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## Poultry Fortune Estd. 1991 Production • Nutrition • Management • Marketing Annual Subscription: Rs 800 Foreign \$ 100

April 2022

### Inside...



**Editorial**: Suguna's second generation Vignesh becomes MD of the Company



**Kemin Industries Celebrates 61 Years of Transforming Lives** 

Supplementation of feed additives is the most feasible manner to enhance productive performance in birds during summer

Rise in maize, soya prices drives up poultry production cost



Linco-Spectin 100 A New Approach **Towards Prevention of** Mycoplasma Spp. and E. coli challenges

Heat Stress Management in Poultry

> **Analysing Embryo** Mortality





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- Editor



## Editorial

11. Suguna's second generation Vignesh becomes MD of the Company.

#### News

- 14. Kemin Industries Celebrates 61 Years of Transforming Lives.
- 18. Construction of Camlin Fine Sciences' world-class Animal Nutrition production facility is under way.
- 20. Perstorp to host GastriVision 2022 A Glimpse into the Bright Future for Gut Wealth.
- 20. Indian Poultry Leader Suguna Foods Announces Management Rejig; Elevates Vignesh Soundararajan as its new Managing Director.
- 22. Rise in maize, soya prices drives up poultry production cost.
- 22. Tamil Nadu: 8,500 Chicken Charred to death in Fire in Poultry Farm.
- 24. Creditors to Ukraine's Largest Poultry Firm Grant It More Time to Pay Interest.
- 26. Linco-Spectin 100 A New Approach Towards Prevention of Mycoplasma Spp. (M. gallispeticum and M. synoviae) and E. coli challenges.

## **CONTENTS**

- 28. GADVASU concludes training on poultry farming.
- 28. Poultry prices head north in Dakshina Kannada.
- 30. Chicken Prices Soar at Farmgate Level due to High Feed Costs, Cut in Production.
- 32. Minnesota set 1-month ban on poultry sales, exhibitions due to bird flu.
- 34. British Egg Industry Crisis as Production Costs Soar.
- 34. APHIS identifies HPAI in five states.

### Articles

- 36. Heat Stress Management in Poultry.
- 40. Countering the effects of Heat Stress with Natural Betaine.
- 44. No Finish Lines in Animal Welfare.
- 46. Analysing Embryo Mortality.
- 50. Killed Salmonella Vaccines and their key role in reducing the prevalence of Salmonella.
- 53. Beak Treatments for Broiler Breeders: A Declining Trend Worldwide.

## ADVERTISERS'INDEX

21 & 33	Natural Remedies	49
8	Nutrex NV	41
7	Novus Animal Nutrition (India) Pvt Ltd	FC
10	Provet Pharma Pvt Ltd	39
5	Sriniyasa Farms Pyt Ltd	2
31	Team Agrotech Pvt Ltd	45
6	Timo Eva Wellness Pyt Ltd	27
15	littara Impoy Dut Ltd	77
19		51
29	Vaksindo Animal Health Pvt Ltd	55
13	Venkateshwara B.V. Biocorp Pvt Ltd	35
47	Venky's (India) Limited	54
23	Ventri Biologicals	3
43	Zeus Biotech Pvt Ltd	17
BC	Zhanjiang Hengrun Machinery Co Ltd	51
4	Zoetis India Ltd	25
	21 & 33 8 7 10 5 31 6 15 19 29 13 47 23 47 23 43 BC 4	21 & 33Natural Remedies8Nutrex NV7Novus Animal Nutrition (India) Pvt Ltd10Provet Pharma Pvt Ltd5Srinivasa Farms Pvt Ltd31Team Agrotech Pvt Ltd6Timo Eva Wellness Pvt Ltd15Uttara Impex Pvt Ltd19Vaksindo Animal Health Pvt Ltd13Venkateshwara B.V. Biocorp Pvt Ltd47Venkry's (India) Limited23Zeus Biotech Pvt LtdBCZhanjiang Hengrun Machinery Co Ltd4Zoetis India Ltd

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## Suguna's second generation Vignesh becomes MD of the Company

Poultry is one of the pivotal sectors for production of good quality protein production. Surge in environmental temperature during summer season is the major stressor in poultry production. Heat stress has harsh effects on growth, feed intake and production performance in terms of drop in egg production and quality of meat and increase in chick mortality. Supplementation of feed additives is the most feasible manner to enhance productive performance in birds during summer.



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

**Kemin Industries,** a global ingredient manufacturer that strives to sustainably

transform the quality of life every day for 80 percent of the world with its products and services, is launching its global "61 Since '61" themed anniversary celebration to commemorate 61 years since its founding in 1961. Every day, billions of people around the globe interact with any number of Kemin's 500-plus specialty ingredients. Tortillas that stay fresher longer; dog kibble that is more palatable and nutritious; supplements that protect eye health; meat raised without antibiotics; apples free of pests and pesticides; denim that requires fewer resources to treat-Kemin science and solutions can be found in any of these everyday items. Initially created to provide feed flavors, crop preservatives, and antioxidants to Midwest farmers, Kemin's business has greatly expanded since 1961. Today, Kemin operates in more than 90 countries and applies its technologies and expertise in molecular science across a variety of industries to offer products with functional benefits that enhance the health and safety of people, pets, production animals, plants, and the planet. Six decades later, Kemin remains focused on transforming the quality of life.

**Camlin Fine Sciences**, one of the world's leading vertically integrated manufacturers of ingredients most widely used in food / feed, keeping with the company's global expansion strategy for the animal nutrition business, CFS continues construction of yet another state-of the- art manufacturing facility

in Tarapur, India to produce solutions for animal feed. Currently, CFS' operations range from India to South-East Asia to the Americas, Europe and Middle East; the facility would be an addition to serve their rapidly growing customer base. This new facility will apply for FAMIOS-certification and expect to begin commercial operations in O1 of FY2022-23. Dr Chandrakant Ghotekar, Associate Vice President - Animal Nutrition, CFS said, "A balance of nutrition and economics remains a great challenge for efficient livestock management. It is therefore essential to effectively control feed-borne infections with solutions proven in today's market and farming conditions. The upcoming facility would be capable of serving Asia, Middle East, North Africa and East European markets across species, aimed at improving FCR and Average Daily Gain (ADG) based on local farm conditions. Dr Ghotekar said, to improve overall farm performance, our goal is to offer solutions that promote nutrition, health and hygiene. We have designed our portfolio to just do that.

**Perstorp** continues to take important strides into the future of animal health. To share our knowledge and vision, the company will host a 2-hour online event which will take participants on a journey towards a brighter future in gut wealth. The event took place online on March 31. Aart Mateboer, Executive Vice President, Perstorp Animal Nutrition commented "The exciting GastriVision 2022 event will mark the launch of a number of initiatives for Perstorp. These will bolster our position as a trusted partner in, and our long term commitment to the feed industry."

**Suguna Foods,** India's largest poultry conglomerate, announced the appointment of Mr Vignesh Soundararajan as its new Managing Director effective April 1, 2022. In his new role will lead the Farm, Feed & Process Food Division of Suguna Foods operations in India. In addition *Contd on next page* 



### **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.

#### TALK TO US

SEND AN EMAIL: info@poultryfortune.com Please do not send attachment.

FOLLOW US: facebook.com/poultryfortune, twitter.com/nrspublications **Send a letter:** Letters to the Editor must include writer's full name, address and personal telephone and mobile numbers. Letters may be edited for purposes of clarity and space. Letters should be addressed to the Editor:

**POULTRY FORTUNE,** BG-4, Venkataramana Apartments, 11-4-634, A.C.Guards, Near Income Tax Towers, Masab Tank, Hyderabad - 500 004, T.S, India. Tel: +91 040 - 2330 3989, 70329 19554. Website: www.poultryfortune.com to this, Vignesh will also power the company's expansion within the poultry segment and focus on strengthening the footprints of the brand across the nation. The current Managing Director and co-founder Mr G.B. Sundararajan will continue to be associated with Suguna Foods as part of the Board. Commenting on this Mr Soundararajan, Chairman, Suguna Group said, "Sundararajan and I are truly satisfied with the transformation we have brought to the poultry industry through Suguna and how we have empowered farmers across the nation. From backyard farming to integrated growers' poultry industry has come a long way in being a significant contributor to the Agro-Food industry. The industry has also played a significant role in building a healthy and strong population. The foundation on which Suguna's legacy has been built and we are confident that Vignesh as the new Managing Director will continue this momentum which will benefit the farmers, industry, customers, partners and people."

**Suguna Foods's MD, Vignesh Soundararajan** said Sharp increase in prices of maize and soya has led to higher production cost for the poultry sector this year. Maize prices had gone up by more than 50% in the last six months, while the price of soya had increased from P35 to 40 a kg to P65 to P70 in the past one year. Maize and soya are the two main ingredients of poultry feed, which constitutes almost 80% of the cost of broiler chicken production. The poultry sector [broiler birds] sees almost 8% growth year-on-year. However, this year, with a sharp rise in the feed cost, broiler producers are unable to pass on the entire cost to the consumers, he said.

**Linco-Spectin 100** launch was the first virtual launch by Zoetis India poultry team. The launch was attended by 168 participants. Launch started with a welcome note by Dr Sandip Joshi, Business Unit Director – Poultry and Ganesh Vandana. Mr Hari Prasad, GM – India & BNS, gave opening remarks where he spoke about the industry and current solutions required for industry. Dr Arkhom Cheewakriengkrai, Vice President, Southeast Asia, India, and distribution North Asia gave inaugural speech where he expressed his views about care for animal and mankind, customer obsession and how Zoetis works for solution providing approach keeping customers' requirements as priority. With small AV the Pack shot of Linco-Spectin 100 was unveiled.

**Department Of Veterinary and Animal Husbandry Extension Education,** Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), organised a training programme on poultry farming. Rajesh Kasrija and Amandeep Singh, training co-ordinator, appraised that a total of 16 trainees belonging to different regions of Punjab attended the programme. The trainees were provided basic theoretical as well as practical knowledge. Special exposure visits to University poultry farm and integrated farm of PAU were also organised.

In the Articles section – *Heat Stress Management in Poultry* authored by Dr K. Kasturi Devi, Assistant Professor, Department of Veterinary Pharmacology & Toxicology and Dr Beesam Srinu, Department of Veterinary Public Helath & Epidemiology, C.V.Sc., Mamnoor discussed that a rise in environmental temperature during summer season has undesirable effect on polutry production. Poultry is one of the pivotal sector for production of good quality protein production. Surge in environmental temperature during summer season is the major stressor in poultry production. Heat stress has harsh effects on growth, feed intake, production performance in terms of drop

in egg production and quality of meat and increase in chick mortality. As sweat glands are absent, chicken majorly depend on panting to liberate heat from the body to environment. Loss of gut integrity during heat distress results in decrease nutrient absorption from the intestine and altered microflora due to leakage of pathogens. Consequently, immune response in the body is triggered against the pathogens (Galarza-Seeber et al., 2016). Birds exposed to heat stress are associated with generation of more reactive oxygen species in the tissue causing cell disruption.

Another article titled *Countering the Effects of Heat Stress with Natural Betaine* authored by Dr Janet Remus, Senior Technical, Director, North America at Danisco Animal Nutrition (IFF) explains how the dual action of natural betaine benefits animals experiencing heat stress and helps to maintain performance. Hydration is more than a cellular issue. With 98% of all the molecules in the body affected by water, maintaining optimum hydration challenges the whole animal in terms of energy demands. When heat stress occurs, the energy needed to maintain cellular water balance goes up at the same time as the animal is also having to work hard to maintain productivity and survive the stress.

Article titled *No Finish Lines in Animal Welfare* authored by Dr Sara Reichelt, Director - Animal Welfare and Sustainability, Aviagen North America said that the term animal welfare refers to an animal's collective physical, mental and emotional states. It means ensuring that all needs of an animal are met, including nutrition, water, shelter, environment, and mental needs.

Another article titled *Analysing Embryo Mortality* authored by Maciej Kolanczyk, Senior Hatchery Specialist at Pas Reform discussed that only fertile eggs result in chicks. However, the hatchery manager has no direct influence on egg fertility, and can only utilise the potential created on a breeder farm. This potential, which can be utilised to a greater or lesser extent, is expressed technically as *Hatch of Fertile* (HOF).

Article titled *Killed Salmonella Vaccines and their key role in reducing the prevalence of Salmonella* authored by Santiago De Castro Verges, Corporate Product Manager (Junior), HIPRA said that when it comes to Salmonella prevention, it is essential to consider all the entry points where these bacteria can gain access to the farm, and to try to minimize or even exclude them one by one. Salmonella constantly threatens poultry facilities and these challenges can come from rodents, foreign birds, red mites, water quality failures, feed contamination, even humans can transmit Salmonella to the birds. For this reason in particular, poultry producers must provide the best and the most complete immunity to minimize the risk of Salmonella contamination. This immunity must first consist of a local barrier at the intestinal level, and a systemic defence of the whole organism thanks to the antibody mediated response.

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

**M.A.Nazeer** Editor & Publisher Poultry Fortune



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## Kemin Industries Celebrates 61 Years of Transforming Lives

Multinational ingredient manufacturer kicks off "61 Since '61" anniversary celebration of science innovation and servant leadership

DES MOINES, Iowa, U.S. (March 9, 2022) – Kemin Industries, a global ingredient manufacturer that strives to sustainably transform the quality of life every day for 80 per cent of the world with its products and services, is launching its global "61 Since '61" themed anniversary celebration to commemorate 61 years since its founding in 1961.

Every day, billions of people around the globe interact with any number of Kemin's 500-plus specialty ingredients. Tortillas that stay fresher longer; dog kibble that is more palatable and nutritious; supplements that protect eye health; meat raised without antibiotics; apples free of pests and pesticides; denim that requires fewer resources to treat—Kemin science and solutions can be found in any of these everyday items.

Initially created to provide feed flavors, crop preservatives, and antioxidants to Midwest farmers, Kemin's business has greatly expanded since 1961. Today, Kemin operates in more than 90 countries and applies its technologies and expertise in molecular science across a variety of industries to offer products with functional benefits that enhance the health and safety of people, pets, production animals, plants,



From left to right: Libby Nelson, Vice President and General Counsel, R.W. Nelson, Mary Nelson and Chris Nelson.

and the planet. Six decades later, Kemin remains focused on transforming the quality of life.

With more than USD\$1 billion in annual sales, the multinational, familyowned-and-operated company is headquartered in Des Moines, Iowa, U.S.—on the site of the old wool barn where Kemin's co-founder, R.W. Nelson, created the company's first products. The site is now part of a 70-acre campus that is home to Kemin's USD\$30 million global headquarters, built for future expansion and additional research facilities.

"For six decades, Kemin has continued to grow our global footprint with the foundational philosophy of serving others—from our customers to our communities—to improve the quality of life. This basis has driven Kemin's product innovation and new market entry around the world," said Dr Chris Nelson, President and CEO of Kemin Industries and second-generation Nelson family member. "As an essential business serving the global food supply chain, our work became even more critical during the pandemic, and our employees, customers, and partners remained deeply committed as we all faced the crisis. In 2022, with a deeper recognition and appreciation of all we've accomplished together,

we're commemorating 61 years of innovation and celebrating our history."

### From an Old Wool Barn to Global Company

Kemin founders R.W. and Mary Nelson had yet to realize the trajectory of Kemin and its future impact on the world when they launched the company in 1961. Using their savings of USD\$10,000, R.W. manufactured two product lines in his father's old wool barn in Des Moines. and Mary managed the business and financial administration from the family's living room—all while caring for their five children under the age of seven.

With an inventive spirit, the Nelsons successfully grew their business initially named "Chemical Industries, Inc."—beyond agriculture and the Midwest to currently serving customers in more than 120 countries, on six continents, and with more than 3,000 global employees.

Since founding Kemin, R.W. and Mary have ensured servant leadership and a deep commitment to



Kemin's largest community partnership is with the United Nations World Food Programme (WFP). Together, Kemin and WFP impact more than 25 million people each year by, safely and nutritiously aiding those in crisis.

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#### **NEWS**

bettering communities remain central to the company and their family. Their steadfastness has guided Kemin to partner with local and global nonprofit organizations in the areas of science and general education; affordable housing and food security; sustainability; and the creation of vibrant communities.

Kemin's largest community partnership, with the United Nations World Food Programme (WFP), empowers Kemin food scientists and quality control experts to work alongside their WFP counterparts to create products and processes that safely and nutritiously aid those in crisis. Together, Kemin and WFP impact more than 25 million people each year, and Kemin products have served those in war zones and areas of crisis, including Yemen, Syria, and South Sudan.

The third generation of

Nelson family members has now started to take on leadership roles within the business, continuing their grandparents' legacy and philosophy of service. Now in their mid-90s, both R.W. and Mary remain engaged with the company.

"When we started the business, we never dreamed of what it would become," said Kemin Industries Co-founders R.W. and Mary Nelson. "We're grateful to all the employees who've worked at Kemin during the past 61 years and thank them for helping to create the company we have today. We are excited to watch the next generation of our family continue to build a better future for all through innovative science and service."

"61 since '61": Celebrating Innovation, Servant Leadership and Transforming Lives Throughout 2022, Kemin will celebrate its anniversary with customer events around the globe and a robust digital campaign to share the company's history and important milestones that have impacted billions around the world. Global teams will host commemorative customer events to recognize the significant impact and positive change created by their collaboration and continued partnership.

Within the communities that Kemin employees call home, and in alignment with Kemin's foundation of servant leadership and the Nelson family's legacy of community engagement, team members will be donating an estimated 24,000 volunteer hours as part of a new Worldwide Employee Day of Service that encourages employees to select volunteer opportunities of their choice throughout the year.

"Kemin has always focused on using scientific innovation to help address

global challenges, such as feeding the world's growing population. Today, these challenges continue to build, so we must do our best to meet such demands, and to do so sustainablywithout comprising future generations," said Dr Nelson. "It has been an honor to continue the legacy that R.W. and Mary created and witness the positive impact Kemin products have made in transforming the quality of life around the world for humans, pets, and animals. I am excited for the future of Kemin and the next 61 years."

For more information on Kemin and its history, visit the "61 Since '61" website, which hosts resources highlighting the company's rich history and its contributions and innovations that have transformed lives worldwide.



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## Construction of Camlin Fine Sciences' world-class Animal Nutrition production facility is under way

Mumbai: Camlin Fine Sciences (CFS) is one of the world's leading vertically integrated manufacturers of ingredients most widely used in food/ feed. In keeping with the company's global expansion strategy for the animal nutrition business, CFS continues construction of yet another state-of theart manufacturing facility in Tarapur, India to produce solutions for animal feed. Currently, CFS' operations range from India to South-East Asia to the Americas, Europe and Middle East; the facility would be an addition to serve our rapidly growing customer base. This new facility will apply for FAMIQScertification and expect to begin commercial operations in Q1 of FY2022-23.

CFS develops and markets an extensive line of products in the Animal Nutrition segment, including antioxidants, organic acids, toxins binders, mold inhibitors, energizers, growth promoters, pellet binders, sanitizers, probiotics, prebiotics, enzymes, omega-3, to name a few. To maintain the health and safety of farms, the advance portfolio now offers effective alternatives to antibiotic usage. Through this cutting-edge facility, the company will further enhance it's focus on creating customized and comprehensive hygiene,



nutrition and health solutions for poultry, aqua, swine, ruminants, and pet industries. To maintain the health and safety of farms, the advance portfolio has now developed effective alternatives to antibiotic usage as they remain a global concern. No matter the type of livestock raised, CFS is dedicated to give producers and farmers an informed decision on feed purchases to master feed conversion ratio (FCR) and return on investment for profitable farming. Dr Chandrakant Ghotekar, Associate Vice President -Animal Nutrition, CFS said, "A balance of nutrition and economics remains a

great challenge for efficient livestock management. It is therefore essential to effectively control feed-borne infections with solutions proven in today's market and farming conditions. The upcoming facility would be capable of serving Asia, Middle East, North Africa and East European markets across species, aimed at improving FCR and Average Daily Gain (ADG) based on local farm conditions. To improve overall farm performance, our goal is to offer solutions that promote nutrition, health and hygiene. We have designed our portfolio to just do that, added Dr Ghotekar.

Furthermore, CFS' ultramodern Customer Service & Applications Laboratory in India will enhance facility for animal nutrition testing, technical support, and application trials. The laboratory would be well-equipped to deliver holistic services for livestock and petfood customers. The lab in India

collaborates with CFS' laboratories in the US. Mexico, Italy, and Brazil to conduct application trials and technical support using its global experience pool. It also supports the products with robust, authentic data sold to customers globally across Asia, Europe, and the American continents. The Company's latest addition, BioSus (brand name denotes a sustainable way of life) is a range of products developed using proprietor fermentation technology. The company is now able to offer the animal nutrition industry omega-3 for egg enrichment, which is a clean, sustainable, algal omega fatty acid. CFS promotes ESG initiatives and aims to provide better feed and food by integrating natural and fermentation technologies. With a vision to create healthy farms by 2030, Mr Nirmal Momaya, Managing Director of CFS added, "We will be launching zero-disease farms initiative through our comprehensive range of products, sanitization services and holistic health care approaches with antibiotic-alternatives like tributyrin, organic acid combinations and other solutions. Along with our customers, we would strive to create a thriving farm environment."



## 



## WE HELP YOU STAY FARM PROUD

Balancing nutrition-economics remains a prominent challenge whether you raise poultry, aqua, swine or ruminants. Being one of the world's leading vertically integrated manufacturers of food/feed ingredients, Camlin Fine Sciences (CFS) is dedicated to give producers and farmers an informed decision on feed purchases. Regardless of the species reared, CFS helps you to master feed conversion ratio and return on investments for a profitable farming.

We offer a comprehensive range of products, feed sanitization services and other holistic healthcare approaches including antibiotic alternatives. These help improve your overall farm health. **Through our work we promote nutrition, health and hygiene to influence animal performance. Keeping you proud of your farms is our mission.** 



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## Perstorp to host GastriVision 2022 -A Glimpse into the Bright Future for Gut Wealth

Perstorp continues to take important strides into the future of animal health. To share our knowledge and vision, the company will host a 2-hour online event which will take participants on a journey towards a brighter future in gut wealth. The event will take place online on March 31st from 10.00 – 12.00 (CETtime).

Aart Mateboer, Executive Vice President for Perstorp Animal Nutrition commented "The exciting GastriVision<sup>™</sup> 2022 event will mark the launch of a number of great initiatives for Perstorp. These will bolster our position as a trusted partner in, and our long term commitment to, the feed industry."

During the live round table



Perstorp supports gut wealth for a brighter future with their GastriVision™ 2022 event.

event many interesting topics will be discussed. Keynote talks will be delivered by some very well-known international guests in the industry, with whom you will have a

In an ever-changing world with many challenges including energy costs, availability of raw materials

and as a result rising prices,

chance to interact.

we need to stay ahead. Achieving optimal animal health while conducting profitable business remains the ultimate goal commented Burak S. Ruperez, Global Technical Manager for Perstorp Animal Nutrition.

This is an exciting time not only for Perstorp, but for the entire industry. With mounting responsibility to produce safe, healthy food for a growing global population in a sustainable way, we have plenty to do. GastriVision<sup>™</sup>2022 will be an opportunity for participants to hear how Perstorp is innovating to meet the demands of tomorrow commented Dr. Antonia Tacconi, Global Product Manager for Gut Health.

Gut health is a core part of Perstorp's strategic direction. Perstorp is committed to its healthy innovation pipeline to meet the requirements of the future.

## Indian Poultry Leader Suguna Foods Announces Management Rejig; Elevates Vignesh Soundararajan as its new Managing Director

Mumbai 21<sup>st</sup>, March 2022: Suguna Foods, India's largest poultry conglomerate, today announced the appointment of Mr Vignesh Soundararajan as its new Managing Director effective from April 1st, 2022. In his new role will lead the Farm, Feed & Process Food Division of Suguna Foods operations in India. In addition to this, Vignesh will also power the company's expansion within the poultry segment and focus on strengthening the footprints of the brand across the nation. The current Managing Director and co-founder MrG.B Sundararajan will continue to be associated with Suguna Foods as part of the Board. Commenting on this **Mr Soundararajan, Chairman, Suguna Group** said, "Sundararajan and I are truly satisfied with the transformation we have brought to the poultry industry through Suguna and how we have empowered farmers across the nation. From backyard farming to integrated growers' poultry



The young – Vignesh Soundararajan, Managing Director, Suguna Foods

industry has come a long way in being a significant contributor to the Agro-Food industry. The industry has also played a significant role in building a healthy and strong population. The foundation on which Suguna's legacy has been built and we are confident that Vignesh as the new Managing Director will







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#### **NEWS**

continue this momentum which will benefit the farmers, industry, customers, partners and people."

Adding to this, **Mr** Vignesh Soundararajan, Managing Director,

Suguna Foods said, "The last seven years have been very eventful, from facing the global pandemic to rebranding Suguna Foods, we have faced the highs and lows of the industry. As a market leader and name which resonates across all geographic locations, Suguna Chicken has always been the favorite among consumers. We have also launched "Delfrez" the new age brand in meat retail, which has further strengthened our product portfolio adding diverse purchase options to consumers. While we are devoted to continuing Suguna Foods' legacy and strengthening its overall commitment to the people and nation, I am personally looking forward to bringing additional innovations and retail expansion across all operations in my new role. As we move towards a brighter tomorrow, I look forward to creating a mutually beneficial future for each of our betterment. With this in

mind, we have placed a high value on our farmers and Business Associates, and we will continue to work hard to provide best - quality products for our consumers".

Mr Vignesh Soundararajan

holds an MBA degree from **IESE BUSINESS SCHOOL** , Barcelona, Spain, Bcom from Christ University and an Advanced Diploma in Management Accounting - Chartered Institute of Management Accountants (CIMA) – London, UK. In 2013, he joined Suguna Foods as a Management Trainee and now has risen to the level of the Managing Director of Suguna Foods. With a Close to a decade of experience, he has trained extensively in many domains and has gained a solid understanding of all the business functionalities. As part of his current role - Executive Director, Mr Vignesh launched Delfrez, Suguna Foods' retail division, which catapulted the retail segment in South India. Mr Vignesh contributed to the company's transformation by fostering innovation, bridging technology and positioning the brand to have a stronger consumer impact.

## Rise in maize, soya prices drives up poultry production cost



Sharp increase in prices of maize and soya has led to higher production cost for the poultry sector this year, said Vignesh Soundararajan, MD, Suguna Foods.

Maize prices had gone up by more than 50% in the last six months, while the price of soya had increased from ₹35-40 a kg to ₹65-₹70 in the past one year. Maize and soya are the two main ingredients of poultry feed, which constitutes almost 80% of the cost of broiler chicken production.

"The poultry sector [broiler birds] sees almost 8% growth year-on-year. However, this year, with a sharp rise in the feed cost, broiler producers are unable to pass on the entire cost to the consumers," he said.

Prices of maize and soya may come down when supply increases, which is usually in October-November, he added.

The broiler sector requires nearly 120 lakh tonnes of maize and 60 lakh tonnes of soya annually, said R. Lakshmanan, chairman, Broiler Coordination Committee, Tamil Nadu.

During the current financial year, the production cost ranged from ₹75-95 a kg, while the average farmgate price was ₹90 a kg. The wholesale selling price had risen only in the last one month, he said.

## Tamil Nadu: 8,500 Chicken Charred to death in Fire in Poultry Farm



The fire was reported around 8 pm on March 19 in the poultry farm set up in a land belonging to one Ganesh from Ambothi village

About 8,500 chickens and chicks were charred in a fire that broke out in a poultry farm in Annur, some 40 km from away from Coimbatore city, police said on March 20. The fire was reported

around 8 pm on March 19

in the poultry farm set up in a land belonging to one Ganesh from Ambothi village. Fire and rescue service personnel managed to put off the blaze in two hours, amidst strong winds as the entire area was covered with thick smoke. Some equipment and chicken feeds also got burnt in the fire, resulting in an estimated loss of Rs 12 lakh, they said. Further investigations are on.



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## Creditors to Ukraine's Largest Poultry Firm Grant It More Time to Pay Interest

- Grace period on bond interest payment will be extended
- 1,500 of MHP's male workers fight in war against Russia



Creditors to Ukraine's largest poultry producer MHP SE agreed to grant the company nine months to make interest payments on \$1.4 billion of bonds.

A majority of bondholders voted in favor of a 240-day extension to the 30-day grace period, the company said in a statement on Wednesday. MHP won't be able to raise more debt and will have restrictions in using its cash in this period.

Ukrainian companies have been seeking to save cash after Russia invaded the country in February, disrupting their business. MHP skipped a coupon payment on March 19 as it preserved liquidity ahead of a sowing campaign, while seeking to extend \$126 million of short-term bank lines. Kernel Holding SA, another Ukraine-based farming company, is in talks with its bank lenders to postpone loan repayment through to September.

"We have had enormous support from all stakeholders," John Rich, executive chairman of MHP, said in a phone interview with Bloomberg. "Now the key thing for MHP is to plant its crops. We are going to be planting spring crops and harvesting the winter crops we have in the ground."

Ukraine's Biggest Poultry Firm Resumes Exports as War Rages

All three of MHP's dollar bonds, downgraded to default level by S&P Global Ratings last week, are indicated at about 45 cents on the dollar on Thursday.

MHP has already started the sowing campaign on

parts of its land, Chief Financial Officer Viktoria Kapelyushnaya told Bloomberg on Thursday.

"We have started sowing in some territories and in about one week we will start everywhere," she said. "Everything is going well."

The company had \$228 million of cash on its balance sheet as of March 21, and the amount is now "only slightly lower," she said.

The company is in the process of restarting exports, resorting to

trucks as the conflict with Russia cut the company off from its usual seaborne shipment routes.

MHP has 1,500 of its male workers, roughly half of total staff, involved in Ukraine's defence, Kapelyushnaya said. Female workers are now carrying the weight of the company's day-to-day operations.

"We don't talk about fiveday working weeks, but seven-day working weeks," she said. "Everybody understands the need to work more."



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## STRONGEST





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## **Linco-Spectin 100** A New Approach Towards Prevention of *Mycoplasma Spp. (M. gallispeticum and M. synoviae*) and *E. coli* challenges

**Mumbai:** Zoetis is a global animal health company driven by a singular purpose to nurture our world and humankind in advancing care in animals. We stand by our customers and their businesses by providing solutions across the continuum of care to predict, prevent, detect and treat diseases.

The company develops and manufactures animalhealth medicines and vaccines for companion animals, dairy, and poultry. Zoetis provides Vaccines, Anti-Infectives, Disinfectants, Embrex biodevices, MFA, Anticoccidials and Toxin Binders. Today, the company has over 300 product lines globally, operating in more than 100 countries.

Zoetis India is dedicated to deliver quality products for the health of Animals. The Indian poultry market size reached a value of \$ 24 billion in 2021. The industry is further expected to grow at a CAGR of 8.1% in the forecast period of 2022-2027 and to reach a value of approximately \$ 40 billion by 2027. Every industry has its own challenges for growing further. Currently Mycoplasma and E. Coli are the major issues which are bothering the industry most and farmers are losing their profits because of unprecedented level of Mycoplasma and E. Coli in the farm. There are multiple options available in market to tackle these

issues, but somehow the farmers are not very happy with current solutions.

Poultry division is an integral part of Zoetis India. Since several decades Zoetis (earlier Pfizer) has provided several solution against various health issues in the form of vaccines, MFA's (medicated feed additives), Parasiticides and Anti-infective. The trust that has been bestowed by farmersthat a product coming from Zoetis will be the best in class and will positively impact the bird's performance. Considering this scenario and to address the issues Zoetis India launched Linco-Spectin 100 on 3rd March 2022. Linco-Spectin 100 is introduced under Anti-infective range and has specific action against **CRD** (Chronic Respiratory Diseases), CCRD (Complicated Chronic **Respiratory Diseases) and** Colibacillosis.

Linco-Spectin 100 launch was the first virtual launch by Zoetis India Poultry team. The launch was attended by 168 participant. Launch started with a welcome note by Dr Sandip Joshi (Business Unit Director – Poultry) and Ganesh Vandana. Mr Hari Prasad (GM - India & BNS) gave opening remarks where he spoke about the Industry and current solutions required for industry. Dr Arkhom Cheewakriengkrai (Vice president Southeast Asia, India, and distribution North Asia) gave inaugural speech where he expressed his views about care for animal and mankind, customer obsession and how Zoetis works for solution providing approach keeping customers' requirements as priority. With small AV the Pack shot of Linco-Spectin 100 was unveiled.

Dr Bhushan Gangurde (GPM – Poultry) introduced the speakers to the participant. We had two eminent speakers for the launch presentation on **Linco-Spectin 100.** First speaker was Dr Anupam Kr. Srivastav (National Technical Manager – Zoetis India & BNS) who discussed the current challenges in industry, and also presented, how current market is affected by Mycoplasma spp. and E. coli. After sharing all the important market scenario, we have asked our next Speaker Dr Dieter Vancraeynest (Senior Director Global Commercial Development - Zoetis Inc.) to speak upon Linco-Spectin 100 most effective Anti-infective against Mycoplasma spp. and E. coli. Dr Dieter highlighted unique features of Linco-Spectin 100, mode of action, dosage, and administration. Both speakers shared lot of data on Linco-Spectin 100 and its effectiveness against both M. gallispeticum and M. Synoviae along with E. coli. The data suggested that the combination Lincomycin and Spectinomycin is much more beneficial compared to other molecule available in market. The Linco-Spectin 100 has a shelf life of 5 years. Zoetis India also recommended use of Linco-Spectin 100 as cleanup/flushing program before use of Mycoplasma Vaccine Vaxsafe MG and Vaxsafe MS.

Zoetis India is very much confident that Linco-Spectin 100along with Vaxsafe MG and Vaxsafe MS is definitely new approach towards challenging *Mycoplasma spp.* and *E. coli* and this will provide the real peace of mind for the poultry farmers.



**Zoetis India Ltd Team** 



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## GADVASU concludes training on poultry farming



Department of veterinary and animal husbandry extension education, Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), organised a training programme on poultry farming.

Rajesh Kasrija and Amandeep Singh, training co-ordinator, appraised that a total of 16 trainees belonging to different regions of Punjab attended the programme.

The trainees were provided basic theoretical as well as practical knowledge. Special exposure visits to University poultry farm and integrated farm of PAU were also organised.

Deliberations on different aspects of poultry farming viz. identification of breeds, housing, feeding, healthcare, general management, vaccination schedule, parasitic diseases, health management and value addition of meat and eggs, etc were given by experts.

The trainees were felicitated with certificates by the director of Extension Education Parkash Singh Brar. Brar, in his address, stressed on the adoption of an integrated system of farming for augmenting farm income. He highlighted that poultry can be a venturesome enterprise in future due to its acceptance by all sections of the society.

RK Sharma, head of department, Veterinary and Animal Husbandry Extension Education, said the trainees should remain in regular touch with the University for their grievance redressal pertaining to livestock sector through Pashu Palak, tele-advisory kendra, whose numbers are 62832-97919 and 62832-58834.

The trainees had a special interactive session with Rameshwar Singh, vicechancellor, Bihar Animal Sciences University, Patna. Singh provided some practical tips to the trainees for making poultry farming a successful venture and laid special emphasis on one's own involvement in day-to-day activities at the farm.

## Poultry prices head north in Dakshina Kannada

MANGALURU: There seems to be no end to the misery of the common man. While still dreading the day fuel prices will go up, there is already a spike in the price of poultry, adding to the list of essential commodities like oil, that has seen prices heading north.

Usually during summer, the broiler prices go up by 5-10%, as there is a gap in demand and supply, as production goes down at farms due to the soaring temperature. This time the price of skinless chicken per kilogram is Rs 300, up by about 15% from a week back. Poultry outlets say that the price has increased, as the birds is less in this part of the state, with only two large producers, who have capped production after lower demand during the Covid-19 pandemic and increase in feed cost, he added.

Sources in the processing industry say that previously, when local farm output reduced, outlets used to procure it from neighbouring districts. This time, farmers in neighbouring districts have kept prices at a higher level, due to the rising input costs, which reflects here too, as landing price after transportation costs keeps the bird prices higher than usual.



production of chicks has come down, despite not many functions taking place this month. Norbet Crasta a poultry retailer at Kadri Market, says retail chicken outlets are getting less quantity of produce, than the actual demand from wholesalers and poultry farmers from Chikkamagaluru and Hassan. The production of As on Wednesday, a live broiler was retailing at Rs 182, about Rs 25- Rs 30 more than last week. The de-feathered and de-skinned broiler was retailing between Rs 250 and Rs 300, respectively, up about 20% from last week. Chicken boneless fillets were at Rs 390, again up about 20% from last week's rates.



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## Chicken Prices Soar at Farmgate Level due to High Feed Costs, Cut in Production

Farmgate prices have gone up to Rs 125 - 130 a kg from Rs 70-80 a kg a couple of months ago.



New Delhi: Poultry meat is much cheaper and healthier than other varieties of meat such as mutton and fish," he pointed out. A recent international egg and poultry review on India has mentioned that India is one of the world's largest and fastest growing poultry industries.

Chicken prices at farmgate levels have witnessed a sharp rise in the past couple of months with the industry reporting a 20-25% reduction in production caused by pandemic lockdowns, high feed costs closure of the HoReCa segments and a rise in mortality of the birds due to the onset of summer.

Farmgate prices have gone up to Rs 125 -130 a kg from Rs 70-80 a kg a couple of months ago. Industry players attribute the short supply to several small players culling their stocks due to high feed costs and poor sales in the Covid period due to the restriction in timings. For the retail customer, the chicken prices would be higher at Rs 200-225 per kg.

"It is all a matter of demand and supply. Due to the shortage of chicken, we are anticipating a further rise in poultry prices," Ricky Thaper, treasurer, Poultry Federation of India, told FE. Thaper, who has been connected with the poultry industry for over 35 years, pointed out that almost every year poultry prices go up due to higher demand during March as during Holi festival, demand is very high. But this time the situation is different, he observed.

In the last three months, there has been 25-30% increase in feed cost as corn (maize) rates have increased from Rs 21,000 per tonne to Rs 25,000 per tonne and soyabean meal rates have increased from Rs 55,000 per tonne to Rs 70,000 per tonne. This increases the cost of production of broilers, thus resulting in increase in market price of broilers he said.

"The rising purchasing power, changing food habits and increased urbanisation is happening throughout India, not only in million plus cities but in smaller cities. With increased incomes and urbanisation, people prefer to go for non-vegetarian diets," he said.

Poultry meat is much cheaper and healthier than other varieties of meat such as mutton and fish," he pointed out. A recent international egg and poultry review on India has mentioned that India is one of the world's largest and fastest growing poultry industries.

Prasanna Pedgaonkar, deputy general manager, Venky's, one of the biggest players in this segment, said that Covid and high feed costs forced small, marginal and even some big farmers to liquidate their stocks because when the commercials are not matching, there is no sense in continuing business. "The premature liquidity of the stocks has brought some correction in the market, availability went down and at the same time demand is back to normal because of high vegetable costs and high costs of meat and fish," he said.

Pedgaonkar explained that in summer usually mortality is on the higher side and production is on

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#### **NEWS**

the lower side. The overall productivity goes down by 7-10% and that with correction and overall availability also goes down, he said.

Last year, although the government allowed GM soyameal imports, a deadline was given up to December 2021 and industry had wanted an extension till March 2021. Farmers are hoarding their stocks, he said. Venky's (India) net profit declined by 15.6% to Rs 30.68 crore despite a 40.7% rise in revenue from operations to Rs 987.76 crore in Q2 FY22 over Q2 FY21. Venky's said that during the quarter ended 30 September 2021, the poultry and poultry products segment's profit margins were severely affected due to steep rise in the prices of key poultry feed ingredients. Price of soya has seen an unprecedented increase.

Suresh Chitturi, CMD of Hyderabad-based Srinivasa Hatcheries shared a similar view and said feed prices have been historically high with soyameal prices around Rs 65,000 per tonne and corn prices also moving upwards. Last four months, farmgate prices have been around Rs 90 per kg. In the last four months, poultry farmers have been losing money when traditionally, they get maximum income during the October to January period. Production has come down by at least 15-20% The mortality rate, which would be about 6-7% in the summer, has surged to 10-12% resulting in the short supply of the birds in the market, he said.

The consumption was impacted in the second wave primarily because of the timing restrictions by the governments and in the lockdowns, it is the small farmer who has been affected the most, he said.

Significantly, the online sales by start-ups went up during the second wave although they barely constitute 1% of the total market which currently stands at `2 lakh crore in value, he said.

Chitturi said he is not sure about which way the market is headed because the cash flows of farmers have been impacted and feed costs are likely to remain high for some time. Vasant Kumar, president, Poultry Farmers and Breeders Association, Maharashtra, said that while costs may have gone up, farmers are still not making money. Several small players have stopped production due to high feed costs and are still watching the situation before going in for replenishing their stocks, he said.

The association has urged the government to make available maize, wheat and broken rice available with the Food Corporation of India (FCI) to poultry farmers at subsidized rates to help lower the cost of production of the poultry sector. Sushant Rai, president, Karnataka Poultry Farmers and Breeders Association

(KPFBA) said that if high prices continue for a while, poultry farmers may start raising birds again.

## Minnesota set 1-month ban on poultry sales, exhibitions due to bird flu

The Minnesota Board of Animal Health issued the ban that applies to poultry community sales, swaps, fairs, exhibitions and other events where poultry and susceptible birds are brought together would begin April 1 and run through May 1



Hen turkeys live their lives in a Minnesota production facility. Contributed / Minnesota Turkey Growers Association photo

**ST. PAUL** — Minnesota Board of Animal Health officials on Thursday, March 31, announced a month-long ban on poultry sales and exhibitions after the Highly Pathogenic Avian Influenza was detected in several poultry flocks in Minnesota and the region.

The board said the ban on poultry community sales, swaps, fairs, exhibitions and other events where poultry and susceptible birds are brought together would begin Friday, April 1, and run through May 1. The illness poses a high risk to poultry, the board said, but low risk to humans. The Centers for Disease Control and Prevention has not reported a case of H5NI influenza in the United States.

"Viruses like HPAI need hosts to continue to spread," state Veterinarian

Beth Thompson said in a news release. "It's our job to stop the spread of disease. Unfortunately, in this situation, we feel one of the best things we can do for the health of all birds in Minnesota is to take a pause on poultry events through May 1." State officials earlier this week announced that United States Department of Agriculture emergency responders were set to travel to Minnesota and aid in the state's surveillance and containment efforts after several flocks were reported to be positive for influenza.

State agriculture and animal health leaders said poultry flock owners should follow strict biosecurity protocols and report any suspicious symptoms in their birds to the board immediately.

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## British Egg Industry Crisis as Production Costs Soar



British egg farmers are facing unprecedented rises in the cost of producing eggs, leaving many on the brink of bankruptcy with hundreds of farms in real danger of going out of business if returns do not significantly improve.

With British farmers losing money on every egg they produce, which has increased in recent weeks following the invasion of Ukraine, many are choosing to stop producing rather than lose their farms, resulting in falling numbers of hens in the UK, and increasing pressure on supply. The national flock has already declined by around four million in the past year.

Feed increases are at the forefront of the surge in costs, exacerbated by the war in Ukraine which has added 25p-30p per dozen feed costs on top of never-before-seen cost increases right across the supply chain from pullets to energy, and well-reported labour shortages.

Andrew Joret, chairman of the British Egg Industry Council, said: "The tidal wave of cost increases will see many family farms, some of which have been producing eggs for generations, going under in a matter of days, unless something is done quickly."

According to the British Egg Industry Council, the increase in uncontrollable input costs required to produce eggs, which is currently up by around 30% on farms, shows no signs of slowing down and the availability of British eggs on supermarket shelves is seriously under threat if these costs are not passed on.

Mr Joret continued: "The situation was unsustainable prior to the terrible war, but feed prices have accelerated dramatically in a way never before seen and farmers cannot absorb these costs and carry on with a viable business.

"Ten years ago, you might typically have paid £1.35 for six medium eggs, which today often cost less than £1, which is a third of the price of a barista coffee. Eggs are one of the most undervalued natural whole foods; packed with protein, vitamins and minerals. They provide the whole family with nutritious meals at a fraction of the cost of some other proteins."

British Egg Industry Council research shows that consumers want to be able to buy British eggs, however, the current crisis means that they may not be available in the same numbers if the real costs of production are not recognised in the price people pay for their eggs.

Mr Joret added: "It is our top priority to keep up the usual supply of British eggs, the majority of which are produced to the worldleading quality and welfare standards set by the Lion Code, which are enjoyed by so many people around the UK every day.

"However, without rapid recognition of the seriousness of the situation, a significant number of British farmers won't survive to continue to ensure that one of the nation's favourite homeproduced foods is readily available on the table."

The British Egg Industry Council has written to the CEOs of the major UK retailers to communicate that unless urgent action is taken in the next two weeks, the normal supply of British eggs to meet consumer demand is under severe threat.

## APHIS identifies HPAI in five states

WASHINGTON – New reports from the Animal and Plant Health Inspection Service (APHIS) of the US Department of Agriculture confirmed cases of highly pathogenic avian influenza (HPAI) in five states.

The agency confirmed HPAI was present in a non-commercial, mixedspecies backyard flock (non-poultry) in Berkshire County, Mass., and Johnson County, Wyo. A commercial poultry flock in Johnston County, NC, also tested positive for HPAI. Finally, a backyard chicken flock (non-poultry) in Franklin County, Ohio, and a non-commercial, backyard chicken flock (poultry) in Kidder County, ND, also tested positive.

Samples from all the flocks were first tested at state laboratories that

are part of the National Animal Health Laboratory Network. The cases were confirmed at the APHIS National Veterinary Services Laboratories (NVSL) in Ames, Iowa.

APHIS said it is working with state animal health officials in all five states on joint incident response.

"State officials quarantined the affected premises, and birds on the properties will be depopulated to prevent the spread of the disease," the agency said. "Birds from the flocks will not enter the food system."

APHIS asked that anyone involved with poultry production, from small backyard to large commercial producers, review their biosecurity activities to assure the health of their birds.



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# Heat Stress Management in Poultry

### Kasturi120@gmail.com

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A rise in environmental temperature during summer season has undesirable effect on polutry production. Poultry is one of the pivotal sector for production of good quality protein production. Surge in environmental temperature during summer season is the major stressor in poultry production. Heat stress has harsh effects on growth, feed intake, production performance in terms of drop in egg production and quality of meat and increase in chick mortality. As sweat glands are absent, chicken majorly depend on panting to liberate heat from the body to environment. Loss of gut integrity during heat distress results in decrease nutrient absorption from the intestine and altered microflora due to leakage of pathogens. Consequently, immune response in the body is triggered against the pathogens (Galarza-Seeber et al., 2016). Birds exposed to heat stress are associated with generation of more reactive oxygen species in the tissue causing cell disruption.

Several approaches have been reviewed by the researchers to overcome the adverse effects of heat stress on poultry production. Supplementation of feed additives is the most feasible manner to enhance productive performance in birds during summer. Supplement of nutrients in the form of vitamins, minerals, probiotics and herbal products are consistently required to withstand the environmental stress during summer season. Selective breeding of heat tolerant and high performance breeds to enhance the progeny quality. Subjecting the chicks of early age to thermal conditioning also enables them to withstand high temperature in later stages of life.

Poultry rearing is majorly practiced for meat and egg production as they form good source of protein. Due to improvised genetic selection, enhanced nutritional status broilers reach marketable age within 35 days and layers produces around 200 eggs in a year. Birds under heat stress show reduction in body weight, feed intake and increment in feed conversion ration. During heat stress release of appetite related hormones such as cholecystokinin and ghrelin can result in anorexia. Further bodyweight is related to feed intake, suppressed feed intake during heat stress is attributed with reduced body weight gain. The performance of layers also effected, due to decreased shell

### **Highlight Points**

- Poultry sector has a crucial role in production of high-quality protein through meat and eggs.
- Increase in environment temperature during summer season can have severe adverse effect on poultry production.
- Heat stress on birds can severely affect the performance parameters, body temperature, immune responses, intestinal health, oxidative parameters etc.,
- Timely response on monitoring of heat stress on birds by adopting strategies like suitable rearing system, proper ventilation, cool drinking water, supplements of vitamins (A, C & E), minerals (Selenium, Zinc), probiotics, bioactive compounds as feed additives can help in reducing the detrimental effects.
- Selection of heat tolerant progeny and early age thermal conditioning in day old chicks helps in development of thermotolerance to heat stress.

weight and shell thickness. In poultry due to lack of sweat glands dissipation of body temperature is through increased respiration rate. There is a increase of 0.56 breaths per minute for every temperature-humidity unit increment (Mutibvu et al., 2017). Respiratory alkalosis is a status of the body when pH of the blood pH rises above the normal range which is often resulted from accelerated respiratory rates and change in the ratio of bicarbonate to carbon dioxide. Heat stress adversely effects the integrity of gut epithelial barrier resulting entry of pathogens and decreased absorption of nutrients, which is characterized as "leaky gut syndrome". Enhanced entry of harmful pathogens like Escherichia coli, Clostridium sp., and, Salmonella sp., results in decreasing the immune performances. Moreover immune organs such as bursa of fabricius, thymus and spleen tend to decrease in activity in birds under heat stress. Oxidative injury due to release of reactive oxygen species is of major concern in birds subjected to heat stress.





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**Strategies to overcome the adverse effects of heat stress:** Raise in environment temperatures globally stresses the need to discuss over various strategies to overcome the effect of heat stress on poultry.

**Environment and housing:** To avoid stress due to crowding of flocks reduce the stocking density, proper ventilation and cooling systems can be ensured in the rearing systems.

Nutritional management: considering nutritional supplements to withstand the stress created during summer along with supply of cool water is an easily adaptable strategy. Drinking water enriched with required electrolytes helps in acid-base balance and enhance heat tolerant capacity in birds. Dietary supplementation of vitamins such as A,C and E along with required minerals helps in enhancing egg production, fertility and hatchability along with decrease in shell breakage and mortality associated with heat stress. Supplementation of vitamins and minerals have a major role during the adaptation period of heat stress. Especially dietary inclusion of vitamin C and E strengthens the egg shell quality, improves feed intake and body weights of broilers and quails reared under heat stress (El-Gawad et al 2008). Vitamin E helps in improving feed intake, egg quality, enhance fatty acid composition, specially has a free radical quenching activity which helps as a first line of defense against free radicals produced under heat stress. Minerals such as selenium possess antioxidant properties through improving levels of glutathioneglutathione peroxidase system. A combination of feed enriched with vitamins, minerals along with probiotics has a synergistic effect on minimizing the stress during summer. Probiotics containing products such as lactobacillus culture help in colonizing beneficial bacterial and reduce the harmful bacteria in intestine. Studies documented that supplementation of probiotics has pronounced effects on stressed birds in improving feed intake and feed efficiency.

**Selection of breeding stock:** selection of a good quality stock to produce next progeny is termed as genetic selection. Meat type chicken such as broilers are majorly targeted for rapid growth in bodyweight. However,under heat stress rapid growersexhibit deprived feed intake due to lesser heat tolerant capacity in comparison with slow growing broilersAwad et al., 2019). Similarly egg production is the major criteria for laying hens. Layers under heat stress are much more susceptible which adversely impacts the egg production and egg quality. Hence, genetic selection of birds based on heat tolerant capacity helps in improving the performance of birds during summer.

**Early age thermal conditioning:** The demand for fast growing chicks which produce more weight gain in a minimum time is increasing day by day. However, fast growing chicks due to their high metabolic rate are more prone to heat stress. Changes in the environmental temperatures are adjusted by regulating internal body temperature by various mechanisms such as panting. It is essential to decrease the body temperature to make the birds more tolerant to heat stress. Studies suggested that 24 h thermal conditioning of 5 day old chick at 40°C resulted in reducing the bird body temperature ((De Basilio

et al., 2003). Subjecting the chicks in the very first few days may help in developing the temperature regulatory mechanisms, which helps in withstanding the heat stress in later stages of life.

**Conclusion:** Considering the adverse effects such as decreased feed intake, body weight, shell thickness, mortality due to heat stress combination of strategies must be adopted to avoid loss to poultry sector. Adoption of proper rearing system with good ventilation, proper housing condition and following recommended stocking density are essential to improve the performance parameters during summer. Dietary supplementation with vitamins, minerals, probiotics and bioactive compounds helps in minimizing the adverse effects of heat stress. Procurement of progeny with heat tolerant capacity can also show promising results.

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# COUNTERING THE EFFECTS OF HEAT STRESS WITH NATURAL BETAINE

Dr Janet Remus, Senior Technical, Director, North America at Danisco Animal Nutrition (IFF)

### **Highlight Points**

- The functions of natural betaine A naturally-occurring osmolyte and methyl donor, natural betaine is an effective means of helping cells stay hydrated. It works by interacting with cellular water to maintain water balance. At the same time, it protects cellular organelles, enzymes and proteins and so enables these components to maintain normal functions despite the stresses caused.
- A strong body of evidence demonstrates a range of positive responses to Betafin natural betaine during heat stress among livestock. For example, studies on swine have found that natural betaine mitigates heat stress-related changes in intestinal permeability as measured by ileal transepithelial electrical resistance (TEER expressed as AU) and ileal fluorescein isothiocyanate-labelled dextran permeability (APP; Figure 1). This is particularly important in the context of heat stress, when the gut becomes more leaky due in part to shifts in blood flow away from the core towards the skin.
- Furthermore, natural betaine has been shown to increase heat shock protein synthesis as part of thermal tolerance development.
- Elsewhere, research also suggests a wider role for betaine supplementation during times of stress in terms of supporting gut microbial communities, improving respiration rate and rectal temperature, including noted effects in swine on supporting larger litters and shorter breeding intervals.
- Multiple functions of natural betaine -The dual action of Betafin makes it a highly effective means of alleviating heat stress in animals. As an osmolyte, it helps to protect cells against water loss and dehydration. While its function as a methyl donor promotes regeneration of methionine in the liver, which allows optimized dietary addition of choline and/or methionine in livestock diets. Overall, the multiple functions of natural betaine make it a valuable addition to nutrition strategies designed to optimize livestock performance during these challenging conditions.

Hydration is more than a cellular issue. With 98% of all the molecules in the body affected by water, maintaining optimum hydration challenges the whole animal in terms of energy demands. When heat stress occurs, the energy needed to maintain cellular water balance goes up at the same time as the animal is also having to work hard to maintain productivity and survive the stress. So how can the multiple functions of natural betaine help producers improve efficiency?

### Water Regulation

Cells have no direct way to hold or control water movement, so water can move according to the concentration gradient prevailing at the time. However, because water is a crucial cellular component, nature has devised ways of manipulating its movement. The most commonly recognised method is through the use of ion pumps, such as sodium-potassium ATPase. They act to increase electrolyte levels (mainly potassium) in the cell to a level which is more concentrated than its hyperosmotic environment, and so minimises water movement. However, these pumps are mainly effective against short term stresses, rather than sustained pressure from dehydration. This is because high accumulation of potassium destabilises cellular enzymes, proteins and organelles; leading to a drop in cellular energy output at a rate that increases the longer the stress persists. This is when the functional benefits of Betafin natural betaine, come into play; providing a safe way to minimise cellular water loss at minimum energy cost.

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#### The Functions of Natural Betaine

A naturally-occurring osmolyte and methyl donor, natural betaine is an effective means of helping cells stay hydrated. It works by interacting with cellular water to maintain water balance. At the same time, it protects cellular organelles, enzymes and proteins and so enables these components to maintain normal functions despite the stresses caused by, for example, high environmental temperatures. By helping cells "cope" with dehydration in this way, natural betaine helps to prevent valuable energy being diverted away from growth and lean gain and so helps to maintain animal performance, despite the challenging conditions. Indeed, the presence of natural betaine has been shown to reduce the activity of ion pumps like Na/K ATPase and Ca2+ ATPase by 64% and 73% respectively. A significant energy saving given that these ion pumps can require up to 2 ATP to ultimately move one molecule of potassium into a cell.

#### **Far Reaching Benefits**

A strong body of evidence demonstrates a range of positive responses to Betafin natural betaine during heat stress among livestock. For example, studies on swine have found that natural betaine mitigates heat stress-related changes in intestinal permeability as measured by ileal transepithelial electrical resistance (TEER expressed as AU) and ileal fluorescein isothiocyanate-labelled dextran permeability (APP; Figure 1).

This is particularly important in the context of heat stress, when the gut becomes more leaky due in part to shifts in blood flow away from the core towards the skin. In poultry, a series of trials (Table 1) illustrate the beneficial effects of natural betaine against key performance parameters including water retention, survival and feed conversion ratio (FCR). While a further study on broilers given natural betaine reported higher levels of water retention compared to nontreated birds exposed to cycling heat stress and/or coccidian challenge as stressors. Equally significant is the effect of natural betaine on the milk yield of lactating dairy cows on pasture. One study reported an improvement of 6% with betaine supplementation at 2g/kg concentrate under ambient summer temperatures (Figure 2). Plus, milk protein and fat yields (g/day) also increased with betaine addition. Furthermore, natural betaine has been shown to increase heat shock protein synthesis as part of thermal tolerance development. One study noted that heat stressed bovine mammary epithelial cells treated with betaine showed higher levels of heat shock proteins (HSP) 27 and 70 compared to non-supplemented controls. At the whole animal level, supplementation of 114 ng betaine/kg lactating cow weight was shown to increase

blood leukocyte HSP 70 with no change in HSP 27. Elsewhere, research also suggests a wider role for betaine supplementation during times of stress in terms of supporting gut microbial communities, improving respiration rate and rectal temperature, including noted effects in swine on supporting larger litters and shorter breeding intervals.



#### **Multiple Functions of Natural Betaine**

The dual action of Betafin makes it a highly effective means of alleviating heat stress in animals. As an osmolyte, it helps

to protect cells against water loss and dehydration. While its function as a methyl donor promotes regeneration of methionine in the liver, which allows optimised dietary addition of choline and/or methionine in livestock diets. Overall, the multiple functions of natural betaine make it a valuable addition to nutrition strategies designed to optimise livestock performance during these challenging conditions.

Trial	Application	Parameter	Betaine	Control	Improvement
				(P value)	%
Trial 1	water	Water retention (ml)	95ª	83 <sup>b</sup> (0.05)	14.5
Trial 2	water <sup>1</sup>	Survival (%)	93.8 <sup>ab</sup> /98 <sup>a</sup>	84.9 <sup>b</sup> (0.06)	10.5
					14.2
Trial 3	feed	FCR (g/g)	1.94ª	2.07 <sup>b</sup> (0.05)	6.3
Trial 4	feed	FCR (g/g)	2.20	2.27 (0.32)	3.0
Trial 5	feed <sup>1</sup>	Corrected FCR (g/g)	1.93 <sup>ab</sup> /1.88 <sup>ab</sup> /1.81 <sup>a</sup>	2.01 <sup>b</sup> (0.05)	4-10
Trial 6 <sup>2</sup>	feed	Corrected FCR (g/g)	1.73ª	1.84 <sup>b</sup> (0.05)	11
Trial 7	water <sup>1</sup>	Mortality (% control)	48/61	100	39-52
Trial 8	water	FCR (g/g)	1.84	1.95	5.6
		Mortality (%)	3.72	5.28	29.5
Trial 9 <sup>2</sup>	feed <sup>1</sup>	Corrected FCR (g/g)	1.75/1.72	1.77	1.1-2.8
Trial 10	feed	Wt corrected FCR (g/g)	1.55	1.66 (0.05)	7.1%
		BMY (% LW)	21.5	19.3 (0.05)	10%

## Table 1 – Responses noted to natural betaine in poultry under heat stress conditions.

<sup>1</sup>>1 Betaine treatment, <sup>2</sup> reduced supplementary methionine and/or choline in Betaine treatment





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# No Finish Lines in Animal Welfare

**Dr Sara Reichelt** Director - Animal Welfare and Sustainability, Aviagen North America

#### What is animal welfare?

The term animal welfare refers to an animal's collective physical, mental and emotional states. It means ensuring that all needs of an animal are met, including nutrition, water, shelter, environment, and mental needs. While we can never know a bird's true mental or emotional state, by providing for all of a bird's physical needs, we are working toward promoting positive mental and emotional states. The World Organisation for Animal Health (OIE) considers an animal to be in a good state of welfare if it is "healthy, comfortable, well-nourished and able to express innate behavior, and not suffering from pain, fear or distress." At Aviagen, this is the state of animal well-being we all strive for.

#### Where did it all begin?

Animal welfare is nothing new. Although we don't know the exact timeline of when the concept started, history's first known reference goes as far back as 800 BCE in India, when the Ahimsa Doctrine introduced Pashu Ahimsa, which is the idea of nonviolence to all living beings. Later, in a different culture in 530 BCE, Greek philosopher



Pythagoras, which many mathematics students have heard of, taught the philosophy of being kind to animals. Fast forwarding to modern times, the Five Freedoms that we still ascribe to today were first written in the Brambell Report in 1965, and in 1994 the Five Domains of Animal Welfare (nutrition, environment, health, behavior and mentality) were introduced to help guide animal welfare. So you see, just as there are no finish lines, there is also no clear beginning. Animal welfare has always been, and always will be, important to societies for a range of reasons.

#### Importance of Stockmanship:



Aviagen Group has made "Importance of management and stockmanship" one of our top 5 corporate commitments, and for good reason. According to the Farm Animal Welfare Council (FAWC), stockmanship is the single most important influence on the welfare of livestock animals. The three essentials of stockmanship are knowledge of animal

husbandry, skills in animal husbandry and personal qualities. The third essential has to do with an affinity and empathy with animals, dedication and patience. It isn't necessarily a skill that can be taught, but a natural passion and love for animals, and it is a quality that Aviagen seeks when hiring people to look out for our birds. The stewards of our animals include our growers, vaccination teams and more, and they spend their time and energy to ensure our birds are grown in a welfare-friendly manner.

#### Role of innovation and Research:

Our industry is evolving at an amazing rate, and the industry's innovations are keeping up with that evolution. From technologies to measure and predict behavior and disease on farm, Magnetic Resonance Imaging analysis of eggs to improve chick health, to in-ovo embryo sexing using hyperspectral imaging, there are so many exciting advancements coming forward. The Aviagen breeding company has a history of leveraging technology that has made a real difference in health and well-being of meat poultry populations. For example, Computer Tomography scanning and the oximeter measurements offer a wealth of data on health characteristics to strengthen selection criteria for better skeletal/leg fitness and cardiovascular function, influencing welfare and livability. Aviagen's broad and balanced breeding goals cover over 50 traits including many health and welfare ones.

#### Hand-in-Hand with Sustainability:

It makes perfect sense that bird welfare and sustainability are seamlessly connected. Our studies show time and time again that birds that are well managed – with safe, temperature- and atmospheric-controlled shelter, well-



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balanced nutrition and clean water, and access to excellent veterinary care – yield a kaleidoscope of sustainability benefits. They are more feed efficient and have stronger livability, higher meat yield and better reproductive performance – all traits that benefit the economic sustainability of producers as well as our planet.

#### Holding each other Accountable:



know How do we when we are doing right by our birds? As mentioned before, with appropriate "personal qualities," stockmen develop instincts that indicate when their birds are thriving and when they need extra attention. They will know to look at Key Welfare Indicators (KWIs) like feed and

water consumption, air and litter quality and daily weight gain.

Beyond these routine checks, it is important to recognize the value of welfare audits by certified auditors. At Aviagen North America, as part of our formal global welfare audit program, our flocks undergo official internal audits, and external audits by a certified body on a rotation. Many of our employees have professional animal auditor certifications, and in 2020, we started a virtual in-house training to give employees the opportunity to better understand the full welfare picture. The goal of this training is to help our people become more comfortable with the "what" and "why" of animal welfare. It is important, not only for our teammates to practice good animal welfare, but also to understand it.

In addition to in-depth training, we have taken decisive steps to show our commitment to bird welfare. We've appointed a Welfare Compliance Specialist and a Director of Welfare and Sustainability for North America. Our North American welfare specialists have routine meetings with production and hatchery teams to ensure standards are being met and exceeded. A recent development that we would like to continue is welfare panels featuring our leadership. These show the commitment of our leaders throughout the company, while also bringing all Aviagen North America employees into the conversation.

At the Aviagen Group global level, a key team of local welfare specialists and global specialists meets regularly under the guidance of our global Aviagen Group welfare and sustainability leaders Anne-Marie Neeteson and Tim Burnside. The Global Animal Welfare Team works together under their guidance to strengthen our welfare program and develop and achieve our high welfare standards across the globe.

#### **Future of Welfare:**

With all we have achieved, we are by no means complete, because, as stated earlier, there are no finish lines in welfare! We have work to do to strengthen the welfare culture of our company and our industry. We have to be a part of the growth with our communication and transparency, while also continuing to be open minded and embrace new research and technology. Animal welfare is not a destination. It is an ever-evolving journey by people who have made a career of making a difference for bird welfare and sustainability for current and future generations.

# Analysing Embryo Mortality

#### *Maciej Kolariczyk,* Senior Hatchery Specialist at Pas Reform.

#### Guidance and advice from Royal Pas Reform

Only fertile eggs result in chicks. However, the hatchery manager has no direct influence on egg fertility, and can only utilise the potential created on a breeder farm. This potential, which can be utilised to a greater or lesser extent, is expressed technically as *Hatch of Fertile* (HOF). As the identification of infertile eggs by candling is not very precise and removed 'clears' may also include eggs with embryos that died in an early stage, the term *Hatch of Transfer* (HOT) may be more accurate. This expresses the efficiency of the hatchery process and can vary greatly.

A HOT between 90% and 96% is considered good, as long as the very early mortality is low. For a high HOT of 96%,







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#### ARTICLE Analysing Embryo...

the remaining 4% embryo mortality would under normal circumstances be roughly divided 50:50 over the first and last week of incubation. These proportions can change dramatically if the HOT is lower. The break-out of unhatched eggs (including clears) gives information about the phase in which embryos die. This allows conclusions to be drawn about possible reasons for the mortality and any possible corrections that might be needed.

The first question, therefore, is: Did the embryos die in an early or late phase?

Early mortality – before the blood ring phase – is mostly related to the status of a breeder flock (nutrition, diseases), egg handling (collection, cooling, unstable temperature, rough transport) and mistakes in hatchery procedures (traying, storage, disinfection, preheating, starting incubation programme).

The first task when analysing clears is to separate the true infertile eggs from eggs in which the embryos died in an early stage. The fate of embryos in the first week of incubation is mainly determined by temperature issues, such as a suboptimal temperature or rate of temperature increase or a nonuniform temperature distribution, leading locally to extreme values inside the machine. Humidity and air supply play a limited role in this phase.

Late embryo mortality is much more complex. The fact that embryos reach an advanced phase is promising and improves their prospects. Embryos die late due to exhaustion as a result of prolonged overheating in the exothermic phase (after day 10 to 12), or due to insufficient development resulting from a permanently low temperature. Another reason can be insufficient or nonuniform ventilation during the final days of incubation.

Large temperature differences within a setter may be caused by excessive humidifier, cooler and heater activity. This can happen if the programmed set points are technically difficult to reach for the incubator, or as a result of incorrect physical air supply parameters, imbalanced supply and exhaust pressures or inefficient internal air mixing.

The phase of gut absorption (days 16 to 19) and yolk sac absorption (day 20) helps to identify the moment that the embryo died. The cause of the mortality, however, usually occurs much earlier. For example, fully developed embryos can 'drown' in the shell at the internal pipping phase due to insufficient egg weight loss during incubation.

All embryos in the hatcher are in their late phase, and therefore highly sensitive to overheating and a shortage of oxygen. Hatching takes several hours and requires a balance between good ventilation and a comfortable environment, both for the hatched and the as-yet unhatched chicks.

#### Advice

- Identify true infertile eggs and exclude them from embryo mortality analysis.
- Group dead embryos by age to identify mortality peaks.
- Draw conclusions regarding possible causes.
- · Consider egg shell temperatures and egg weight loss before correcting the incubation programme.

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# Killed Salmonella Vaccines and their key role in reducing the prevalence of Salmonella

A study from Hipra including the importance of humoral immunity

### Santiago de Castro, HIPRA

When it comes to Salmonella prevention, it is essential to consider all the entry points where these bacteria can gain access to the farm, and to try to minimize or even exclude them one by one.



From an immunological perspective, Salmonella can be prevented using two main tools: live vaccines, that stimulate mainly local cellular immunity, and inactivated vaccines, that stimulate general humoral immunity. So that both types of vaccine are complementary, and technically, act synergistically with each other. In this article we are going to focus on inactivated vaccines and their importance in Salmonella control.

The gaps left uncovered by live Salmonella vaccines are covered by killed vaccines as this type of vaccine provides:

- Full systemic protection, liver, spleen and oviduct.
- Boosts the intestinal protection offered by live vaccines thanks to local Ig A.
- The humoral immunity and the resulting antibodies are transferred to the progeny and table-eggs, helping to

provide protection from any sort of challenge they may face from any of the field Salmonellas.

- Humoral immunity is stored in memory cells, so that long-lasting protection is ensured.
- Inactivated vaccines are applied individually, an important point in guaranteeing that each bird receives the correct dose.

#### What is the importance of humoral immunity ?

Salmonella constantly threatens poultry facilities and these challenges can come from rodents, foreign birds, red mites, water quality failures, feed contamination, even humans can transmit Salmonella to the birds. For this reason in particular, poultry producers must provide the best and the most complete immunity to minimize the risk of Salmonella contamination. This immunity must first consist of a local barrier at the intestinal level, and a systemic defence of the whole organism thanks to the antibody mediated response.

Once Salmonella penetrates the intestinal cells and reaches inside of the organism, it has two routes of infection: one is the extracellular route, but it is also capable of penetrating macrophages using these cells for faster transportation, resulting in dissemination throughout the entire organism, including target organs such as the liver, spleen and oviduct, increasing the risk of vertical transmission.

Once the inactivated Salmonella vaccine containing SE and ST is inoculated into the bird's breast, the first cells to appear and recognize them are the antigen presenting cells (APC). These APC cells process the somatic antigens on the surface of Salmonella and expose it to the major histocompatibility complex (MHC II) in order to attract naive Th cells (Tho) and induce their differentiation into Th1 or Th2 cells. If the environment is rich in interleukins such as IL-4, the Tho cell will develop into Th2 cells. These Th2 cells will induce the proliferation of B cells into antibody (Ig) producing cells, and memory cells against Salmonella Enteritidis (Serogroup D) and Salmonella Typhimurium (Serogroup B). Within the humoral immunity, wild Salmonella infections will be diminished as soon as the bacterium penetrates the organism, as the circulating antibodies will neutralize it. (L. Revolledo, A.J.P. Ferreira, Current perspectives in avian salmonellosis: Vaccines and immune mechanisms of

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An interesting point regarding commercial Inactivated vaccines incorporating Salmonella Enteritidis is the crossprotection against other serotypes belonging to the same serogroup (serogroup D), as the immune response is produced against the somatic antigens of each serogroup. Thanks to this fact, inoculation with a Salmonella Enteritidis vaccine, will also protect the birds against Salmonella Gallinarum and Pullorum (Serogroup D). The same can be said of Salmonella Typhimurium (Serogroup B) which shares the same somatic antigens with Salmonella Heidelberg (1,4,5,12).

In summary, it is essential to protect internal organs where Salmonella can replicate, providing a higher protection for the products (table eggs and DOC), and boosting the protection offered by live vaccines to ensure their efficacy and safety, all of this through the application of an inactivated Salmonella vaccine.

With more than 20 years' experience in reducing Salmonella prevalence in poultry facilities around the world, Hipra has performed several trials in order to show how the humoral immunity acts and its benefits for the poultry industry. Some of the most noteworthy studies are shown below:

#### a) Antibody transfer to the yolk and to the DOC:

Serology results shown below relate to broiler breeders vaccinated with 2 doses of AVISAN® SECURE (Hipra's Inactivated SE/ST vaccine). Transfer of IgY to the yolk content and DOC is also demonstrated in this trial, providing potential early protection against field challenges.



(Verges, S., Soares, L. M., Baratelli, M., & Fontanet, A. P. (2021). The 102nd Conference of Research Workers in Animal Diseases. In Serological survey of antibody immunity against Salmonella in a commercial breeder farm using inactivated vaccine.)

## b) Eggs free from Salmonella after challenge with SE and ST:

In order to demonstrate protection against SE and ST, birds vaccinated with 2 doses of AVISAN® SECURE, and a non-vaccinated group, were challenged with wild strains of SE and ST. Eggs were collected for bacterial isolation.

No positive eggs were found in the group vaccinated with





Avisan Secure, neither for SE nor for ST.

#### c) Reduced organ colonization:

In this trial, 3 groups were challenged with both SE and ST (Live vaccines, Live + AVISAN® SECURE, control group). After the challenge, samples of caecum, liver and spleen were collected and processed by bacterial isolation and CFU counts. A clearly faster reduction was found in the birds vaccinated with a mixed vaccination programme compared with birds vaccinated with only live vaccines.



#2 live + 1.AVISAN\* SECURE #2 live # Control challenged

(Bentué López, M., Pagès Mante, A., Fachi, H. (2017). A Study of the Protection Conferred by a combined liveinactivated Salmonella vaccination program in commercial pullets. WVPC 2017)

Beak treatments...

#### Summary:

- Several preventive measures must be considered when establishing a strong Salmonella prevention programme.
- Vaccines provide a vital support, and they need to be used wisely and make the most of the synergism between live and killed vaccines.
- Only killed vaccines stimulate a high level of production of antibodies and their transfer to day-old chicks and table eggs.
- Killed vaccines support the immunity provided by live vaccines at a local level and protect organs from internal colonisation.
- Humoral immunity is essential for ensuring that our table eggs and day-old chicks will be protected against external Salmonella challenges.
- SG can also be prevented by adding a SE inactivated vaccine into the vaccination schedule.

# **Beak Treatments for Broiler Breeders:** A Declining Trend Worldwide

### Roxell

#### Beak Treatment, the Remedy for Aggressive Pecking:

Beak treatments for chickens are an important remedy for feather picking and cannibalism. This behavior is the cause of many infections and can lead to increased mortality. It explains why beak treatments are routine in the poultry world. But our attitudes towards animal welfare change over time and practices that were previously commonplace are now thrown into question. This is also the case with beak treatments. Do they have a place within 'animal welfare'?

The two types of beak treatments used today have advantages but mostly numerous disadvantages, including the impact on animal welfare. A short summary:

1. Nowadays, infrared (IR) beak treatment is the most frequently used method. This treatment is carried out in the hatchery in an environment with a high level of biosecurity. After the IR treatment is completed, the tip of the beak is still intact. However, between day 14 and 21 following the treatment, the treated tissue erodes and the tip falls off. There is no open wound but the chickens experience pain and numbness in the beak. In addition, neuromas can form (swelling around nerves). The beak also continues growing after the treatment, which often results in an unnatural and irregular beak shape. In some cases, split beaks can form and the weaker scar tissue can break off.

2. 'Hot-blade' debeaking is carried out at poultry farms by experienced people in an environment with a lower level of biosecurity. The tip of the beak is removed mechanically. There is an open wound that bleeds and can get infected. This increases the likelihood of death, partially because catching and debeaking the birds is stressful in itself. On the day of the debeaking, staff dim the lights and fast the chicks. This can have a far-reaching impact, lasting even into the production phase

#### The Role of Governments:

For governments in many regions, the socio-economic trend of 'improving animal welfare' is high on the agenda. Now that there are alternatives to beak treatments on the market, certain countries have already banned them:

- The Scandinavian countries were the pioneers, and Austria, Germany and the Netherlands have also changed their legislation in recent years.
- Five more countries are considering putting a stop to beak treatments: Belgium, Luxemburg, Switzerland, Australia and the United Kingdom.
- In France, Canada and New Zealand, there are currently no plans for legislative changes, however, there are guidelines meaning beak treatments are not always permitted.

There is no doubt that this list will expand in the coming decade.

#### Poultry companies are choosing sustainability

Breeders and poultry companies understand that times are changing. A company that wants to be sustainable will lack credibility without high standards of animal welfare. Poultry companies are therefore eager to test out alternatives to beak treatments — as long as it makes economic sense, of



course. If new techniques are found to be animal friendly and optimize feed costs and returns, the sector is very open to new alternatives to beak treatments.

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