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# From the Editor's Desk

## Environment Control in Poultry Production: A Vital Imperative



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The poultry industry stands as a critical pillar in meeting the global demand for protein-rich food. However, its expansion has come at a significant cost to the environment. The need for sustainable practices within poultry production has never been more urgent. Central to this is the implementation of robust environmental controls that mitigate the industry's adverse impacts on nature while ensuring continued food security.

One of the primary environmental concerns associated with poultry production is the management of waste. Massive quantities of manure and bedding materials generated by poultry houses pose a significant challenge. Improper disposal or management of these byproducts can result in soil and water contamination, leading to adverse effects on ecosystems and human health. To combat this, advanced waste management techniques such as composting, anaerobic digestion, and innovative recycling methods need to be integrated into poultry farming practices. These methods not only effectively manage waste but also offer opportunities for producing renewable energy and organic fertilizers, thereby closing the loop on resource utilization.

Energy consumption, water usage, and air quality are critical facets that demand attention. The integration of energy-efficient technologies, such as LED lighting and improved ventilation systems, can significantly reduce energy consumption in poultry houses. Water conservation practices, including efficient watering systems and recycling, must be implemented to alleviate the strain on water resources. Additionally, controlling air quality within poultry facilities by adopting better air filtration systems and reducing emissions can mitigate the negative impact on local air quality and nearby communities.

The preservation of natural habitats and biodiversity cannot be overlooked. Expansion of poultry farms often leads to deforestation and habitat destruction. Implementing land-use strategies that prioritize conservation of natural habitats, reforestation initiatives, and responsible land management practices can help mitigate these adverse effects. Additionally, fostering biodiversity through agroforestry and creating wildlife corridors around farms can support ecosystem health and resilience.

Regulatory bodies, policymakers, and industry stakeholders play a pivotal role in driving the adoption of environmentally sustainable practices within the poultry sector. Governments need to enforce stringent regulations that incentivize and mandate the implementation of environmentally friendly technologies and practices. Simultaneously, incentivizing farmers through subsidies, tax breaks, or grants for adopting eco-friendly methods can encourage widespread adoption.

Consumer awareness and demand for sustainably produced poultry products are also instrumental in steering the industry towards environmentally responsible practices. Educating consumers about the environmental implications of their food choices and promoting certifications that endorse sustainable farming practices can create a market-driven shift towards more eco-conscious poultry production.

In conclusion, achieving environmental sustainability in poultry production requires a concerted effort from all stakeholders involved. The integration of advanced waste management techniques, adoption of energy-efficient technologies, preservation of natural habitats, and regulatory support are essential steps toward a more environmentally conscious poultry industry. Embracing these measures not only mitigates environmental degradation but also ensures the long-term viability of poultry farming while safeguarding our precious natural resources for future generations.

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	Uttara Impex Pvt. Ltd.	23
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	Venky's	Back Inside
	Ventri Biologicals	21
Z ▾	Zeus	47

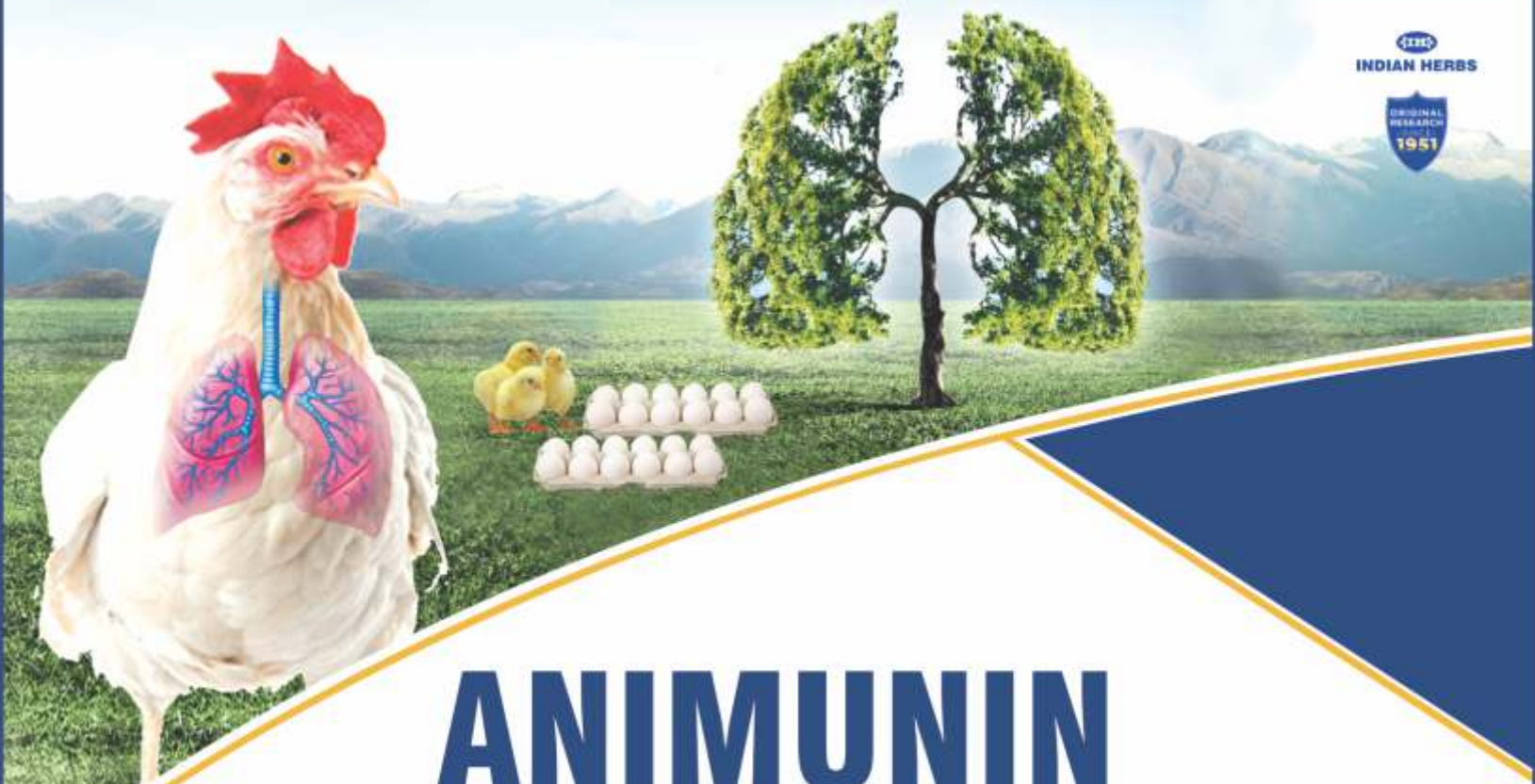
## Features

- 06 Editorial
- 08 Advertisement Index
- 10 Content

## Press Release

- 30 Venkateshwara B V Bio-Corp Private Limited organised ...
 
- 32 New Managing Committee and Office Bearers of Indian Federation ...
 
- 33 Naveen Pasuparthi Elected as President of Karnataka ...
 
- 34 Report on Online Sensitisation Workshop On Export of Table Eggs from India
- 36 Evonik and Shandong Vland Biotech form JV in China with Focus on ...
- 37 Registration is Now Open for 2024 IPPE Education Program on ...
 
- 38 CII unveils poultry vision 2047, urges govt. for policies





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# Article

12

## Utilisation of Environmentally Controlled Housing System for Sustainable Production in Poultry Farming

Jai Prakash and B.L. Saini



14

## Effect of Light on Layers

Anmol Pareek, Hemant Verma and Nitish Narwal



(a) White light (b) Blue light (c) Green light (d) Red light (e) Blue light

18

## Phytocee™: The Adaptogen Supplement to Enhance Poultry Performance

Natural Remedies



20

## Poultry Waste Management

Rimee Dhakad, Priyanka Maurya and Sadhana Tiwari

28

## Use of Organic Acids and Essential Oils in Feed for Poultry Performance

Dr. Anil Kumar and Dr. Pallabi Das

# Departments

39

Egg Prices

48

Subscription Form

40

News

48

Editorial Calendar

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Commercial layer : Day 14 – Day 24

Breeder parent : Day 13 – Day 23

- Consult poultry veterinarian for vaccination program

## Route of administration :

Oral Drop or Drinking Water



**Moulthrop M+**





# Utilisation of Environmentally Controlled Housing System for Sustainable Production in Poultry Farming



**Jai Prakash<sup>1</sup> and B.L. Saini<sup>2</sup>**

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**Introduction:** The environment provided to poultry flocks has a great bearing on flock performance and profitability. The internal body temperature in the adult chicken is 105°F-107°F (40.6° and 41.7°C). Newly hatched chick- 103.5°F (39.7°C) and increases daily until it reaches a stable level at about three weeks of age. Bird produces heat that must be lost to the environment to maintain constant body temperatures. Basic environment consists of feed, lighting, air (temperature,

humidity, pathogen concentration and ammonia), water and litter quality. The poultry thermal comfort zone, or thermoneutrality, depends on species and age, with younger birds responding better to warmer temperatures. Poultry feed conversion deteriorates when temperatures are outside the recommended comfort zone.

### Environmentally controlled house (EC house):

Environmentally controlled poultry houses are designed to



**Fig.1: Outside view of EC house**



**Fig. 2: Inside view of EC house**

operate such that the environmental conditions of temperature, relative humidity, ammonia, carbon dioxide, wind velocity, light etc. are automatically maintained as near as possible to the optimum range required by the birds. It is one in which inside conditions are maintained as near as to the bird's optimum requirements. In modern environmentally controlled house, all the environmental requirements are controlled through various computerized sensing devices and operate automatically. A closed building, longitudinally preferably east to west, big exhaust fans on west side, evaporative cooling pads on east side along with automatic feeding and drinking systems inside, in order to maintain proper ventilation, temperature, relative humidity and lighting program.

1. **Temperature control in environmentally controlled house:** Different types of heaters are used for supplemental heating in poultry houses including radiant, space, and make-up air heaters.
2. **Lighting management in environmentally controlled house:** Environmentally controlled house must be light proof; that is, no outside light should be allowed to enter in the building. A monitoring and control system should provide

scheduling of lights that is easy to use. It is especially important breeding facilities for precise lighting schedules to be followed. A system than can pre-program lighting schedules over the life of the flock is very useful for management. It is also important to provide the desired intensity of light.

3. **Cooling system in the house:** When temperature increases above 85°F (29.4°C) then for providing comfortable environment to the birds cooling system are required.

**There are four methods of cooling in the poultry houses**

- 
- 1. Low pressure fogging system:
- 2. Pad –and- fan system:
- 3. Pressurized system
- 4. Vacuum system
- 5. Fog –and- fan system
- 6. High pressure nozzle system

4. **Feeding in environmentally controlled house:** Normally 7- 8 times per day feeding occur in environmentally controlled houses. Feed monitoring systems are available to measure the amount of feed consumed by bird.

**Advantages: Followings are the chief advantages of EC house.**

- There is no seasonal

- influence on the performance of birds
- Feed efficiency is better
- Birds are most comfortable and remain healthy.
- Growth/egg production is higher
- More birds can be kept per unit land and area.

**Disadvantages: Followings are the chief Disadvantages of EC house**

- Uninterrupted power supply is needed
- Huge losses may occur in case of power failure.
- Initial cost is very high

**Conclusion:**

Artificial climate-controlled condition improves the bird's performance with better FCR and livability percentage that translates to higher income than in conventional type. Broilers reared on floor near vent area exhibited better growth performance with optimum feed intake leading to best FCR as compared to those of cages placed in the middle and fan area. Power cost is the most expensive component in operating a climate-controlled poultry house. The investment cost per bird though higher in EC housing system but returns are also significantly higher on a long run due to higher standards of production and lower mortality. In tropical climatic conditions EC will be future trend in due to unpredictable climatic changes.



# Effect of Light on Layers

Anmol Pareek<sup>1</sup>, Hemant Verma<sup>2</sup> and Nitish Narwal<sup>2</sup>

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<sup>2</sup>Division of LPM, GADVASU, Ludhiana, Punjab

## Introduction

Poultry sector is the fastest growing agricultural subsector providing food security and nutrition. Poultry meat and egg provide energy, protein, and essential micronutrients to the human population. Poultry egg and meat are among the most common animal food source consumed by mankind at global level. Light is an essential factor for growth of birds as well as for development and functioning of reproductive system. Light is an important exogenous factor in control of many physiological and behavioural processes. Light allows the bird to establish rhythmicity and synchronize many essential functions, including body temperature and various metabolic steps that facilitate feeding and digestion. Lighting is an important component of successful commercial poultry production. With laying birds (including breeders) light is significant in the development and functioning of the bird's reproductive system, influencing the age when she initiates laying number of eggs laid in a given period. The pattern of changing day length experienced by birds influences them in two ways:

1. In spring when natural day light increases growing pullets get early sexual maturity and stimulates egg production during the laying period.
2. In autumn decreasing day length cause late sexual maturity of growing pullets and decrease egg production.

The term Photoperiod means the duration of light to which an animal is exposed to within a 24-hours period. In another words it is the relative duration of light and dark experienced by an animal within a 24 period . A long day photoperiod (LDPP) means exposure of light for 14-18 hour and 6-8 hour of darkness in 24 hour while a short-day photoperiod (SDPP) is

characterized by exposure of light for period of 8 hour and 16 hour of darkness in 24 h. Supplementary artificial light is a commercial necessity in order to maximize egg production.

Aims of lighting programs for laying hens:

- Stimulate feed intake and growth
- Influence the timing of sexual maturity
- Maximize egg numbers
- Optimize egg weight
- Influence time of egg-laying
- Control undesirable behaviour

## How light effect growth and sexual maturity?

The primary organ for receiving light is eye. Eye receives light and through optic nerve it give stimulation to hypothalamus which in response release GnRH (Gonadotropic Releasing Hormone). The elevated level of GnRH induce anterior pituitary to release GH (Growth Hormone), LH (Luteinising hormone) and FSH (Follicle stimulating hormone). The quantity of these hormones produced by the pituitary gland will influence the level of activity of the target organ or response which means more the light, more secretion of hormones and greater will be the response and earlier the sexual maturity. The growth hormone stimulate growth, cell reproduction and cell generation. Both LH and FSH act at the level of the gonads to initiate sexual maturation, by stimulating gametogenesis and the synthesis of sex steroid hormones. The FSH is responsible for growth and development of follicles while LH is responsible for the ovulation. Light not only effects the feed intake and reproductive ability but also regulates some behavioural functions also.

## Lighting programme for poultry

Achieving satisfactory production from birds depends upon adequacy of light

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proofing. In dark periods intensity of light should not exceed 0.4 lux (0.04 fc). To achieve recommended 5% production at 25 week age photo stimulation should not occur before 21 days. The target is to achieve 14 hr light and 10 hr dark period. From age of 21 hr 5 minute per day light should be increased until 14 hr light is achieved. The light should be

common in poultry houses. However, there has recently been a trend towards the use of fluorescent bulbs or high pressure sodium discharge lights because of their longer livability and lower costs. The type of light source used generally does not affect production parameters such as growth rates, feed efficiency or mortality in birds. The light source does not affect

bulbs. The use of fluorescent light, which is more efficient and less expensive than incandescent, does not impair the welfare of turkeys. The red light reduces cannibalism in laying hens due to the birds have no ability to see the blood of injured birds.

**Light color**

The color of light source can affect poultry performance. There are various literature which provided function of different color lights. Different light colors had significant differences in all behaviours, but with no significant differences observed in plumage scores, foot condition or growth performance among different light colors. Wavelength of light may also be altered by using color light it is used to reduce aggression in birds. Table 1 represents the light color and its correlation with physiology.

Age of birds	Light duration in hrs	Light intensity
1-2 days	23	80-100 lux (7-9 fc) in brooding area 10-20 lux (1-2 fc) in house
3 days	19	30-60 lux (3-6 fc) in brooding area 10-20 lux (1-2 fc) in house
4 days	16	
5 days	14	
6 days	12	
7 days	11	
8 days	10	
9 days	9	
10-147 days	8 hrs or natural light	10-20 lux (1-2 fc)
154 days (22 weeks)	11	30-60 lux (3-6 fc)
161 days (23 weeks)	12	
168 days (24 weeks)	13	
175 days (25 weeks)	14	

*(Source- Arbor Acres parent stock handbook)*

Color of Light	Activity
Blue Light	Calming effect on birds
Red Light	Enhance feather pecking and cannibalism
Blue Green	Stimulate Growth
Orange-Red	Stimulates reproduction

*(Source-Patel, S., Patel, A. S., Patel, M. D., & Patel, J. H. (2016). Significance of light in poultry production: a review. work, 500, 50.)*

In conclusion it can be said that light has significant role in growth, production, reproduction and behaviour of birds which has been proved with various studies. Birds show good growth in white light and their stress is less when reared in blue light. Mechanism of behavioural expression is unexplored yet it provided sufficient information for poultry rearers.

constantly increased nut in a sudden manner. The prevention should be taken that all birds of flock have similar body weights.

**Light Source**

Typically, incandescent bulbs were

egg production, hatchability or growth rates in broiler breeders. Recent research has indicated that light source may have an effect on leg disorders, with the use of fluorescent bulbs causing a lower incidence of the problem as compared to incandescent



(a) White light



(b) Blue light



(c) Green light

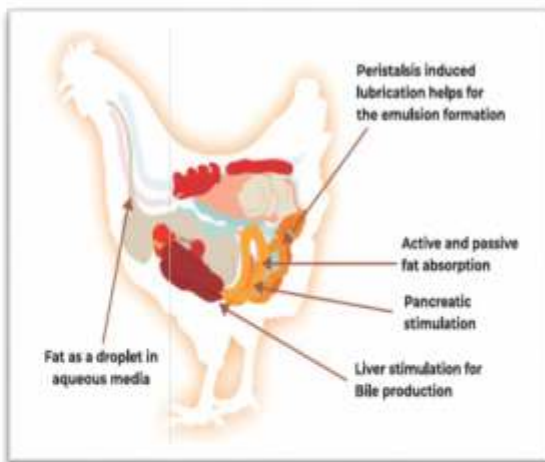


(d) Red light



(e) Blue light





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**Dr. Chandan Chatterjee**  
Marketing Manager,  
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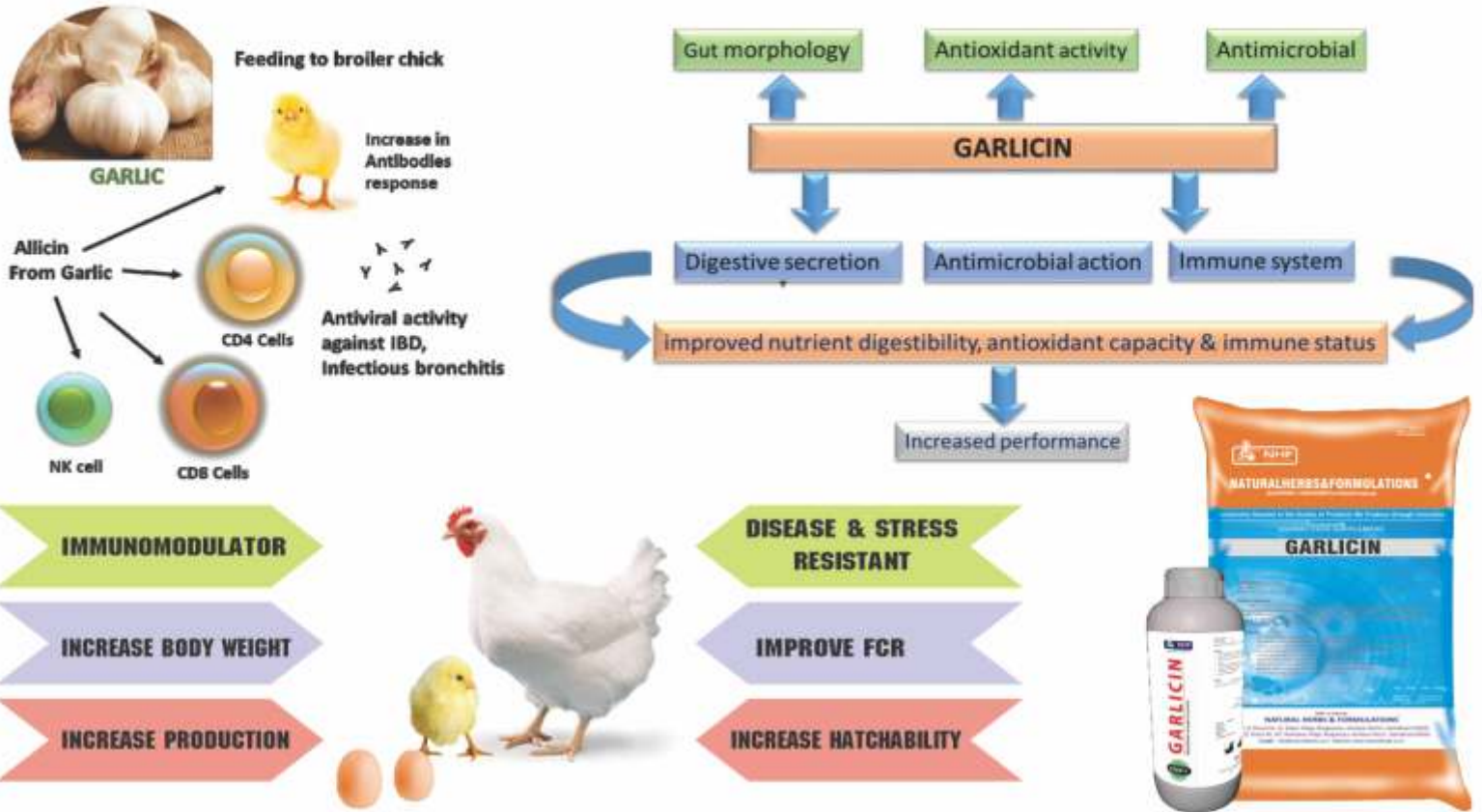
## What is adaptogen?

The term "adaptogen" was first introduced in 1947 by Soviet scientist Lazarev and refers to substances that induce non-specific resistance in living organisms.

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hypothalamic-pituitary-adrenal (HPA) axis, which is responsible for regulating the body's stress response. Activation of the hypothalamus-pituitary-adrenal (HPA) axis by various stressors induces various effects on target tissues including fatty tissue, liver, smooth muscle tissue, platelets, etc.

The HPA axis activates the release of cortisol, a hormone that helps us cope with the stressor.

### Need of Adaptogen in poultry?

The poultry industry is a tough and competitive one. Heat, cold, transportation, stocking, and diseases are among the stressors that chickens experience. These stresses can reduce growth performance, feed efficiency, and immunity while also increasing mortality.

As a result, discovering natural solutions to assist poultry cope with stress and adapt to environmental changes is significant to the business.

### Role of Phytocee™ as a Natural Adaptogen

**Phytocee™** is a natural adaptogen containing Withanolides, triterpenoids, and polyphenols, which are phytoactive compounds with adaptogenic, antistress, and cell-mediated immunity properties.

Research has shown that **Phytocee™** is an effective treatment for enhancing rats adaptogenic ability.

The study has shown that mice using the swim endurance model demonstrated that **Phytocee™** reduced immobility time significantly during forced swim tests and reduced serum cortisol levels. **Phytocee™** also

enhanced swimming time by up to ~1.7 fold during the swim endurance test and showed antagonistic effects against CRF-induced CRHR1 activity. **Phytocee™** showed inhibition of cortisol release by 90.31%.

In another study, zebrafish were supplemented with **Phytocee™**, and challenged with ammonium acetate showed that **Phytocee™** improved the fish's fighting capacity against ammonia toxicity.

In heat-stress conditions when broilers were supplemented with **Phytocee™**, the study has shown that it improved feed intake and averaged body weight, with better FCR as compared to heat-stressed birds. This increase in body weight was mirrored in enhanced weights of body parts, including breasts, wings, and legs.

Adaptogen supplementation also modulated breast amino acid profile, pH, color, and quality. These findings suggest that adaptogen supplementation could be a promising solution for alleviating heat stress in broiler birds.

### Conclusion

Adaptogens are compounds or plant extracts that enhance the body's ability to adapt to stress and maintain metabolic functions.

**Phytocee™**, a natural adaptogen containing Withanolides, triterpenoids, and polyphenols, has been shown to improve poultry's adaptogenic ability and help them cope with stress.

References: \*@NRPL

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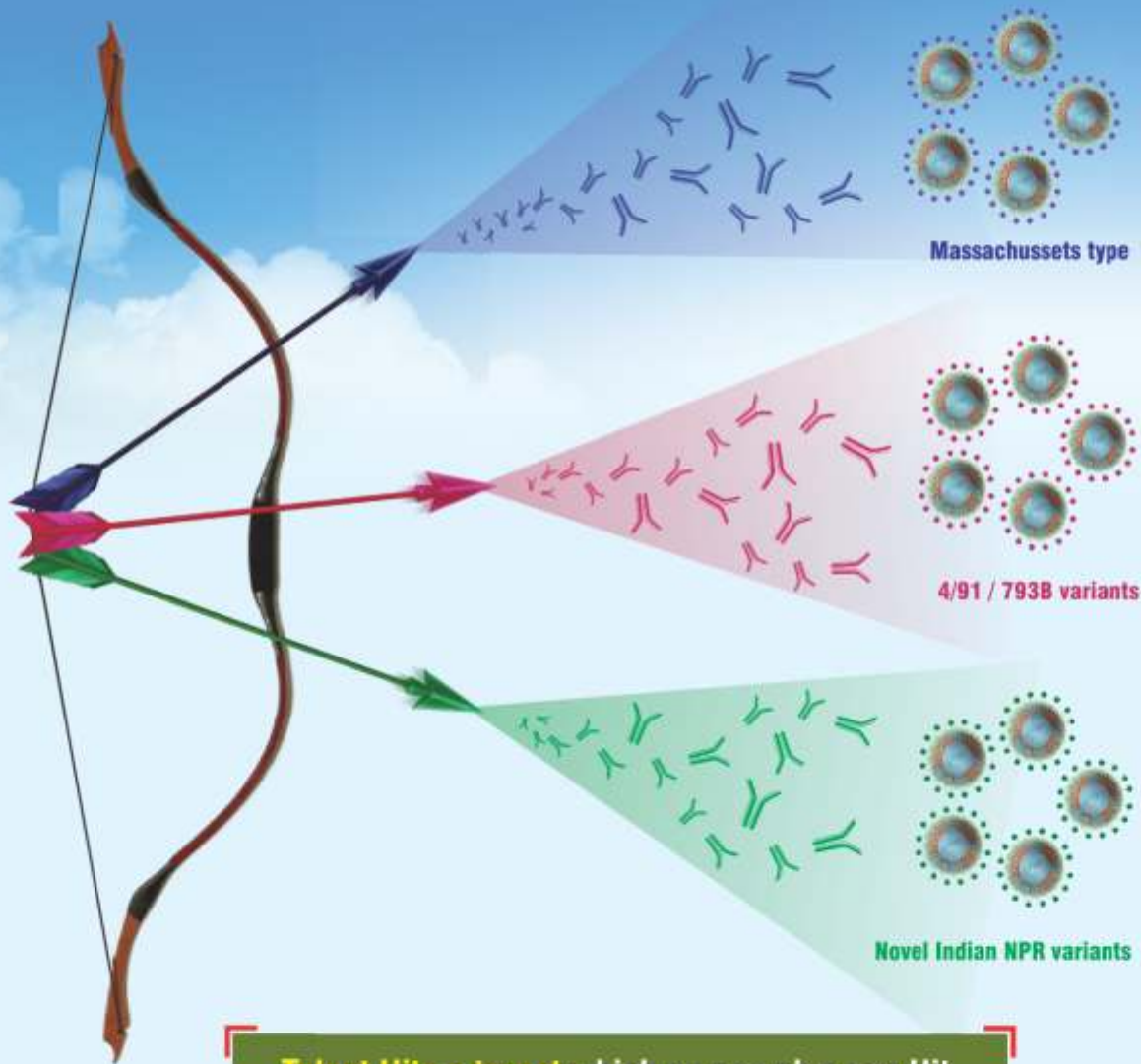
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# Poultry Waste Management

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## Introduction

Poultry is one of the fastest growing segments of the agricultural sector in India today. As crop production alone may not solve the food difficulty of the fast growing population of country. The poultry production has been the appropriate answer for fulfillment of requirements of balanced diet. India is now the world's third largest egg producer, fourth largest producer of chicken and fifth in poultry meat production. In India Poultry meat, contributes 47.05 percent of total Meat production. As poultry industry expanding its wings, it's also increasing the challenges to properly manage the waste produced from it. It was stated that if waste must be transported to a disposal site, it must be placed in sealed containers to prevent spillage (Olexa and Goldfarb, 2008). Globally, an excess of 90% poultry waste is spread on land close to the poultry farms (Moore et al., 1995). The poultry industry produces large amounts of solid waste like bedding material, excreta, feed, feathers, hatchery waste, mortality waste and waste water like faeces, urine, saw dust, remnants of drugs pesticides, disinfection of chicken houses and abattoirs. Poultry manure contains high phosphorus which has positive effect on the growth and productivity of crops.

It is also effective when combined with mineral phosphorus fertilizer for farm use. The poultry wastes also pose serious environmental pollution problems through offensive odours and promotion of fly and rodent breeding (Adeoye et al., 1994). Therefore appropriate dispose/management of waste is required for minimizing the risk and fetching the better vantage of poultry industry. There are different

techniques of management and disposal of poultry waste, to reutilize the nutrients and avoid the risk. In this review different methods have included to emphasize management and disposal of poultry waste.

## Management of manure and Litter

Roeper et al., (2005) stated that a major problem coming along with the poultry production is the manure that needs to be taken care of, avoidance of proper treatment can become risky for environment and humans. Generally, manure refers to faeces and urine produced by animals; it contains organic matter and nutrients, which improve its fertilizer value. Litter is a waste by-product of poultry industry, which consists of feces, bedding materials, wasted feed, and feathers (Chen Z et al., 2014). Dong and Tollner (2003) stated that poultry manure can cause environment related problems such as water, air and land pollution. Ammonia, dimethylamine (DMA), trimethylamine (TMA) are the common odorous compounds from poultry manure, (Nowak et al., 2017) study of genotoxic and cytotoxic activity of these compound in the model chicken cell line (LMH), suggested that these compounds can induce cell death by necrosis and apoptosis. The risk of nutrients, organic material, and pathogens contaminating water bodies and public water supplies will greatly increase if manure is spread adjacent to streams, waterways, and lakes (Coote and Zwerman, 1975). High nitrogen content in the poultry manure gives rise to the problem of nitrate leaching and contamination of ground water which in turn effects sources of drinking water with subsequent impact on the health of human beings particularly children.



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### **Soil amendment**

Application of poultry manure improve water holding capacity of soil and increase lateral water movement, therefore improving irrigation potentiality and decreasing the dryness of soils. It increases the number and diversity of soil microorganisms, particularly in sandy conditions. It is difficult to prescribe any uniform standard but care has to be taken to spread poultry manure thinly on the soil instead of dumping in a heap. Since soil condition also varies widely it is difficult to prescribe any limit. It was evidenced that continuous application of composted and noncomposted poultry manures causes the improvement of physical properties of degraded soil, and subsequently increased the maize grain yields more than the application of poultry biochar and unamended manure (Are et al., 2018).

### **As fertilizer**

The proper handling and management of manure can augment or replace purchased commercial fertilizers (Tao and Mancl, 2008). Utilization of poultry waste as a source of manure for crop production has been the favored system for recycling nutrients. The approximated percentages of nutrient intake excreted by poultry are nitrogen (65.5%), potassium (83.5%) and phosphorus (68.5%), it is beneficial increased crop production (Olumayowa and Abiodun, 2011). Other elements such as calcium, magnesium, sulfur, boron, molybdenum, cobalt, copper, iron, manganese and zinc which are deficient in commercial fertilizer are also there in poultry manure in appreciable amounts. The manure is stored in most of the farms before disposal, at least for a period of one month and this leads to loss of nearly 40% N which reduces the value of the manure. In one study chicken manure was added for sweet potato culture and it was suggested that small-scale farmers should avoid use of high levels of chicken manure because higher levels of manure would

increase vegetative growth at the expense of tuber formation (Magagula et al., 2010).

### **Livestock feeding**

Poultry litter has been used in diets for poultry, lambs, ewes, swine, lactating cows, wintering cattle and brood cows. Poultry litter/manure is used as livestock feed in other countries also including Israel and some states in the US (Smith and Wheeler, 1979). Drying of poultry manure is perhaps the oldest procedure of processing waste for refeeding. It was stated that amino acid nitrogen of cage layer waste ranges from 37 to 40% of total nitrogen and that about 40 to 60% of total nitrogen in poultry excreta is present in the form of non-protein nitrogen (NPN) (Chaudhry et al., 1997). When it is given to ruminants as feed, uric acid which is the major NPN source in poultry is degraded to ammonia by rumen microbes. The maximum inclusion rate of poultry waste in ruminant feeds is 20% [National Research Council (NRC) (1984)]. Adding broiler litter into beef cattle rations at a level of 20% or higher (as fed basis) can satisfy crude protein, calcium and phosphorus requirement (Crickenberger and Goode, 1996). The investigators reported addition of poultry litter at a level of 30% into corn silage has beneficiary effect. Dried poultry waste contains 28% protein and 30% ash and is also an excellent source of calcium, phosphorus, potassium, iron and zinc (NRC, 1984). It was studied that poultry waste fed at levels above 35% usually covers almost the total protein requirement of sheep, and contributes substantially to the energy of the total ration (Muller, 1980). It was also noted that high copper level in poultry diet can cause toxicity in sheep. (Chaudhry et al., 1997) argued that the feeding poultry waste to livestock can cause health hazards like pathogens and residues of pesticides. Also there may be problems associated with nutrient loss mainly through volatilisation of ammonia (Caswell et al., 1975). It is suggested

that ensiling poultry waste, i.e. slaughterhouse wastes with molasses and lactobacilli improves NPN and reduces pathogens. Because material may be a potential source of pathogenic bacteria (e.g. Salmonella), moulds and yeasts (Alexander et al., 1968), feeding of poultry waste depends on the type and standard of management of the birds.

### **Drying of poultry manure**

Drying in natural air conditions under sunlight is one of the most economical and feasible methods for tropical countries like India. Poultry waste has high water content, there is a need to develop a proper and inexpensive processing technology to remove excessive moisture and destroy harmful pathogens from the organic waste. Moreover, fresh poultry droppings have lower moisture content than manure from other livestock, making sun drying the most effective processing method. Dried poultry waste reportedly contains about 30 per cent protein, of which about 60 per cent is from non-protein nitrogenous sources. Drying is affected by several factors which alter its property (Ghaly and Alhattab et al., 2013) Thin layer (1-3 cm) drying of poultry manure is effective at temperatures within the range provided by solar heaters (40-60°C). Greater nitrogen losses (44-55 %) is observed at the deeper manure layer and higher temperature which resulted in a reduction in N:P:K from the initial value of 4.58:1.29:1 to final values in the range 2.07:1.30:1-2.57:1.28:1. Drying is helpful in reducing the presence and offensiveness of odor by 65.3 and 69.3%, respectively, reduction in bacteria (65.6-99.8%), yeast and mold (74.1-99.6%) and E.coli (99.97 %). Dried poultry manure has high nitrogen, phosphorus and potassium contents which are essential for plant growth.

### **Bioenergy production**

Poultry manure and litter is rich in organic matter which can be transforming into bioenergy. Water



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flushing is one of the common processes for bioenergy production. In this technique, manure is digested anaerobically that produces a gas mixture with varying concentrations of combustible methane (FAO/CMS, 1996). Biogas is a source of energy; it can be used as a fuel for engines, generation of electricity and other energy consuming purposes. Anaerobically processed products are very much acceptable for land treatment and feed supplement. This technique is not much popular yet as it is costly, need operational feasibility and produce less biogas from poultry litter system.

### **Management of feathers**

Feathers are also used in animal feed, organic fertilizers and feed supplements, as it is made up of >90% protein and is rich in cystine, arginine and threonine as they are hydrophobic amino acids, can resist from hydrothermal process that makes feather more digestible (Ekta and Rani, 2012). A slow release nitrogen fertilizer has been developed from poultry feathers (Jong-Myung Choi and Paul V. Nelson, 1996). It was reported that the feather-lysate produced by *Bacillus licheniformis* PWD-1 has nutritional property for feed similar to soybean protein. For minimizing environmental hazard new techniques are constructed for the production of biodiesel from feather meal (Thyagarajan et al., 2013). The nonwoven textile materials prepared by chicken feathers are very versatile and have a wide application in the field of technical textiles (Chinta et al., 2013). Poultry feathers are also converted into biodegradable plastics by a process called polymerization. In this process, feathers which contain keratin protein are pulverized into fine dust.

### **Poultry waste disposal methods**

The disposal of poultry carcasses is a serious trouble for poultry industry, as it has environmental, biological, and financial concern (Cai et al., 1994). The carcasses may not be disposed of by dumping on any public road or right-

of-way left where they may be consumed by animals (Olexa and Goldfarb, 2008). Worldwide, there are several ways of disposing of poultry waste including; burial, rendering, incineration, composting, feed for livestock, fertilizer or source of energy. Each disposal option has advantages and disadvantages.

**Burial :-** Besides burning and rendering, the carcasses of dead domestic animals may be disposed of by burial. According to (Malone, 2005), on-farm burial has been the predominant disposal option for many catastrophic mortality events such as avian influenza outbreaks. It was suggested (Anon, 2005) that for mass disposal of animals (poultry, swine, and calves) burial pits can be used if they are designed, constructed, maintained, and used in a manner to prevent the spread of diseases. Burial is one of the simplest and most cost-effective methods employed to deal with many types of mass mortality losses. However, burial of dead birds in a pit can lead to ground water contamination (Cai et al., 1994) and public perception concerns if not properly managed. Payne mentioned that when proper guidelines are followed, burial is a safe option but that poor site selection, such as sandy soils or areas with high water tables, may pose a threat to groundwater. Previous work (Payne) indicated that burial of mortality requires the construction of a pit, which must be located at least 91.44 m away from any wells, waters of the state, neighboring residences, public areas or property lines. The bottom of the burial pit must be at least 30.48 cm above any floodplain level and at least 60.96 cm above the seasonal-high water table. On the other hand, Anon (2005) indicated that mortality to be buried must be located more than 30.48 m away from any existing or proposed wells, water supply lines, or seasonable high water table of any water source, and 4.57 m horizontal away from the edge of any embankment. Additionally, burial sites must not be in areas with gullies,

ravines, dry streambeds, natural or man-made drainage ways or sinkholes. Payne stated that if there is bedrock in the area, the bottom of the pit must be at least 60.96 cm above the bedrock. In addition, carcasses must be covered with a minimum of 76.2 cm of top soil after placement in the pit. Anon (2005) stated that mortality must be buried at least 0.91 m below ground level but no more than 2.44 m deep. Animals may be buried in mass burial pits or in approved landfills. The soil for a burial site must be of moderate or slow permeability and must be at least one 30.48 cm above the seasonal high groundwater elevation.

**Burning :-** This is one of the common methods of disposing, especially among small-scale farmers. In this disposal method, mortalities are fully burned at relatively high temperatures using fuels such as wood, tyres or diesel. However, this waste disposal method may lead to atmospheric pollution in the event of catastrophic mortalities resulting from outbreaks of highly infectious diseases such as Newcastle disease and avian influenza. Anon (2005) argued that burning is not a preferred method of disposal because of the resulting air pollutants. Incomplete carcass combustion leads emission of Dioxins and furans, they are carcinogens and can negatively affect human reproduction, development and immune systems (Rier, 2008). According to Anon (2005), mass cremation of mortality should be performed in a flat area that is easily accessible to heavy vehicles for transporting the carcasses and away from public view. The site must be located away from buildings, public roads, and overhead electric and telephone lines, underground utility wires, and shallow underground pipes or gas lines.

**Incineration :-** Incineration is recognized as one of the biologically safest methods of disposal, eliminating the threat of disease (Blake et al., 2008). Incineration refers to process of thermal destruction,

apparently among the most effective methods for destroying potentially infectious agents (Ritter and Chinside, 1995). The major concern during incineration is, the air emission, process conditions, and the disposal of solid and liquid residues need to be strictly controlled. The residue from properly incinerated mortality is largely harmless and does not attract rodents or insects. Payne stated that incineration eliminates all pathogens but has high operational costs and if not properly conducted it can contribute to air pollution that decreases its usefulness for widespread use as a mortality carcass disposal option. Malone (2005) argued that the incineration process is slow, loading decomposed carcass poses a problem and it will require disposal of 0.3 tonnes of ash per tonne of carcass. It requires proper sources of fuel and supervision of the process, otherwise smoke and odour can create nuisance complaints. It has been reported that incineration is expensive and can potentially pollute the air (Cai et al., 1994). Therefore, incineration not much recommended for large-scale poultry operations that produce large amounts of mortalities but beneficial for poultry slaughter facilities.

**Composting :-** Composting is a natural, biological process by which organic material is broken down and decomposed (Malone, 2004). This process is carried out by successive microbial populations which function under increasing temperatures to break down organic materials into carbon dioxide, water, minerals, and stabilized organic matter (Evanylo et al., 2009). However, wastes having high moisture with low fibre content need higher amounts of moisture-sorbing and structural support to compost well (Tritt and Schuchardt, 1992). It is a biological process in which organic wastes are converted into products which can be potentially used as soil conditioner and organic fertilizer (Brake, 1992). According to Malone (2005), microorganisms will

rapidly compost carcasses in the presence of oxygen (>5%), moisture (40-60%), and a proper carbon to nitrogen ratio (20:1 to 35:1). This process produces carbon dioxide, water vapour, heat and compost. It takes 2 to 6 months for the animal to decompose (Anon, 2002). The benefits of composting are manifold. Compositing has the ability to reduce poultry litter, dispose of carcasses, stabilise trace minerals and reduce odours (Turnell et al., 2007; Bonhotal et al., 2008). It can be done any time of the year and can be done with equipment available on farms; hence it is economical (Bonhotal et al., 2008). The most efficient temperature range for composting is between 40 oC and 60 oC. However, compost pile temperatures are dependent on the amount of heat produced by the microorganisms that is lost through aeration or surface cooling. In the opinion of Turnell et al., (2007), the immobilisation of nitrogen and phosphorus during compositing reduces the risk of these nutrients entering the water systems. Furthermore, compositing reduces the pathogenic organisms due to the high heat produced during the process of compositing. Das et al., (2002) reported that hatchery waste compositing reduces E. coli and salmonella by 99.9% and 100%, respectively. The disadvantages of compositing are loss of some nutrients including nitrogen, the land area required for the compositing and odour problems (Glatz et al., 2011). A potential problem with compositing is the emission of greenhouse gases such as methane and nitrous oxide, which are efficient in absorbing infra-red radiation resulting in global warming and acid rain. Animal production contributes 7% of greenhouse emissions worldwide through the decomposition and degradation of manure (Hao et al., 2004).

**Rendering :-** Rendering is a process of application of heat to remove fat from meat (Swan, 1992). It is much

suited for high-risk material disposal. Rendering products can be used in animal feed, as fertiliser or further processed via anaerobic digestion or composting. Materials are exposed to 133°C temperature for a minimum of 20 min at 3 bars or an alternative heat treatment, to make it suitable for fertilizing and feeding purposes. Heat treatment also increases the storage time of resultant products by removing moisture and killing microorganisms (NABC, 2004 Carcass Disposal). Rendered feed product can be used for chemical industry or energy source in the form of fuel. Slaughterhouse by-products are preserved with formic acid as it has a good source of proteins and vitamins and is used as animal feed (Pulsa, 1996). The legislation, however, has become stringent about the use of slaughter by-products for animal feed to reduce the risk of disease transmission via the feed and the food chain. The main environmental concerns associated with rendering are gas and odour emissions (DEFRA, 2008)

Poultry waste management is difficult and challenging, because of its linked problems, like nitrate and heavy metal contamination in crops, soil, water, air quality and odor; disposal of dead and diseased poultry and food safety. Slaughter house wastes like feathers, blood, and innards are being processed and utilized as high-protein animal feed sources or as fertilizer due to its high nitrogen content. Poultry farming in India, in spite of several challenges, has progressed drastically. Poultry industry contributes a vital role in economy of nation as well as improving the standard of living of people. The proper utilization and disposal of poultry sector will not only helping this industry but also avoiding the unnecessary discomfort to living beings and environment. The decomposition of the waste must be done with proper handling and care to avoid any risk of disease outbreak and to prevent environment pollution.



# Use of Organic Acids and Essential Oils in Feed for Poultry Performance

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## Introduction

The poultry production systems around the globe have used antibiotics at sub therapeutic levels for years as growth promoters for better performance of chicken, but due to the rising concern of development of antibiotic resistance and reports of cross resistance followed by subsequent ban of antibiotic usage in certain regions of the world it has become imperative for some time now to search for alternatives to antibiotics which could match their performance. In the ongoing quest acidifiers and phytogenic growth promoters specially, essential oils have shown promising results as alternatives and various commercial products are now available in the market in each category. Addition of organic acids in feed have shown improved performance of chickens in layers where use of phenyllactic acid linearly improved the performance of laying hens. combine the usage of both organic acids and essential oils could suitably prove to be an alternative of antibiotic growth promoters in poultry as well as swine feeding. While organic acids which been beneficial as feed additives are generally short chain fatty acids (SCFA) having carbon C1-C4 and Medium chain fatty acids (MCFA) having carbon C4-C12 and have earlier been used as feed preservatives, essential oils are extracts obtained from herbs after certain procedures.

Antimicrobial action of both of them in the gut and modification of gut micro flora in favour of the concerned animal to inhibit the growth of detrimental microbes of the micro biome to subsequently increase the nutrient digestibility and decrease incidence of diseases.

## The various forms in which the organic acids are used in the feed are as follows

1. Added to the poultry feed in a solid form. This fights mould development in the feed and reduces the pH in the birds' crops.
2. Sprayed onto the poultry litter. This attacks the bacteria that facilitate the breakdown of uric acid, limiting the amount of ammonia releases.
3. Injected into the water to kill bacteria, facilitate chlorine in killing bacteria and lowering the pH in the birds' crops.

## The mode of action of organic acids

In poultry is mainly antimicrobial, a key activity is reduction of stomach pH. Organic acids have been found to be both bacteriostatic and bactericidal. As undissociated organic acids are lipophilic, they can cross the cell membrane of Gram-negative bacteria, such as Salmonella. The fact which is important is when it enters inside the cell of the bacteria the higher cytosolic pH causes the acid to

dissociate, releasing hydrogen ions, which consequently reduces the intracellular pH and results in accumulation of hydrogen ions in the cell. This eventually results in the depression of the enzymatic machinery of the cell and it starts to pump proton out in order to reestablish the normal pH levels even at the cost of energy expenditure via proton pump mechanisms. Over a period of exposure to an organic acid, this can be sufficient to kill the cell.

### **Effects Beyond Antimicrobial Activity**

There are effects beyond it which can be broadly categorized as, first, the ones produced due to effects of acidification such as enhanced digestive enzymatic activity, increased microbial phytase activity, and increased pancreatic secretion. Secondly, there is evidence of increased growth of the gastrointestinal mucosa in the presence of organic acids, particularly fatty acids such as butyric acid. The organic acids improve the villus height in the small intestines and also have a direct stimulatory effect on the gastro-intestinal cell proliferation, the histological changes in small intestines probably had increased the intestinal surface area, facilitating the nutrient absorption to a greater extent and, thus boosted the growth promoting effect of organic acid supplementation. Third, improvement in digestibility have been reported and higher metabolizable energy in broilers fed 0.5 to 1% fumaric acid.

### **Effects of Organic Acids on Performance of Chickens**

- Tarteric, Lactic and Malic acid: Improvement in weight gain on broilers.

- Fumaric and Sorbic acid: Improved feed efficiency in broilers and layers.
- Buffered propionic acid: Increased dressing percentage and reduction in abdominal fat.
- Butyric acid: Maintain beneficial microflora.

### **Essential oils in poultry nutrition**

Phytogetic Feed Additives (PFA) or phytobiotics or herbal feed additives which represent a wide range of bioactive compounds obtained from plants are an existing alternatives for antibiotic growth promoters which have been researched for more than the last 20 years. Essential oils are volatile aromatic lipophilic compounds derived by cold expression or by steam or alcohol distillation of different parts of plant materials. Most of the Essential oils are safe to use as feed additives but are volatile resulting in evaporation and inconsistency in the concentrations also pungent at times resulting in feed refusal and therefore encapsulation of such oils can be a viable alternative. Various Essential oils (thymol, carvacrol, cinnamaldehyde, and eugenol, have been used individually or as blends to improve animal health and performance.

### **Effects of Essential Oils on Overall Performance of Chicken**

Different effects have been shown by different essential oils like better feed efficiency and better resistance to coccidiosis and necrotic enteritis were used with inclusion level. The effect of different concentrations of ginger root powder and its essential oil on growth performance, serum metabolites and antioxidant status in broiler chicks under heat stress has been reported. Improved

nutrient absorption as shown by many studies attributed to the increased salivation, bile and enhanced enzymatic activity. Decreased numbers of pathogenic bacteria in the gut may improve the ability of epithelial cells to regenerated villus and thus enhance intestinal absorptive capacity. Growth enhancement and better performance of the chicken through the use of phytobiotic Essential oils is probably the result of the synergistic effects among complex active molecules existing in phytogenics. Essential oil combination from wild herbs increased the BW and improved FCR of broilers.

### **Conclusions**

Organic acids and Essential oils are bound to play an important role as growth promoters to replace the antibiotics used so far in the production systems. Thymol, carvacol, cinnamon and eugenol have been the phyto-genetically active essential oils that have found more way in additives and these have shown to have positive effects on the performance parameters, gut microflora, gut morphology, immune system and disease control and the overall effects are a result of the combination of all of the individual effects. Although several studies have shown that individually both of these additives have shown improvement in the performance parameters but a realistic additive that could be developed to match the performance of antibiotics could be expected by use of both of them in the correct combination that can exploit the synergy between the two and further studies could reveal the mechanism involved behind the synergy.

# Venkateshwara B V Bio-Corp Private Limited organised Technical seminar on “BV 300 Nutrition and Management”.



VENKATESHWARA BV BIO-CORP PVT LTD organized Technical seminar for commercial Layer Farmers on Tuesday 17th October, 2023 at Hotel Prabha Grand Inn, Chittoor, Andhra Pradesh. This technical seminar was attended by layer farmers of Chittoor and surrounding area. Mr Vijay Babu, Sr. Zonal Manager, Venkateshwara B V Bio-Corp Pvt. Ltd. welcomed all attendees. Dr N. Baburaj (DGM - Marketing) introduced the Speaker Dr Sunil Nadgauda (DGM - Technical). Dr Baburaj also shared his thoughts regarding current Poultry Industry scenario in the area.

The speaker for this seminar, Dr Sunil Nadgauda explained in detail about the “**BV 300 commercial Layers Nutrition and**



**Management”** in all aspects. During discussion he advised to be watchful about quality parameters to be considered while selecting the different feed ingredients. The excerpts from his presentation can be summarized as below.

- BV 300 performance review.
- Importance of body weight monitoring in rearing period

and its impact on laying productivity.

- Early Laying Nutrition to maximize peak production and to maintain the consistency.
- Benefits of Phase feeding – to reduce the overall egg production cost and to optimize the efficiency.
- Alternative sources of Protein &





Energy and precautions to be taken while using the alternative feed ingredients.

- Maintaining the egg shell quality during extended laying periods.
- Innovative premix solutions for simplify the feed manufacturing process and also to avoid errors during feed production. Mixblend is the new innovative and simple solution which provides Vitamins, Trace minerals, Enzymes, Toxin Binder, Liver tonic in required proportion to boost the productivity.

Dr N. Baburaj discussed and translated the presentation in local

language with all the attendees.

Dr Rajendra Mudholkar, Technical Manager presented regarding Gizzard Erosion and Dermatitis in Commercial Layers. He discussed in detail regarding the causes and best possible solutions to prevent the problem,

Dr Sunil Nadgauda answered the queries of the attendees related to the subject and other technical queries regarding layer nutrition and management.

Mr P. Pranith, Director of Balaji Hatcheries, presented regarding the layer farming in Chittoor area and future plans to improve the productivity and profitability of the layer farmers. He also assured the

layer farmers regarding best technical of services for farming. He pointed the Importance of having a Co-operative society of Layer farmers for betterment of Layer Poultry industry in Chittoor region.

Smt. P. Neeraja MD, Balaji Hatcheries suggested to utilize the available resources for better performance.

The Technical Seminar was attended by around 80 Layer farmers surrounding the Chittoor area.

Mr Vijay Babu, Senior Zonal Manager proposed vote of thanks to all. The local Venworld Team organised this technical seminar.



# New Managing Committee and Office Bearers of Indian Federation of Animal Health Companies (INFAH) Elected For 2023-25



Mumbai (INDIA) 23rd September 2023- **Indian Federation of Animal Health Companies (INFAH), announced new managing committee for the year 2023-25. Dr. Shirish Nigam (EW Nutrition) has been named as President, Dr. Sayed Aman (Alltech) Vice President, Dr. Ram Prakash (Hester) General Secretary, Dr. Anup Kalra (Ayurvet) Joint Secretary and Dr. Manoj Sood (Elanco) as Treasurer.**

Indian Federation of Animal Health Companies (INFAH) held its 12th Annual General Body Meeting on 23rd Sep 2023 at hotel, The Westin Mumbai Garden City. The AGM was attended by ~ 100 industry colleagues representing Indian animal health and nutrition industry, which also includes eminent speakers from different field.

Inaugural session was addressed by Chief Guest **Dr. Abhijit Mitra Animal Husbandry Commissioner DAHDF, New Delhi.** He highlighted the various initiatives undertaken by the Government towards Disease Mitigation & Improving Farm Productivity. He stressed on collaboration between INFAH and DADF for enhancing Animal Husbandry and Animal Health in India.

Presidential address was given by Dr Vijay Makhija reinforcing the INFAHs motto of Healthy Animals, Healthier India. INFAH is recognized as unified force of animal health companies having current member strength as 57.

Among other eminent speakers Dr P S Mahesh Joint Commissioner & Director of Centre of Excellence of Animal husbandry ( CEAH) shared his views on the topic of Future Trends in Indian Poultry Sector, Mr Shiva Mudgil , Food & Agri Business Services , International Finance Corporation ( World Bank ) shared insights on Growth Opportunities in Animal Husbandry Sector, Mr Manish Singh QSRC Advisor Consumer & Food Services Global Markets Fonterra

Brands Singapore Pte Ltd shared experiences regards to Dairy Value Chain – Evolution & Challenges.

As per agenda AGM proceedings were conducted and we are happy to share with you the list of **new managing committee for the year 2023-25.**

### **Other members of Managing Committee**

Dr Arun Atrey (Zenex), Past President  
Mr Satish Pasrija (Indian Herbs), Past President

Mr Vijay Teng (Intas), Past President

Mr. Gautam Chatterjee (Vetoquinol)

Mrs Ashwini Deshpande (Zoetis)

Dr Vijay Makhija (MSD), Past President

Dr Vinayak Surve (Virbac)

Mr. Sushanta Dey (Kemin)

### **Contact:**

Dr Shirish Nigam - President INFAH

Dr Ram Prakash - General Secretary INFAH

Indian Federation of Animal Health Companies popularly known as INFAH, is the united progressive force of companies & non-profit organizations working towards animal healthcare. Formed under section 25 of Indian Companies Act, INFAH is leading with 50+ member companies belonging to different genres of animal husbandry industry of India right from feed manufacturers, medical support systems to researchers.



**President**  
**Dr Shirish Nigam**  
(EW Nutrition)



**Vice President**  
**Dr. Sayed Aman**  
(Alltech)



**General Secretary**  
**Dr Ram Prakash**  
(Hester)



**Joint Secretary**  
**Dr. Anup Kalra**  
(Ayurvet)



**Treasurer**  
**Dr. Manoj Sood**  
(Elanco)

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# Naveen Pasuparthi Elected as President of Karnataka Poultry Farmers & Breeders Association



## Three Decades Excellence Program



Naveen Pasuparthi



Naveen Pasuparthi of the Nanda Group, a formidable player in the poultry sector & Dy Chairman of CLFMA (Compound Livestock Feed Manufacturers Association) of India, has been elected President of the Karnataka Poultry Farmers & Breeders Association (KPFBA) for 2023-2024 & 2024-2025 at its AGM held recently. The newly elected Managing Committee consists of, Mr. Manjesh Kumar Jadav (Vice President), Mr. Sanjeev Sham Rao Deshpande (Vice President), Mr. M S R Prasad (General Secretary), Mr. H N Rajasekhar (Treasurer), Mr. Prasanna, Mr. Rajesh Reddy, Mr. Naveen D Khokle & Mr. B N Chidanand with Mr. Inayath Ulla Khan, as associations Executive Secretary.

Mr. Pasuparthi emphasised the need for KPFBA to –

- a) Work with state government, central government & FSSAI on all policy matters.
- b) Build training & orientation models

with CPDO & other organizations for a continuous supply of skilled manpower to our sector.

- c) Build tighter working relationships with other state poultry associations like PFI, BCC, etc across the country.
- d) Build good working relationships with agriculture & veterinary universities, IVPI, VIP & associations like CLFMA, Soya Processors Association, BioTech Consortium India Limited (BCIL) etc.
- e) Last but not least, invest & adopt technology in data gathering for demand & supply estimations for our sector.

KPFBA Cannot be complacent. It must invest in marketing & consumer education activities, about poultry meat as a safe & sustainable source of protein. By this, KPFBA can dispel all myths & misunderstandings that are largely painting a negative image of our produce.

Profitable poultry farming comes from stable live bird prices. This builds capital reserves for the firms, which can be invested into automation, innovation & hiring the right talent. This will also help firms in creating business models that help them in reaching end consumers for higher realizations & thereby further increasing the company's stability &

making poultry farming attractive & sustainable.

Mr Pasuparthi said that the last 5-year history indicates that the poultry farming profession has just not been volatile but violently volatile. Our profession carries huge responsibility for the well-being & welfare of all suppliers, bankers, vendors, independent poultry farmers, contract poultry farmers, crop agriculture farmers & last but not least, 1000's of families who are all working in our firms & companies.

This journey has made us to realize & reconcile the importance of all producers to work together with grace, maturity, transparency & dignity, making our profession respectable, sustainable & profitable. Going back into a 3-decade-old history, he recalled the metamorphosis of the Karnataka Hatchery Association into the Karnataka Poultry Farmers & Breeders Association, moving from a 300 sqft garage office to an independent rented 1650 sqft office & now to a 12,000 sqft plot office on a 400-acre veterinary college campus with poultry training facility & poultry diagnostics Lab infrastructure, which is an envy to all other poultry association in India.

# REPORT ON ONLINE SENSITISATION WORKSHOP ON EXPORT OF TABLE EGGS FROM INDIA



Centre of Excellence for Animal Husbandry (CEAH-Bengaluru) – Animal Husbandry Academy of India under Government of India, Ministry of Fisheries, Animal Husbandry & Dairying, and Department of Animal Husbandry & Dairying organised an online sensitisation workshop on export of table eggs from India on 12th October, 2023.

India is producing about 20 – 25 crore eggs per day. Tamil Nadu, Andhra Pradesh, Telangana, West Bengal, Punjab, Maharashtra, Karnataka and Kerala are the leading states in production of eggs in the country. Namakkal is the one district having a population of nearly about 6 crores layers and producing 5 crore eggs per day. However, export potential needs to be augmented considering newer opportunities of compartmentalization and growing demand of table eggs across Southeast Asia and Middle East. In this regard, the CEAH Bengaluru organized the workshop on export of table eggs from India on 12th October, 2023 at 10.00am.

The Workshop started sharp at 10.30am on 12.10.2023. Dr. Mahesh P.S., Joint Commissioner, CEAH Bengaluru introduced all the panelists to the Joint Secretary. He gave the statistics related to Indian Economy and status of exports from India in his address he informed that Indian Exports are likely to touch 1 trillion dollars by March 2024 out of which Agricultural Exports is 50 billion dollars and Animal Husbandry Sector is 4.5 to 5.0 billion dollars.

Sri. G.N. Singh, Joint Secretary (Trade), inaugurated the workshop. In his address, he welcomed all the panelists and stakeholders namely, State Animal

Husbandry Authorities, RDDL incharges, Poultry Farmers and Exporters, Entrepreneurs and other fellow colleagues from AQCS to the workshop. He emphasized that Government of India is committed for facilitating export and import for the benefit of Animal Husbandry Sector of India. The Animal Quarantine and Certification Services centres (AQCS) at Delhi, Mumbai, Kolkata, Chennai, Bengaluru and Hyderabad are proactively engaged in facilitating mandatory certificates in collaboration with state Animal Husbandry Authorities with Regional Disease Diagnostic Laboratories (RDDL) at Bengaluru, Pune, Kolkata, Jalandhar and Central Laboratory at Bhopal.

Sri. G.N. Singh, Joint Secretary narrated the role of Centre of Excellence for Animal Husbandry in various ways for capacity building and best in class production centres. He appreciated the achievement of CEAH in just two quarters covering more than 800 personnel being trained under various programmes at CEAH.

Dr. Dipankar Biswas, Joint Commissioner, AQCS, Chennai who is spearheading facilitating table egg exports from Namakkal in the recent times upto almost ten crore eggs. He explained in detail flow chart for table egg export procedure step wise involving AQCS as nodal agency for submitting the application later followed by the advice of AQCS officer, state agencies will do the necessary mandatory sample survey as per the need of importing country and submits the sample to respective RDDLs in turn RDDLs will submit the report for parameters sought by the authorities. Considering all the recommendations

from state authorities and RDDLs, AQCS finally issues International Veterinary Health Certificates (IVHC) as per the mandate of importing country.

AQCS, Chennai has so far facilitated table egg exports worth of Rs. 136 crores (22.7 crore eggs) in 2021-22, Rs. 298 crores (49.8 crore eggs), 2022-23 Rs. 518 crores (86.3 crore eggs) during 2023 till date to the countries namely Oman, Qatar, Bahrain, Maldives, Srilanka, Malaysia, Sierra Leone, Liberia, Gambia, Union des Comores, Djibouti. Similarly AQCS Mumbai and Hyderabad have also facilitated table exports to Qatar, UAE, Liberia, Djibouti. Dr. Biswas volunteered to help any entrepreneur willing to export animal products out of the country hand holding them at every stage.

Dr. Tapan Kumar Sahu, Deputy Commissioner, AQCS Bengaluru narrated the status report on hatching eggs export from both AQCS Bengaluru and AQCS Chennai to Oman and Kuwait. The total value on an average is about Rs. 200 crores per year with an average export of 5 crore hatching eggs.

Dr. Aruna Sharma, Deputy Commissioner, Member Secretary for Compartmentalization southern region at Govt. of India under DAHDF explained in detail mandatory procedures for certification under compartmentalization for a specific facility. So far 34 compartments are certified with a renewal period of once in every three years. Maharashtra leads the status with 14, Tamil Nadu 11, Chhattisgarh 6, Uttar Pradesh 02, Odisha 01 compartments certified.

She narrated checklist for defining a compartment being No. 1. Demarcation of the compartment, No. 2. Animal sub



population identification and traceability, No. 3. biosecurity system, No. 4. Biosecurity plan. All these four factors will be assessed against specific mandate of WOA (World Organization for Animal Health) into risk analysis, documentation and uploading in the requisite format to apply to the State Department.

**Steps for compartmentalization:**

1. Establishment submits application to the State Animal Husbandry Department.
2. State Government does an inspection with recommendations, sends the proposal to DAHD.
3. DAHD examines the proposal and deposes the central team.
4. Central Team inspects the farm based on the check list prepared by the department as per Chapter 4.5 of Terrestrial Animal Health Code (TAHC) under WOA.
5. Based on the recommendation of the central team, Govt. of India issues Avian Influenza free status for a period of three years followed by renewal after inspection every three years.
6. State Animal Husbandry Department through local veterinarians submits the reports regularly (21 days, 3 months, and 6 months) through surveillance by sample collection and testing.

Dr. Venkatesan, AQCS, Delhi, Dr. Jimlee Sarmah, AQCS Kolkata, Dr. Sonia Sharma, AQCS Hyderabad and Dr. Santosh M., AQCS, Mumbai the respective Quarantine Officers presented status reports of export of animal products namely milk based sweet products, pet foods, horn based artistic products etc., through the respective regional AQCS centres.



Dr. P.V. Senthil, the next gen Entrepreneur representing Kaveri Bioproteins Pvt. Ltd., Namakkal narrated the hardship and the success being a leading table egg exporter from India. Kaveri group was established by Sri. P.K. Venkatachalam a school teacher from Namakkal with 600 layer birds in 1976. He promoted poultry farming in and around Namakkal with the help of late Dr. Nanda Gopal and TANUVAS as allied agriculture activity. It became a revolution with 10,000 farmers by 1990. He further established Namakkal Egg Coordination Committee by a quote "My produce My Price" which later became a foundation for formation of National Egg Coordination Committee (NECC). Sri. Venkatachalam being a President of Poultry Farmers Association played a crucial role for induction of egg into noon meal and he first exported a shipment of table eggs to Kuwait through his friend as early as in 1990s.

Lack of standard quality and supply chain facilities made importing countries to tag in shops as "We don't use Indian Eggs". Later, adaptation of Standard Practices both in egg production and innovative packaging (1312 cartons) (360 eggs per carton) as against international 1048 only are done. This saved the space and cost effectiveness upto 20 percent. 1995 Indian eggs were sought by every country as a cost advantage and quality advantage "We need Indian Eggs".

Export picked up to 15+ countries in 2006. However, it struck to the bottom during 2012 due to Birdflu issues in India as most countries banned our eggs. In 2013 Oman opened up for Indian eggs certified by AQCS followed by all other countries in 2018. However, in 2019 exports declined by competition in price by Ukraine and



Turkiye. The Ukraine war reversed the condition as Indian eggs are in demand right now in the Middle East and Southeast Asia. First Malaysian export was done by support of AQCS Chennai in December, 2022.

Dr. Senthil submitted the request to the Government to take concrete steps to open previous export markets like Kuwait, Iraq, Afghanistan, Liberia, Akola and FreeTown. The AQCS certifications should be carried out smoothly supporting the exports, extending reasonable export subsidies, removal of GST on animal feed raw materials and RCM and transport and upgrading Labs at Namakkal are the other demands from Dr. Senthil.

Shri. Giridhar Kothawar, heading All India Poultry Development Services (AIDPS) thanked all the Government Representatives be at Joint Secretary level to field station offices for extending phenomenal support for poultry sector.

Dr. Sathyanayanan the epidemiology expert, Tamil Nadu Animal Husbandry Department narrated the procedure of Sample Collection and Surveillance by the state authorities and proactive support of State Animal Husbandry Department for promotion of animal Products from India.

Dr. Mahesh P.S. Joint Commissioner conducted a panel discussion and Q&A session for the queries raised by the audience. Sri. G.N. Singh, Joint Secretary made a concluding remarks for having conducted successful online workshop on this specific subject of "Export Promotion of Eggs". Further he directed CEAH to conduct many such programmes on various topics like Pet Foods, Animal Feed, Meat Products, RTC and RTE products in the coming months.

*The online workshop was attended by about 650 registered participants across the country. The recordings are available at our Youtube Channel and Facebook:*

**Facebook:** *Ceah Bengaluru & Bangalore CPDO&TI*

**Youtube Channel:** *CEAH Bengaluru Academy and CPDO&TI TRAINING*

# EVONIK AND SHANDONG VLAND BIOTECH FORM JV IN CHINA WITH FOCUS ON GUT HEALTH PRODUCTS FOR ANIMALS



## 赢创-蔚蓝生物合作签约仪式

Signing Ceremony on Cooperation between Evonik and Vland



Essen, Germany. Evonik China Co., Ltd and Shandong Vland Biotech Co., Ltd agreed to build a joint venture to expand their presence in gut health solutions products for farm animals globally. Evonik will be the majority shareholder in this joint venture with 55 percent of the shares. The joint venture, called Evonik Vland Biotech (Shandong) Co., Ltd. will have its headquarters in Binzhou, China, and is planned to enter the market in Q1/2024.

The joint venture will combine the specific strengths of both partners, including Vland's market access, regulatory capabilities in China as well as its fast innovation cycles. In addition, the joint venture will benefit from Evonik's global sales force and market access, R&D and global regulatory capabilities. Sales of the new joint venture are expected to be in the low double-digit million euro range.

Evonik announced earlier this year that it is developing its specialty nutrition business with system solutions and specialties for poultry, swine and ruminants. The partnership with Vland on gut health solutions is an essential element towards Evonik's strategy to offer system solutions for its customers in the animal feed industry.

Customized system solutions consisting of products, services and knowhow delivering sustainability benefits are part of the strategic core of Evonik's life science division

Nutrition & Care, which includes the Animal Nutrition business line. Biosolutions such as probiotics for animal gut health will strengthen the division's biotechnology platform.

"This joint venture combines the strengths of two successful players in the feed additives business and provides a solid platform for future growth," says Dr. Gaetano Blanda, head of the Animal Nutrition business line of Evonik. "Together, both partners gain broader market access for their products and combine their innovative strength."

"I am happy to join forces with Evonik. The joint venture builds on the successful cooperation between our two companies, which we are now taking to a new level," says Arron Chen, Chairman and President of the Vland Group.

Both partners will bring their gut health businesses - such as probiotics and formulated products - into the joint venture to cover the Greater China Region. The Greater China Region accounts for more than 20 percent of the global feed additives market.

Evonik Vland Biotech (Shandong) Co., Ltd. will also engage in creating new gut health products. As part of the agreement, Evonik will distribute the joint venture's portfolio outside of the Greater China Region. The

joint venture allows Evonik to expand its gut health solutions by adding broader formulation elements to its global product portfolio.

"The joint venture of Evonik and Vland will enhance our portfolio in Asia Pacific. Both companies will grow faster together than they would have on their own," says Shirley Qi, regional president of SEAAZ and head of Nutrition & Care Asia at Evonik.

The aim of Evonik's gut health solutions is to maintain the productivity of farm animals without using antibiotic growth promoters (AGPs). Today, probiotics such as Ecobiol®, Fecinor®, GutPlus® and GutCare® are the basis of this portfolio. They consist of living microorganisms added to animal feed to maintain or restore the microbial balance in the animal's gut, helping to make animals more resilient.

### About Evonik

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €18.5 billion and an operating profit (adjusted EBITDA) of €2.49 billion in 2022. Evonik goes far beyond chemistry to create innovative, profitable, and sustainable solutions for customers. About 34,000 employees work together for a common purpose: We want to improve life today and tomorrow.

# Registration is Now Open for 2024 IPPE Education Program on How Feed Can Help Companies Hit Sustainability Targets



Permalink: <https://www.ippexpo.org/media/permalink/?id=1295>

The animal feed industry can play a critical role in achieving corporate environmental, social and governance (ESG) targets, yet it is not widely understood, so companies are not fully leveraging available data. The American Feed Industry Association (AFIA) has opened registration for an educational symposium, "Feed Your ESG: How Feed Will Help Hit Sustainability Targets," which will equip industry experts, research and stakeholders with information on how animal feed can help them meet their sustainability goals.

"We look forward to showcasing how the feed industry and animal nutrition can be part of reducing environmental impact and improving the sustainability of food production," said Paul Davis, Ph.D., AFIA's director of quality, animal food safety & education.

The AFIA Nutrition Committee determined the theme, topics and presenters for the program, with the goal that by exploring innovative approaches and best practices within the industry, the education program will provide valuable insights into how the animal feed industry can contribute to a more sustainable future.

The program will take place on Wednesday, Jan. 31, from 9 a.m. to 12 p.m., in conjunction with the 2024 International Production & Processing Expo (IPPE). Registration is now open, with an early bird fee of \$65 available until Jan. 12. After

this date, the registration fee is \$85. Interested participants are encouraged to secure their spot early to take advantage of the discounted rate.

## About IPPE

The International Production & Processing Expo (IPPE) is a collaboration of three shows - International Feed Expo, International Meat Expo and the International Poultry Expo - representing the entire chain of protein production and processing. The event is sponsored by the American Feed Industry Association (AFIA), the Meat Institute and U.S. Poultry & Egg Association (USPOULTRY).

## About AFIA

Founded in 1909, the American Feed Industry Association (AFIA), based in Arlington, Va., is the world's largest organization devoted exclusively to representing the business, legislative and regulatory interests of the U.S. animal food industry and its suppliers. The organization's membership is comprised of more than 650 domestic and international companies that represent the total feed industry-manufacturers of commercial and integrated feed and pet food, ingredient suppliers, pharmaceutical companies, industry support and equipment manufacturers. AFIA members manufacture more than 75% of the feed and 70% of the non-grain

ingredients used in the country. AFIA is also recognized as the leader on international industry developments and holds membership in the International Feed Industry Federation (IFIF).

## About the Meat Institute

The Meat Institute is the leading voice for the meat and poultry industry. Formed from the 2015 merger of the American Meat Institute (AMI) and North American Meat Association (NAMA), the Institute has a rich, century-long history and provides essential member services including legislative, regulatory, scientific, international and public affairs representation. The Meat Institute's mission is to shape a public policy environment in which the meat and poultry industry can produce wholesome products safely, efficiently and profitably. Together, the Institute's members produce the vast majority of U.S. beef, pork, lamb and poultry and the equipment, ingredients and services needed for the highest quality products.

## About USPOULTRY

U.S. Poultry & Egg Association (USPOULTRY) is the All Feather Association progressively serving its poultry and egg members through research, education, communications and technical services. Founded in 1947, USPOULTRY is based in Tucker, Georgia.



Source: Our Bureau, New Delhi

# CII unveils poultry vision 2047, urges govt. for policies



Releasing the vision document for poultry sector for 2047, CII on Tuesday has asked the government to formulate policies that incentivise investments, promote research and development and streamline regulatory procedures.

“A supportive policy framework and government initiatives play a vital role in the growth of the poultry sector. The government may have to focus on promoting lab infrastructure, educational institutions and newer markets developing and implementing supportive policies and regulations that facilitate the growth of the poultry sector and encourage investments, ensure food safety, and promote sustainable practices,” CII said in a statement.

It also said that currently, exports from India primarily focused on frozen whole chicken and cuts, table eggs and egg powder. “The vision for 2047 should be to considerably increase the export basket to include more value-added products such as liquid eggs, egg chips, ready to eat products.” CII said.

The current share in India’s global exports has to be increased from 1.2 percent to at least 10 percent in the next 25 years. This will require achieving the vision of increased consumption as well as production and adequate feed along with achieving the target of at least 20-30 percent of processing levels in poultry sector.

Stressing that India should aim to use competitiveness in terms of costs to its advantage without compromising on the quality, CII said Indian poultry products should enter new markets.



## World Organisation for Animal Health has approved the Indian Poultry Compartments' self-declaration of freedom from avian influenza

India's self-declaration of freedom from Highly Pathogenic Avian Influenza (HPAI) in particular poultry compartments has been approved by the World Organisation for Animal Health (WOAH), which is a major step forward for the country's poultry industry. India's dedication to upholding strict guidelines for animal health and biosecurity is demonstrated by this accomplishment.

Union Minister Shri Parshottam Rupala while starting the next phase of the Sagar Parikrama programme from Chennai, told the media that this is huge news and will be a game changer for the poultry industry in India.

### An Overview of Compartmentalization and Zoning

For the purposes of international trade, disease prevention, and control, zoning and compartmentalization are tactical tools used to create and preserve groups of animals with particular health statuses. The process of compartmentalization entails identifying within the national borders a subpopulation of animals with a given health status. The preservation of this status is contingent upon strict husbandry and management procedures that comply with the guidelines provided in the WOAH Terrestrial Code (Chapters 4.4 and 4.5) as well as recommendations pertaining to particular disease chapters.

### Avian Influenza in India

In February 2006, the Indian state of Maharashtra reported the first case of Highly Pathogenic Avian Influenza (HPAI), also referred to as Bird Flu.

Subsequently, the nation has encountered yearly HPAI outbreaks in various areas, resulting in significant financial damages. Over 9 million birds have been culled as a result of the disease, which has been reported in 24 states and union territories.

As per the National Action Plan for Prevention, Control, and Containment of Avian Influenza (revised - 2021), India's strategy for managing HPAI adheres to the "detect and cull" approach. Animals that are infected or exposed, eggs, feed, litter, and other contaminated materials will all be humanely destroyed as part of this all-encompassing response. Further steps have been taken, including limiting the movement of poultry and poultry products, cleaning and disinfecting contaminated areas, and putting in place a Post-Operative Surveillance Plan (POSP). It's crucial to remember that India forbids the HPAI vaccination.

### Compartmentalization: An Essential Control Measure

India has implemented the concept of poultry compartmentalization in order to proactively reduce the risks associated with HPAI, despite the aforementioned challenges. A vital instrument for improving animal health, lowering the possibility of disease outbreaks both inside and outside the compartment, and easing the trade of chicken and poultry-related goods is compartmentalization.

### WOAH Approval of Self-Declaration

The Indian government's Department of Animal Husbandry & Dairying has self-declared to the World Organisation for Animal Health (WOAH) that 26 poultry compartments are free of High Pathogenicity Avian Influenza. The self-declaration was accepted by WOAH on October 13, 2023, which was World Egg Day. On the WOAH website, this declaration is currently accessible to the general public at <https://www.woah.org/app/uploads/2023/10/2023-10-India-hpai-compartments-eng.pdf>.

Maharashtra, Tamil Nadu, Uttar Pradesh, and Chhattisgarh are the four Indian states where these poultry compartments are situated. India's

commitment to international biosecurity standards is demonstrated by this WOAH recognition, which will also help to increase the potential for exporting Indian chicken and poultry products, such as meat and eggs. With 129.60 billion eggs produced and 4.47 million tonnes of poultry meat produced annually, India ranks third in the world and is well-positioned to benefit from this accomplishment.

India exported poultry and poultry products to 64 countries during the 2022–2023 fiscal year, bringing in \$134 million USD. The acceptance of this self-declaration is anticipated to boost India's economy by providing poultry from that country with new prospects on the international poultry market.

## Zenfold Uses Ginkgo Enzyme Services to Aid in the Development of Veterinary Active Ingredients Using Sustainable Biology

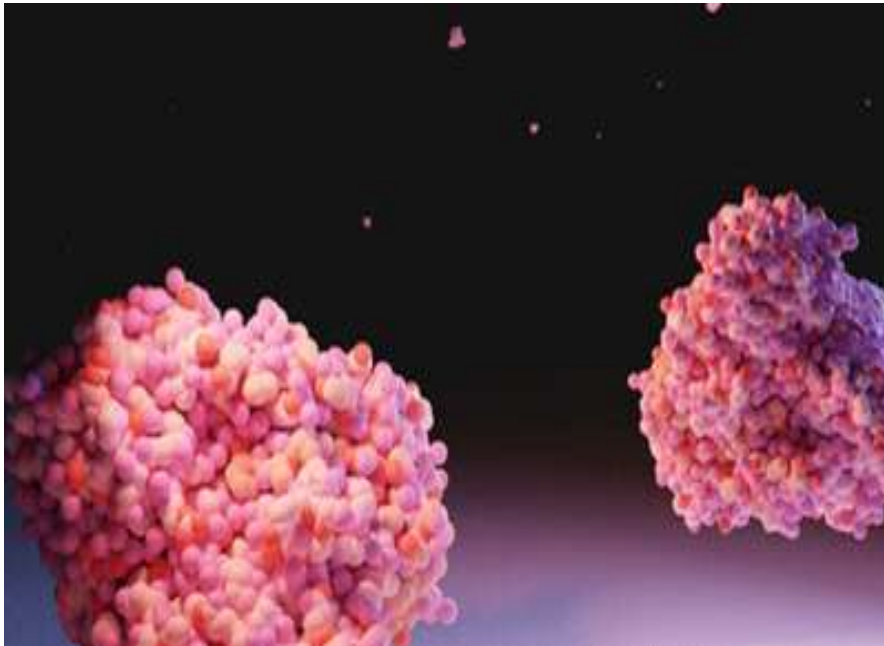
Ginkgo Bioworks, a company focused on developing and manufacturing specialty ingredients using sustainable technologies and precision fermentation, and Zenfold Sustainable Technologies, a company focused on developing and manufacturing specialty ingredients using sustainable technologies and precision fermentation, announced a collaboration today to leverage Ginkgo Enzyme Services in its effort to discover an enzyme critical to the manufacturing of veterinary products. This collaboration aims to replace traditional chemical processes in the production of veterinary active ingredients with a more sustainable biological method.

Dr. BSV Prasad, CEO and Managing Director of Zenfold Sustainable Technologies said that this collaboration marks a significant step forward in Zenfold's mission to bring



sustainable manufacturing technology to the veterinary medicine industry. By utilising Ginkgo's expertise and innovation, they are well-positioned to develop a sustainable solution that will have a lasting impact on the Indian market and beyond.

Jennifer Wipf, SVP, Head of Commercial, Cell Engineering at Ginkgo said that they are thrilled to be collaborating with Zenfold, which brings a powerful vision of sustainable biotechnology to the development of veterinary active ingredients. They will be able to apply their cutting-edge enzyme discovery module to enable more innovation in the veterinary medicine space as a result of this collaboration.



Visit [www.ginkgobioworks.com](http://www.ginkgobioworks.com) or email [enzymes@ginkgobioworks.com](mailto:enzymes@ginkgobioworks.com) to learn more about the end-to-end services included in Ginkgo Enzyme Services.

#### **About Ginkgo Bioworks**

Ginkgo Bioworks is the leading horizontal platform for cell programming, offering flexible, end-to-end services to organisations in a wide range of industries, from food and agriculture to pharmaceuticals and industrial and specialty chemicals. Concentric by Ginkgo, Ginkgo's biosecurity and public health unit, is constructing global biosecurity infrastructure to enable governments, communities, and public health leaders

to prevent, detect, and respond to a wide range of biological threats. Visit [ginkgobioworks.com](http://ginkgobioworks.com) and [concentricbyginkgo.com](http://concentricbyginkgo.com) for more information.

#### **About Zenfold**

Zenfold Sustainable Technologies is a forerunner in the field of sustainable biology, with a particular emphasis on veterinary actives and enzyme supply. This collaboration with Ginkgo Bioworks marks Zenfold's entry into the global veterinary market and underscores the company's commitment to environmental stewardship and innovative biological solutions. Zenfold's website has more information.

## **Folium Science Uses Guided Biotics® to Lower Ammonia in Poultry Production**

FOLIUM Science's technology increases natural competition by rebalancing the microbiome.

According to Edward Fuchs, co-founder of FOLIUM Science, enhancing gut health in animals could greatly increase productivity and well-being. The business has received funding from

Innovate UK to expand the use of its Guided Biotics® platform technology in an effort to combat the bacteria that produce an excessive amount of ammonia in poultry houses. It is the most recent of FOLIUM Science's many efforts to address significant issues with animal production.

According to Ed Fuchs, gut health is critical to performance, studies have demonstrated that even brief exposure to elevated ammonia concentrations can be hazardous, and this gas is generated by enzymes from bacteria found in the animals' stomachs. By modifying the microbiome, our platform technology can lower ammonia production and enhance animal health.

The company will be revealing a new development at the Agri-TechE REAP conference, "Adaptation Through Innovation; Beyond the Comfort Zone." The conference will look at ways to turn challenges into opportunities.

The director of Agri-TechE, a membership organisation that fosters innovation in agricultural technologies, Dr. Belinda Clarke, said that FOLIUM Science's strategy is an excellent illustration of agri-tech that fills a gap in the market and will soon pay for itself.

One of the main problems in chicken houses is ammonia. Bacteria in the gut convert leftover nitrogen from the feed into ammonia. Numerous of these bacteria, including Staphylococcus, Helicobacter, and Klebsiella, can infect humans and poultry and cause illness. With the help of technology developed by FOLIUM Science, it is possible to specifically target and silence the genes in these bacteria that cause them to produce ammonia, weakening their ability to colonise the gut and compete with beneficial bacteria in the microbiome.

Crucially, the bacteria are not being eliminated by the Guided Biotics® process, these bacteria are becoming less aggressive thanks to the new technology, which also helps to balance the microbiome and decrease ammonia production. Future plans call for helping the bird's metabolism become more proficient at converting this

nitrogen back into protein.

A feed additive developed by FOLIUM Science has already been shown to shield young chicks from common bacterial infections like Salmonella and E. coli. This will be introduced in Brazil the following year, as stated at the Agri-TechE REAP conference in 2018. With none of the negative side effects associated with antibiotics, it provides good, highly specific, and targeted antimicrobial effects. It has probiotic qualities as well.

The Brazilian National BioSafety Committee (CTNBio) has approved FOLIUM Science's Guided Biotics®, a CRISPR-Cas technology-based "new-breeding technique" that is assisting in the commercialization of the company's first product.

Bacteria have developed a defence mechanism called CRISPR-Cas to fend off invasive viruses. This innate mechanism is being used by FOLIUM Science to control and adjust microbiome bacteria.

Ed said that we have shown the numerous advantages that our Guided Biotics® technology can offer for reducing illness and enhancing productivity in the chicken sector. We would urge regulators to grant general approval for the technology platform—the procedure we are implementing—instead of requiring individual approvals for each output as they do now. This would allow for the quick production of the goods that the environment and industry sorely need.

At the Agri-TechE REAP conference, FOLIUM Science will present the results of its most recent project, which is creating new applications for its CRISPR-Cas portfolio, including a fast lateral flow test for Salmonella.

## Chickens With Gene Edits May Be Crucial in the Battle Against Avian Flu

Utilising gene editing, researchers have been able to locate and modify specific regions of chicken DNA that may prevent the bird flu virus from



spreading throughout the animals.

Scientists were able to modify a small portion of the chickens' DNA, which limited the virus's ability to infect them but did not totally eliminate it. The birds displayed no indications that their health or general well-being was impacted in any way by the DNA alteration.

Although the results are a positive start, scientists point out that more gene editing will be required to create a population of chickens immune to bird flu, one of the most expensive animal diseases in the world.

Using gene editing techniques, scientists from Imperial College London, the Pirbright Institute, and the University of Edinburgh bred the chickens to change the region of DNA that produces the protein ANP32A. Flu viruses use this molecule to aid in their own replication when they are infected.

Nine out of ten ANP32A gene-edited chickens remained uninfected and there was no virus spread to other chickens when they were exposed to a typical dosage of the H9N2-UDL strain of avian influenza.

To further assess the gene-edited birds' resilience, the research team exposed them to an artificially elevated dose of the avian influenza virus. Fifteen out of the ten birds in the group contracted the infection after being exposed to the high dose. The amount of virus infected gene-edited chickens was significantly less than that usually observed during infection in non-gene-edited chickens, indicating that the gene edit did offer some protection.

One of the four non-gene edited chickens kept in the same incubator was the only one where the virus was able to spread thanks to the gene edit. No transmission to birds with altered DNA occurred.

Researchers discovered that the virus had changed to enlist the help of two related proteins, ANP32B and ANP32E, in order to replicate in the ANP32A gene-edited birds. After conducting laboratory experiments, researchers discovered that while some of the mutations allowed the virus to use the human form of ANP32, its replication in human airway cell cultures remained low.

According to experts, the virus would require more genetic alterations in order to successfully infect and spread among humans. The team claims that the results show that the single ANP32A gene edit is insufficiently reliable to be used in chicken production.

The research team then focused on additional sections of DNA responsible for producing all three proteins — ANP32A, ANP32B, and ANP32E — inside lab-grown chicken cells in order to stop the emergence of escape viruses, viruses that adapt to evade the gene edit and cause infection.

Using the three gene edits, the virus's ability to proliferate in cells was effectively inhibited in lab cell cultures. Attempting to create chickens with modifications to all three genes will be the next stage. As of yet, no birds have been produced.

According to experts, if total resistance

is not attained, the study emphasizes the significance of responsible gene editing and the need to be mindful of the risks of pushing viral evolution in undesired directions.

Bird flu poses a serious threat to bird populations worldwide, affecting both farmed and wild birds in devastating ways. The current H5N1 bird flu outbreak has destroyed seabird populations in the United Kingdom alone, costing the poultry industry over \$123 million in losses.

Rarely, changes in the bird flu virus can make it possible for humans to contract it and develop life-threatening illnesses. There is an immediate need to stop the disease's spread.

Gene editing offers a promising route towards permanent disease resistance, which could be passed down through generations, protecting poultry and reducing the risks to humans and wild birds. Research indicates that multiple simultaneous genetic changes will be necessary to stop the spread of avian influenza in chickens.

## FAO, WHO, and WOAHA launch a new online course on joint response to zoonotic disease outbreaks

Wide-ranging effects on human, animal, environmental, economic, and health system health are possible with zoonotic diseases. It takes a multidisciplinary and multisectoral team working together using a One Health approach to effectively anticipate, identify, evaluate, and treat endemic and emerging zoonotic diseases. However, nations typically have a short window of time to plan their response to a zoonotic disease outbreak.

A brand-new online course that explores coordinated response concepts for managing zoonotic disease outbreaks is now offered for free.

The course will provide a deeper

understanding of the various viewpoints held by various stakeholders during an outbreak response by delving into the specifics of animal health and public health services. The discussion can focus on various instances of national cooperation at the interface between humans, animals, and the environment.

### What you will learn:

- Be reminded of One Health principles
- Apply One Health principles to zoonotic disease outbreak response
- Better understand the diverse perspectives and mandates of different sectors involved in zoonotic disease outbreak response
- Discover examples of how to coordinate a response between stakeholders in different phases of an outbreak

## Dutch ag-tech firm aiming to stop male chick culling gets \$43 million

A 40 million euro (\$42.6 million) loan was given to a Dutch company that produces a product that aims to stop the practise of culling unwanted baby male chickens in order to expand its operations, the European Investment Bank announced on Thursday.

Every year, shortly after birth, billions of

male chicks are killed worldwide because only hens are desired for laying eggs. Although it takes three weeks for chicken eggs to hatch, In Ovo, a spin-off from Leiden University, has created a high-speed system for identifying and eliminating male eggs nine days into the incubation period.

Vice-President of the bank Kris Peeters said that Ovo's technology means an improvement in the field of animal welfare and sustainability of the poultry sector, which is a good match with the European Investment Bank's overall priorities.

Wouter Bruins, the founder of In Ovo, stated that the business would use the money to grow globally.

## Brazil to Export Chicken to Algeria

Algeria will now be able to import chicken from Brazil, expanding the country's poultry market share in halal marketplaces where Muslims predominate.

According to a statement from the ministry, talks to allow Brazilian chicken to be sold in Algeria were completed after certifications were examined and safety and health standards were set.

The news was warmly received by ABPA, Brazil's industry group for chicken and pork processors, which stated that Algeria, a nation of 44 million people, had hitherto been an exclusive market for chicken imports.

According to ABPA data, Brazil is the



largest poultry exporter in the world and a major supplier of halal chicken, sending roughly 2 million metric tonnes to the Arab world each year.

Animals used to produce halal meats must be killed according to a precise procedure outlined in Islamic law.

"We intend to concentrate our approach on enhancing regional demand for goods," declared Ricardo Santin, president of ABPA, in a press release.

"Brazil has solid know-how in halal chicken meat exports and will be able to meet the demands of this market," he stated.

The nation is officially free of the disease because no cases of avian influenza (HPAI) have been found in commercial farms, despite the fact that earlier this year the nation reported its first-ever cases of the illness in wild birds.

## PERDUE® Enters the Snack Category with Chix Mix



For the first time ever, Chix Mix—a limited-edition snack food inspired by the premium, all-vegetarian diet that the company feeds its chickens—was introduced by PERDUE®, the top brand of fresh chicken in the United States. Chix Mix, which has a tasty blend of corn, wheat and edamame, is created using a majority of the same ingredients used in the company's chicken feed. And just for you, we added a sprinkling of delicious BBQ spices.

According to the Power of Meat report from the North American Meat Institute and FMI, 63% of consumers prefer to know where their food comes from, indicating that consumers' interest in the health and quality of the food they

eat has grown in recent years.

Regarding the feed that it gives its hens, Perdue has the same thoughts. Because of this, the business has pledged to only use the best vegetarian diet possible, devoid of any antibiotics or animal byproducts. There are healthier birds and better-tasting chicken as a result of the company's best-in-class animal care procedures.

Dr. Bruce Stewart-Brown, senior vice president of technical services and innovation at Perdue Farms, stated that over the last 20 years, Perdue has worked diligently to achieve No Antibiotics Ever raised chickens. We made improvements to the way we feed our hens and the way we handle animal care in order to be successful. Antibiotics and animal byproducts were eliminated, and instead, herbs like thyme and oregano were added to support gut health.

Perdue Farms, a fourth-generation family business, has always placed a high value on the needs and desires of its customers. In 2002, the company made the decision to stop using antibiotics in all of its products. It was demonstrated in 2014 that farmers did not have to rely on antibiotics to raise healthy chickens when Perdue became the first large chicken company to completely remove the routine use of all human antibiotics from every step of the production process. Perdue chickens are healthy because they eat only vegetarian food and have clean, well-maintained living quarters with plenty of space for movement and perching.

David Zucker, executive vice president of marketing at Perdue Farms, stated that Perdue is proud to highlight their gold-standard animal care practices and all-natural bird feed in this one-of-a-kind, chicken-feed-inspired snack.

On Friday, November 17, starting at 12 p.m. EST, customers can order a complimentary bag of Chix Mix at [PerdueChixMix.com](http://PerdueChixMix.com). While supplies last, Chix Mix will be given away on a first-come, first-served basis.

For more about Chix Mix and Perdue's animal care practices, please visit [PerdueChixMix.com](http://PerdueChixMix.com).

### About PERDUE®

The PERDUE® brand is the number-one brand of fresh chicken in the U.S., with a full lineup of no-antibiotics-ever products under the PERDUE®, PERDUE® HARVESTLAND®, and PERDUE® Chicken Plus® brands, and USDA certified organic chicken under the PERDUE®

HARVESTLAND® Organic and PERDUE® SIMPLY

SMART® ORGANICS™ brands. As the flagship brand in the Perdue Farms portfolio, we're recognized as the first to successfully market chicken by branding and advertising a product measurably superior to the competition, and we've been innovating ever since. All of our chickens are fed an all-vegetarian diet with no animal by-products. They're cared for in a clean, safe environment, and our programs are verified by the USDA. We've led the way in raising healthy poultry without antibiotics, and we're setting new standards for animal care. Learn more at [www.Perdue.com](http://www.Perdue.com).

### About Perdue Farms

We're a fourth-generation, family-owned, U.S. food and agriculture company. Through our belief in responsible food and agriculture, we are empowering consumers, customers, and farmers through trusted choices in products and services.

## FOLIUM Science launches rapid lateral flow test for the detection of Salmonella

On November 8, FOLIUM Science will present the newest addition to their cutting-edge line of products designed to enhance animal productivity and health on stage at the AgriTechE REAP Conference.

The new product is a lateral flow test for the detection of bacterial infection that goes by the name SWIFTR. The first item in the queue, intended for quick identification of Salmonella in poultry production, will be introduced at REAP.



Compared to currently available tests that can take up to five days to identify an infection, the time it takes to get the test result is reduced to one hour.

Additionally, the test is easy to use and doesn't require any specialised training or laboratory equipment, making it suitable for use on farms or other locations where prompt action can be taken to safeguard the flock's health and stop the spread of infection.

Given that SWIFTR is a molecular test that makes use of cutting-edge molecular biology, it can, when needed, identify specific Salmonella serovars as well as minute amounts of genetic material from the pathogenic bacteria that the user is looking for in the sample. This indicates that the test has a very high accuracy.

To enable the implementation of the necessary actions, the extent of the infection can also be measured.

The Guided Biotics® technology developed for FOLIUM Science's feed additive BiomElix is also utilised by SWIFTR. The first product in Brazil, BiomElix One, a feed additive for poultry that targets all Salmonella serotypes, will be introduced the following year.

Based on CRISPR-Cas technology, FOLIUM Science's Guided Biotics® have been approved by the Brazilian National BioSafety Committee (CTNBio) as a non-GM "new-breeding technique." Bacteria have developed a defence mechanism called CRISPR-Cas to fend off invasive viruses. This innate mechanism is being used by FOLIUM Science to control and adjust microbiome bacteria.

On November 8, FOLIUM Science will be present at the AgriTechE REAP conference in Cambridge, UK. At their

display stand, the team will be giving a demonstration of the SWIFTR product.

## AB Vista appoints Global Marketing Director in new role as part of business growth strategy



AB Vista has named Raquel Rodrigues as its new Global Marketing Director to maximize its global growth prospects.

With over 25 years of experience in marketing, Rodrigues has worked for a number of sizable multinational corporations specialising in the mono-gastric market, as well as more recently, aquaculture, pets, and ruminants.

She is also well-versed in creating a sustainable agribusiness strategy, determining strategic direction, and coordinating intricate tasks.

As a member of AB Vista's management team, Rodrigues's new role will see her overseeing the company's global marketing operations, assisting with global business expansion, and advancing the company's customer-centric strategy.

"I am delighted to be taking up this

position at such an exciting time in the company's development, as we look to expand our feed intelligence offering to existing customers and reach new customers around the world," stated Rodrigues, who will be moving to Europe from Brazil.

"Raquel's experience and ideas will be hugely beneficial to our business, and we are looking forward to her joining our team," stated Juan Ignacio Fernandez, Managing Director of AB Vista.

"Choosing a Global Marketing Director is essential to our plan to become a global leader in feed additives," he continued. By assisting clients in enhancing the nutritional content of meals and the intestinal well-being of animals, we are broadening the scope of our offerings in an effort to better address the growing problems posed by rising feed prices and the effects of animal illnesses.

"We are dedicated to increasing the industry's focus on sustainability and responsibility, and this appointment will help us expand our influence and global market share faster."

For more information, contact AB Vista on +44(0)1672 517 650 or [info@abvista.com](mailto:info@abvista.com).

## Aviagen Congratulates 2023 Nick French Prize Recipient Lotte Hebbink



Aviagen® is proud to announce Lotte Hebbink as the deserving recipient of the prestigious Nick French award for 2023. Lotte, a Senior Incubation Specialist for Royal Pas Reform, impressed the audience with her winning presentation, "Exploring the Impact of External Egg Characteristics on Hatchability."



The award was presented during the Combined Workshop of the Incubation and Fertility Research Group (IFRG, WG6) and Physiology (WG12) of the World Poultry Science Association (WPSA), which took place Sept. 18-20 in Wroclaw, Poland. This event marked another successful collaboration between Aviagen and the IFRG, both deeply committed to advancing the global poultry industry through cutting-edge research and innovation. Notably, Eddy van Lierde, Aviagen Head of Global Incubation Services, served as a panelist at the meeting.

#### **Honoring Nick French – an industry legend**

Aviagen introduced the Nick French prize in 2019, illustrating the company's commitment to nurturing and supporting promising young poultry

professionals. At each annual IFRG meeting, the prize awards £500 and a certificate to the young scientist who gives the best presentation, intended to help them further their career in poultry science.

Lotte Hebbink expressed her gratitude to the Nick French award panel and shared her thoughts, stating, "Winning this award, combined with the enriching discussions following my presentation, has renewed my enthusiasm for continuing my research."

#### **Applauding the next generation who will shape our future**

IFRG President Ampai Nangsuay commended all presenters for their exceptional research contributions. "These bright young professionals

represent the future of our industry and are well-positioned to generate fresh knowledge and innovations, particularly in the fields of incubation and fertility, to further advance the poultry sector."

Eddy van Lierde, Head of Global Incubation Services at Aviagen, also praised Lotte for her thought-provoking presentation. "Lotte's research addresses a practical issue occasionally seen, related to egg formation, which directly impacts incubation results and, potentially, chick quality. Her work inspires us to delve deeper into potential causes of eggshell mottling, with the ultimate goal of preventing this issue for the benefit of our industry. Aviagen congratulates Lotte, as we continue to champion the pursuit of excellence in poultry science."

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Publishing Month:  
**January**  
Article Deadline :  
**28<sup>th</sup>, Dec. 2022**  
Advertising Deadline :  
**30<sup>th</sup>, Dec. 2022**  
Focus :  
**Winter Disease Management**

Publishing Month:  
**February**  
Article Deadline :  
**28<sup>th</sup>, Jan. 2023**  
Advertising Deadline :  
**30<sup>th</sup>, Jan. 2023**  
Focus :  
**Health & Nutrition Management**

Publishing Month:  
**March**  
Article Deadline :  
**26<sup>th</sup>, Feb. 2023**  
Advertising Deadline :  
**28<sup>th</sup>, Feb. 2023**  
Focus :  
**Vaccination & Immunization**

Publishing Month:  
**April**  
Article Deadline :  
**28<sup>th</sup>, March 2023**  
Advertising Deadline :  
**30<sup>th</sup>, March 2023**  
Focus :  
**Summer Management**

Publishing Month:  
**May**  
Article Deadline :  
**28<sup>th</sup>, April 2023**  
Advertising Deadline :  
**30<sup>th</sup>, April 2023**  
Focus :  
**Cold Chain Management**

Publishing Month:  
**June**  
Article Deadline :  
**28<sup>th</sup>, May 2023**  
Advertising Deadline :  
**30<sup>th</sup>, May 2023**  
Focus :  
**Feed Production**

Publishing Month:  
**July**  
Article Deadline :  
**28<sup>th</sup>, June 2023**  
Advertising Deadline :  
**30<sup>th</sup>, June 2023**  
Focus :  
**Layer Farming**

Publishing Month:  
**August**  
Article Deadline :  
**28<sup>th</sup>, July 2023**  
Advertising Deadline :  
**30<sup>th</sup>, July 2023**  
Focus :  
**Genetics & Breeding**

Publishing Month:  
**September**  
Article Deadline :  
**28<sup>th</sup>, August 2023**  
Advertising Deadline :  
**30<sup>th</sup>, August 2023**  
Focus :  
**Biosecurity Practices**

Publishing Month:  
**October**  
Article Deadline :  
**28<sup>th</sup>, September 2023**  
Advertising Deadline :  
**30<sup>th</sup>, September 2023**  
Focus :  
**Winter Breeding Management**

Publishing Month:  
**November**  
Article Deadline :  
**28<sup>th</sup>, October 2023**  
Advertising Deadline :  
**30<sup>th</sup>, October 2023**  
Focus :  
**Environment Control**

Publishing Month:  
**December**  
Article Deadline :  
**28<sup>th</sup>, November 2023**  
Advertising Deadline :  
**30<sup>th</sup>, November 2023**  
Focus :  
**Industry Outlook**

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