekind et al., 2020



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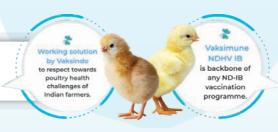
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