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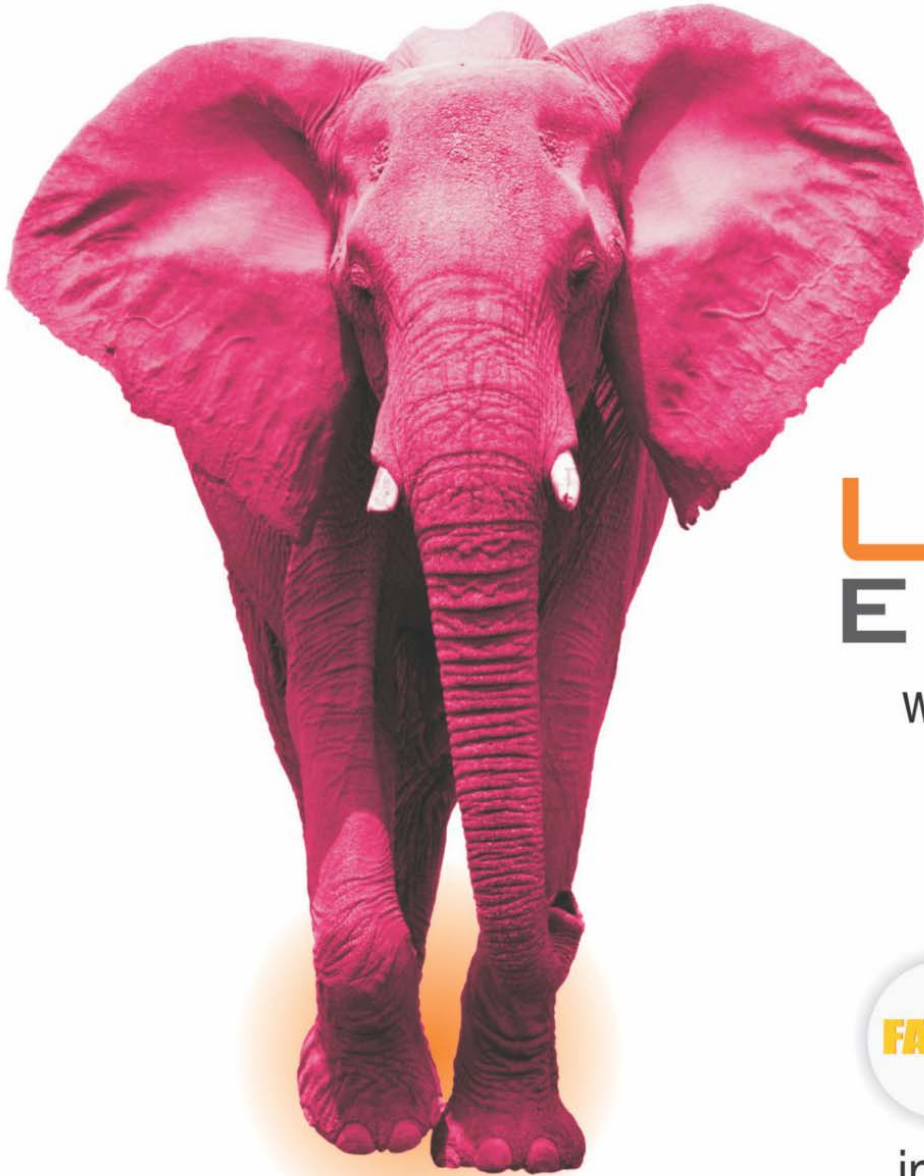
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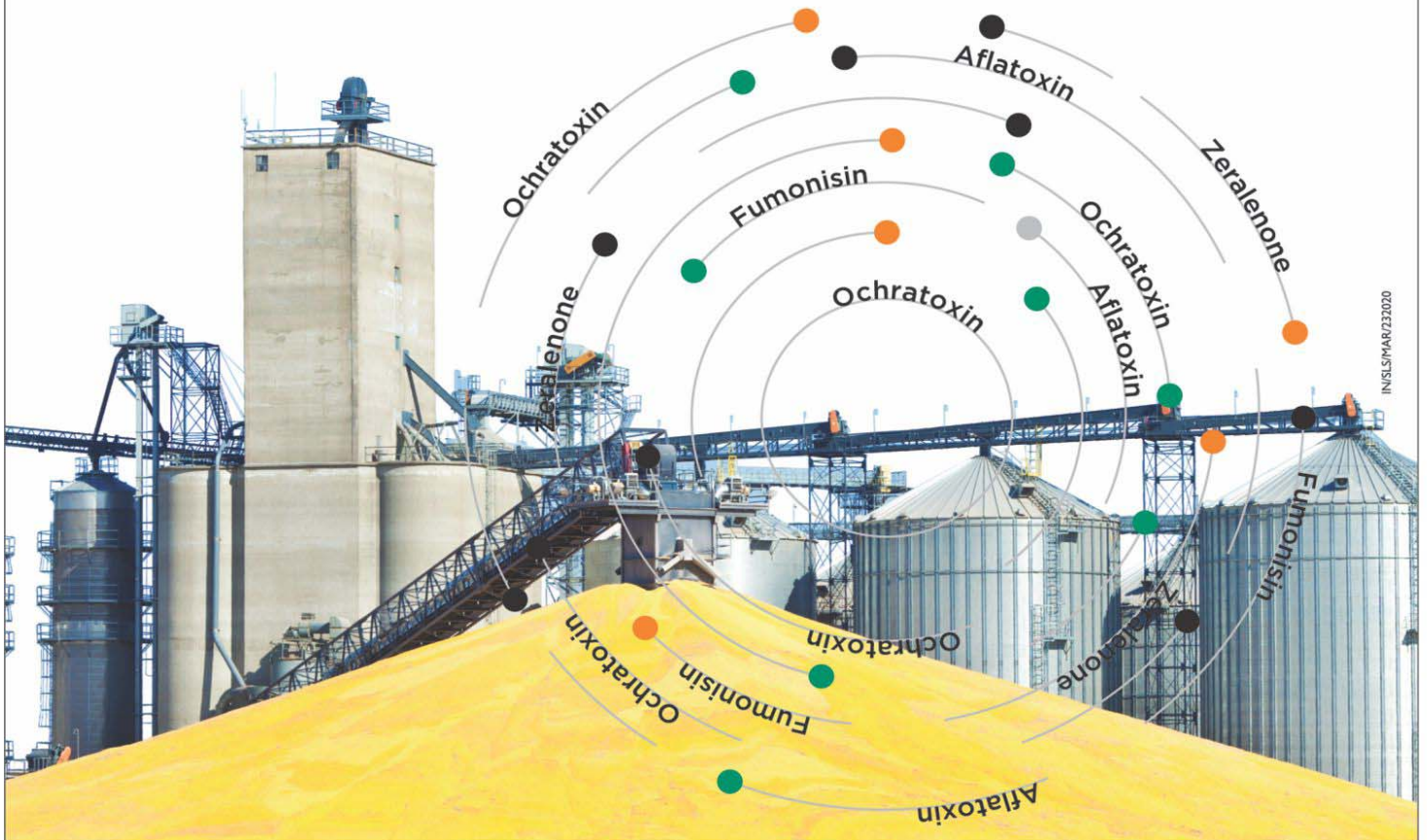
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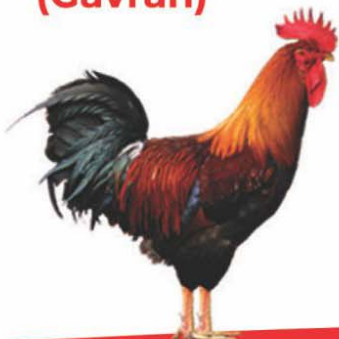


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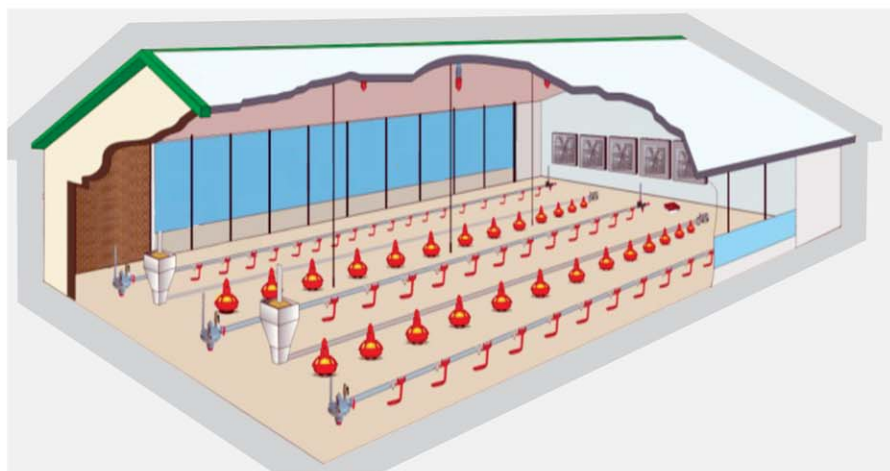
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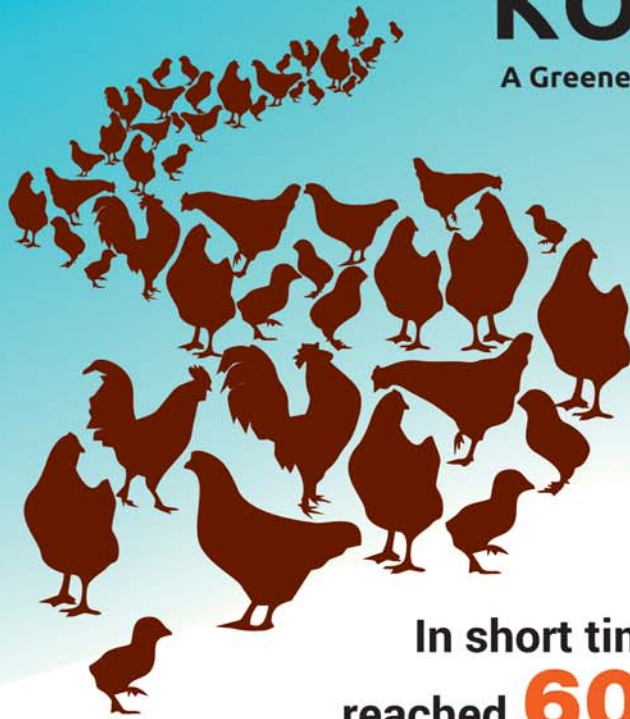


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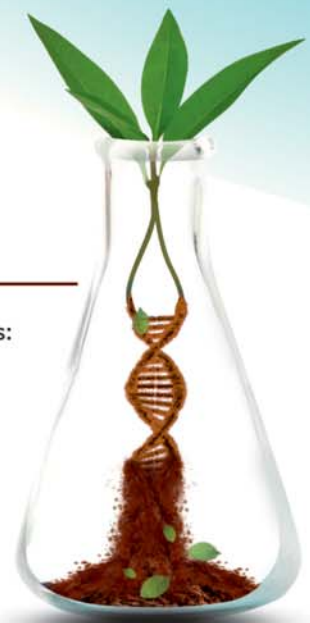
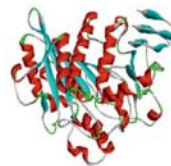
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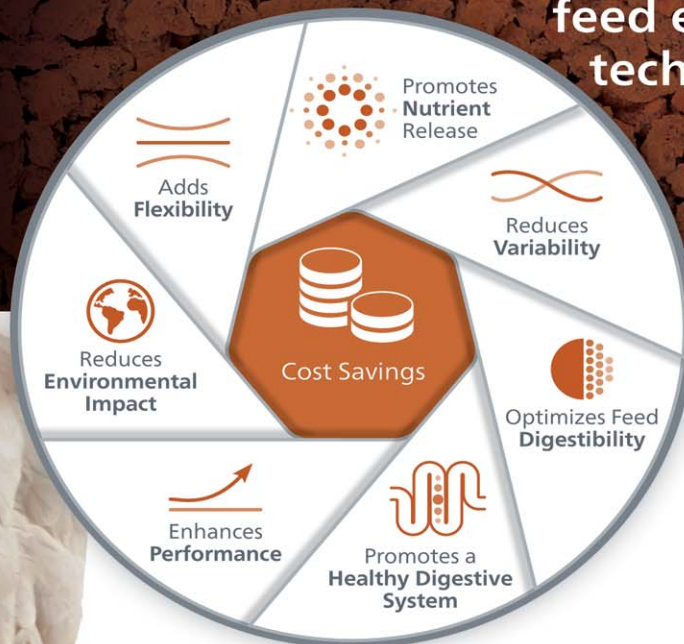
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Assisted Insemination in Domestic Fowl

Dr Kashmiri Begum, PhD Scholar, Department of Poultry science,
College of Veterinary of Science, AAU, Khanapara, Guwahati-22

Poultry producers over the years have used genetic selection and improved the nutritional management practices to increase the growth rate in poultry production, which in turn has certain detrimental effects on reproduction. There is a true need for improving the health care management and efficient breeding programme in poultry sector due to its considerable contribution in national economy. In this case, a great Assisted Reproduction Technologies (ART's), such as Artificial Insemination (AI) holds upper hand for improving the genetic efficiency in poultry. This technique contribute to increase poultry production, as it allows a wider use of genetically superior cockerels with a high productive performance and have the potential benefit of preservation of semen from these cockerels for future use and export.

Artificial Insemination (AI) is widely used to overcome low fertility in commercial turkeys, due to unsuccessful mating as a consequence of large and heavily muscled birds. Artificial insemination was first practiced in America during the 1920s. This technique was first successfully used in birds almost a century ago when Ivanov (1907) produced fertile chicken eggs using semen from vas deferens of cock. The two pioneers Quinn and Burrows, first reported the technique of intravaginal insemination.

Advantages of artificial insemination in the poultry

1. Increased mating ratio: Normally one cockerel can mated to six to ten hens. With artificial insemination, this ratio could be increased fourfold.
2. Older males having outstanding performance can be used for several generations. Whereas under natural mating, their useful life is limited.

3. Male birds with high genetic character having the leg injury can still be used for artificial insemination.
4. Elimination of preferential mating.
5. Transportation of semen at different region at a large scale.
6. Prevention of vertically and sexually transmitted diseases in poultry flock by using certified and good quality semen.
7. Production of hatching eggs is a costly problem due to reduced libido for which AI is practiced for overcoming such problem.
8. AI can serve as a good means for conservation of endangered avian species.
9. Under natural conditions, colour discrimination may occur as some hens will not mate with a male of a different colour unless they have been reared together. In such condition, AI helps in successful cross breeding.
10. AI solves the problem of using colony cages with several hens and one rooster that usually decreases the fertility rate.
11. Breeding experiments can be facilitated. Chickens, turkeys, guinea fowl, ducks, geese and quail are used in intra-species and inter-species insemination experiments.

The usual methods followed for collection of semen from birds are as follows:

Co-operative approach: In this technique co-operation from the donor birds is necessary which can be achieved by an external stimulus which are of behavioral, for example voice, nest and food. The lead point of this technique is that the bird is free from stress and injury as there is no handling. The major advantage of this technique is good quality

semen without contaminants like feces and urine. However, the quantity of the semen obtained will be less. The co-operative approach technique showed promising results with artificial vagina in case of Muscovy ducks, Emu, Quail and Ostrich.

Electro-ejaculation: This technique is commonly employed for ducks, geese, psittacines and pigeons where anaesthesia is used. The major drawback of this technique is contamination of semen with urine.

Abdominal massage technique: This is the most commonly accepted technique which involves massaging of the cloacal region in order to achieve phallic tumescence. Properly restrained male birds are stroked gently in the back region behind the wings which stimulates males with phallic engorgement at which state the cloaca can be squeezed to collect the semen. There may be however damage to the phallic as well as cloacal regions due to additional cloacal strokes.

Dose and frequency of insemination:

Chicken : 0.05 ml, once in a week

Ducks : 0.03 ml once in every 5 days

Turkey : 0.025 ml once in every 2 weeks

Goose : 0.05 ml for every 7 days.

Techniques in artificial insemination

Prior to semen collection, the selected male birds should be examined for external parasites, diseases condition and treated accordingly. Clipping of feathers around vent area will give easy access to male organ. After collection of semen, insemination is done by transferring of semen samples directly into the oviduct of the hen by using small diameter glass or plastic tubes. Freshly collected semen samples can also be diluted with diluents to obtain desired spermatozoa concentration for multiple inseminations and long-term storage. There are two methods of semen deposition in poultry. These methods are the Intra-peritoneal insemination and vaginal insemination. Vaginal insemination is the

commonly used method. It involves everting (turning inside out) the cloaca to expose the reproductive tract of the female. With the aid of straws or syringes semen (80-100 million spermatozoa) is deposited in the vaginal orifice (to the depth of 2-4 cm or close to the sperm storage tubules). The depth of insemination actually depends upon the species and length of the bird's vagina. Inseminations should be carried out on two consecutive days at the first week and then once each week thereafter while fertile eggs are required. As poultry semen has a very limited life span, insemination of hens should be done within one hour of semen collection. Usually, AI is carried out in the late afternoon because at this time the incidence of the hard-shelled eggs in the uterus of the hens is rare.

Microscopic evaluation of semen

Normally the sperm cell consists of a head, midpiece and tail portion. The head contains the nucleus, which is the genetic contribution to the offspring. Semen should be routinely examined for concentration, motility and viability. Evaluation of sperm motility is conducted with fresh and extended semen, under the light microscope (10× magnifications). Evaluation of raw semen gives the performance of the sperm in its own accessory gland fluid, which is often hindered to distinguish individual sperm motility patterns. So aliquot of semen is usually used as extenders prior to evaluation. Diluents are buffered salt solutions used to extend semen, they maintain the viability of spermatozoa in vitro, and maximize the number of hens that can be inseminated. Diluents should have the characteristics like maintenance of pH, osmolarity and the provider of energy for the sperm. The motility and metabolic rate of sperm can thus be altered by decreasing the diluent below pH 6.0. Sperm motility can be progressive (forward and rapid) or nonprogressive (random movement or oscillations) movement. Sperm mobility assay has gained popularity as an ability to produce highly mobile sperm. Assay defines the ability of sperm

Pattern of Sperm motility	Sperm tail	Sperm head	Sperm movements and progression
Vibratory circular	Slow or rapid quivering from side to side, vibrations of various types and frequency bent in curved shape, immotile	Immotile or vibrating in one place	Motility without progression, perpendicular, oblique or horizontal clockwise or counterclockwise motion
Darting	Vibration with high velocity	Irregular, propelling, no rotation	Minimal and erratic, wandering path
Rotating	Undulations of small amplitude pass down tail	Whole sperm rotates around its axis, periodic flashing effect	Rapid forward progress in a straight line
Asymmetric head and /or flagella	Amplitude of tail wave is asymmetric at both sides	Irregular, propelling, usually no rotation	Circular orbits if rotational motile is absent

to move progressively against a viscous medium at 41°C that are more likely to fertilize an ovum than less mobile sperm. Sperm mobility assay is a powerful tool for the selection of the most fecund males to be used in AI.

Number of dead and abnormal spermatozoa in a sample should be less than 10%. Sperm viability can be determined by eosin-nigrosin stain under microscopic examination. Live viable spermatozoa remain white or colourless, on the black (nigrosin) background as their membrane is impermeable for the eosin and, dead spermatozoa take up the eosin stain, and appear pink under the microscope at 80x–100x magnification. After collection the spermatozoa starts losing its integrity and thereby cause reduced fertility. So, within 30-45 min of collection it is useful to dilute semen with proper diluents which would be economically viable and effective for insemination in birds. Using a semen diluent, the services of a superior male can be used maximally by the AI technique.

Sperm behavior in oviduct after AI technique

Hen store Sperm in Storage Tube that is located between the vagina and shell gland of the oviduct. Cockerel sperm are motile at a body temperature of 41°C for an interval of days to weeks following

ejaculation. Movement of sperm through the oviduct is achieved by smooth muscle contractions and accumulates in the mucosal folds and short tubular glands at the lower end of the infundibulum. Within 5 to 10 minutes after ovulation, sperm start to move to the genital disc on the surface of the ovum and undergo an acrosome reaction and hydrolyze the perivitelline layer. In chickens and the turkey sperm can spend a much longer period of time in the oviduct before fertilizing the egg yolk cell, up to 32 days in the chicken and 70 days in the turkey.

Threats concern with semen

Chances of microbial contamination of semen may be a major concern due to improper and unhygienic collection practices. Cockerel semen meant for AI may contain *Campylobacter* or *Salmonella* due to contamination of the diluents. These microbes present in the semen can also cause infertility. *Mycoplasma meleagridis* in turkeys is predominantly transmitted vertically from parent stock breeder. *M. iowae*, mostly spread in lay and also occurs following unskillful artificial insemination. Exclusion of Mycoplasmas from breeder flocks is the most effective way of preventing the negative impacts on poultry

producers. *Campylobacter* positive semen could provide a route in addition to fecal-oral, for transmission of *Campylobacter* from cock to the reproductive tract of hen. Diseases like Avian influenza, Newcastle Disease, Duck plague and Turkey Rhinotracheitis have also been a constant threat to the AI program in birds, due to ease of horizontal transmission and semen contamination. Transmission of Chicken anaemia virus via semen is also possible. Semen can also be contaminated with vertically transmitted pathogens viz., Egg drop syndrome-76 virus, Avian encephalomyelitis virus, Avian Reovirus, Avian leukosis virus, Infectious bronchitis virus, Newcastle disease virus, Avian rotavirus, Infectious bursal disease virus, etc.

Conclusion

Healthy flocks are essential for a successful AI program in poultry. Provision of nutritionally balanced ration is inevitable for the production of healthy semen production in breeder toms and

cockerels. The personnel involved should have adequate knowledge of proper collection methods that may help in excluding microbial contamination. A clean and sanitized environment is a good insurance against disease outbreak. Traditional semen evaluation methods should be strengthened with molecular techniques. Surveillance and monitoring of major viral pathogens should be followed regularly to know the disease status. Judicious vaccination is a major strategy used by poultry producers for prevention of major poultry pathogenic microorganism that may affect the flocks kept for semen collection. Based on all these, it can be inferred that in near future, a strategic artificial insemination programme in birds will play a major role in developing and propagating economically viable poultry flocks. In conclusion, a rationale AI programme with certified semen, targeting for genetic improvement along with appropriate health strategies, will help revolutionizing the poultry farming and industry.

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EW GROUP announces the acquisition of Hygiena from Warburg Pincus to form a leading food safety, veterinary and environmental diagnostic solutions company

February 16, 2021 – Visbek, Germany / Camarillo, CA, USA – EW GROUP, a German strategic holding company in the field of animal breeding, health, nutrition and diagnostics, announced today the acquisition of Hygiena, a leader in food safety and environmental testing solutions. The terms of the transaction have not been disclosed. The transaction is expected to close in March 2021.

Hygiena, headquartered in Camarillo, California, USA, with 9 locations around the world, develops, manufactures and distributes food safety and environmental diagnostic solutions. The products are sold in over 100 countries to more than 10,000 customers. For two decades, Hygiena has been committed to providing accurate and easy-to-use diagnostic tests, supported by the most knowledgeable technical service teams in the industry.

“We have always been committed to providing the best-in-class diagnostics and customer support around the world. This new partnership with EW GROUP will accelerate our growth, enhance our global capabilities, and expand our portfolio of products for our customers,” said Steven Nason, CEO of Hygiena. “I couldn’t have imagined a better outcome for Hygiena and our Hygiena team. We are so excited to continue our mission within EW GROUP and look forward to joining forces with the BioChek and Biotecon teams. Warburg Pincus has been an amazing partner in our journey over the past four and a half years. I would like to thank them for their close partnership, invaluable contribution and strategic insight.”

The newly formed group of companies, under the Hygiena umbrella, will include BioChek, a global veterinary diagnostic company, as well as Biotecon, an innovator in PCR, GMO, ID and environmental

diagnostics. Both companies are subsidiaries of the EW GROUP, expanding Hygiena’s food safety portfolio with attractive molecular diagnostic capabilities, sample preparation as well as the veterinary diagnostic field.

“We are extremely excited about welcoming Hygiena to EW GROUP. Due to the outstanding leadership of Steve Nason and his team, Hygiena has become a leading player in the food and environmental testing space,” commented Jan and Dirk Wesjohann, both Managing Directors at EW GROUP. “We are convinced that the combination of Hygiena with our existing diagnostic activities will create a basis for substantial future growth.”

Thomas Struckmeyer, CEO of BioChek and Biotecon, is also enthusiastic: “With this acquisition and through the synergetic combination with our existing diagnostics businesses, we will create a leading player in food and veterinary diagnostics, providing a true ‘One Health’ approach from ‘Farm to Fork’ to the benefit of our global customer base.”

As part of the partnership, EW GROUP and Hygiena are committed, based on the EW GROUP principles, to invest in new technologies, R&D and international structures. Technical expertise will be leveraged amongst the companies to develop new products in diagnostics, accelerate development and further improve data interpretation and management software capabilities.

“We are excited for Hygiena’s next chapter of growth and know that they will continue to thrive in combination with EW GROUP, a partner that shares the same values, ensures a positive future for the entire Hygiena team and lays the foundation for an excellent outlook for future business development,” adds Stephanie Geveda of Warburg Pincus.

Houlihan Lokey and Citi served as financial advisors and Cleary Gottlieb Steen & Hamilton LLP served as legal advisor to Hygiena. Sidley Austin LLP and Moulton | Moore | Stella LLP acted as legal counsel for EW GROUP.

About Hygiena

Hygiena is a leader in rapid diagnostic solutions in the food & beverage, healthcare, pharmaceutical, water and other hygiene-focused end-markets. Our mission is focused on protecting people and products by delivering technologies that promote hygiene, sanitation and product safety. For more information, please visit hygiena.com.

About EW GROUP

EW GROUP is a strategic holding company based in Germany. The activities of EW GROUP are comprised of the business areas of poultry and aqua breeding, as well as animal health, nutrition and diagnostics (BioChek & Biotecon). EW GROUP operates 165 subsidiaries in 45 countries worldwide,

employing over 15,000 team members. For more information about EW GROUP's diagnostic business, please visit biochek.com and bc-diagnostics.com.

About Warburg Pincus:

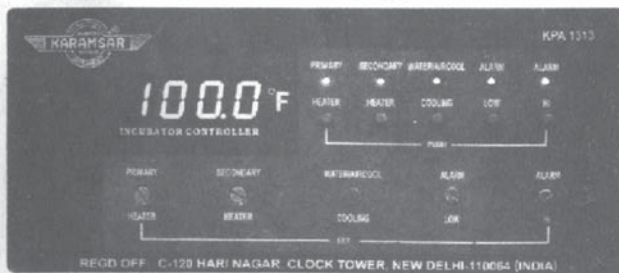
Warburg Pincus LLC is a leading global private equity firm focused on growth investing. The firm has more than \$58 billion in private equity assets under management. The firm's active portfolio of more than 195 companies is highly diversified by stage, sector, and geography. Warburg Pincus is an experienced partner to management teams seeking to build durable companies with sustainable value. Founded in 1966, Warburg Pincus has raised 19 private equity funds, which have invested more than \$89 billion in over 920 companies in more than 40 countries. The firm is headquartered in New York with offices in Amsterdam, Beijing, Berlin, Hong Kong, Houston, London, Luxembourg, Mumbai, Mauritius, San Francisco, São Paulo, Shanghai, and Singapore. For more information please visit www.warburgpincus.com.



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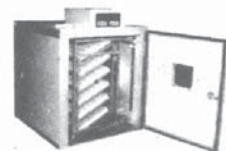
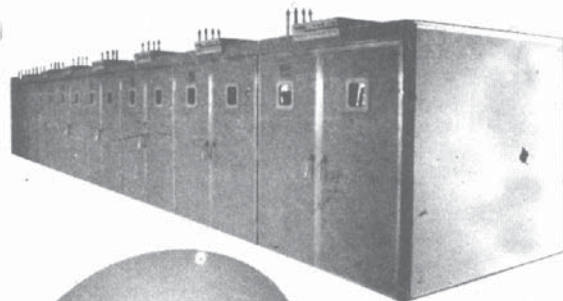
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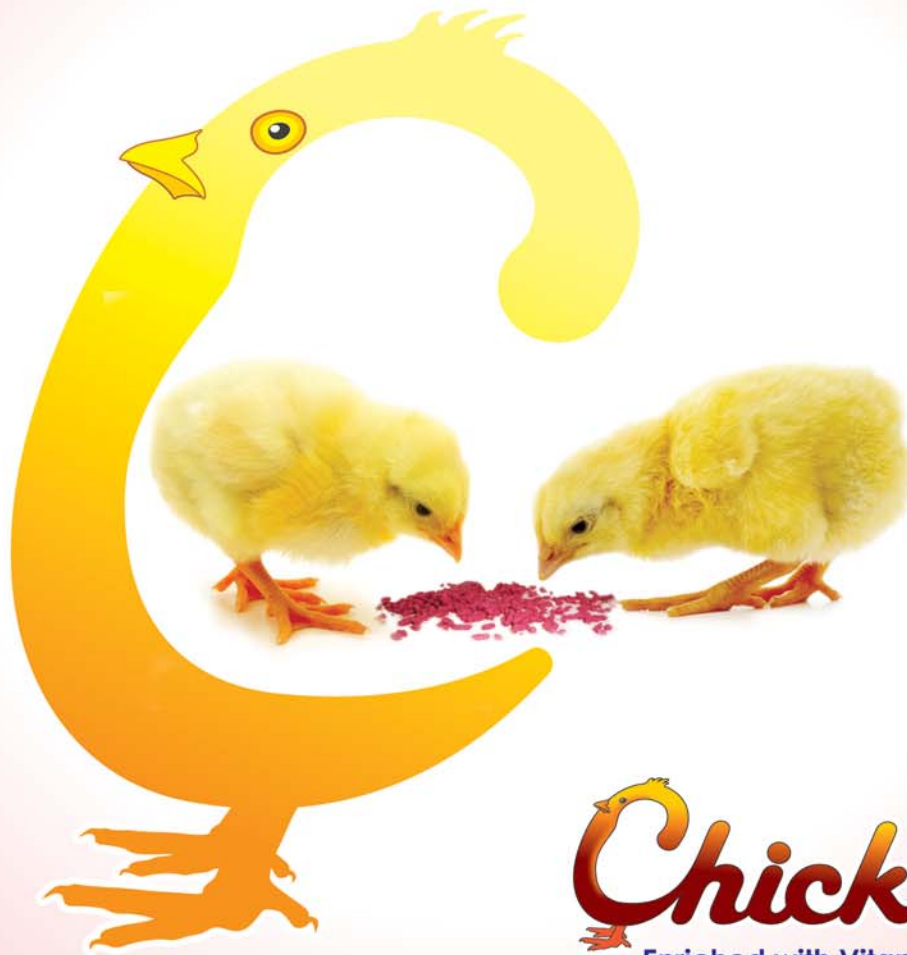


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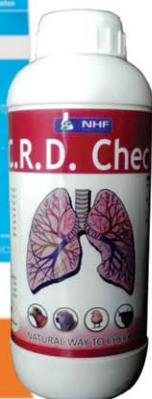
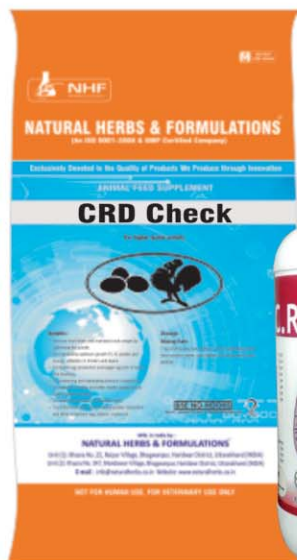
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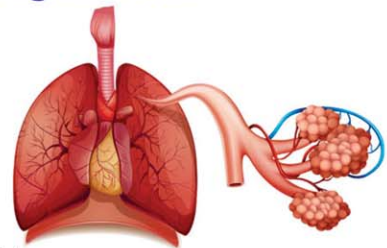
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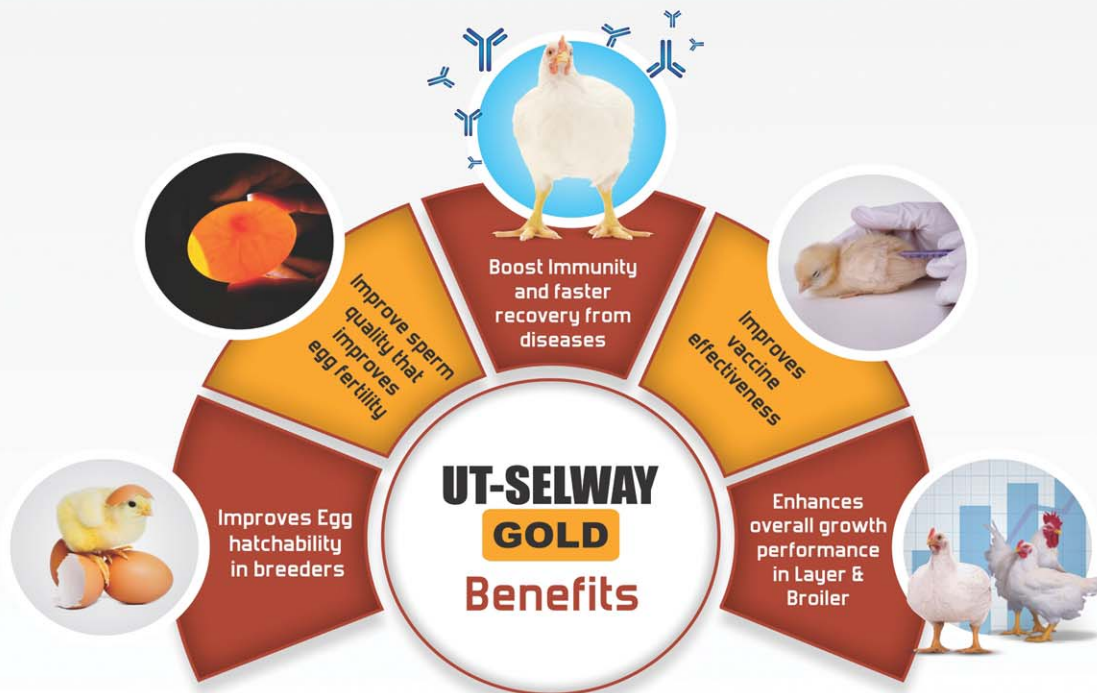
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Main Causes of Changes in Liver Coloration in Poultry

Manuel Contreras, DVM, MS, Diplomate ACPV, Nuscience/ Special Nutrients, Miami, Florida, USA

In many poultry markets around the world where chicken viscera are commonly sold in supermarkets, the appearance of the liver is very important for marketing purposes. Customers have a tendency to associate the health status of the birds with the color of the livers displayed in the shelves in stores. If the organ looks pale, yellow or congested, it is generally assumed that something went wrong in the farm and that the animal got sick before being slaughtered. In our case, we frequently visit slaughterhouses to identify the origin of these changes. Anatomically, the main structural unit that conforms the liver are microscopic cells called hepatocytes. When hepatocytes are loaded with fat or pigments, as a consequence of some of the elements that we are going to describe in this article, some changes in color will be observed. The main factors involved with coloration changes in young and adult commercial birds are the following: physiological, nutritional, ingestion of toxic substances, and/or management-related practices before slaughtering.

Physiological changes

During the first week of life, young chickens and turkeys normally have large amounts of fat and pigments (carotenoids) deposited in the liver as a result of the mobilization of the yolk content through the intestines. At this stage, it is normal to detect fat vacuoles (microscopic fat deposits) inside the hepatocytes. The yellow color present at birth can last several days, while the fat/pigments are mobilized from the liver to other parts of the body. Usually, after approximately seven days of age, the liver of a normal bird will show a mahogany-brown coloration. In adult birds, hens, the amount of fat in the liver increases before the point of lay because of the effect of estrogens, hormones present in higher levels once maturity is reached. Usually, most laying hens in a flock will show a pale brown or yellowish liver because all the fat and pigments

transported from the liver to the oviduct to form the yolk of the eggs (picture 1). Histopathology is a very important tool that can be used to establish a differential diagnosis when livers appear yellow or pale. It will allow the differentiation between the microscopic damage produced by physiological changes or intoxication with mycotoxins such as Aflatoxin, T2 toxin and/or Fumonisin.

Nutritional deficiency or imbalance.

Fatty liver and kidney syndrome (FLKS) associated with biotin deficiency. Gross lesions include the presence of pale, blotchy and enlarged livers and kidneys with some mortality, usually below 10%. Microscopically, fat infiltration is widespread in different organs. It has been mainly reported in broilers and pullets (layer-type) during the first 4 weeks of life. However older flocks can show the condition.

Fatty liver and hemorrhagic syndrome (FLHS). Characterized by yellowish, enlarged livers engorged with fat. The presence of hemorrhage in the abdominal cavity is typical but not always present. This syndrome is a metabolic disorder of hens as a consequence of a nutritional imbalance (energy/protein.) Feeding low protein-high energy diets or a ration containing an amino acid imbalance or deficiency, can be responsible for the syndrome. It has been well established that feeds with low levels of lipotropic factors, such as choline, methionine and vitamin B12, can result in fatty infiltration of the liver. Microscopically, the presence of vacuoles inside the hepatocytes of laying hens are normal. Hepatocellular fatty vacuolation (microscopic holes or blank spaces in the liver) or degeneration of hepatocytes refers to the excessive accumulation of globules of triglycerides and other lipid metabolites within the cytoplasm. Hepatocytes overloaded with lipids will produce necrosis. In commercial conditions, around 45 weeks of age, healthy flocks will include some hens



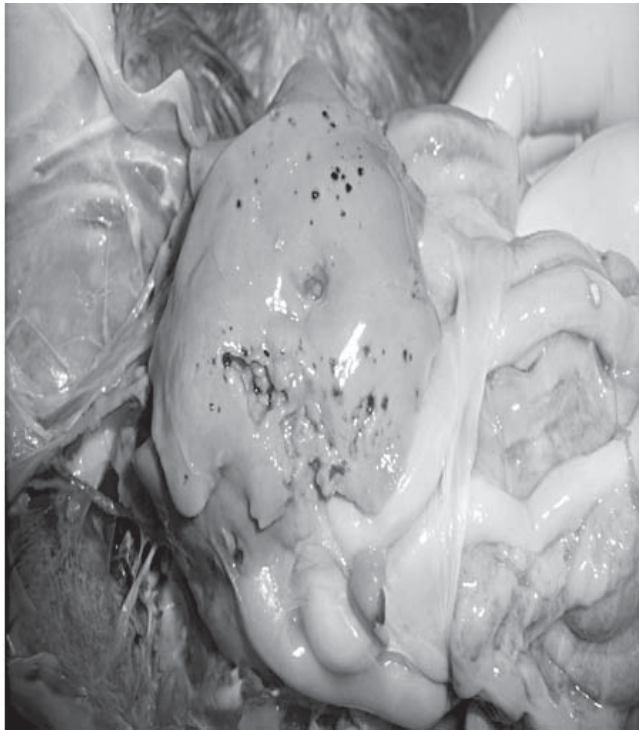
Picture 1. Normal liver (yellowish, pale) in a laying hen to the right and a dark brown liver of an out of production hen to the left.

affected by FLHS. This doesn't mean that the whole flock is showing the syndrome. The pale and yellow color of the liver, while characteristic, is not always specific to FLHS, since normal layers that are fed appreciable quantities of yellow corn or high levels of xanthophyll tend to show this coloration. Frequently, we are asked how to differentiate FLKS from an intoxication with mycotoxins. In the latter case, hens show a yellow liver with petechial hemorrhages without excessive abdominal fat deposits. If the syndrome is the result of a metabolic disorder, the abdomen will contain thicker pads of fat in the cavity. This is just a clinical observation that is not necessarily always present in field cases.

Toxic substances

Toxins as mycotoxins, heavy metals and some poisonous plants can have a serious effect on the physiological performance of the liver. Aflatoxin, one of the most toxic mycotoxins identified in nature, can cause fatty vacuolation and hepatocyte

necrosis. Also, bile duct epithelial hyperplasia and fibrosis can be detected. It is important to point out that Aflatoxin will affect the mitochondrial and protein synthesis capacity of the liver, which means that the organ will not be able to manufacture critical substances normally secreted by the body. Mycotoxins such as T2 toxin can also damage the hepatocytes causing hemorrhage and necrosis. The presence of pale bile content (bilis) is associated with Aflatoxin because of a reduction in amylase, lipase and biliary salts production by the liver. The final result is the presence of excessive levels of fat in feces (steatorrhea), which is difficult to detect grossly because chicken excrete urine and feces together through the cloaca. The bile also contains amylase, which aids in the digestion of carbohydrates as well as activation of the pancreatic lipase. Regarding the effect of Fumonisin in the liver, we must emphasize that even though the performance (gain weight, feed conversion, etc.) of the flock could be affected,



Picture 2. Liver of a 46-week-old brown layer fed a diet experimentally contaminated with 3 ppm of Aflatoxin for 41 days. Notice the presence of petechial hemorrhages in the surface of the liver and the lack of fat deposits in the abdominal cavity.

this toxin does not cause distinctive macroscopic changes in the liver, even when 100 ppm of Fumonisin were added experimentally to the diet in a scientific trial. Macroscopically (gross appearance), only certain degree of paleness has been reported. The damage to the liver is established by measuring the concentration of metabolites (biomarkers) of sphingolipids (*sphinganine/ sphingosine*) in the blood and a reduction in the concentration of protein in the blood. Microscopically, some scientific papers have reported hyperplasia of the bile ducts, as is reported in cases of aflatoxicosis.

Management practices.

Fasting before slaughtering

This is a factor that is more important and common in broilers because of the traditional management practices followed in this type of birds. Generally, the access to feed is interrupted for approximately

12 hours before broilers are slaughtered with the objective of reducing fecal excretion to avoid cross contamination during transportation and the possibility of fecal contamination of the carcass during automated evisceration in the slaughter houses. One of the consequences of fasting is the presence of changes in the color of the liver. Scientific reports have shown that full-fed broilers have lighter liver colors because of higher lipid content. Broilers fasted for 12 hours show darker livers because of lower levels of fat inside the organ. Other reports talk about the importance of deposits of glycogen in the liver and its effect of these element in the coloration of the liver is somewhat controversial. Glycogen is a very large form of glucose that can be broken down to yield glucose molecules when the bird needs it.

Post mortem evaluation

The gross appearance of the liver depends on the amount and distribution of blood inside the organ. When a chicken is bled before euthanasia by cutting the blood vessel located in the neck, jugular vein, the organ will look paler because there is less blood deposited inside the organ. On the contrary, if the chicken is not bled, the liver's appearance will be darker. These details make it more difficult to determine if the changes in color are the result of antemortem congestion or hyperemia. Once the livers are taken out of the abdomen and mixed with ice, you should notice that they look paler than when kept at room temperature.

In conclusion, there are many factors that must be taken into consideration when evaluating the cause of pale or yellow livers in broilers, pullets or hens. In many cases determining the etiologies of these changes are critical to maintain a high performance in some commercial flocks.



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Major viral diseases of poultry and its management

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Introduction

Most often, poultry farming gets a setback due to a widespread of diseases and attack by predators. Disease prevention is more important and economical than the cure of the disease. Certain diseases have the potential to decimate a region's poultry industry. Among these, viral pathogens cause devastating economic losses in poultry industries worldwide including India. When one of these diseases strikes, a quarantine or embargo could suddenly be placed on a region or nation. This could cause widespread economic hardship for both commercial and small flock owners. To protect their animals—and the poultry industry—flock owners must be able to identify diseases quickly to prevent them from spreading to other animals. The sooner a disease is identified and action is taken, the better. This article summarizes most important viral diseases of poultry prevalent in India and their possible control measures.

Avian Influenza

Avian influenza (AI) is a respiratory disease of birds. AI viruses can infect chickens, turkeys, pheasants, quail, ducks, geese, and guinea fowl, as well as a wide variety of other birds. Migratory waterfowl seem to be a natural reservoir/host for AI viruses. Type A influenza viruses are classified according to the severity of illness they cause. AI viruses can be classified into low pathogenic and highly pathogenic based on the severity of the illness they cause in birds.

- **Low Pathogenic Avian Influenza (LPAI):** Most AI strains are classified as LPAI and cause few clinical signs in infected birds. Birds with LPAI may appear healthy and without signs of sickness. However, LPAI can cause mild clinical signs, such as slight facial swelling and some respiratory symptoms. LPAI is monitored because two strains of LPAI—the H5 and H7 strains—can mutate into highly pathogenic forms.
- **Highly Pathogenic Avian Influenza (HPAI):** This is a very infectious and fatal form of the disease

that, once established, can spread rapidly from bird to bird or flock to flock. One gram of contaminated manure can contain enough virus to infect 1 million birds. Clinical signs of HPAI includes, sudden death without clinical signs, lack of energy and appetite, decreased egg production and/or soft-shelled or misshapen eggs, swelling of the head, eyelids, comb, wattles, and legs, purple discoloration of the wattles, combs, and legs, nasal discharge, coughing, and sneezing, Lack of coordination, diarrhea. HPAI typically causes severe illness with high death losses.

AI viruses spread primarily by direct contact between healthy and infected birds through respiratory secretions and feces. The disease can also spread through exposure of poultry to wild waterfowl, illegal international movement of birds, movement of people and farm equipment, smuggling of poultry and poultry products, contaminated poultry equipment (such as cages and crates, manure, vehicles, and egg flats) and people whose clothing or shoes have come into contact with the virus, direct bird-to-bird contact

Prevention and control measures:

House poultry indoors, avoid the use of farm ponds and bird feeders, avoid all contact with wild and domestic waterfowl, avoid live bird markets, control cats, rodents, beetles, insects, and other pests, seek diagnostic help on unusual deaths, avoid contact with your flock if working in poultry or swine processing, try to avoid sharing equipment and if you share or borrow equipment, thoroughly clean and disinfect.

Newcastle Disease/ Ranikhet disease (RD)

It is a highly contagious and fatal viral disease that affects all bird species. It is one of the most infectious poultry diseases in India. Newcastle Disease is so deadly that many birds die without showing any signs of disease. The disease is primarily transmitted by direct contact between healthy birds and the bodily discharges of infected birds, rapidly among birds kept in confinement,

such as commercially raised chickens and through exposure to virus-bearing material picked up on shoes, clothing, equipment, and vehicles.

Clinical signs of RD includes, sneezing, gasping for air, nasal discharge, coughing, greenish, watery diarrhea, depression, muscular tremors, drooping wings, twisting of head and neck, circling, and paralysis, partial to complete drop in egg production, production of thin-shelled eggs, swelling of tissues around the eyes and in the neck, sudden death and a high death rate in an infected flock.

Prevention and control measures:

One day old chicks should be vaccinated by dropping the antivaccine in the eyes and nostrils. After about two months, the chicks should be properly vaccinated and it is advisable to vaccinate the adult birds at least once a year. The suffering birds should be immediately isolated from the flock.

Marek's disease (MD)

Marek's disease is a neoplastic disease caused by an oncogenic herpesvirus. The virus infects lymphocyte cells that, in some cases, will become tumor cells and infiltrated in different organs and tissues of the animal. It has a worldwide distribution, so it could be said that all birds end up being exposed to the virus, although only a few cases develop the disease, usually the ones that are still very young and are not vaccinated or if there is a vaccinal failure.

Infected animals without symptoms are of primary importance since they are the ones that cause greater economic losses, due to poor growth of the animals, loss of uniformity and quality of the carcass, reduction in egg production, greater susceptibility to other diseases and worse response in other vaccinations. Symptomatology depends on the location of the tumours and appears in the rearing animals that are almost ready for production. There are three types of presentation of the disease: cutaneous, nervous or visceral. The cutaneous presentation appears as nodules at the level of the follicles of the feathers. Nervous presentation shows different signs depending on the peripheral nerve in which the lymphocytic infiltration occurs, although the most frequent is to observe flaccid paralysis of the legs due to unilateral affection of the sciatic nerve or blindness due to the effect of infiltration on the nerve. The visceral presentation with nodular lesions is what causes the general disorders and death of the animal.

Prevention and control measures:

A vaccine is available that is extremely effective (90 percent+) in the prevention of Marek's disease. It is administered to day-old chickens as a subcutaneous injection while the birds are in the hatchery. Use of the vaccine requires strict accordance with manufacturer's recommendations in a sterile environment.

Gumboro disease (IBD)

Gumboro disease, also known as infectious bursal disease (IBD), is an acute viral infection, caused by a birnavirus that, as one of its names indicates, it mainly affects the Bursa of Fabricius, destroying the immature B lymphocytes of young animals. Clinically, it is observed in chickens between 3 and 6 weeks old, which show depression and diarrhea. This diarrhea is the cause of dehydration, that affects the kidney and may cause the death of the animal. Younger birds suffer from a subclinical disease-causing immuno suppression, and thus increasing susceptibility to secondary infections and decreasing effectiveness of vaccines and productive parameters.

In cases showing clinical signs of the disease, diffuse hemorrhagic lesions are often observed in pectoral muscles and thighs. Hemorrhages and erosions may also appear at the level of the proventriculus-gizzard junction, as well as different degrees of nephritis or nephrosis. Lesions at the level of the Bursa of Fabricius are variable and depend on the evolution of the disease. Initially, it is enlarged and edematous, around 5 days post-infection it returns to its normal size, although it can be hemorrhagic until it finally atrophies.

Prevention and control measures:

Vaccines are available but must be carefully used. If given correctly, good immunity can be developed. There is no specific treatment for infectious bursal disease and indiscriminate medication with certain drugs may severely aggravate mortality. Supportive measures such as increasing heat, ventilation and water consumption are beneficial.

Infectious bronchitis (IB)

This viral disease, exclusive of chickens, is confined to the respiratory system and the urogenital tract. There are different strains of the virus, with greater or lesser affinity for the systems named before. This virus has high mutagenic capacity, hence the main difficulty to fight against it, because vaccination does not guarantee to

be resistant to the disease. Most visible signs are those of the upper respiratory tract (sneezing and nasal discharge), but the condition of the ovaries is of greater importance, since it produces a marked decrease in the egg production and an increase in poor quality eggs (deformed or without shell). When kidneys are affected, a significantly increase in water consumption may appear, resulting in watery stools and wet litter.

According to all that it is mentioned above, the most frequent lesions caused by this disease are: serous, hemorrhagic, catarrhal or caseous exudate in trachea; pneumonia and/or opaque air sacs with possible caseous material; atrophied ovary and inflamed oviduct and interstitial nephritis, where kidneys are enlarged and pale.

Prevention and control measures:

Infectious bronchitis is highly contagious and does not always respect sanitary barriers. Vaccinate chickens being retained as layers. Numerous vaccines are available commercially. Most of them represent a modified or selected strain of the infectious bronchitis virus. The vaccine used should contain virus known to be present in the area. All vaccines contain live virus and those that give the best protection are also capable of producing symptoms and reducing egg production. The vaccine virus will spread to other susceptible birds. Vaccine is usually added to the drinking water, but may be dropped into the eye or nostril or used as a spray.

Infectious laryngotracheitis (ILT)

It is a respiratory disease caused by a herpes virus that could appear in different presentations: per acute, subacute or chronic. Due to this, clinical signs vary from an extreme severity, with deaths by asphyxia, to a very mild symptomatology, that is not possible to differentiate from other respiratory diseases. This virus causes fibrinous and hemorrhagic infiltration of the respiratory tract, so the presence of blood in the trachea, sinuses and oral cavity makes breathing difficult. In the postmortem examination, fibrinous, necrotic, caseous and/or diphtheritic plaques and plugs are found in the trachea, larynx and mouth.

Prevention and control measures:

In endemic areas and on farms where a specific diagnosis is made, infectious laryngo tracheitis virus is controlled by implementation of biosecurity

measures and vaccination. Vaccination is done with live attenuated vaccines and viral vector recombinant vaccines.

Fowl pox or avian pox

It is a moderate to severe viral disease, with a slow development, caused by a poxvirus. This virus induces a rapid growth of superficial layers in the skin and mucous membranes that form masses of proliferative tissue. The disease has two presentations depending on its location: cutaneous or "dry" form, on the skin without feathers, or diphtheric or "wet" form, in the alimentary and upper respiratory tract. Both could evolve alone or simultaneously. Diphtheria injuries are more serious, as they can cause death from suffocation or starvation.

Infection may occur at any time of the year, however, is believed to exist an association between outbreaks of the disease and climatic conditions favorable to the abundance of mosquitoes, with rains and warm temperatures. Lesions vary according to the stage of development: papules, vesicles, pustules, or crusts, mainly in the region of the head. Diphtheric lesions are yellowish or whitish plaques that grow on the mucous shells of the nasal and buccal cavities, sinuses, larynx, pharynx, trachea or esophagus.

Prevention and control measures:

Chicks above four weeks of age should be vaccinated in the thigh with "pigeon pox vaccine". The 12-16 weeks old chicks should be vaccinated with "fowl pox vaccine" on the wings. On the sudden outbreak of this disease all the affected birds should be immediately isolated.

References

1. Alexander D.E. Paramyxoviridae. In: Pattison M., McMullin P., Bradbury J.M., Alexander D., editors. Poultry Diseases. Saunders Elsevier; Philadelphia: 2008. pp. 294–299.
2. Collett S.R. Principles of disease prevention, diagnosis, and control. In: Swayne D.E., editor. Diseases of Poultry. John Wiley and Sons, Inc; Iowa, IA: 2013. pp. 4–11.
3. OIE . Terrestrial Manual. International Standard Setting, seventh ed. World Organisation for Animal Health; Paris, France: 2013. Manual of diagnostic tests and vaccines for terrestrial animals: Avian influenza. pp. 436–454

New Dynamic Leadership Team at CLFMA OF INDIA 2020-2022

CLFMA of India is the apex organization and the voice of the country's dynamic livestock sector. The 54-year-old industry association is recognized as one among the highly reputed in India. CLFMA OF INDIA is well recognized by livestock farmers, Central and State Governments, government departments, Agricultural Universities, Veterinary Colleges and also National Research Institutes in India as well as outside the country.

On 1st February, 2021, CLFMA's Extra Ordinary General Meeting was held and the new leadership team took charge for the period 2020-2022. The outgoing Chairman Mr. S. V. Bhave expressed his appreciation and conveyed best wishes to the new team led by Mr. Neeraj Kumar Srivastava, World Area Director - SCA of Novus Animal Nutrition (India) Pvt. Ltd., who got elected as the new Chairman.

Mr. Bhave in his tenure was instrumental in developing a strong network with the Government especially with the Animal Husbandry Ministry and its departments. During the 52nd AGM & 61st Symposium held at Le Meridien, New Delhi, he was able to get Shri Giriraj Singh, Hon'ble Union Minister of Fisheries, Animal Husbandry and Dairying as our Chief Guest and other well-known speakers viz. Shri Atul Chaturvedi, Hon'ble Secretary, Department of Animal Husbandry and Dairying, GOI., Shri. Pawan Agarwal, CEO, Food Safety and Standards Authority of India (FSSAI), Government of India, to quote a few. During his period, the 5th Combined Feed Additive List was approved by GOI. He conducted around 14 successful Events (Seminars & Webinars) at pan India locations which was well appreciated.

Mr. S.V. Bhave outgoing Chairman said that, it was indeed a great pleasure to work with CLFMA as a Chairman and after 2 years and 4 months extra responsibility due to COVID 19 pandemic, CLFMA has decided to appoint Mr. Neeraj Kumar Srivastava, who is an accomplished, talented business leader having a proven record of successfully managing the businesses in Animal Health and Nutrition Industry. He has a great networking with all the industry stake holders including government authorities of the Animal Health and Nutrition sector - domestic and worldwide especially South Asia. As he is a Strong leader and talented professional with a Master of Science (M.Sc.) & MBA Marketing his experience and vision will be of great asset to CLFMA and under his Stewardship, we anticipate CLFMA would continue to grow to greater heights.

Mr. Neeraj Kumar Srivastava, Newly Elected Chairman thanked Mr. S. V. Bhave and said that, it was a great honour to be nominated as CLFMA Chairman, as CLFMA is a single leading voice of the Animal Husbandry Industry and promised to do his level best to help CLFMA work for the benefit of its members and the industry at large. He added that, he was truly honoured and thrilled to carry the great legacy of many distinguished leaders and which is more than 5 decades for serving our Industry. He promised to build and add to the best of his capacity towards the visibility of CLFMA, its image & reputation and working towards betterment of the livestock industry.

He also said that, Mr. Bhave's team has done a great job especially with regard to government engagements and conducting relevant seminars during his tenure.

CLFMA OF INDIA has over 230 members representing diverse subsectors of animal protein value chain including feed manufacturing, poultry, dairy and aquaculture business, animal nutrition and health, veterinary services, machinery and equipment, processing, distribution and retailing of meat and ancillary services such as banking.

**CLFMA OF INDIA Office Bearers
2020 – 2022**



Mr. Neeraj Kumar Srivastava
Chairman
Novus Animal Nutrition (India) Pvt. Ltd.



Mr. Divya Kumar Gulati
Dy. Chairman
Nurture Aqua Technology Pvt. Ltd.



Mr. Sumit Sureka
Dy. Chairman
Shivshakti Agro (India) Ltd.



Mr. Suresh Deora
Secretary
S. A. Pharmachem Pvt. Ltd.



Mr. Naveen Pasuparth
Treasurer
Nanda Feeds Pvt. Ltd.



Mr. S. V. Bhave
Immediate Past Chairman
Berg and Schmidt India Pvt. Ltd.



Ms. Chandrika Venkatesh
Executive Director

Following Office Bearers were elected for the period 2020 – 2022

1. Chairman : Mr. Neeraj Kumar Srivastava,
Novus Animal Nutrition (India) Pvt. Ltd.
2. Dy. Chairman : Mr. Divya Kumar Gulati,
Nurture Aqua Technology Pvt. Ltd.
3. Dy. Chairman : Mr. Sumit Sureka, Shivshakti Agro (India) Ltd.
4. Secretary : Mr. Suresh Deora, S. A. Pharmachem Pvt. Ltd.
5. Treasurer : Mr. Naveen Pasupathy, Nanda Feeds Pvt. Ltd.
6. Immediate Past Chairman : Mr. S. V. Bhave,
Berg and Schmidt India Pvt. Ltd.
7. Executive Director : Ms. Chandrika Venkatesh

The other members of the Managing Committee 2020 - 2022 comprises of:

8. Mr. Vijay Bhandare : Bhavani Agrovvet Pvt. Ltd.
9. Mr. Selvan Kannan : Noveltech Feeds Pvt. Ltd.
10. Dr. Prashant Shinde : Cargill India Pvt. Ltd.
11. Mr. Anil M : KSE Limited
12. Mr. Sujit Komarla : Komarla Feeds
13. Mr. Lakshmanan : Shanthi Poultry Farm Pvt. Ltd.
14. Mr. Ramakanth V. Akula : The Waterbase Limited
15. Mr. Sandeep Kumar Singh : Godrej Agrovvet Ltd.
16. Dr. Sujit Kulkarni : Trouw Nutrition India Pvt. Ltd.
17. Mr. Balaram Bhattacharya : Indian Herbs Specialities Pvt. Ltd.
18. Mr. R. Ramkutty : Niswin Enterprises
19. Dr. Devender Hooda : Huvepharma SEA (Pune) Pvt. Ltd.
20. Mr. Abhay Shah : Spectoms Engineering Pvt. Ltd.
21. Mr. Prashant Vatkar : Godrej Tyson Foods Ltd.
22. Mr. Nissar Mohammed : Coastal Exports Corporation (Co-opted)
23. Dr. Saikat Saha : Evonik India Pvt. Ltd. (Co-opted)
24. Dr. Vijay Makhija : Intervet India Pvt. Ltd. (Co-opted)

Mr. Suresh Deora, the New Secretary, CLFMA gave the vote of thanks and said that "The new team of CLFMA has an apt mix of experienced professionals which will strive to uphold the reputation and the legacy of CLFMA and work committedly towards its growth in the years to come. He concluded saying that the government engagements of CLFMA would be strengthened further and the new team will certainly work towards the overall development of the Animal Industry at large.

BROILER LIFTING RATES FOR THE MONTH OF JANUARY 2021

place	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Hyderabad	89	89	83	83	87	87	87	87	78	78	78	68	68	73	77	80	80	80	71	71	63	63	63	63	63	63	65	65	70	72	77	82
Karimnagar	89	89	83	83	87	87	87	87	78	78	78	68	68	73	77	80	80	80	71	71	63	63	63	63	63	65	65	70	72	77	82	
Warangal	89	89	83	83	87	87	87	87	78	78	78	68	68	73	77	80	80	80	71	71	63	63	63	63	63	65	65	70	72	77	82	
Mahaboobnagar	89	89	83	83	87	87	87	87	78	78	78	68	68	73	77	80	80	80	71	71	63	63	63	63	63	65	65	70	72	77	82	
Kurmoal	89	89	83	83	87	87	87	87	78	78	78	68	68	73	77	80	80	80	71	71	63	63	63	63	63	65	65	70	72	77	82	
Vizag	87	87	82	82	87	87	87	87	80	80	80	70	70	75	79	82	82	82	73	73	68	68	68	68	68	70	70	75	77	82	87	
Godavari	89	89	84	84	87	87	87	87	80	80	80	70	70	75	79	82	82	82	73	73	68	68	68	68	68	70	70	75	77	82	87	
Vijayawada	90	90	85	85	90	90	90	90	80	80	80	72	72	77	81	84	84	84	74	74	70	70	70	70	70	72	72	77	79	84	89	
Guntur	92	92	87	87	92	92	92	92	80	80	80	74	74	79	83	86	86	86	76	76	70	70	70	70	70	72	72	77	79	84	89	
Ongole	92	92	87	87	92	92	92	92	80	80	80	74	74	79	83	86	86	86	76	76	70											
Namakkal	90	90	90	90	92	92	92	78	72	77	77	79	81	81	81	81	81	81	81	74	72	64	64	65	67	71	74	76	76	80	80	

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CUM HE/HH	HATCHING EGGS ABOVE STANDARD
ACT 185.2 STD 168.4	16.8



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RESULT PERIOD	FLOCK SIZE	MEAN AGE (IDAYS)	BW
January-2021	1850	38	2.862 Kg

Mor%	CFCR	DAILY GAIN	EPEF
7.24%	1.445	75.32 gms	427

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Why Mycotoxins Matter in Broiler Production

The negative impacts of mycotoxins in poultry can be far-reaching, decreasing gastrointestinal integrity, immunity and performance in broilers and resulting in economic losses.

Given the high rates of mycotoxin in poultry feed, a mycotoxin risk management strategy is needed to protect fattening animals in all phases in order to reduce the challenges in the animal and ensure profitability of production.

by

Lorran **BaeumleGabardo**

Poultry producers frequently ask: What is the real impact of mycotoxins on the broiler's productivity? What sounds like an easy question is, in the case of mycotoxins, unfortunately not so easy to answer.



Three key considerations can help you evaluate the impact of mycotoxins on your broilers' productivity:

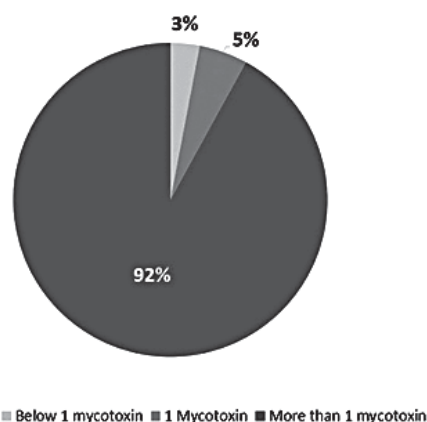
1. Contamination levels in the finished feed
2. Direct and indirect effects of mycotoxins in the animal
3. Performance parameters

Contamination in the broiler's feed

Mycotoxins are frequently found in **poultry feed**. According to the BIOMIN World Mycotoxin Survey, more than 8,000 samples of finished poultry feed tested positive for mycotoxins in the last five years (2016 – 2020). A closer analysis of this data shows

that 92% of these samples are contaminated with more than one mycotoxin, it can be founded as much as 40 to 50 mycotoxins in the same sample. Therefore, it is of utmost importance to interpret the whole picture and not just look at the effects of a single mycotoxin if you need to evaluate the risk in a broiler production (Figure 1).

A) Co-occurrence in broiler's feed



B) Mycotoxin occurrence and risk for broilers

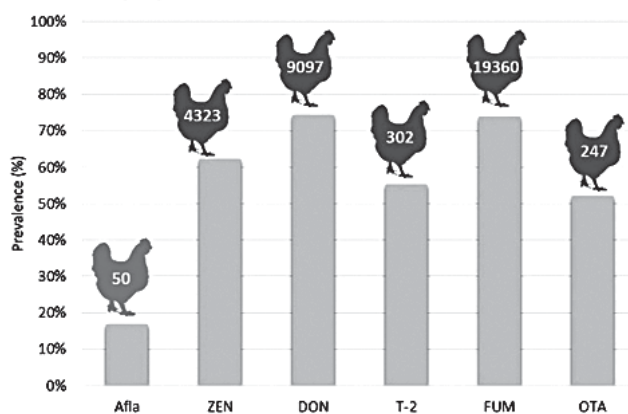


Figure 1. Mycotoxin presence in poultry finished feed (2016 -2020). A) Co-occurrence of mycotoxins. B) Mycotoxin occurrence and risk for broiler: % of positive samples for the respective mycotoxin are shown in the bars while maximum contamination found is expressed inside the broiler image (ppb). The colours express the risk level for broilers, red

being high risk and orange indicating moderate risk. (Source: BIOMIN World Mycotoxin Survey)

Testing the finished feed and/or their ingredients helps to evaluate the risk for the animal's health. The frequent presence of mycotoxins triggers the immune system of the animals, consequently reducing the performance of the flocks, what can be translated as a loss of profit for the poultry producers.

Mycotoxins in the broiler itself

Visible clinical signs in poultry such as **fatty liver**, beak erosions or cystic oviduct are not always clearly identifiable in broilers under field conditions, for two main reasons: First, the short life cycle of broilers means that problems may lurk within the animal but not have time to manifest outwardly. Second, the combined effects of more than one mycotoxin make the diagnosis of a mycotoxicosis more difficult. However, the major impacts of mycotoxins on immunity, inflammation, oxidation and gut health in poultry husbandry has been clearly proven in scientific trials.

Special attention should be paid to:

- **Mycotoxins' impact on gut health:** It is well proven that mycotoxins, especially deoxynivalenol (DON) and fumonisins (FUM), affect several aspects of intestinal integrity. A meta-analysis (Grenier and Applegate, 2013) showed a clear influence of DON and FUM:

- On the morphological structure of intestinal epithelium by destroying the villus;
- By reducing the tight-junctions between the intestinal cells, opening up the intestinal barrier to the bloodstream;
- By modulating the local immune response and the microbiota profile.

Collectively, these effects can compromise several intestinal functions, mainly reducing the absorption surface for nutrients and consequently harming digestion. Moreover, by increasing the permeability of the intestinal barrier, the entrance for pathogens, anti-nutritional factors and other toxins into circulation is facilitated. (Figure 2).

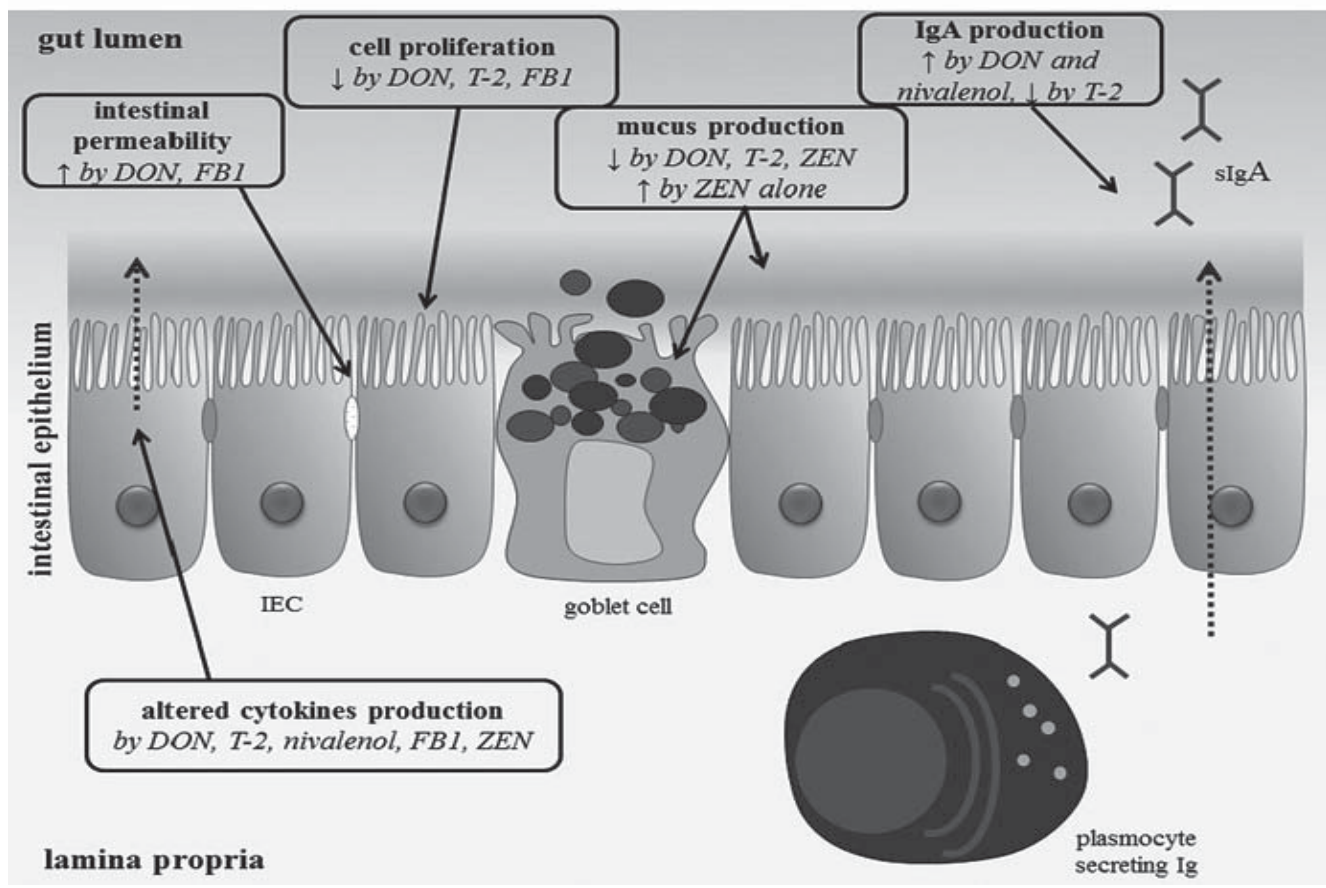


Figure 2. The effect of DON, nivalenol, fumonisin B1 (FB1), T-2 toxin and zearalenone (ZEN) on the intestinal epithelium. They alter the different intestinal defense mechanisms including epithelial integrity, cell proliferation, mucus layer, immunoglobulins (Ig), and cytokine production. (Source: Antonissen et al., 2014)

• **Mycotoxins as predisposing/trigger factors for health issues:** Antonissen et al (2014) evidenced that low to moderate doses of different *Fusarium* mycotoxins (DON, nivalenol, fumonisins, t-2 toxin and zearalenone) are predisposing factors to several important diseases in poultry production such as coccidiosis, salmonellosis, necrotic enteritis and colibacillosis. Combinations of DON, fumonisins and zearalenone were identified as reducing the *Eimeria*-induced immune response and the efficacy of the anti-coccidial treatment. The necrotic enteritis challenge is also increased when fumonisins and DON are present (Antonissen et al., 2012 and Antonissen et al., 2015). Evidence of a higher susceptibility to *Salmonella typhimurium* was also reported in the presence of DON and T2, suggesting that these compounds may modulate the bacterial metabolism. *E. coli* pathogenesis is influenced by fumonisins, stimulating intestinal colonization and translocation of *E. coli*.



• **Mycotoxins triggering the immune system and stressing the liver, with a cost on nutrients and energy for growth:** It is known that the liver is directly affected by most mycotoxins, causing a loss of function of the hepatocytes. In broilers, a visible fatty degeneration and an increase of approximately 15% in the liver weight were reported. This disturbance reflects an increased cost of nutrients and amino acids, specially methionine which is the

first limiting amino acid for broilers. To overcome this challenge a possible action would be to adjust the nutritional levels of the diet to the mycotoxin presence. By adjusting the formulation, you do not overcome the problem. You may alleviate the issue in the short term, however, this strategy results in a higher cost for the diets. Moreover, the dynamic profile of the mycotoxin contamination means it is not feasible long-term. The right approach is to use a mycotoxin deactivator in order to prevent nutritional losses without trying to guess how to manage nutritional changes in the diet.

• **Mycotoxins inducing vaccination failure due to interference with the immune system:** Modulation of immune response is one of the main modes of action of mycotoxins. They silently interfere with other sanitary aspects, such as the **vaccination efficacy**. Mycotoxins act as a contributing factor to reduce the immunity for viral diseases in broilers (Kamalavenkatesh et al., 2005; Hanif and Muhammad, 2015 and Yunus et al., 2012). Ochratoxin, DON, T2, cyclopiazonic acid significantly reduced the antibody titer for Newcastle disease virus (NDV), infectious bronchitis virus (IBV), infectious bursal disease virus (IBDV), and hydropericardium syndrome (HPS). This vaccination failure increases the susceptibility of birds to infectious diseases that could be avoided under normal conditions.

• **Mycotoxins' ability to facilitate bacterial contamination of carcasses:** As previously described, mycotoxins are able to reduce the thickness of the intestinal epithelium resulting in a 'leaky gut'. Once the junctions between intestinal cells are disrupted, an exchange of molecules happens between the intestine and the bloodstream. This condition can influence the carcass contamination in the slaughter house by:

- The excess of proteins in the intestinal lumen supporting the proliferation of pathogenic bacteria such as *E. coli*, *C. perfringens* and *Salmonella* sp,
- The higher amount of water in the gut lumen leading to more leaky excreta and higher contamination in the slaughterhouses,
- The damaged intestinal junctions letting pathogenic bacteria enter into blood circulation.

Therefore, preventing the establishment of a 'leaky gut' can be correlated with the reduction of economic

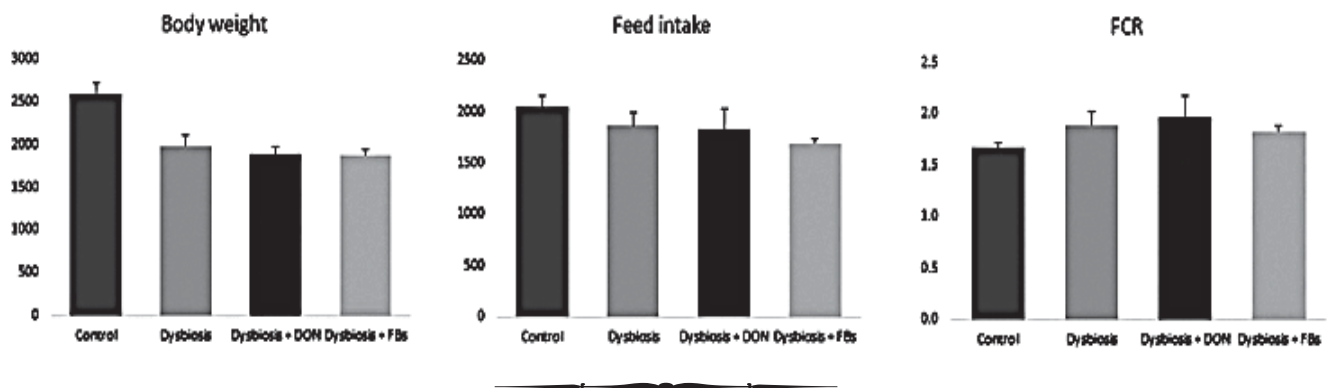
losses and enhancement of food security in the poultry industry.

Impact of mycotoxins on broiler's performance parameters

Performance is still considered one of the most important parameters in evaluating the success of the poultry production. Through this perspective, it is proven that mycotoxins can negatively impact zootechnical parameters in a broiler farm. A data compilation of scientific trials has shown that the presence of mycotoxins in poultry diets significantly reduced ($P < 0.05$) feed intake by 12% and body weight gain by 14%, resulting in an impaired feed conversion ratio of 7% when compared with non-contaminated groups (Andretta et al, 2011). This is mainly attributed to a diminished feed intake resulting in a lower protein deposition efficiency.

Furthermore, preliminary results from a cooperation project with the University of Ghent (Antonissen et al., 2018) show a synergistic negative effect between a dysbiosis challenged diet and additional DON (5 mg/kg) and fumonisins (20 mg/kg) on broilers' performance. Interestingly, this data also evidence that the decreased performance even is more evident in the final phase, reinforcing the impact of mycotoxins in the growth parameters in the last period of broiler's life cycle (Figure 3).

Figure 3. Performance parameters in day 39 of broiler chickens fed either a negative control, dysbiosis control, deoxynivalenol contaminated dysbiosis or a fumonisin contaminated dysbiosis diet. Bars represent means for the 7 replicates (pens) per treatment \pm SD. Within the same period, bars with different letters (a-b) differ significantly ($P < 0.05$). (Source: Antonissen et al., 2018)



An example of a realistic outcome also comes from recent data of Kolawole et al. (2020). In his long-term evaluation (18 successive trials) of a commercial farm, it was shown that natural contamination with levels below the EU recommendations for mycotoxins has a significant impact of 2.5 points in FCR (Figure 4), confirming the synergistic effects of the mycotoxins (fumonisins, zearalenone, DON and DAS) and the decreased broiler performance in commercial conditions.

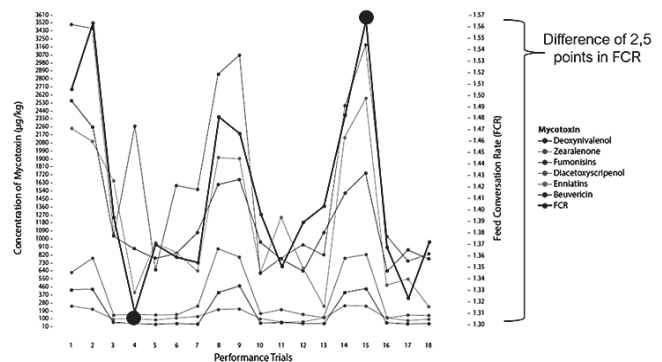


Figure 4. The difference between FCR (black line) in high and low contaminations of mycotoxins (colored lines) in broilers (Adapted from Kolawole et al., 2020).

- The negative impacts of mycotoxins can be far-reaching, decreasing gastrointestinal integrity, immunity and performance in broilers and resulting in economic losses. Due to the frequent occurrence of mycotoxins in poultry feed, a mycotoxin risk management strategy is needed to protect fattening animals in all phases in order to reduce the challenges in the animal and ensure profitability of production.



EW Nutrition Acquires Feed Quality and Pigment Business from Novus International

VISBEK (February 1, 2021) – EW Nutrition, a global provider of animal nutrition solutions, announced today that it has acquired the Feed Quality and Pigments business from Novus International, Inc. Under the terms of the agreement, EW Nutrition becomes the owner of world-renowned brands such as Santoquin® feed preservative, SURFÍ%ACE® feed mill processing aid, and Agrado® feed ingredient. The acquisition also gives EW Nutrition ownership of a state-of-the-art production facility in Constantí, Spain.

“This transaction will bring additional value to our customers, further reinforcing EW Nutrition’s global market position, and increasing its product portfolio and geographical reach,” says Michael Gerrits, Managing Director of EW Nutrition. “The products acquired will further support EW Nutrition’s mission to mitigate the impact of antimicrobial resistance by providing comprehensive animal nutrition solutions.”

Dan Meagher, President and CEO of Novus International, Inc., explained that the sale is part of Novus’s Project Destiny, a multi-year plan to transform the company into the industry’s leading provider in animal health through nutrition solutions by focusing its resources on core platforms and emerging technologies.

“We are pleased to have found a committed owner for these platforms so that they may continue bringing value to the industry,” said Meagher. “This event is a significant milestone in our Project Destiny journey. Now that our Feed Quality and Pigments platforms are in good hands with EW Nutrition, we are excited to focus our energies on

developing new, innovative technologies into meaningful nutrition solutions for our customers.”

The transaction was closed on February 1, 2021. A robust services agreement between the companies is governing critical activities to ensure customers are supported through the transition.

The financial details of the sale are confidential.

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About EW Nutrition

EW Nutrition is a global animal nutrition company that offers integrators, feed producers, and self-mixing farmers comprehensive, customer-focused solutions for gut health management, antibiotic reduction, young animal nutrition, toxin risk management and more. www.ew-nutrition.com

About Novus International

Novus International, Inc. is a leader in scientifically developing, manufacturing and commercializing animal health and nutrition solutions for the agriculture industry. Novus’s portfolio includes ALIMET® and MHA® feed supplements, MINTREX® chelated trace minerals, CIBENZA® enzyme feed additives, NEXT ENHANCE® feed additive, ACTIVATE® nutritional feed acid, and other specialty ingredients. Novus is privately owned by Mitsui & Co., Ltd. and Nippon Soda Co., Ltd. Headquartered in Saint Charles, Missouri, U.S.A., Novus serves customers around the world. www.novusint.com.

Contacts Novus International, Inc.: Elizabeth Davis, Elizabeth.Davis@NovusInt.com EW Nutrition GmbH: Pia Becker, Pia.Becker@ew-nutrition.com

Aviagen India Customers Surpass 500 PEF Milestone as Company Launches “Ross 308 AP Achiever” Award



Mr. Sandip Divekar and family, Japfa Comfeed

Feb. 11, 2021 – Udumalpet, India. – Aviagen® India customers continue to outdo their best and have recently reached a significant milestone — Performance Efficiency Factor (PEF) scores of greater than 500. In fact, many customers are seeing 400+ PEF numbers on a regular basis. (PEF is calculated with the formula: Liveability (%) X live body weight (kilograms) X 100 / age in days X Feed Conversion Ratio (FCR).)

Aviagen India customers go from strength to strength

These great results and the consistent progress in Ross 308 AP performance are due to the hard work, expert stockmanship and dedication of Aviagen India customers throughout the country. The

Aviagen India customer support team is committed to these dedicated farmers, and works hand in hand with them to help optimize the genetic potential of the Ross 308 AP, while increasing the efficiency and productivity of their businesses. To encourage and reward this star broiler performance, in Q4 of 2020 the team introduced the “Ross 308 AP Achiever Award” program, and has now recognized the five initial recipients.

And the winners are...

The following table shows the first five Ross 308 AP Achievers, along with the winning PEF, Feed Conversion Ratio (FCR) and Daily Weight Gain (DWG):

AP Achiever	Month	PEF	FCR	DWG (grams)
Yaheya Hussain, Srinivasa Farms	December	512.2	1.257	65.81
Mr. Amit, Indian Broilers	December	508.4	1.390	72.44
Thuleswar Dascha, Indian Broilers	November	478.5	1.433	71.92
Lokande Suresh, Baramati Agro	September	470	1.36	68.5
Sandip Divekar, Japfa Comfeed	October	451.6	1.460	69.5

“I am very happy with the Ross 308 AP bird. Because it has a healthy growth rate and good feed efficiency, it eats less and lives well. I’m looking forward to the next flock,” commented Lokande, who is a contract grower for Aviagen India’s customer Baramati Agro. “Thanks to Baramati Agro for their enthusiastic support.”

Coming soon...the “best of the best”

Aviagen will announce a new award recipient each month, and, in addition to PEF scores, will be tallying results for traits, such as daily weight gain, weight for age, FCR and liveability. The “best of the best” in these categories will then be recognized at an annual ceremony to debut in September, where top honors and awards will be presented, and a highest “Ross 308 AP Achiever” will be named.

“I congratulate all the winners for their tremendous success with Ross 308 AP broiler chicks, and am proud of their excellence in flock management and passion for their birds. Our dedicated customers deserve so much credit for the ongoing rise in performance and productivity, as well as outstanding health and welfare. They are a great example and encouragement to producers throughout India,” said Marc Scott, Business Manager of Aviagen India. “I look forward to seeing more great performance throughout the year and to honoring our top winners in September.”

About Aviagen: Since 1923, Aviagen® has been a preferred global poultry breeding company with a

mission to help its customers — the world’s chicken meat producers — supply sustainable, affordable and nutritious protein to their growing communities. Putting into practice its corporate value of “Breeding Sustainability,” Aviagen implements efficiencies that make commercial chicken production environmentally and socially responsible and economically beneficial to producers, while at the same time promoting bird performance, health and welfare.

To meet varied market demands, Aviagen offers a full portfolio of breeding stock under the Arbor Acres®, Indian River® and Ross® brand names. The Rowan Range® and Specialty Males® target slower-growing and other niche market needs. Aviagen is based in Huntsville, Alabama, US., with operations across the UK, Europe, Turkey, Latin America, India, Australia, New Zealand, Africa and the US, and joint ventures in Asia. The company employs close to 8,000 people, and serves customers in 100 countries.

For more information, please visit Aviagen.com, or follow Aviagen on LinkedIn.

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PRESS RELEASE

Bird-flu scare during the initial weeks of January, 2021 had adverse impact on poultry meat consumption. Swift action by the government in collaboration with state governments in dismissing rumours relating to consumption of poultry meat, helped to an extent in restoring consumer confidence.

Concrete measures are needed to ensure that rumours against consumption of poultry meat circulated at frequent interval are dealt with firmly through sharing of scientific information so that livelihood of millions of farmers and other stakeholders associated with the industry are not hit and poultry industry continues to contribute significantly towards India's economic growth

- Ricky Thaper, Treasurer, Poultry Federation of India

India has been reporting a few cases of Avian Influenza (AI) commonly known as 'bird flu' since 2006. In the first week of January, 2021, the Ministry of Animal Husbandry, Dairying and Fisheries had stated that 'bird flu' cases have been reported mostly in bird populations such as crow, migratory birds, ducks and goose birds.



Ricky Thaper

While reports of 'bird flu' not only impacted poultry meat industry in terms reduction in consumption, it also adversely hit other stakeholders like farmers growing maize and soya (used as poultry feed ingredients) as prices of these commodities declined because of lack of meat demand. Keeping in mind its impact on the poultry business, Ministry of Animal Husbandry, Dairying and Fisheries, Government of India took prompt actions and urged state governments to raise awareness amongst the consumers of poultry meat that its safe for consumption so that people are influenced by mostly fake news or rumours.

"The AI is a virus that can infect birds. India has been reporting the disease since 2006 and till date

there is no report of human infection. The country had controlled the disease effectively through culling. There is no scientific report available all over the globe that the infection of H5N1 or any other strain of Avian Influenza viruses spread through the processed products," Mr. OP Chaudhary, Joint Secretary, Ministry of Animal Husbandry, Dairying and Fisheries,

GOI, stated in his letter to all Principal Secretaries, Animal Husbandry from States and other officials. These are most welcome steps.

In a bid to convey the message about safety of poultry meat consumption, Animal Husbandry and Dairying Minister Shree Giriraj Singh Ji organized press conferences and made the statement that there have been no scientific reports on transmission of bird flu to humans and consumers should not be scared. This confidence building communications by Honorable Minister, Shree Giriraj Singh Ji was very much appreciated by the entire poultry industry.

The ministry of Animal Husbandry and Dairying requested state administration to issue instructions to concern State authorities and local administration against imposing a ban and allow selling of poultry products sources from one state to other state. However, the government in collaboration with industry must ensure that unfounded rumours as well as fake news against consumption of poultry meat is countered periodically with scientific studies. Even if bird flu incidents are not reported amongst poultry birds, its impacts consumption of meat because of unfounded or fake news circulated in the media. Millions of people are engaged in the poultry value chain and such news impacts livelihood as well as impacts overall economic growth of the country as poultry sector contributes significantly to the contribute India's GDP.

The World Health Organization also states that it is safe to consume poultry meat and eggs. According to the WHO website, there is no epidemiological data which suggests that the disease can be transmitted to humans through cooked food. The virus is destroyed at 70°C if held for about 3 seconds. Also, properly cooking meat or eggs to achieve a temperature of 74°C in eggs or all parts of meat will inactivate the virus. FSSAI urges the FBOs and consumers not to panic and ensure proper handling and cooking of poultry meat and eggs for its safe consumption.

In a welcome step, the Food Safety and Standards Authority of India (FSSAI) had issued

a guidance document (on January 21, 2021) on "Safe handling, processing and consumption of poultry meat and eggs during bird flu Pandemic" for creating awareness amongst Food Business Operators and consumers. Such communications create confidence amongst the consumers of poultry meat and prevent unnecessary panic created on the basis of false information about the poultry industry.

In India, the disease spreads mainly by migratory birds coming into India during winter months. However, it's the poultry industry which is adversely impacted as consumers reduce consumption of poultry meat notwithstanding that there are several studies which state that meat consumption is safe. Poultry industry, which is witnessing a healthy growth rate especially in the last two decades, faces a slump in the demand for meat because of false information being spread during the bird flu outbreak, which virtually disrupts the value chain adversely impacting the industry.

Thus, all the stakeholders in the value chain from poultry farmer owners to sellers along with the government agencies must ensure continuous awareness creation about the safety protocols being followed by the industry to dispel any doubts in the minds of consumers. This would prevent frequent volatility in the demand for meat because of few reports about bird flu and shall save livelihood of farmers as well as other stakeholders in the value chain.

M.A. Waheed



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Poultry Farmers & Breeders Association (MH)



To mark the 25th death anniversary of Padmashri Dr BV Rao, Poultry Farmers & Breeders Association (MH) has decided to start a 'Chicken and Eggs Promotional Campaign'. This year long campaign consists of various Chicken Awareness Programmes, Chicken Festivals, expert talks and many more which kickstarted on February 12.

As a part of this campaign, PF&BA on Friday had organised felicitation programme of Associate Dean of Bombay Veterinary College Dr Ajit Ranade. He was felicitated for his immense contribution for the poultry sector. Dr Ajit Ranade had taken great effort to aware common people how consumption of eggs and chicken is safe amid coronavirus outbreak. During coronavirus and bird flu outbreak Dr Ajit Ranade stood firmly behind all poultry farmers and through print as well as electronic media he clarified all doubts regarding chicken and eggs consumptions.

During his address Dr Ajit Ranade said, Bird Flu disease only found in birds only. Hence there is no need to be

panic for us." He further thanked our ancestors for our traditional cooking method, in which no virus can survive for 100 degree celsius temperature. At the same time, he also warned not to eat half cooked chicken, always prefer full cooked chicken.

PF&BA President C Vasanthkumar told that, because of rumors during pandemic there were drop in chicken and eggs consumption and now again because of bird flu there is drop in consumption. Hence to aware consumer we have decided to organise programme like this with the help of poultry experts."

PF&BA had also facilitated some media representatives as they had supported poultry farmers during pandemic. We are indeed grateful for all of your willingness to include us in your coverage in a positive during pandemic. Please extend our thanks to everyone involved.

Warm Regards
C Vasanthkumar
President PF&BA (MH)



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Sad demise of **Sri. M. P. Seshaiyah,** Chairman of Ratnam Poultry Group, Hyderabad



Portrait of late Sri M P Seshaiyah being garlanded at Santspa Sabha on 22nd Feb. 2021



Family members at Pedda karma

Mr M P Seshaiyah due to illness breathed his last at home at the age of 87 years on 8th February 2020 leaving behind him his son, daughter and five grand children.

During his life span, Mr M P Seshaiyah apart from his Ratnam Poultry Group worked as Ex President, A.P Poultry Federation, Ex- Director, Venkateshwara Hatcheries Pvt Ltd., and Founder EX –Director, Bharat Egg Producers Association. Throughout his career he devoted his all out services for the welfare of the Poultry Industry and remained in the hearts of thousands of poultry farmers.

We furnish hereunder his relentless services towards the betterment of the industry for the information of our readers:

Sri. **M.P Seshaiyah** born in the year 11 December 1934 in a small village of Vinjanampadu in Guntur District of Andhra Pradesh. He came to Hyderabad and completed his Bachelor of Arts degree and later was employed as Sanitary Inspector in Health Department of A.P.Govt. and remained in Govt. service from 1959 to 1973 with a remarkable work record.

He along with his wife Smt. M.Nagaratnamma started a small poultry farm way back in 1968 in Saroornagar, Hyderabad with 250 birds and put the title of his farm in the name of his wife as “Ratnam Poultry Farm”. He resigned from Govt. Service in 1973 and joined the business in full fledged form along with his wife. He later incorporated his business as “**RATNAM POULTRY PVT LIMITED**”.

Today Sri. M.P. Seshaiyah is one of the leading poultry farmers and an important poultry luminary having a vast experience of 50 years in the poultry industry.



1 minute mourn being observed by Mr E Pradeep Rao and others



Mr E Pradeep Rao addressing the gathering



Mr Suresh Raidu, Mr G Ranjit Reddy, Mr G Ramesh Babu and Mr M Damodar Reddy with Mr Sharat Babu S/o. Late Sri M P Sessaiah

He also started Bhagya Lakshmi Hatcheries Pvt Ltd., a layer breeding farm and hatchery which was a franchise of Venkateshwara Hatcheries Pvt Ltd. in 1980 and later was subsequently merged with Venkateshwara Hatcheries Pvt Ltd. Even after merger Sri. M.P. Sessaiah continued to work as its **Director** from 1981 to 2003. He was also very closely associated with Dr.B.V Rao, the Chairman of the **Venkateshwara Hatcheries** in the business and welfare activities of the industry.

He was one of the senior most and important leader of the Andhra Pradesh Poultry Industry and involved in the poultry farmer's welfare activities since his entry into the poultry industry. He has been a source of inspiration and support to thousands of farmers in the state. He has held various posts in **Andhra Pradesh Poultry Federation**, the premier poultry farmers body of erstwhile Andhra Pradesh as General Secretary from 1977 to 1980, as Vice President from 1980 to 1989 and as **President from 1989 to 2003**. It was during his 16 years of long tenure as President, the AP Poultry Federation has received fame, name and recognition not only from the poultry farmers but also among the State and Central Government and its agencies and Agricultural Universities. During his tenure he



Mr Ranjit Reddy paying tributes to late M P Sessaiah

achieved a lot of tax incentives and other benefits from the State Government for the poultry farmers and the industry. The AP Poultry Federation has its own office building at Hyderabad and properties at Vijaywada stands testimony to his efforts in building a strong organization for the poultry farmers.

Recognizing his yeomen services, in the year 2015, Poultry India has awarded him as **"One of the First Poultry Legend"**.

Until his last breath he was the Chairman of **Ratnam Poultry Pvt Limited**, and worked with an interest in poultry layer farms, broiler breeding & hatchery, agricultural and horticultural farms, aqua farms and real estate & construction.

The Poultry Federation of Telangana, NECC and Telangana Poultry Breeders Association under the chairmanship of Mr Errabelli Pradeep Rao has arranged a grand meeting inviting the poultry fraternity of the state in fond memory of his unforgettable services to the erstwhile state of Andhra Pradesh and the speakers on the dais including the Mr Sharat Babu, son of late Sri M P Sessaiah spoke high of his services and the meeting was culminated in a sumptuous lunch arranged by the Telangana Poultry Federation.



A.P.Poultry Federation paying tributes to Sri M P Sessaiah



Vishaka NECC Zonal Committee paying tributes to Mr M P Sessaiah



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Insights from global industry surveys revealed during the Alltech ONE Virtual Experience

10th annual Alltech Global Feed Survey estimates world feed production increased by 1% to 1,187.7 million metric tons
Women in Food & Agriculture Survey reveals progress toward inclusion, but highlights areas for improvement



[LEXINGTON, Ky.] –The January session of the Alltech ONE Virtual Experience launched on 26th, Tuesday with the 2021 Agri-Food Outlook, featuring insights supported by data from Alltech’s industry-leading surveys. The presentation, which is available on demand, highlights results from the 10th annual Alltech Global Feed Survey and the second annual Women in Food & Agriculture Survey. During the virtual session, Dr. Mark Lyons, president and CEO of Alltech, speaks with global industry experts to go beyond the numbers and explore the trends shaping the future of agri-food. The discussion focuses on five emerging trends and includes:

“China’s Rebound” with Jonathan Forrest Wilson, President of Asia, Alltech; and Winnie Wei Jia, Director of Customer Experience, Alltech China

“A Reshaping of the Supply Chain” with Eric Glenn, Global Purchasing and Supply Chain Director, Alltech; and Kathryn Britton, Senior Director of IMI Global Operations, Where Food Comes From, Inc.

“The Inexorable Rise of E-Commerce” with Anand Ramakrishnan Iyer, Digital Marketing Manager, Alltech

“Health-Conscious Consumers” with Nikki Putnam Badding, Director, Acutia and Human Nutrition Initiatives, Alltech

“Innovation Through Empathy and Inclusion” with Bianca Martins, General Manager, Alltech Mexico

“This has been an exceptional time for the agri-food industry,” said Dr. Mark Lyons, president and CEO of Alltech. “Agriculture stood strong in the face of adversity, and the global food supply chain continues to provide one of the most basic needs for human survival. The data and insights we have gathered reflect challenges, successes and extraordinary opportunities as we chart a course for the future.”

Results from the Alltech Global Feed Survey and the Women in Food & Agriculture Survey, including graphs and maps, are available on the Alltech ONE Virtual Experience platform in conjunction with the virtual session.

Alltech Global Feed Survey:

Now in its 10th year, the Alltech Global Feed Survey serves as an invaluable barometer for the

state of animal feed production. Fortified by a decade of documentation and research, it is the strongest evaluation of compound feed production and prices in the industry and is the most complete data source of its kind.

The 2021 Alltech Global Feed Survey estimates that international feed tonnage increased by 1%, to 1,187.7 million metric tons (MMT) of feed produced last year. China saw 5% growth and reclaimed its position as the top feed-producing country, with 240 MMT. Rounding out the top 10 feed-producing countries, including tonnage and growth percentage, are the U.S. (215.9 MMT, +1%), Brazil (77.6 MMT, +10%), India (39.3 MMT, -5%), Mexico (37.9 MMT, +4%), Spain (34.8 MMT, 0%), Russia (31.3 MMT, +3%), Japan (25.2 MMT, 0%), Germany (24.9 MMT, 0%) and Argentina (22.5, +7%). Altogether, these countries account for 63% of the world's feed production and can be viewed as an indicator of the overall trends in agriculture.

The global data, collected from more than 140 countries and more than 28,000 feed mills, indicates feed production by species as follows: broilers, 28%; pigs, 24%; layers, 14%; dairy, 11%; beef, 10%; other species, 7%; aquaculture, 4%; and pets, 2%. The predominant growth came from the broiler, pig, aqua and pet feed sectors.

Going beyond the numbers for a holistic look at the state of the industry, the survey also incorporates qualitative questions to uncover trends such as COVID-19, sustainability and antibiotic reduction.

The 2021 Alltech Global Feed Survey results, including species-specific feed production numbers, interactive graphs and maps, are available at one.alltech.com/2021-global-feed-survey.

Women in Food & Agriculture Survey:

Alltech believes that inclusion cultivates creativity and drives innovation. Gender equality is not only a

fundamental human right — it is also essential to advancing society and the global agri-food industry. To gather real-world insights into the professional landscape for women in agriculture, Alltech supported the second annual Women in Food & Agriculture (WFA) Survey in partnership with AgriBriefing and the WFA Summit. Launched in October 2020, the survey aimed to collect feedback that empowers the agri-food industry to create a more equitable workplace environment.

For meaningful change to be possible, the conversation itself must be inclusive, so the survey gathered insights from men as well as women. Responses from more than 3,200 participants representing more than 80 countries and all sectors of agriculture shed light on the current workplace environment, barriers to success and the outlook for the future. As 2020 ushered in unprecedented challenges, questions related to COVID-19 reveal its impact on the workforce specifically.

In the survey, more than a fourth (26%) of female respondents indicated that they are the primary caretakers for children or aging parents while working from home. Additionally, 21% of women working within the agri-food industry indicated that they are concerned that working from home will negatively impact their careers. Conversely, 13% of male respondents shared the same concern for their career.

With the majority (62%) of all respondents agreeing that the industry is becoming more inclusive, there is reason to be optimistic.

To access speaker insights from the 2021 Agri-Food Outlook and explore full data results from the Alltech Global Feed Survey and the Women in Food & Agriculture Survey, visit one.alltech.com/2021-agri-food-outlook.

-Ends-

For any queries on Global Feed Survey, please contact,

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About Alltech:

Founded in 1980 by Irish entrepreneur and scientist Dr. Pearse Lyons, Alltech delivers smarter, more sustainable solutions for agriculture. Our products improve the health and performance of plants and animals, resulting in better nutrition for consumers and a decreased environmental impact.

We are a global leader in the animal health industry, producing additives, premix supplements, feed and

complete feed. Celebrating 40 years in 2020, we carry forward a legacy of innovation and a unique culture that views challenges through an entrepreneurial lens.

Our more than 5,000 talented team members worldwide share our vision for a Planet of Plenty™. We believe agriculture has the greatest potential to shape the future of our planet, but it will take all of us working together, led by science, technology and a shared will to make a difference.

Alltech is a private, family-owned company, which allows us to adapt quickly to our customers' needs and maintain focus on advanced innovation. Headquartered just outside of Lexington, Kentucky, USA, Alltech has a strong presence in all regions of the world. For more information, visit alltech.com, or join the conversation on [Facebook](#), [Twitter](#) and [LinkedIn](#).

Free Lance Poultry Consultant

DR.MANOJ SHUKLA, a renowned poultry Veterinarian, with 20 years of enriched field experience, now started Free Lance Poultry Consultancy. In the past 20 years have contributed to the development of the hatcheries in various capacities of leading companies across India - Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh, Orissa, Bihar, West Bengal, Jharkhand, North-East, Uttar Pradesh and neighbouring country of Nepal.



His areas of expertise include:

- Commercial Layer Management.
- Commercial Broiler Management
- Nutrition (Feed Formulations).
- Breeder Management.
- Sales & Marketing of Day-Old commercial Layer chicks, Broiler chicks & Poultry Feed.
- Sales & Marketing of Broiler Breeder.
- Integration.
- Training to Field staff.
- Field Trial of Drugs & Feed additives.
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As a strategic partner, Poultry Line wishes Dr. Shukla every success in his new assignment

The use of feed additives based on Humic Acids in Poultry

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Abstract. Application of preparations based on humic acids allows to intensify the processes or metabolism of birds' organism, has a positive effect on health, productivity and product quality. The broad composition of the studied organic acids supplementation improves the digestibility of the ration and improves feed conversion. The use of preparations based on humic acids did not reveal their carcinogenic, teratogenic and allergenic properties. Humic acid activates the phagocytic function of white blood cells and strengthens the immune status of the organism.

Key words: preparations based on humic acids, poultry, mechanism of interaction, immune status, productivity and health of poultry.

Complex of measures aimed at productivity increasing and cost of poultry products reducing, the primary importance is attached to the usefulness of feed rations and the receipt of environmentally friendly products that do not harm humans.

Accordingly, one of the promising tasks is the search and testing of new, cheap and environmentally friendly feed supplements that stimulate the productivity of poultry, have a positive effect on health, and, consequently, on the safety of livestock. Biologically active preparations should serve as an alternative to medicinal and feed antibiotics, hormones, antioxidants and other additives that have the ability to accumulate residual amounts in poultry products.

Practice shows that producers of agricultural sector began to attract inexpensive, highly effective biologically active substances of natural origin, since they are the most accessible, non-toxic and have a desirable effect on the body of animals during

long-term use. These include feed preparations containing humic acids. Humic acids and their salts are natural biological compounds. They are formed in soil, peat, coal, shale, marine and lake sediments as a result of the decay of dead plant compounds, algae and other organic matter. Humic acids are poorly soluble in water; do not degrade under the influence of the environment, keeping the structure unchanged. The humus layer of the soil is saturated with such acids. They are found in small quantities in plants and products of plant origin, as well as in the meat of animals that eat plant food [5].

Humic acid for animals and poultry naturally plays the role of an organic supplement, which contains a huge complex of useful vitamins, amino acids, minerals and antioxidants. A huge amount of biologically active components in its content contributes to the fact that it can influence the cells and microenvironment simultaneously, which significantly increases the beneficial effect. Due to its broad spectrum of action, humic acid has a positive effect on all life support systems of any organism they enter.

The functional value of humic acids is in the fact that their molecules free of metabolic processes and high-molecular residues of their intracellular digestion create on the surface of a living cell an analogue of an active filter that binds heavy metal ions into stable chelate complexes, intercepts molecules of harmful substances of anthropogenic origin - pesticides, nitrates and other xenobiotics, binds free radicals formed in the plasma membrane as a result of lipid peroxidation.

In the process of interaction of humic acids with living cells, there is released energy, which is not directed to compensating an adverse effects of the

external environment, but is directed by cell to growth and reproduction, which ultimately leads to an increase in the competitiveness of the organism [23].

The influence of humic acids on the enzymatic activity of the digestive system of poultry has been experimentally proved. It is believed that improving the digestibility and assimilation of feed nutrients is associated with individual constituents of humic acids, which increase the activity of poultry digestive enzymes, and therefore, improving the digestibility of feed nutrients. In addition to the action of enzymes, humic acids also help break down food particles in the gastrointestinal tract and improve the digestion of nutrients by inhibiting the growth of pathogenic bacteria [13, 15].

The conversion of feed depends on the digestibility and assimilation of nutrients in the diet, i.e. the ratio of the amount of feed consumed to the unit of produced product. The results of humic acids application indicate a significant improvement in feed conversion in meat and egg poultry farming when using supplements based on humic acids [3, 9, 22].

The productive effect of humic acids was noted when they were used as a feed supplement in the diets of laying hens. In addition to improving the immune status, digestion and blood biochemical parameters, experiments showed a positive effect of humic acids on egg productivity, egg weight, shell thickness and feed costs [18, 19].

There were achieved positive results on the increase in live weight of broiler chickens without additional costs when using preparations based on humic acids. Otherwise, humic acids allow to save on feed due to better feed digestibility and provide the greatest gain in live weight of broilers [4, 7, 12, 17].

The study of organometallic complexes based on humic acids showed that replacing sulfuric acid salts of trace elements with more bioavailable chelating compounds with humic acids promotes

an increase in the productivity of broiler chickens and a decrease in feed costs per 1 kg of live weight gain [1].

At the slaughter of poultry fed with humic acids there was noted an improvement in the slaughter qualities of experimental broilers' carcasses: a better distribution of fat over the muscle tissue of the thigh of broilers, an increase in the slaughter weight of the bird and the weight of edible parts of the carcass [22].

Positive results are noted when using humic acids as enterosorbents. It turned out that due to their chemical properties, humic acids help to bind cations of heavy metals and at the same time improve the absorption by the body of animal salts of microelements that stimulate growth (zinc), prevent anemia (copper) and generally enrich the immune system, which gives animals the ability to effectively resist diseases. Moreover, the incorporation of humic acids increases the content of lactobacilli in the intestine and reduces the number of colibacteria, which stimulates resistance to viruses. Since the use of feed antibiotics is prohibited in many countries, humic acids are used as immunostimulants for the livability of poultry. Therefore, being on diets with incorporation of humic acids, there are acquired less sickness of poultry, more gain in live weight, and an increase in immunity [2, 6, 8, 10, 21].

Humic acids also serve as an excellent natural adsorbent. They are able to capture free radicals, heavy metal salts and other toxins, making the soil and living organisms healthy. Humic acids protect the liver from the toxic effects of aflatoxins, improving the performance of the liver, intestines, and changing the biochemical composition of the blood. The incorporation of humic acids to the diet reduces the level of uric acid and cholesterol in the blood serum of poultry and decreases the level of cholesterol in the yolk of eggs [11, 14, 16, 20].

Our laboratory studies held in the conditions of SSAU named after N.I. Vavilov, on broiler chickens with the use of environmentally friendly unmodified

microporous humic acids from Leonardite with a humic acid content of more than 80% of dry matter showed that the inclusion of such preparations contributed to an increase in the growth rate of broilers by 11.8% and a decrease in feed costs per 1 kg of gain by 13.5% compared to the control group.

Thus, domestic and international biological and chemical-toxicological studies in poultry have proved the positive effect of humic acids on the immune status, acceleration of feed fermentation, growth-stimulating effect on the productive qualities of poultry and the adsorption of harmful anti-nutrients and toxins that contaminate feed.

The analysis of the literature and our laboratory studies suggest that the natural organic complex based on humic acids produced by Life Force LLC in dry and liquid form will perform the best properties of humic acids when used in poultry.

Literature

1. Andrianova E.N. Chelates based on humic compounds in feeding of broiler chickens // Andrianova E.N., Egorov I.A., Shevlyakov A.N. and others - Poultry, No. 11, 2017, p. 12-16.
2. Buzlama, V.S., Dolgopolov V.N., Safonov V.N. The mechanism of action of preparations with humic substances / Results and prospects of the use of humic preparations in productive livestock, horse breeding and poultry // Collection of conference reports. - M., 2006. – S-24-33.
3. Vasiliev, A.A. Significance, theory and practice of humic acids use in livestock // A.A. Vasiliev, A.P. Korobov, S.P. Moskalenko, L.A. Sivokhina, M. Yu. Kuznetsov.-Agrarian scientific journal, Saratov, 2018, No. 1, p. 3 – 6
4. Dolgopolov, V.N. Experience of using Gumival to improve the productivity of cattle, pigs and poultry / Results and prospects of the use of humic preparations in productive livestock, horse breeding and poultry // Collection of conference reports. - M., 2006. –S-40-43.
5. Popov, A.I. Humic substances: properties, structure, education. SPb: Ed. St. Petersburg University. - 2004. - 248 p.
6. Stepchenko, L.M. Effect of sodium humate on metabolism and resistance of highly productive poultry. // Stepchenko L.M., Zhorina L.V., Kravtsova L.V. Higher school scientific reports. Biol. science. 1991 No. 10 (334).
7. Zhilyakova, T.P. The use of humic feed additive Humiton in poultry farming // Zhilyakova T.P., Kostesha N.Ya. Modern problems and achievements of agricultural science in livestock, crop production and economics: Sat. regional scientific and practical conference. - Tomsk, ed. UFO Print, 2006, Issue 9, pp. 84-87.
8. I. Herzig , M. Navrátilová , J. Totušek , P. Suchý , V. Veèerek , J. Blahová , Z. Zralý (2009): The effect of humic acid on zinc accumulation in chicken broiler tissues. Chech journal of Animal Science, Issue 54, 121-127.
9. Lala, A. O., Okwelum, N., Oso, A. O., Ajao, A. O., Adegbenjo, A. A. (2017): Response of broiler chickens to varying dosage of humic acid in drinking water. Journal of Animal Production, Issue 29 (1), 288-294.
10. T. Aksu, A. S. Bozkurt (2008): Effect of D Dietary Essential Oils and/or Humic Acids on Broiler Performance, Microbial Population of Intestinal Content and Antibody Titres in the Summer Season. Kafkas University Press, 185-190.
11. R. Y. Arafat, S. H. Khan, Saima (2017): Evaluation of humic acid as an aflatoxin binder in broiler chickens. Annals of Animal Science, Vol. 17, No. 1, 241–255.
12. A. Šamudovská, M. Demeterová. Effect of Diet Supplemented with Natural Humic Compounds and Sodium Humate on Performance and Selected Metabolic Variables in Broiler Chickens ACTA Veterinaria Brno 2010, 79: 385–393.

13. Karaoglu M, Macit M, Esenbuga N, Durdag H, Turgut L, Bilgin ÖC 2004: Effect of supplemental humate at different levels on the growth performance, slaughter and carcass traits of broilers. *International Journal of Poultry Science* vol. 3: 406-410.
 14. C. Jansen van Rensburg, C. E. J. Van Rensburg, J. B. J. Van Ryssen, N.H. Casey and G. E. Rottinghaus. *In Vitro and In Vivo Assessment of Humic Acid as an Aflatoxin Binder in Broiler Chickens*. 2006: *Poultry Science*, vol. 85, 1576– 1583.
 15. H. Ghahri, R.Habibian, M. Abdollah Fam. Evaluation of the efficacy of esterified glucomannan, sodium bentonite, and humic acid to ameliorate the toxic effects of aflatoxin in broilers. *Turkish Journal of Veterinary Animal Science* 2010, 34(4). 385-391.
 16. Bailey, R.H., Kubena, L.F., Harvey, R.B., Buckley, S.A., Rottinghaus, G.E.: Efficacy of various inorganic sorbents to reduce the toxicity of aflatoxin and T-2 toxin in broiler chickens. *Poultry Science*, 1998, vol. 77, 1623-1630.
 17. Nagaraju, B.S.V. Reddy, R. Gloridoss, B.N.Suresh and C. Ramesh. Effect of dietary supplementation of humic acids on performance of broilers. *Indian Journal of Animal Sciences*, 2014, vol. 84 (4): 447–452.
 18. Kucukersan S, Kucukersan K, Colpan I, Goncuoglu E, Reisli Z, Yesilbag D (2005). The effects of humic acid on egg production and egg traits of laying hen. *Vet. Med.* 50: 406-410.
 19. Hayirli A, Esenbuga N, Macit M, Lacin E, Karaoglu M, Karaca H, Yildiz L (2005). Nutrition practice to alleviate the adverse effects of stress on laying performance, metabolic profile, and egg quality in peak producing hens: I. the humate supplementation. *Asian-Austr. Journal of Animal Science*. 18: 1310-1319.
 20. S. Yalçın, A. Ergün, B. Özsoy, S.Yalçın, H. Erol and Ý. Onbapýlar. 2006: The Effects of Dietary Supplementation of L-carnitine and Humic Substances on Performance, Egg Traits and Blood Parameters in Laying Hens *Asian-Aust. J. Anim. Sci.* Vol. 19, No. 10 : 1478 – 1483.
 21. Islam, K. M. S., A. Schuhmacher and J. M. Gropp. 2005. Humic acid substances in animal agriculture. *Pakistan J. Nutr.* 4:126-134.
 22. Ozturk E, Ocak N, Coskun I, Turhan S and Erener G. 2010. Effects of humic substances supplementation provided through drinking water on performance, carcass traits and and meat quality of broilers. *Journal of Animal Physiology and Animal Nutrition (Berl)* 94: 78– 85.
 23. <http://www.dissercat.com/content/biologicheskoe-deistvie-guminovykh-kisloti-ego-prostranstvennaya-lokalizatsiya-v-pochve#ixzz4yhoXq3rq>.
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NATIONAL EGG CO-ORDINATION COMMITTEE

DAILY / MONTHLY EGG PRICES DECLARED BY NECC AND PREVAILING PRICES AT VARIOUS PRODUCTION CENTRES (PC) AND CONSUMPTION CENTERS (CC) FEBRUARY 2021

Name Of Zone / Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	Average	
	NECC Prices																													
Ahmedabad	421	421	421	400	400	402	405	410	415	425	435	445	450	452	452	455	457	457	440	430	430	432	437	442	445	445	445	430	432.11	
Ajmer	395	390	370	370	370	373	378	391	395	405	407	409	409	395	395	395	395	385	375	380	395	402	405	405	405	405	386	-	391.54	
Barwala	410	410	410	375	377	377	380	386	393	402	407	409	409	409	409	409	392	392	372	375	382	390	397	397	397	397	385	380	373	393
Bengaluru (CC)	395	400	400	400	400	400	405	410	415	420	425	450	460	470	470	470	470	470	470	450	450	450	450	450	450	450	450	450	450	437.5
Brahmapur (OD)	436	436	436	436	413	413	413	413	418	425	431	436	436	438	438	438	438	438	412	407	407	407	407	412	412	414	414	394	422.14	
Chennai (CC)	395	400	400	400	400	400	400	410	420	420	430	450	465	475	475	485	485	485	485	475	455	455	455	455	455	455	455	455	455	442.68
Chittoor	388	393	393	393	393	393	393	403	413	413	423	443	458	468	468	478	478	478	478	468	448	448	448	448	448	448	448	448	448	435.68
Delhi (CC)	425	425	425	411	400	400	400	400	405	405	421	421	421	-	-	421	421	421	407	395	395	402	410	412	417	417	417	401	-	411.8
E.Godavari	420	420	420	400	400	400	400	400	403	408	413	418	420	423	423	423	423	423	400	395	395	395	395	400	402	404	404	385	408.29	
Hyderabad	391	391	375	375	375	375	379	385	390	397	405	411	416	421	426	429	429	414	400	395	395	397	405	410	415	415	405	390	400.39	
Ludhiana	405	405	405	405	390	375	375	378	385	394	401	405	405	405	405	392	392	392	392	379	379	384	391	396	396	396	385	385	392.46	
Mumbai (CC)	444	444	444	425	425	425	425	430	435	440	445	455	460	465	470	475	480	480	465	465	445	445	450	455	460	465	-	-	450.65	
Muzaffarpur (CC)	452	452	452	443	443	443	443	443	443	443	448	452	457	457	452	452	448	448	443	438	438	443	443	448	448	448	443	438	433	444.86
Mysuru	397	402	402	402	402	402	407	412	417	423	428	463	473	473	473	473	473	473	473	453	453	453	453	453	453	453	453	453	453	440.18
Nagpur	400	400	400	400	390	390	380	380	420	420	420	430	437	437	437	437	443	444	430	420	420	420	424	440	447	-	447	-	419.73	
Namakkal	390	390	390	390	390	390	390	400	400	400	420	420	440	440	450	450	450	450	450	430	430	430	430	430	430	440	440	440	440	421.79
Patna	448	443	443	438	433	429	433	433	443	448	448	452	452	448	448	448	448	443	438	429	429	433	433	443	443	443	438	433	429	440.36
Pune	445	445	445	435	425	415	420	430	435	445	450	455	465	465	470	475	480	480	470	460	450	450	455	460	465	465	465	465	455	452.68
Ranchi (CC)	462	457	457	452	452	443	443	443	452	452	452	457	457	457	457	457	457	457	448	443	443	448	452	457	457	452	448	443	451.96	
Vijayawada	430	430	430	430	410	410	410	410	413	418	423	428	430	433	433	433	433	433	410	405	405	405	405	410	412	414	414	395	418.29	
Vizag	430	430	430	430	430	430	430	430	430	432	433	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435	433.21
W.Godavari	420	420	420	420	400	400	400	400	403	408	413	418	420	423	423	423	423	423	400	395	395	395	395	400	402	404	404	385	408.29	
Warangal	393	393	377	377	377	377	381	387	392	399	407	413	418	423	428	431	431	416	402	397	397	399	407	412	417	417	407	392	402.39	
Prevailing Prices																														
Allahabad (CC)	429	429	419	405	410	414	429	429	438	452	452	452	438	438	438	438	438	433	424	419	419	438	452	452	448	433	433	419	432.79	
Bhopal	395	395	395	395	385	387	387	405	410	410	425	425	425	425	425	425	425	415	405	415	415	415	425	425	425	425	410	-	412	
Hospet	360	365	365	365	365	365	370	375	380	385	390	410	420	430	430	430	430	430	430	410	410	410	410	410	410	410	410	410	410	399.46
Indore (CC)	400	385	385	385	385	385	385	385	415	435	435	425	425	425	425	415	415	415	410	410	410	427	430	427	427	410	-	-	410.62	
Jabalpur	412	412	410	385	385	388	400	407	417	427	431	433	433	436	437	437	437	425	410	410	410	417	428	432	432	415	417	-	417.89	
Kanpur (CC)	419	419	419	395	395	395	395	395	410	419	419	419	419	419	419	419	419	419	419	405	405	405	419	429	429	429	419	405	413.46	
Kolkata (WB)	485	485	485	485	475	450	450	450	465	470	480	480	483	483	483	483	483	463	450	450	450	450	450	455	457	459	444	424	465.25	
Luknow (CC)	450	450	450	450	433	433	433	433	433	433	440	440	440	440	440	440	440	440	440	440	440	440	440	440	443	443	443	443	440	440
Raipur	410	410	410	390	390	395	405	410	425	425	435	440	440	440	445	445	445	440	435	420	425	425	430	435	435	435	425	-	424.63	
Surat	426	426	426	410	410	412	420	430	440	450	460	470	470	470	470	470	470	470	470	450	450	450	455	460	465	465	465	455	449.46	
Varanasi (CC)	453	453	453	447	440	433	440	443	450	453	453	453	453	453	453	453	453	447	440	433	433	447	453	453	453	443	437	430	446.39	

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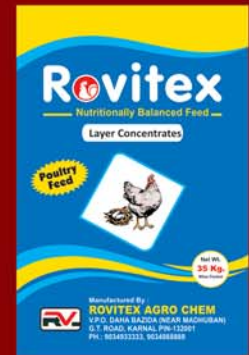
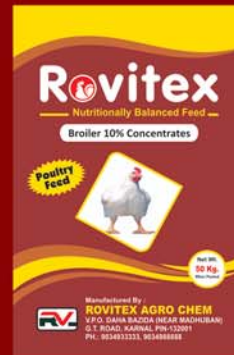
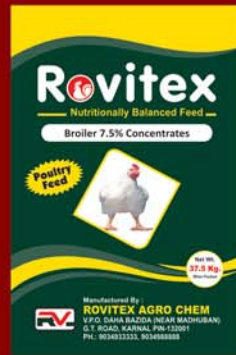
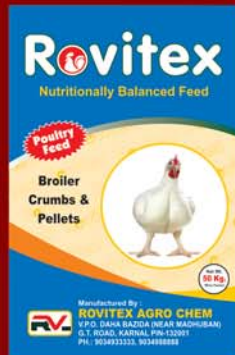
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- ❖ Broiler 7.5% Concentrates
- ❖ Broiler 5.5% Concentrates
- ❖ Broiler 3.5% Concentrates
- ❖ Broiler 2.5% Concentrates
- ❖ Broiler 1.5% Concentrates

Layer Concentrates:

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- ❖ Layer 10% Concentrates
- ❖ Layer 25% Concentrates
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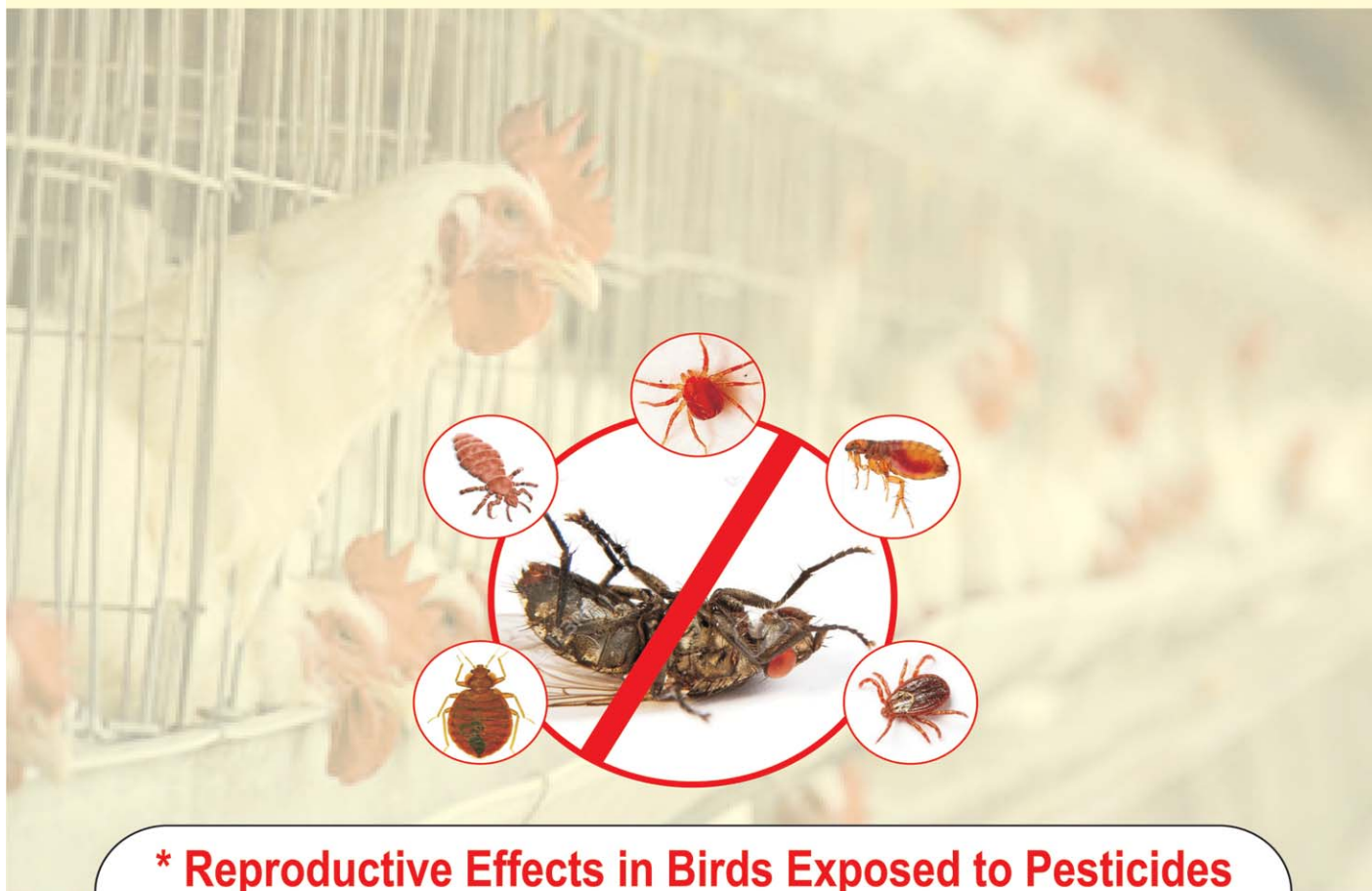


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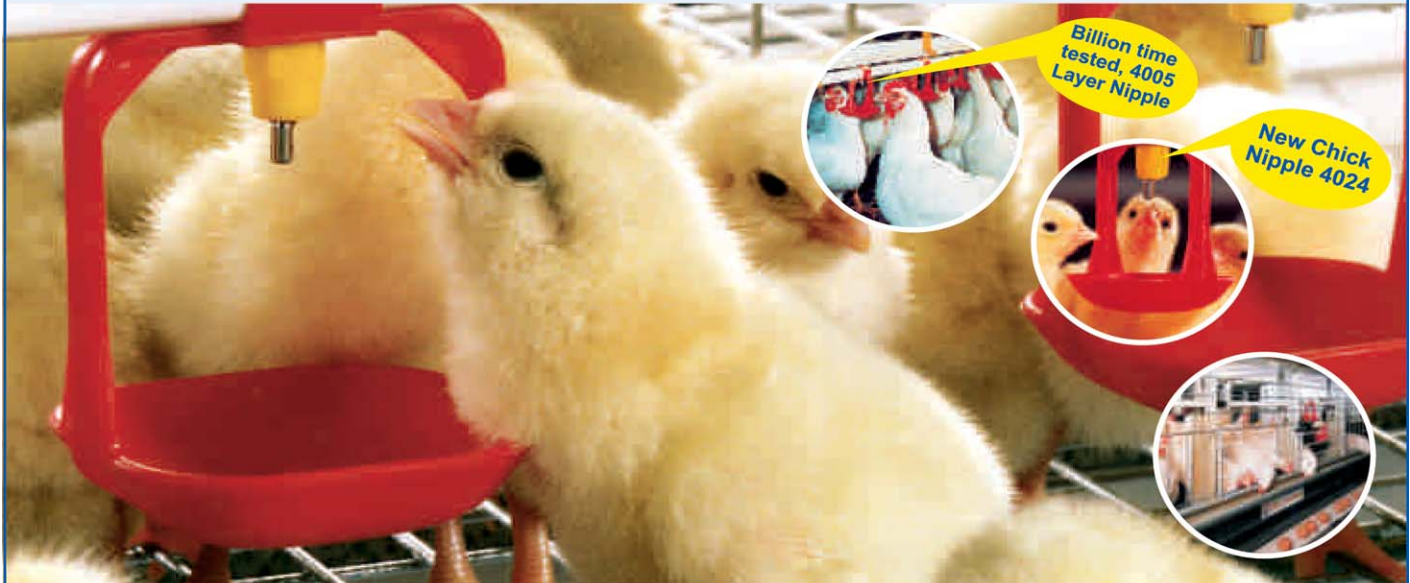
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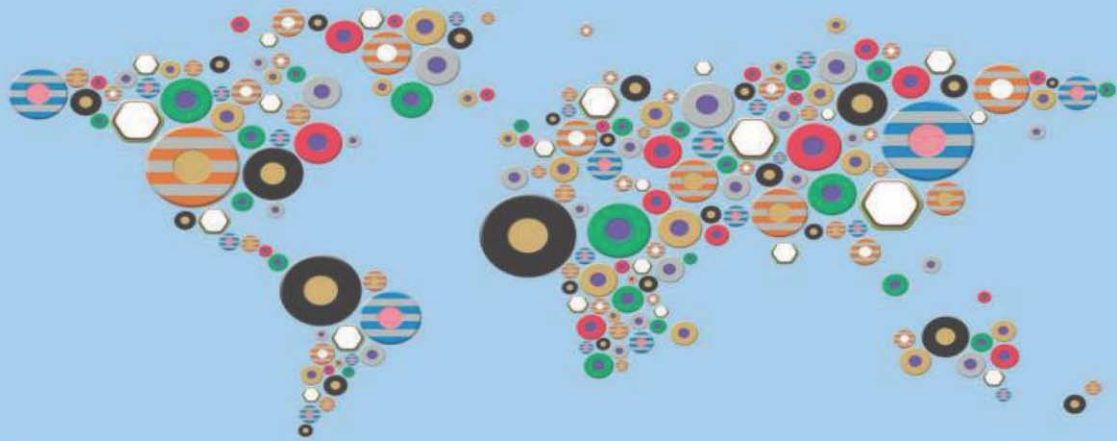


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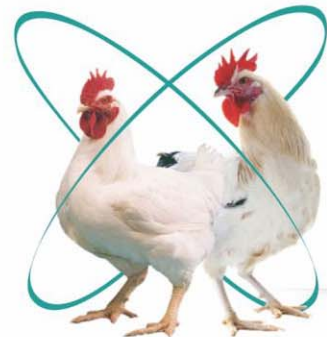
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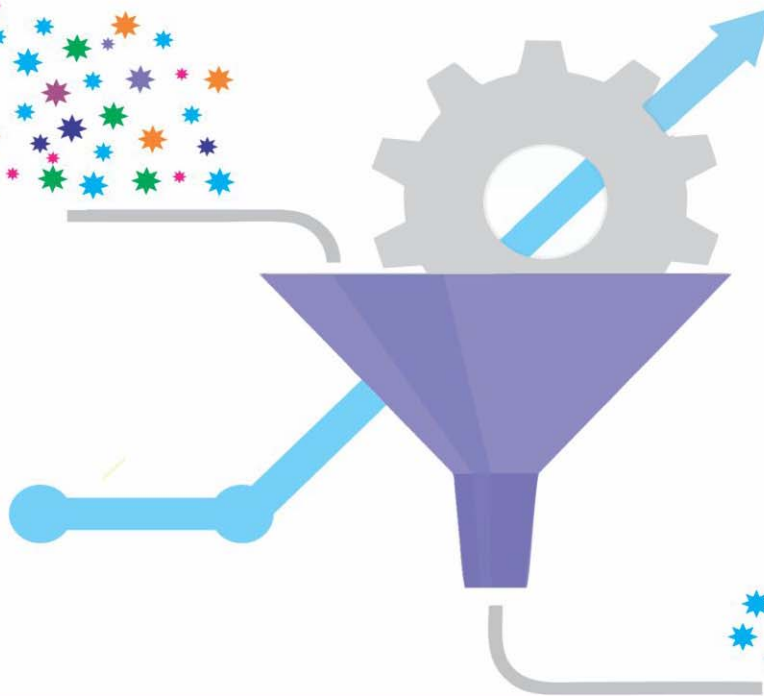
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