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Poultry Fortune

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- Editor



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Have we achieved basic facilities in our 70 years Independence?



Dear Readers,

The March 2019 issue of *Poultry Fortune* is in your hands. I want to share with you a different topic this month.

Although India completed 70 years

of its Independence, the people at Rural and Urban areas of the country are still suffering due to lack of basic infrastructure facilities like good roads with drainage system, pure drinking water, electricity with proper street lights and adequate greenery around. Politicians in ruling the government are always showing interest to take up big big projects perhaps to make money through commission from the projects money leaving the basic responsibility of providing infrastructure facilities to the people.

The citizens look like VIPs to the politicians only during the election time. Once their need of votes is over, they do not care the citizens till the next elections after 5 years. Now in April and May, we have elections for the parliament and some state assemblies in the country. People should choose and vote for the candidates who can work sincerely to provide the above mentioned basic infrastructure facilities in their respective constituencies.

Once infrastructure facilities are developed, people of this nation can develop themselves without much depending on the government and the politicians. I give a simple example of farmers and the stakeholders of poultry and aquaculture sectors in India, --- they developed on their own without much contribution from the government at state and central level. It is the stakeholders of these industries who made these two sectors grow and prosper, and providing employement to lacks of people and nutrition to crores of people in the country.

Government should make investigating agencies effective and take care the borders of the country and eradicate terrorism and unlawful things.

India is a secular country and the rulers should be impartial to the people irrespective of the religion and region of the nation.

TALK TO US

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

FOLLOW US: facebook.com/poultryfortune twitter.com/nrspublications The popular leaders like Indira Gandhi, NTR etc failed at times and got defeated in elections as they failed to perform well after coming into power at the government. Although Narendra Modi came into power with huge majority in 2014 as the Prime Minister of India, he is losing the credibility due to arrogance attitude at times and due to his inability in protecting the secular structure of the country and communal harmony. The people of different religions, castes, creed, sex and different background should be able to live together in the society with love and peace amongst them. Though he did good at international level and many welfare schemes in India, it is the responsibility of the Prime Minister of the country to ensure it.

Communal intolerance and hatred are increasing in India in an organised manner which is dangerous to the nation. We need the Administrators from top to bottom such as Prime Minister, Chief Minister, District Collector, Panchayat President to be good hearted, otherwise people cannot live in peace and happiness.

I was not born when the greatest human being Mahatma Gandhi (who bought Independence to us) was alive, I saw Mother Teresa, Dr A.P.J. Abdul Kalam, Barack Obama and Atal Bihari Vajpayee and a few others to have done good to the society and they lived with values and worked for the well being of the people.

People should elect good people as MPs and MLAs who can take care of the people and the nation in a peaceful and progressive manner.

- We have to fairly think and act to make good foundation for our children and future generations to live in discipline and with progress and happiness.
- ◆ Best principle for any leader is to try and do good to the people irrespective of caste, religion and region — and such leaders will remain forever in the hearts of the people, and the God will like them.
- No need to remind Every citizen of India will have love and respect for his / her nation.

Poultry Fortune Our Mission

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

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

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

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

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

M.A.Nazeer Editor & Publisher Poultry Fortune

Send a letter: Letters to the Editor must include writer's full name, address and personal telephone and mobile numbers. Letters may be edited for purposes of clarity and space. Letters should be addressed to the Editor:

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MSD Animal Health and Rapid Genomics Sign Agreement on Vaccine Verification

USA: MSD Animal Health announced a collaboration agreement with Rapid Genomics which grants the company exclusive rights to Rapid Genomics' vaccination verification tool, Viral Flex-Seq®. The collaboration was announced at the 2019 International Production & Processing Expo (IPPE) being held in Atlanta, Georgia, USA.

This tool will be utilized in combination with MSD Animal Health's Innovax® range of vaccines, including Innovax-ND-IBD, a unique vaccine that provides longterm protection against three infectious poultry diseases, Newcastle Disease (ND), Infectious Bursal Disease (IBD) and Marek's Disease (MD), in a single dose.

"Viral Flex-Seq is using some of the newest technology and molecular genetics to actually verify vaccine take, not only detecting our Innovax line of products, but also detecting other HVT vectors," said Elise Myers, Global Poultry Technical Director. "It has another component which is involved in field virus detection. We're able to follow these birds through their lives from vaccination into the field and even monitor how some of those field virus populations are changing. So, groundbreaking for us and very happy to have this

to support our growers." Producers will now be able to identify exactly how many birds were successfully vaccinated with the Innovax product. Many traditional diagnostic methods haven't provided clear information in every instance when it came to HVT vector type products. However, Myers said this technology offers a very clear, precise, sensitive way of confirming a successful vaccination.

"This partnership will bring together MSD Animal Health's unique broad vaccine product line and Rapid Genomics' innovative vaccination verification test to optimize and enhance disease outbreak management in poultry for improved animal health and welfare," said Taylor Barbosa, DVM, Ph.D., ACPV, Executive Director, Global Poultry Marketing, MSD Animal Health. "As the poultry industry grows, there is an increased need for improving disease control to optimize productivity and we are committed to growing with the industry to bring innovative solutions to our customers."

Viral Flex-Seq is a product that provides a highlysensitive and accurate result to confirm the presence of the vaccine replication in the bird. Viral Flex-Seq uses next-generation

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sequencing (NGS) technology, an advanced method of genomic analysis, to specifically detect replication of Innovax vaccines and differentiate them from field viruses. "We are proud and excited to partner with MSD Animal Health, an industry-leading poultry vaccine company," said Richard Currie, BVM&S,

Ph.D., CEO, Rapid Genomics.

"This partnership supports our mission as innovators in the field of genomic testing to set the standard for HVT vector vaccine detection and associated infectious pathogen diagnosis."

For more information on MSD Animal Health's commitment to innovation, please visit www.msdanimal-health.com.

Vanaraja Backyard Farming In Tribal Village (Thatiguda) Under Tribal Sub Plan

Hyderabad: ICAR-

Directorate of Poultry Research, Hyderabad introduced rural / backyard chicken farming with improved chicken variety, Vanaraja, with an aim to improve the income and living standards of tribal farmers under Tribal Sub Plan Programme. Input distribution program was organized at Thatiguda village of Adilabad old District on 14 February 2019. This was an initiative of Government of India



under the Tribal Sub Plan (TSP), in Aspirational District Programme of the Indian Council of Agricultural Research (ICAR). Team of Scientists and Officer of this Directorate interacted with tribal beneficiaries. Potential benefits of backyard farming with Vanaraja were explained to the tribal farmers. A total of 18 tribal beneficiaries were provided with 27 to 28 Vanaraja birds (7 weeks of age), 20kg feed, one feeder and one waterer per each beneficiary.



Don't play with Marek's disease.

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World Mycotoxin Report: Impact 2019

Austria: Fumonisins are still abundant at high concentrations in raw commodities in recent years, according to results from the latest annual BIOMIN Mycotoxin Survey.

"In recent years, fumonisins proved to be the most prevalent mycotoxins globally among the major agriculturally relevant mycotoxins, which also include aflatoxins, zearalenone, deoxynivalenol, T-2 and ochratoxin A," observed Alexandro Marchioro, Product Manager for Mycotoxin Risk Management at BIOMIN

In 2018, 68% of samples analyzed tested positive for fumonisins; corn (maize) in particular has been subjected to effects from these mycotoxins.

Fumonisins, which are produced by Fusarium proliferatum and F. verticilloides, predominantly contaminate corn and corn by-products. These molds are also responsible for producing the second most commonly found mycotoxin, deoxynivalenol, also known as vomitoxin.

Trends in different regions

"The shift in the composition of the mycotoxin threat is noticeable when comparing data sets over the years. Additionally, the co-contamination of mycotoxins is a considerable point we should bear in mind," stated Mr. Marchioro.

Regional examples of mycotoxin risk:

- In North America, deoxynivalenol is the most prevalent, reaching 67% of total samples with an average of 735 parts per billion (ppb).
- 96% of corn samples in Asia tested positive for fumonisins with maximum concentrations of 47,485 ppb. Aflatoxin remains a topic in Asia with 44% of prevalence in finished feed.
- In Argentina, the average concentration of fumonisins rose from 2800 ppb in 2017 to 4762 ppb in 2018.
- In Europe, the most prevalent mycotoxin is deoxynivalenol.
- "These data underscore the importance of monitoring mycotoxin contamination, as mycotoxin occurrence varies in different regions," he explained.

Live webinar and survey results

On 26 February 2019, BIOMIN and Romer Labs will host a live webinar on the World Mycotoxin Report with special attention to the possible impact of these mycotoxins on animals and feed producers in 2019, the potential of multi-mycotoxin analysis and innovative technologies for mycotoxin deactivation.

Two online sessions are offered in order to facilitate participation from various time zones, and the webinar is free to attend. Online registration is required at www.biomin.net. Webinar attendees will be the first to receive the 2018 BIOMIN Mycotoxin Survey report.

About the survey

The annual BIOMIN Mycotoxin Survey constitutes the longest running and most comprehensive survey of its kind. The survey results provide insights into the incidence of the six major mycotoxins in the chief agricultural commodities used for livestock feed in order to identify the potential risk posed to livestock animal production.

US Food Giant Tyson Foods Invests in Smartpro[™] Hatchery Technology

US-based Tyson Foods Inc. has chosen Pas Reform and NatureForm, the world's only single-source supplier of integrated hatchery solutions, to equip the hatchery of its new chicken production complex at Humboldt in Gibson County, western Tennessee.

USA: The facility will include a feed mill, hatchery, processing plant and related operations to produce pre-packaged trays of fresh chicken for retail grocery stores nationwide. It is expected to process 1.25 million birds per week when it opens in 2020.

Tyson Foods is one of the world's largest food companies and a recognised leader in protein-based foods, with its headquarters in Springdale, Arkansas. Founded in 1935 by John W. Tyson, it has grown under three generations of family leadership. In 2017 the company had sales of USD 38.3 billion.

The Humboldt project received the go-ahead in January 2018. In the preceding months the



Left to Right: Michael Freer, Complex Engineer, Tyson Foods; Mike Tubb, Managing Director Engineering, Tyson Foods; David Corvin, Live Production Manager, Tyson Foods; Jan-Peter Eil, Project Manager, Pas Reform Hatchery Technologies; Jack Hubbel, VP Sales, NatureForm Hatchery Technologies; Bouke Hamminga, Director International Sales & Business Development, Pas Reform Hatchery Technologies; Tom McCue, Complex Manager Tyson Foods; Shelby Watkins, Director of Breeder & Hatchery Ops, Tyson Foods; Barry Vincent, Breeder Hatchery Tech Support, Tyson Foods



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engineering teams of Tyson and Pas Reform/ NatureForm worked together to specify the project's scope, calculate technical specifications and model optimal processes for the hatchery.

The hatchery will make full use of Pas Reform's and NatureForm's singlesource capabilities. The project includes 36 SmartSetPro[™]-6 setters, 6 SmartSetPro[™]-3 setters and 39 SmartHatchPro[™] hatchers, to bring total weekly capacity up to 1.7 million eggs.

Installation will also include a complete heating, ventilation and air conditioning (HVAC) installation, with seven airhandling units, three chillers and a heat recovery system.

On the hatchery automation front, the project consists of a farm-to-setter-trolley transfer system, a fully automated candling and transfer unit with in-ovo vaccination, stackers, de-stackers, separators, washing and waste handling systems, and innovative, animal-friendly SmartCount[™] chick counting and dosing systems.

Pas Reform's advanced, web-based SmartCenterPro[™] hatchery information software will enable Tyson Foods to control setter, hatcher, climate control and hatchery automation operations from a single computer, as well as providing remote access capabilities to manage and respond to system alerts and provide technical and troubleshooting support.

Tyson Foods has also adopted a SmartCare[™] Lifetime Services contract, which covers every level of hatchery operations, to deliver an assurance of efficient, uninterrupted performance over the next five years.

In addition to the Humboldt Project, Tyson has ordered 4 SmartStart[™] hatchers to be installed this spring. Tyson will be the first major poultry producer in the US to install this type of hatchers, which have the capability of providing day old chicks with moisture enhanced feed, eliminating the need for open water sources in the hatcher. Steve Warren, President of NatureForm Hatchery Technologies, comments: "This is another milestone for Pas Reform and NatureForm. Since the start of our collaboration in 2014 we have been in frequent contact with Tyson staff, visiting their hatchery operations with our incubation specialists and inviting them to our Pas Reform Academy. This was a great way for us to get in-depth knowledge of the Tyson group. And of course Tyson staff also got to learn about our equipment and our company philosophy."

Bouke Hamminga, Pas Reform's Director for International Sales and Business Development says: "Since Tyson is one of the three largest poultry companies in the world, the impact of this agreement will be viewed very positively both in the USA and worldwide.

"We feel that this project helps us to get a major foothold on the US market and internationally as well. We have always viewed our collaboration with NatureForm as a strategic way of gaining substantial market share in the US market and we are doing just that."

Global Market Study on Egg Powder: Increasing Consumption of Whole Egg Powder to be observed in the Coming Years

A new research report by Persistence Market Research presents an overview of the global egg powder market. The report is titled 'Egg Powder Market: Global Industry Analysis 2012-2016 and Forecast 2017-2025' and it lets you understand the market from beginning till the end, with the help of a systematic report structure and data representation. The report includes every part of the market analysis. from market value, Y-o-Y growth, pricing analysis, and forecast for the projected period. Another major section of the report covers a brief on the drivers driving the market growth, restraints that are limiting the market and also the trends governing the market. This comprehensive research report is intended to assist the people and answer all the queries pertaining to the global egg powder market.

Market segmentation of the global egg powder market The research report on the global egg powder market bifurcates the market into various segments. These segments help in dividing the market systematically on the basis of various parameters and which gives a better understanding and more accuracy in the results. The report includes segments on the basis of product type, end use, distribution channel and region. Here's the complete segmentation:

By Product Type

- Whole Egg Powder
- Egg Yolk Powder
- Egg Albumen Powder
- Egg Powder Mix

By End Use

- ► Food
- Bakery
- Confectionery
- Snacks & Ready-to-Cook
- Meat Products
- Sauces & Dressings
- Dairy
 - Others (beverages & other food products)
 - Personal Care & Cosmetics
- Nutraceuticals & Pharma
- ► Animal Feed & Pet Food
- HoReCa
- Household

By Distribution Channel

- Direct Distribution
 Channel
- Indirect Distribution
 Channel
- Hypermarket/ Supermarket
- Convenience Stores (departmental stores, food & drink specialty stores)
- Online
- Others (specialty stores and others)

By Region

- North America
- Latin America
- Europe
- Asia Pacific (APAC)
- MEA (Middle East & Africa

Competitive intelligence that provides information on key players and their robust market strategies

This comprehensive research report involves an extensive primary research that includes identification of key players in the market.

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Ref : The EFSA Journal (2009) 992, 1-24 ; Journal of Animal and Feed Sciences, 24, 2015, 93-99





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The research report covers all the key players in the global egg powder market with their complete profiles. These profiles depict the current developments of these companies as well as the upcoming market strategies that may also impact the global egg powder market. This section of the report can help the market players understand the strategies of their competitors and also help new entrants study the current market structure so that they can plan effective counter strategies for emerging successful in this market.

Why you should invest in this research report?

This elaborate research study covers every aspect of the global egg powder market and presents it to the readers in the form of a systematic and wellstructured report. This report includes all the main statistics of the market analysis, which also assures accuracy as it goes through different levels of validation. The report is based on the key insights of the market given to the analysts by industry experts. The data that they provide adds value to this research report to a great extent and the actionable intelligence that the report provides enables key stakeholders to understand the market in detail and devise strategies capable of strengthening their foothold in the global market.

Source: Market Research Reports Search Engine

Imports Killing Poultry Industry

The South African Poultry Association has said increased chicken imports are hurting the local poultry industry

Durban: Increased chicken imports from overseas are hitting the local poultry industry hard. In a statement, the South African Poultry Association said there were 538 434 tonnes of chicken imported. Izaak Breitenbach, General Manager of the Broiler division of SAPA said there was a dip in imports due to

was a dip in imports due to avian flu in Europe, but the shortfall was picked up by Brazil.

"A table produced by SAPA shows that total frozen broiler imports rose from 368 201 tons in 2015 to 538 434 tons in 2018. The value of all poultry imports in 2018, including MDM, is R6 billion. Frozen chicken portions – the imports including the popular bone-in portions that have harmed local producers and killed South African jobs – went up from 221218 tons in 2014 to 383 297 tons last year," Breitenbach said.

He said the increase in imported chickens was getting worse and would result in job losses. Breitenbach said, the imports demonstrated that there was a need for government to step in to help the industry. "We are an efficient industry, but we cannot compete against imports dumped below the cost of production, or from countries with a long history of agricultural subsidies," he said.

Shares for Pig and Poultry Rise as China Expands Agriculture Reforms

China will deepen reforms of its Agriculture sector to promote its rural economy, the government said in its first policy statement of 2019.

Beijing's statement, released recently, comes after the world's secondlargest economy saw its weakest growth in 28 years in 2018 and remains entangled in a trade war with Washington.

"Under the complicated situation of increasing downward pressure on the economy and profound changes in the external environment, it is of special importance to do a good job in agriculture and rural areas," the government said in the document issued by the State Council and published by official news agency Xinhua.

Known as the "No. 1 document", this year's policy reiterated a rural rejuvenation strategy first laid out in 2017 to improve income levels and living standards in China's countryside.

It also highlighted a plan to boost domestic soybean production but did not offer further details. Industry analysts said on Wednesday they were eagerly awaiting further details to assess the impact of the plan, which had already been flagged by Agriculture Minister Han Changfu earlier this month. China has been overhauling its crop structure in recent

its crop structure in recent years, reducing support for corn after stocks ballooned, and seeking to promote more planting of oilseeds that it mostly imports.

That goal has become increasingly important since a trade war with the United States, which led China to slap tariffs on soybean imports, tightening domestic supplies.

Han has previously urged authorities in China's northeast to support soybean production through subsidies and called for rotating of soybeans with other crops including corn and wheat.

Beijing also aims to support the production of rapeseed in the Yangtze River Basin, according to the document

As in previous years, it also called for stable grain production, but also an increase in imports of agriculture products where there are shortages in the domestic market.

"The focus now is on retaining production capacity, in the form of high quality farmland, and using the international market to make up production shortfalls," said Even Rogers Pay, an agriculture analyst at China Policy, a Beijingbased consultancy.

The reference to imports is positive for trade partners like the United States, said Cherry Zhang, analyst with Shanghai JC Intelligence Co.



Ltd, who said it raised the likelihood that China will buy more US agriculture products.

Shares of Chinese livestock companies, along with pig and poultry breeders, rose recently following the release of the policy paper.

The document also outlines plans to accelerate development of a new farm subsidy policy system and further crack down on the smuggling of agriculture

products.

Additionally, the government said it plans to strengthen the monitoring and control of African swine fever outbreaks, after more than 100 cases were reported in China since August.

Other plans include continuing to tackle rural pollution and promoting recycling of agricultural waste such as manure and agricultural film.

IVRI, Mukteswar organizes programme on "Use of poultry feeder and drinker in backyard poultry rearing"

Mukteswar: ICAR- Indian Veterinary Research Institute, Mukteswar campus conducted a method demonstration programme at village Sunkhari Kala, Sitarganj, district U.S. Nagar, Uttarakhand recently under TSP. The theme of the method demonstration was "Use of poultry feeder and drinker in backyard poultry rearing". A total of 41 tribal farmers participated in this programme. Dr C. Jana, Sr. Scientist and TSP Co-ordinator briefed about the utility and importance of various poultry farm

equipments like poultry feeder and chick drinker for poultry rearing under backyard practice. In this programme, the team demonstrated the use of chick drinker and poultry feeder for better hygiene of poultry as well as effective use of water and feed. Various gueries of participants on production and health aspects of poultry were addressed during the interaction. Poultry feeders and drinkers were distributed among the tribal farmers of this village for effective management under backvard practice.



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A.Venkateshawar Rao, Executive Director.



Trouw Nutrition India's participation in KIPF

Trouw Nutrition India, a Nutreco Company, successfully participated in the 7th Kolkata Poultry Fair, we presented our latest technologies that aim to change the future of poultry business



A view of Trouw nutrition paticipation in KIPF

International Poultry Fair held at Eco Park, Kolkata from 19 to 21 February 2019. The response received during the Poultry



Fair was overwhelming which is reflected in the fact that a total of almost 1000 farmers, feed millers, integrators, students and industry stakeholders visited our stand.Kolkata International Poultry Fair is the biggest poultry fair held in India that offers a great platform to connect with the farmers.

Trouw Nutrition is the global leader in animal nutrition that has been supporting farmers, integrators and the feed industry around the world for over 80 years. At Kolkata International and support sustainable businesses. The major attractions were the demonstrations held at the booth with NutriOpt On-Site Adviser and Mycomaster where participants were able to get a live analysis of the raw materials and finished feed.

Accurate on-site analyses of ingredients and mycotoxin

Trouw Nutrition demonstrated two highend technologies which provide a solution for quicker and better decision making – aiding inincreasing productivity and profitability of the farmers, feed millers and integrators.

Nutriopt On-Site Adviser

provides real-time, onsite analysis to assess the nutritional value of animal feed, including raw materials and silage directly from the field. Users can scan feed samples and receive real-time data to maintain quality control and drive feed decisions. NutriOpt On-Site Adviser makes it easy and efficient for farmers and feed mills to assure feed meets optimal guality and nutrition standards. Supporting feed standards, the technology evaluates critical measures of feed quality including

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Trouw nutrition team

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PF MARCH 2019 issue, indd 24

The Egg Debate Boils Over – Will Governments Stop Playing With Children's Food ?

With the 2019 elections around the corner, political parties should step up to the plate and display their commitment to children's nutrition.

Prime Minister made headlines by serving midday meals supplied by Akshaya Patra at a school in Uttar Pradesh's Vrindavan.

While he engaged in banter with the children about being late, one of the students wittily interjected that she didn't mind as she had already eaten at home.

While the child's innocent reply divulges the current government's penchant for staged photo ops, it conceals the gritty ground realities across India. Even in a prosperous state like Punjab, the HRD ministry's own survey reveals that 40% of children go to school on an empty stomach.

Uttar Pradesh, in fact, has the second highest rate of child malnourishment in the country and nearly half the children are stunted.

Eggs, a nutrition-dense superfoods, are recognized by nutritionists as ideal for growing and undernourished children.

Then why did the prime minister not serve these children eggs?

Food politics

First, this reflects a nationwide trend in an era of strident food politics. Eleven of 15 BJP-ruled states, including Uttar Pradesh, refuse to provide eggs to children in schools. Influenced by saffronised vegetarian lobbies, four years ago, Madhya Pradesh chief minister Shivraj Singh Chauhan too had banned eggs in anganwadis despite

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high malnutrition.

In Jharkhand, one of the few tribal-dominated BJPruled states to serve eggs, last month in an unusual open-air picnic cabinet meeting, the chief minister, without any consultations, decided to reduce the number of eggs from three to two per week. not yet been able to do so in schools.

On the contrary, after the recent assembly elections, the decision by the newly-minted Congress government in Chhattisgarh to add two eggs to the weekly menu was eagerly welcomed. But Madhva Pradesh, which



Secondly, Akshaya Patra, a religious organization which supplies school meals across several cities, insists on a sattvic diet without even onions and garlic, let alone eggs. As a result, its tussle with the newly-elected non-BJP government in Karnataka has boiled over. Therefore, though Karnataka offers eggs in anganwadis, it has

also elected a new Congress government, has yet to follow suit and reverse Shivraj Singh Chauhan's antiegg diktat.

Delhi is another state where the AAP government, while having promised eggs in schools, puzzlingly, also plans to rope in Akshaya Patra to deliver midday meals despite their allergy

to eggs.

Majority Eggetarians

This odd Indian misconception of eggs as non-vegetarian is thickly intertwined with sankritised caste prejudice. On the other hand, southern states, especially Tamil Nadu and Kerala which pioneered midday meals and eggs in schools, have had a rich history of anti-caste social movements, and now boast amongst the lowest rates of child malnutrition in the country.

However, four geographically contiguous states in western India - Rajasthan, Gujarat, Haryana and Punjab - with their distinctive cuisines, traditionally stand out as exceptions as they have higher levels of vegetarianism. More than half of the population does not eat eggs or non-vegetarian food. Nevertheless, of them, Harvana and Raiasthan have introduced milk and Punjab kheer (milk pudding) in all schools as an alternative.

But Gujarat, which pioneered the Dairy Revolution, does not serve milk in all schools despite having one of the highest levels of child malnutrition.

Even the Centre has reportedly written to all the states to encourage them to serve milk and honey in schools to utilise excess stocks of milk powder, but the recent budget did not make any financial allocation for this alternative treat.

Further, some analysts argue that the states which are more vegetarian are less likely to serve eggs. While this is indeed true, the National Family Health Survey 2015-16 שישילג Sanzyme Biologics (ISO 9001: 2015 Certified Company)



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highlights that the vast majority of the Indian population are eggetarians or ovo-vegetarians. Several populous BJP-ruled states with Uttar Pradesh. in particular - which have both high levels of child malnutrition and more than half the population as eggtarians, still do not serve eggs. Cash-rich Maharashtra puzzlingly gives eggs under the APJ Abdul Kalam Amrut Yojana in 16 tribal districts, but not to children in all schools.

Children in an Odisha school eat their midday meal a way forward.

But if Jharkhand's example is anything to go by, the procurement of eggs also needs close monitoring. Till recently, the supplier was a Tamil Nadu-based tainted company – Christy Friedgram - which was recently been raided by the income tax department. Fortunately, after civil society remonstrations, the government has agreed to source eggs from local selfhelp groups instead soon.

Scrambled eggs

In the Northeast, however, there is an entirely

With the 2019 elections around the corner, will governments stop playing Eggetarian Population and Stunted Children



Source: National Family Health Survey 2015-16

different story. Though non-vegetarian foods are an integral part of local diets, the government of Arunachal Pradesh, for example, has complained that, "eggs are very costly and are not available in remote and far flung areas". Enhanced central assistance and development of the poultry industry could offer

with children's food? Will political parties step up to the plate and display their commitment to children's nutrition and add eggs in their manifestos?

Indian children are egging them on.

Source: Swati Narayan is a research scholar at the Tata Institute of Social Sciences

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

For February 2018

NECC Prices Name of the Zones **Month Average Price in Rs** Ahmedabad 468 416 Aimer Banglore (CC) 454 Chennai (CC) 467 Chittoor 460 Delhi (CC) 442 East Godavari 424 420 Hyderabad Mumbai (CC) 474 460 Mysore Nagapur 421 Namakkal 453 466 Pune Punjab 412 Vijayawada 424

Vizag 432 West Godavari 424 422 Warangal

Prevailing Prices

Name of the Zones	Month Average Price in Rs
Allahabad (CC)	459
Barwala	417
Bhopal	441
Hospet	419
Indore	437
Jabalpur	441
Kanpur (CC)	450
Kolkata (CC)	461
Luknow (CC)	470
Raipur	448
Varanasi (CC)	474





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Maharashtra Farm Commission Urges Govt to Ban Import of GM Soyabean

Though the imports were under the label of non-GM crop, trade sources suspected large quantities of GM soyabean were filtered into the country and that stringent testing by the domestic food regulator was necessary.

The Maharashtra Commission for Agricultural Costs and Prices (MCACP) has asked the government to ban imports of genetically-modified (GM) soyabean.

In a recent meeting between MCACP chairman Pasha Patel and Food Safety and Standards Authority of India (FSSAI) chairman Rita Teaotia, he told her the GM soyabean was being imported from developing countries such as Ethiopia through other routes. India's imports are sourced mainly from Malawi, Mozambique and other African nations.

Though the imports were under the label of non-GM crop, trade sources suspected large quantities of GM soyabean were filtered into the country and that stringent testing by the domestic food regulator was necessary.

"We have called for an immediate ban on such imports as it will hurt domestic farmers," Patel said. He expressed the fear that already some one lakh tonne of GM-soyabean may have been imported into the country. He highlighted spot prices of soyabean had fallen from a three-year high of `3,950 per quintal in January to `3,700 / quintal and may decline further if these imports continue.

In a letter to the chairman of FSSAI, Patel said as the rates in the domestic market were higher, some traders were importing soyabean into the country.

Unfortunately, this is a GM soya seed, he said in the representation, adding this may adulterate the country's seed source and reduce value to the country's soyabean internationally.

India typically imports 1 lakh-1.20 lakh tonne of non-GM soyabean annually. Market sources revealed some 15,000 tonne of soyabean may have been imported in the past few weeks at `2,500-2,600 per quintal. According to the Solvent Extractors' Association of India (SEA), the country imported around 123,000 tonne non-GM soyabean during April-October, according to SEA. In 2017-18, the country imported nearly 89,000 tonne.

Industry experts pointed out price subsidies provided for US soyabean farmers were already damaging the domestic market. In exports, India is able to command a price premium on the account of its non-GM soyabean. This is under huge risk from GM soyabean being illegally imported in India, sources said.

Market sources alleged soyabean seeds are being imported in India from USA and Ukraine. Sources revealed Ukraine had exported more than 2,000 tonne of soyabean seeds to India in 2016.

Madras HC pulls up TN over egg procurement

The Madras High Court recently held as "capricious, perverse and arbitrary," a decision taken by the State government in August last year to stop calling for a State-level single tender to procure eggs required for the noon meal scheme implemented in schools, and instead go for a zone-wise tender by dividing the State into six zones.

Public interest

Justice R. Mahadevan allowed a batch of writ petitions filed against the decision and said: "Every activity of the government has a public element in it and it must therefore be informed with reason and guided by public interest. The government cannot act arbitrarily and without reason. If it does, its action would be liable to be invalidated." Tracing the history of noon meal schemes, the judge said, it was first introduced by the Madras Corporation in 1925 before being followed by the Pondicherry government during the French administration in 1930. In 1962-63, the then State of Madras (now Tamil Nadu) pioneered the fullfledged noon meal scheme implemented in primary schools. The scheme was developed over the years and included supply of eggs as an essential component of the meal on all working days. In 2006, the State stopped the State-level single tender system and decided to procure eggs through districtlevel tenders but the new methodology ended up promoting cartels in supply of eggs.

Therefore, in 2012, the State government took a policy decision to revert to the single tender system. This change in policy was upheld by the High Court as well as the Supreme Court. However in August last year, the government suddenly decided to give up the single tender system and the decision was taken at an executive level at "a breakneck speed" of six days.

Right to trade

While taking such a decision solely on the basis of a representation made by the Tamil Nadu Poultry Farmers Association to promote local poultry farms, the government had also created an embargo thereby preventing the participation of suppliers from other States in the tender process. Such an embargo was clearly in violation of the constitutional right to trade, the judge held.

Though the State could impose reasonable restrictions on the right to trade, it could be done only by way of moving a Bill in the Legislative Assembly and not through executive instructions. "Such being the legal position, the embargo on the egg producers from outside Tamil Nadu is absolutely unfair, arbitrary and also discriminatory," he added.

Terming such a change in policy through an executive act as a "colourable exercise of power," Justice Mahadevan quashed a Government Order issued on August 20, 2018 for calling zone-wise tenders. He ordered that the existing contractor shall continue to supply eggs to noon meal centres until the government issues and finalises a new State-wide tender.



Customer Care: (020) 24 26 02 57

Egg is Vegetarian

Authored article by Suresh Chitturi

Vice-Chairman & Managing Director, Srinivasa Farms Pvt Ltd & Vice Chairman International Egg Commission (IEC)

Food plays an essential role in our life not only does it provide us with the nutrition it also makes us what we are. The perennial fight between vegetarians and non-vegetarians has been raging on since time immemorial. They say you are what you eat

An egg is popularly considered to be a nonvegetarian food. However, there are several facts that support the contrary. If we look at it, in terms of definition, it basically is that those who eat flesh are non-vegetarians while those who consume egg are indeed vegetarian as the egg has no flesh or life.

Eggs are so nutritious that they're often referred to as "nature's multivitamin." They also contain unique antioxidants and powerful brain nutrients that many people are deficient in.

Whole Eggs Are Among the Most Nutritious Foods on Earth..but alas its perceived that eggs are nonvegetarian..are they ??? are they not?? Suresh Chitturi : Vice-Chairman & Managing Director of Srinivasa Farms Private Limited & Vice Chairman of INTERNATIONAL EGG COMMISSION (IEC) says Based on the definition of vegetarian as a diet which eggs in their diet, while still abstaining from eating chicken, cows, pigs, fish and all animals. According to terminology, you're an "ovo-vegetarian," that is, a vegetarian who eats eggs. Note that while eggs are vegetarian, they



excludes consumption of animal flesh, technically, yes, eggs are vegetarian, since they are not animal flesh (the meat, muscles or tissue of an animal). Many vegetarians include



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are certainly, under no circumstances, considered vegan.

Eggs come from chicken, but they are not obtained by killing chicken, like caviar or fish eggs are obtained. Not every product that comes out of animal is non-vegetarian, the best example being milk.

Eggs contain three partsthe shell, the albumen (white) and the yolk. The egg white is a suspension of the protein albumen in water. It contains no animal cell. Hence, egg whites are vegetarian and all products containing egg whites are, technically, vegetarian. there are three parts of the egg – eggshell, egg yolk, and egg white. The eggwhites (albumen) only contains protein and the egg yolk is mostly made up of proteins, cholesterol, and fat. The eggs that we consume on almost a daily basis do not have embryos. This means that the eggs probably have not developed enough to be at the stage where one would be eating an actual animal/ bird.

Most eggs available in the market are unfertilized ones, so there is hardly a possibility that a chick could have come out of it, had you spared that egg!

A lot of people may get offended at first but technically eggs don't fall under the definition of being a non-vegetarian product. Also, just like milk is considered to be vegetarian even though it comes from cows, likewise we should realize that not every product that comes from animals is non-vegetarian.

So Eating one egg a day is a healthier option than taking artificial dietary supplements available in the market. Further eating eggs would protect people from mental stress, reduction of cholesterol, prevention of cancer, Alzheimer's, Parkinson's and heart problems.

Posted 24th July 2018 by Bharat Jesrani

" Whole Eggs are among the Most Nutritious Foods on Earth.. but alas its perceived that eggs are non-vegetarian. Are they ??? Are they not?? "



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Better Nutrition Through Biotechnologies

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Electrolytes through Feed: A Preferred Approach Avitech Nutrition Pvt Ltd

High temperature is a major limitation to growth and meat yield of broilers in tropical countries of the world. Reduced feed intake, growth rate, feed conversion, survivability, dressing yield, breast meat and total meat and increased abdominal fat are the immediate consequences of rearing broilers in a hot humid environment (Geraert, 1998). In layers, heat stress significantly affects feed intake, egg production and egg shell quality. Deposition of calcium and pigments in the shell are also reported to get reduced due to heat stress. Depleted performance and decreased profitability are aggravated when high temperature is associated with high relative humidity. This situation demands an economic and efficient means to improve the thermo-tolerance of broilers in hot humid environment.

Electrolytes play a crucial role in maintaining body's acid-base balance as well as osmotic pressure in body fluids. The role of each individual component present in electrolyte supplement is difficult to define without taking into consideration the rest of the elements. The biological role of all these elements in normal metabolism during production of poultry is essential. Disturbances in their metabolism can result in toxicity. However, a combination of relevant quality control programs in the animal feed industry, as well as the adequate education, nutritionists can significantly reduce the risks associated with the appearance of electrolytic imbalance and toxicities.

While requirements for electrolytes have been clearly defined, there is currently an understanding of the need to achieve a balance between cation and anion supply (Leeson and Summers, 2001). The balance of dietary cations and anions is in close relationship with broiler performance, affecting the metabolism quite differently than the individual ions. Dietary electrolyte balance (DEB), also known as cation-anion difference (CAD), is calculated using only the monovalent ions (strong ions) of sodium, potassium and chlorine.

Electrolyte imbalance is quite rare in comfortable weather conditions, since body's buffering system provides maintenance of normal physiological pH value. The maintenance of this value is determined by three major factors – balance and ratio of electrolytes in feed, endogenous acid production and level of renal activity.

Some examples of electrolyte imbalance include Tibial dyschondroplasia and respiratory alkalosis. Tibial dyschondroplasia in chicks can occur as the consequence of electrolytic misbalance. The condition is associated with a range of factors including administration of NH4Cl in feed production (Leeson and Summers, 2001).

Respiratory alkalosis occurs at high temperatures consequent to excessive loss of carbon-dioxide induced by panting. The condition can result in poor growth rate in meat industry and poor quality of eggshell that quite often affects highlyproductive laying hens. Acid-base balance substantially affects the process of eggshell formation. The acid-base status of the intrauterine extracellular fluid strongly affects calcium solubility (precipitation). Electrolyte balance can affect the metabolism of numerous amino acids, especially lysine and methionine. It is well established that deficit of potassium in feed induces increased lysine accumulation in tissues. The accumulation rate correlates with potassium level. Such conditions of potassium deficiency result in decreased growth rate in chicks. High levels of sodium chloride, regardless of aminoacid balance, negatively affect the growth rate in poultry (Leeson and Summers, 2001).

Feed formulations with low electrolyte balance in hot summer strongly require electrolyte supplementation. Electrolyte imbalance can be prevented by adding an appropriate electrolyte product and simultaneously balancing anion and cation ratio in poultry feed formulations. Electrolyte product should be sufficiently rich and at the same time it should not disturb the predetermined dietary electrolyte balance of the feed.

Supplementing electrolytes through feed is a good strategye specially in integration models, rather than adding through water at the farm level, which is difficult to control and monitor. Providing electrolytes through water during summer season (which could be about 5-6 months long), especially in the Indian subcontinent, requires an extra effort and constant attention. Not only this, there is a continuous flushing of fresh cool drinking water in farms in summer months which makes electrolyte supplementation at appropriate times consistently through water, a daunting task.

Adding a properly balanced and sufficiently rich electrolyte product into the feed, throughout the summer season, is the best way to ensure that there is sufficient level of electrolytes present in the bird's body all the time. This maintains a uniform level of electrolytes in the blood and body fluids continuously. An adequate regular supply of ions makes up the continuous loss of electrolytes happening due to heat stress. This also maintains a normal acid-base balance between extra-cellular and intra-cellular fluids.

Electrolytes also help in retaining water inside the body. Birds are able to maintain an optimum level of hydration throughout the season as there is sufficient electrolyte present in body fluids. With this strategy, not only a sustained hydration but also an optimum performance can be maintained during the hot weather. Farmers as well as integrators, both can be rest assured that birds are getting necessary supplementation of electrolytes continuously, without putting any extra effort.

Avilyte-FS, an electrolyte product from Avitech, a unique rehydration formula designed by the nutritionists is specially meant for supplementation through feed. Avilyte-FS is the only product, containing all the ions in monovalent form, which provides the birds a faster rehydration and a swift recovery. Avilyte-FS is a zero-ionic balance formula, which means it does not affect DEB of the feed, and at the same time provides required levels of electrolytes to the birds.

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- ✓ To prevent stress induced depletion of vitamin C and to overcome the ill effects of heat stress.
- ✓ Improves survivability during stress conditions.
- ✓ To optimize and maintain immune-competence.
- ✓ To maintain fertility and hatchability at optimum levels in breeders.
- ✓ To optimize bioavailability of dietary calcium, iron and other minerals.
- ✓ Optimizes meat quality attributes during summer stress.

Feed inclusion rate :

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

Water inclusion rate :

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

Presentation :

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

ProLibid PFS (Male Vitality & Breeding Efficiency Optimiser)

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- For full growth, development and maturity of testes and other sexual organs in cockerels.
- For improving libido as will as volume, viscosity and quality of semen for optimum fertility and hatchability.
- For optimising sperm count/concentration along with improvement in percentage of normal, live and active sperms and sperm motility.

FEED MIXING RATE :

(Per 100 Birds)

Cockerels	:	25-30 g
Adults	:	50-60 g

To be given once daily regularly or for 10 - 15 days every month.

PRESENTATION:

500 g & 5 kg



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How to Improve Poultry Drinking Water Quality with Acidification

Biomin

Water has often been called "the forgotten nutrient" and not without reason. In many cases, it is assumed that water will be available for the chickens to drink, and that it requires little or no maintenance to keep an adequate supply. Often, little thought goes into whether or not the water is suitable for the birds to drink.

A chicken will drink anywhere between 1.8 to 3 times the amount of food it eats, dependent on the strain, housing conditions and temperature. An inadequate quantity of water will therefore directly reduce feed intake, negatively affecting performance. The removal of water from a flock in

lay will halt egg production very rapidly, and when combined with the removal of feed as well, will induce moulting.

Water vaccination

Water is also the medium of choice for administering live vaccines to chickens. This method is applied whenever possible as it has a markedly reduced stress factor for the chickens, as well as a lower cost of administration. Vaccination

is always best carried out in the morning when the birds have had a natural period of water deprivation overnight, and will be less stressed compared to inducing thirst through a physical deprivation later in the day. The early morning is also the natural time for the birds to eat after the night, so they will eat and drink more readily at this time.

Water quality

Water is one of many vectors that can transport pathogens such as bacteria, viruses or protozoa into the poultry

house. Some diseases, such infectious ลร coryza and Haemophilus paragallinarum can also spread through the drinker system, especially if it is a non-nipple system. Therefore, water hygiene must be considered an integral part of any biosecurity programme.

Highlight Points

Without enough water, chickens are unable to reach their performance potential. However, ensuring an adequate water supply is not enough. Careful and thorough water management is necessary on a daily basis to prevent any of a number of health issues that will result from poor water hygiene. Adding an acidifier to the water can help maintain water quality and promote bird performance.

Part of this will include regular water quality checks, including measuring both dissolved salts and, more importantly, bacterial contamination. To be considered acceptable, water should contain less than 100 CFU/ml of coliforms and less than 100,000 CFU/ml of total bacteria (Table 1). There should be no Salmonella contamination in the drinking water. Where water does not comply with this standard, steps should be taken as quickly as possible to rectify the areas that are failing.

Five Tips for Ensuring Good Water Quality Tip 1 - Apply water sanitization

In or qual use sani com chlo into direc mac in th is u a le poin hous time

In order to maintain water quality, it is advisable to use some form of water sanitization. The most common method uses chlorine, dosed either into a holding tank or directly through a dosing machine into the water in the house. Town water is usually chlorinated to a level of 3 ppm at the point of entry into the house. However, by the time water reaches the

last drinker in the house, this may have reduced significantly depending on cleanliness and any organic matter in the pipes. It may be advisable to increase the level of chlorination on farms to offset this possible loss in efficacy.

Tip 2 - Test water quality regularly

Water should be tested frequently in order to ensure that its quality is stable, and that dosing equipment is functioning correctly. To do this, water should be collected from the farthest point of entry into the house, the last drinker. The

> degree of water sanitation, or lack of it, varies considerably across the globe, from sophisticated systems in some developed countries to no sanitation at all in several developing countries.

Tip 3 - Check for biofilm

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Free-Tox [Polyvalent mycotoxin binder & mould inhibitor]

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- Colonut Yellow [Natural Yellow Pigment from Marigold]
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ARTICLE How to Improve Poultry...

dissolved solids in the water, are quite high, which increases the pH to the upper end of acceptable levels. These salts, especially calcium or magnesium salts, can form deposits in the water pipes that can ultimately reduce water flow. Additionally, they can also encourage the build-up of biofilm in the pipes by providing attachment sites for bacteria to lodge. Biofilm is a living colony of microorganisms comprising bacteria, algae, fungi and even protozoa. This living colony is protected by an accumulation of filamentous proteins excreted by some of the bacteria, which over time can further reduce the flow of water through the pipes. The different types of pathogens found in biofilms are quite extensive as shown in Table 2.

Table 1.

Parameters of acceptable water quality

Decemeter	Drinking water for poultry			
Parameter	Good quality	Do not use		
pН	5-8.5	<4 and >9		
Ammonium" (mg/l)	<2.0	> 10		
Nitrite (mg/l)	<0.1	>1.0		
Nitrate (mg/l)	<100	> 200		
Chloride (mg/l)	<250	> 2,000		
Sodium (mg/l)	<800	> 1,500		
Sulfate (mg/l)	<150	> 250		
Iron (mg/l)	<0.5	> 2.5		
Manganese (mg/l)	<1.0	> 2.0		
lime/chalk content ("dH)	<20	> 25		
oxidizable organic matter (mg/l)	<50	> 200		
H ₂ S (mg/l)	non detectable	non detectable		
Coliform bacteria (CFU/ml)	<100	> 100		
Total germ count (CFU/ml)	<100,000	> 100,000		

'If the pH becomes alkaline, ammonium (NH,+) turns into ammonia (NH₃), the toxic form Source: ISA Management guide, 2014

Table 2.

Some of the pathogens isolated from biofilms

s aureus
ytogenes
pp.
m parvum
1
and other viruses
(

Source: BIOMIN

Tip 4 - Thoroughly clean the water

Figure 2. Effect of pH on pathogenic bacterial development system between flocks

Thorough cleaning of the water system between flocks is strongly recommended, using products that can remove both the biofilm and any limescale present. This often requires a two-strategy approach with a product such as hydrogen peroxide to remove the biofilm, and an acid product to remove the limescale in hard water areas.

The build-up of biofilm can be reduced during production by regularly flushing out water lines. This should be done under water pressure of between 1.5 and 3.0 bars (20 – 40 PSI). Flushing of water lines should be carried out at least once per week, and more often in hot climates to ensure good results. This will reduce the risk of parts of the biofilm breaking loose in the water pipes and causing an obstruction in the drinker valves, or releasing undesired pathogens into the water supply. Any remaining residues of water treatment should be removed immediately after the treatment by flushing the system.

Hard water increases the pH of the water. Today, there is some debate over the recommended acidity/alkalinity of water, with current views tending towards reducing the pH to the lower levels, between pH 4 and pH 5. This is in order to create a pathogen-static environment, thereby limiting their development in the water lines.

Tip 5 - Aim for the optimal pH level

When chicks hatch, they have an immature gut, and the production of acids in the proventriculus and gizzard is reduced in the first seven to fourteen days. Experimental work showed that the pH level of the proventriculus ranged from 5.2 at day one to 3.5 at day 15, with a linear reduction between hatching and day ten of age. Similarly, the pH in the gizzard dropped from 3.5 to 3.3 between day one and day ten, then stabilizing at a pH of 3.3 at day 15 (Rynsburger, 2009).

Care needs to be taken when acidifying water to ensure that the correct amount of acids are applied to reach the desired pH of 4.5 of the drinking water. Failure to do this can result in either over-acidification of the water, which can hinder water intake and damage the equipment, or an under-acidification, which can then provide an energy source to the bacteria residing in the water line.

Figure 1. Effect of pH on the proportion of hypochlorous acid when chlorinating water



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Figure 2. Effect of pH on pathogenic bacterial development Four Benefits of Water Acidification

Figure 2.

Effect of pH on pathogenic bacterial development



Source: BIOMIN

Many companies are employing chlorination as a way to sanitize water, either by having access to town water or adding chlorine to water on the farm. However, the efficacy of chlorination depends on the formation of hypochlorous acid, which has stronger antimicrobial activities than the hypochloride ion. The level of hypochlorous acid produced will be dependent on the pH of the incoming water (Figure 1).

Benefit 1 - Acidification prevents bacteria from reproducing

Most pathogenic bacteria are Gram-negative and as such are sensitive to acidic environments, which have a bacteriostatic effect. When a chicken is drinking twice the quantity it eats, the acids in the drinking water can have a beneficial effect in the crop, reducing pathogenic development.

Figure 2 shows that below pH 5, many pathogens are stable and not increasing. However, pathogenic bacteria will start rapidly multiplying once the pH goes above pH 5, peaking at pH 7 – 8. While Gram-negative bacteria are sensitive to acids, they also have an in-built protection against water-soluble agents in the lipopolysaccharide outer membrane of their cell wall. This limits the passage of antimicrobial agents into the cell wall, thereby giving them a degree of protection.

However, adding a permeabilizing agent to the acidifier, for instance Biotronic® Top Liquid, can increase the direct antimicrobial activity in the drinking water and in the upper intestinal tract. This is due to the disruption of the outer lipopolysaccharide layer by the permeabilizing complex, enabling a greater uptake of acids into the cell, enhancing the antimicrobial effect.

Benefit 2 - Acidification does not affect in-feed probiotics (direct-fed microbials)

Many of the probiotics rapidly gaining popularity in poultry production are Gram-positive. They are either lactobacilliales, lactic acid producing bacteria, or sporulated bacillus bacteria, which are much less sensitive to acidic environments. As a result, acidifying drinking water has no impact on probiotic products in feed. If probiotics are administered in the drinking water via a dosing machine, and only one dosing machine is available, water acidification should be stopped during the time the probiotics are administered, and then recommenced once they have been consumed. A similar approach should be taken when vaccinating through the water supply. If the vaccine is applied directly into the header tank, this will have no detrimental impact on the probiotics, but the water should not be acidified when vaccinating.

Benefit 3 - Acidification helps keep limescale and biofilm at bay

Acidification of the drinking water can also reduce the buildup of limescale in the drinker lines, which in turn will also reduce the levels of biofilm due to a lower level of bacterial contamination. This will not negate the need to clean the drinker lines between flocks, but it may help prevent blockages or leaking drinkers caused when biofilm breaks loose within the pipelines, affecting drinker function.

Benefit 4 - Acidification can help early protein digestion

Acidity also plays a major factor in the transformation of pepsinogen to pepsin, which is essential for protein digestion. Lysine digestibility in day-old broilers is 78%, but rises to above 89% by 14 days of age (Batal and Parsons, 2002). Therefore, acidification of the water may benefit early protein digestion by slightly reducing the buffering of the feed passing from the crop to the proventriculus.

Chick starter diets are one of the most buffered diets the animal will receive, with the exception of layers and breeders in production, due to the calcium and protein content. This may explain increasing successes in acidifying drinking water in the early stages of production.

Biotronic® Top liquid

The correct acidification of drinking water with an enhanced acidifier, such as Biotronic® Top liquid from BIOMIN, will benefit performance and enhance gut health through microbial modulation, reducing the pathogen challenge in the intestine and increasing protein digestion. Adding Biotronic® Top liquid goes further to inhibit bacterial growth and prevent limescale and biofilm build up, while also boosting early protein digestion without interfering with infeed probiotics.

Conclusion

Water is an essential part of optimal flock performance. However, since water is able to transport pathogens into the poultry house, its quality and management is extremely important. Sanitization, regular testing, checking for biofilm in pipes and thoroughly cleaning lines between flocks can all help to ensure water quality is as high as possible. Adding an enhanced acidifier product will deliver additional performance benefits as well as reducing the level of bacteria in the water.

Reference

Batal, A.B. and Parsons, C.M. 2002. Effects of age on nutrient digestibility in chicks fed different diets. Poultry Science, v.81. 400-407.

*More Reference can be provided on request.



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Efficient Data Management in the Hatchery

Lotte Hebbink, Incubation Specialist, Pas Reform Academy

Optimising hatchery performance requires good data management. Data can be stored in various ways, ranging from simple Excel sheets to sophisticated data management software. It is also not uncommon for a large part of the hatchery's data to still only be on paper. That's a pity, because this data is much more valuable for data analysis when it is digitally stored in the right way.

Basic data entries

Here we look at the most basic hatchery data collection. We assume that in each hatchery for each batch of eggs the following is known:

- Flock number, farm, house number, flock age, breed
- Egg production date
- Arrival date in hatchery
- Setting and hatch date
- Number of eggs set
- Number of clears detected during candling
- Number of saleable chicks (and ideally also number of culled chicks)

These data can be used to calculate hatch results such as hatchability of eggs set and hatch of transfer. The data is often recorded on separate pages for each hatch day. This might be a great way to report daily production, but it does not allow for deeper analysis such as identification of the best breeder farms, effect of flock age and egg storage time on hatchability, hatchery performance compared to the previous year, comparison of incubation programs, and so on. One has to flip through endless pages and it is difficult to obtain a good overview of historical data.

Design data sheets

Hatchery data sheets that are generated on a daily and/ or weekly basis usually have a dual purpose: they serve as data entry tables and as reports. In addition, data from different hatchery production processes and calculations are put together on one page to obtain a summarising table. Although this may seem efficient, it actually makes data management unnecessarily complex. When preparing these data for analysis you will encounter problems such as multiple data repetitions with differences in detail level, copy/paste errors and non-uniform data entries.

It is more convenient to separate basic data entry tables from daily or weekly summary reports. An example of a basic data entry table can be found in Table 1. As you can see, amounts (#) are used instead of calculations (%). A separate report should contain calculations, e.g. hatch of eggs set, days of egg storage, % first week mortality, and these can be generated daily or on request. Ideally, for quick analysis using a program such as Excel, data entries like those in Table 1 should be made in one large continuous file instead of a new file for each hatching day.

Set date	Hatch date	# Eggs	Setter	Flock ID	Breed	Flock age	Lay date	# Clears	# Saleable chicks	# Culls
21-2-2019	14-3-2019	57600	2	56	А	45	16-2-2019	5184	49795	150
21-2-2019	14-3-2019	57600	2	41	А	47	13-2-2019	5670	48730	250
25-2-2019	18-3-2019	57600	3	23	В	35	20-2-2019	4608	51402	100
25-2-2019	18-3-2019	57600	3	14	В	36	20-2-2019	4896	51650	95

Table 1. Example of a format for basic hatchery data entries

Link files together

Very often data is scattered over several files, as it is here in Tables 1 and 2. If you take a closer look at these tables, you will see that the detail level is different. Keep the data in separate files but use a common column to link the two tables together. In this example you can link them with the 'Hatch date' and 'Flock ID' columns.

Advice

- Make the names of the data fields consistent when using different files with overlapping data.
- Do not combine basic data entries and daily production reports in one table.
- Use amounts and dates when entering data; don't enter calculations directly.
- For simple analysis you can use Excel Pivot Tables or Graphs.

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Hatch date	Flock ID	Placement farm	House	# Chicks placed	#7d Mortal- ity
14-3-2019	56	Farm B	1	20000	200
14-3-2019	56	Farm B	2	15000	75
14-3-2019	56	Farm F	1	14000	140
14-3-2019	41	Farm Y	1	35000	196
14-3-2019	41	Farm Y	2	14000	490
18-3-2019	23	Farm A	1	25000	375
18-3-2019	23	Farm A	3	24500	221
18-3-2019	14	Farm D	2	33000	297
18-3-2019	14	Farm D	3	20500	205

Table 2. Example of an additional data table

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Management Key to Preventing Green Muscle Disease in Broilers

Tom Tabler Ph.D. Extension Professor, Mississippi State University Extension Service, Poultry Science Department.

This condition isn't new and it can occur at any age or weight. GMD is not to be confused with woody breast, which has been featured in a number of articles in recent years and is distinctly different.

GMD is closely associated with heavier weight birds grown for the debone market. As the percentage of birds grown to heavier weights for deboning has increased, so has the incidence of GMD showing up at processing plants.

This degenerative muscle disease affects the minor pectoral muscles - the tenders - of poultry. Unfortunately, it's not detected until birds are deboned at processing and it results in condemnations.

If a bird with GMD isn't deboned and is sold instead as a whole carcass or as parts, the problem doesn't show up until the chicken is on someone's dinner table. There's no infectious agent involved and no public health concern, but who wants to eat green chicken?

It's costly

GMD is costly. Several years ago, it was projected that for a plant processing 1 million head of seven- to eight-pound broilers per week, losses from GMD would be about a ton of condemned tenders per week and a similar weight of fillet trimmings each week, resulting in an economic loss of \$7,000 per week.[2]

Actual numbers are likely higher today because many birds may be processed at nine or more pounds live weight, and many plants are now processing at least 1.25 million head per week.

Wing flapping = GMD

It's believed GMD results from contraction of the breast fillet and tender that control up-and-down wing movement. Expansion of the tender is difficult because of its location. The tender is located between the breast bone and the large breast fillet, and it's encased in a fibrous sheath that allows little room for increased muscle volume.

As the bird flaps its wings, the tender's muscle volume tries

to increase but can't. Blood supply is cut off, and the result is oxygen deficiency that causes localized death of cells and tissues.

GMD can occur after one serious episode of wing flapping, or it can occur cumulatively due to multiple episodes. It's probably more common in heavier weight birds because heavy fillets press on the tender, making it more difficult for the tender to increase muscle volume.

An important cause of GMD, therefore, is anything that causes increased bird activity that leads to wing flapping. Growers disturbing birds by moving too fast through the house, bright or intense lighting, excessive noise or rough handling of birds during catching as well as running loud equipment in or near the poultry house are all factors that can lead to increased bird activity and, ultimately, GMD.

Colourful stages

Tenders in chickens with GMD don't turn green immediately. I've seen every stage of the condition, from the early beginnings when the predominant colour is red, to the final stages when one or both tenders may be all or partially green.

For the first 48 hours or so immediately after the initial event, the tender appears red, which is due to ruptured blood vessels. After 48 hours and for the next few days, the affected tender takes on a light pink colour those progresses gradually to dark purple or plum.

As more time passes, maybe a week or longer, the tender finally turns to green, the colour for which it is named. The green colour is the result of the gradual breakdown of haemoglobin and myoglobin in the damaged muscle tissue. I consider it similar to walking into the drop-down bumper hitch on the back of my pickup. The soon-to-be bruise is red for the first day or so, then eventually blue, purple, yellow and finally green a few days later. While the causes may be different, the results are pretty similar - ruptured blood vessels and damaged tissue.

Adjust management

While a host of genetic, physiological and farm-management factors likely play a role in the occurrence of GMD, the key to controlling the problem appears to be management that limits wing flapping.

Birds should be disturbed as little as possible. Note that I did not say to neglect your flock! You still must regularly

Highlight Points

Poultry production in the US is at record levels and expected to continue rising thanks to consumer demand, especially for white meat. The trend has led to a steady increase in the market weight of broilers - but this sometimes comes with unwanted consequences, such as deep pectoral myopathy, commonly called green muscle disease (GMD). check birds and monitor air quality, ventilation, temperature, ammonia levels and litter conditions, and mortalities need to be removed. However, when working in or around the houses, move slowly and use extra care, especially near migration fences. Birds tend to pile up at migration fences, more so

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if they are pushed too fast, and piling results in increased wing flapping.

Noise levels inside and outside of poultry houses need to be kept to a minimum since loud noise frightens birds and increases wing flapping. This may mean putting off mowing around houses a few extra days, but that's better than panicking birds.

Other ways to minimise bird activity is by maintaining low light levels and making sure you don't run out of feed, since hungry birds become very active when they have access to feed again.

Be extra careful preparing the house for catching. Feeder and drinker lines must be winched into the ceiling for catching, which means increased noise levels from the drill and winches. Proceed slowly and as quietly as realistically possible since extra activity and movement of lines above the chickens' heads will make them nervous and flighty and more prone to wing flapping. They are afraid of movement above their heads because it's similar to being attacked by aerial predators.

In short, GMD appears to be closely tied to farm management, unlike diseases that result from some type of infectious agent. Management that lessens or minimises wing flapping throughout the flock appears to be the best defence we currently have against GMD.

'Heads up' to processing

Anytime those of us on the live-production side of the poultry business know birds to be marketed may have a problem, it's a good idea to give the processing plant a "heads up" instead of assuming it's the plant's problem.

• This would include GMD, which can be suspected if live production knows something happened before processing to cause an undue amount of wing flapping. The processing plant may want to adjust the speed of the cone line for deboning or add an extra worker or two.

Conversely, it should be the same on the processing side. If the plant sees a high incidence of GMD, the live-side folks need to know about it so they can initiate a search to find the cause and prevent it in the future. Maybe a grower was bush-hogging next to the poultry house a few days before processing or maybe the lighting program was changed, leading to increased bird activity and wing flapping.

Communication on both sides, and a better understanding and appreciation of what the other side is dealing with, will make things run smoother for everyone and help the industry manage problems like GMD at processing.

References:

- 1. US poultry production set to rise 3%. Poultry World.
- *More Reference can be provided on request.

Avian Chlamydiosis and Its Potential Zoonoses

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Introduction

The zoonotic diseases of poultry and pet birds having a significant impact on biosafety and human health. Among which Chlamydiosis have a worldwide distribution causing

a wide range of diseases in human, livestock, and companion animals, birds, as well as free-ranging and captive wild animals such as reptiles, fish, and marsupials.

The increased popularity of "pet birds" particularly last during the few decades has highlighted the significance of pet bird zoonoses and pet bird medicine throughout the world. The majority of pet birds are originated from either Passeriformes (canaries and finches Psittaciformes etc.) or

(budgerigars, parrots and parakeets etc.). Psittaciformes birds are highly susceptible to Chlamydia in comparison to Passeriformes birds. Avian chlamydiosis, which is also called **Psittacosis, Ornithosis, Parrot Fever** *C. psittaci* is known to infect more than 465 avian species.

Highlight Points

- For many years, chlamydiae have been hypothesized to be important zoonotic pathogens, because of their wide distribution and their infectious cycle.
- Virtually all chlamydial species might easily and frequently cross host barriers.
- This article provides an overview of the current state of knowledge on this subject.
- In the future of chlamydial research, as such, the pathologist and microbiologist are an important player when investigating associated pathology due to natural infection with novel or known chlamydial species.

Etiology

Chlamvdia is coccoid. obligate intracellular bacteria in the family Chlamydiaceae and order Chlamydiales. They are considered to be Gramnegative, due to their relationships with other Gram-negative bacteria, but they are difficult to stain with the Gram stain. At least 16 genotypes of C. psittaci, based on the bacterial ompA (outer membrane protein A) gene, have been recognized in birds and mammals.

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Transmission and Life Cycle

Transmission

C. psittaci can be acquired by birds when they inhale infectious dust or airborne particles such as feathers or ingest infectious material including carcasses. Large quantities of this organism are excreted in feces and can become aerosolized when the fecal material dries. It is also shed in respiratory and oral secretions. Biting flies, mites and lice may be involved in mechanical transmission. Some birds carry *C. psittaci* asymptomatically and can shed it intermittently for long periods. Shedding can be precipitated by concurrent infections or stressors such as nutritional deficiencies, handling, overcrowding or egg laying.

Vertical transmission has been reported in diverse avian species but appears to be infrequent. *C. psittaci* can be transmitted on fomites including contaminated feed or water. The elementary body of this organism may remain viable for longer than a month in the environment if it is protected by organic debris. It is reported to survive in bird feed for up to two months, on the glass for 15 days, and in straw for 20 days.

Humans are usually infected by direct contact with infected birds, or from the environment when they inhale contaminated dust, feathers, and aerosolized secretions or excretions. Dogs have become infected after eating bird carcasses or feces. Person-to-person transmission seems to be uncommon, but a few severely ill patients have transmitted this organism to others.



Chlamydia Developmental cycle

(Borel et al., 2018)

Fig 1. The elementary body (EB) attaches to a host cell and differentiates into a reticulate body (RB) after entry, enclosed in a membrane-bound vacuole. The RB grows by binary fission and later differentiates into EBs, which are released and infect a new host cell. The persistence state is characterized by the formation of the aberrant body (AB) induced by stressful conditions.

Chlamydiae have a unique life cycle involving two forms, The biphasic developmental cycle begins with the elementary bodies (EBs), the extracellular and infectious form of the bacteria (size of 0.2 mm), infecting host mucosal epithelial cells. After attachment and entry into the host cell, EBs develop within a membrane-bound endocytic vacuole

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called inclusion and inside, differentiate into larger (0.8 mm), metabolically active but non-infectious reticulate bodies (RBs). After multiple rounds of division, RBs redifferentiate into infectious EBs, and mature EBs complete the developmental cycle, exiting the host cell via lysis or extrusion of the inclusion. Under adverse environmental conditions, developing chlamydiae may enter a state referred to as persistence; more recently renamed the chlamydial stress response or the aberrant RB phenotype.

Stressed chlamydiae (termed aberrant bodies [ABs]) remain viable, but do not develop into EBs and are non-infectious. Chlamydiae can sometimes persist for long periods in unknown locations in the body. Due to their intracellular lifestyle, chlamydiae are dependent on host metabolites. This has considerable implications for diagnostics as these bacteria cannot simply grow on agar plates, requiring cell culture for their isolation.

Chlamydia psittaci in Birds

Incubation Period

The incubation period for illnesses caused by C. *psittaci* is usually 3 days to several weeks in pet birds and poultry.

Clinical Signs

- Infected psittacine birds often remain asymptomatic until they are stressed. Clinical cases in these birds can be acute or chronic. The signs are generally nonspecific and may include anorexia, lethargy, ruffled feathers, green to yellowish droppings Severely affected birds can become emaciated and dehydrated.
- Respiratory signs ranging from sneezing, rhinitis, mucopurulent oculonasal discharge, increased respiratory sounds to dyspnea and Swollen sinuses.
- Neurological signs (torticollis, opisthotonos, tremors, convulsive movements, flaccid paralysis or paresis of the legs) have been described in some species of psittacine birds, especially in subacute to chronic cases.
- Conjunctivitis can be a component of systemic chlamydiosis, but it can also occur without generalized signs of disease. Residual disturbances in feathering may be apparent in birds that recover from chlamydiosis. Decreased egg production also observed.

Post Mortem Lesions

The lesions in birds are varied and may include nasal adenitis, congestion of the lungs, splenomegaly with mottled or discolored spleen and hepatomegaly with multifocal hepatic necrosis. Fibrinous airsacculitis perihepatitis, pericarditis, peritonitis, as well as enteritis and conjunctivitis, may also be seen.

Diagnostic Tests

- A combination of techniques including histology may be necessary, especially when only one bird is involved. It can be stained with Giemsa, Gimenez, Ziehl-Neelsen and Macchiavello's stains.
- PCR is increasingly used to detect C. psittaci directly in clinical samples. DNA microarray hybridization tests can distinguish different species of Chlamydia. Its antigens can be detected by immunestaining methods (immunohisto chemistry, immunefluorescence) and antigen capture ELISA.

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- C. psittaci can be isolated in many cell types including buffalo green monkey, McCoy, HeLa, Vero, L-929 cells and less commonly in embryonated eggs. Isolation may be unsuccessful in birds treated with antibiotics during the previous 2-3 weeks. Biosafety level 3 facilities are required for culture, it is available in only a limited number of laboratories.
- Serological tests to detect C. psittaci in various avian species include complement fixation, ELISA, latex agglutination, elementary body agglutination (EBA) and micro-immunofluorescence.

Treatment

Only a limited number of antibiotics, such as tetracyclines, macrolides (e.g: erythromycin, azithromycin) and fluoroquinolones have good efficacy against chlamydiae. Tetracyclines are used most often in animals. Doxycycline for 45 days is normally used in poultry and psittacine birds, but attempts are being made to find shorter antibiotic protocols.

Chlamydia psittaci in Humans

Incubation Period

The incubation period in humans can be as long as one month, but most infections become symptomatic in 5-14 days. Human psittacosis cases are most common in bird keepers, poultry workers, veterinarians, and health care workers.

Clinical Signs

- C. psittaci can infect people asymptomatically, cause keratoconjunctivitis. Gastrointestinal signs, arthralgia, joint swelling and nonspecific rash have also been reported.
- Systemic signs can be range from mild flu-like disease with fever, chills, headache, myalgia, anorexia, malaise, sore throat, photophobia, atypical pneumonia with dyspnea.
- In females various gynecological problems including mucopurulent vaginal discharge, lower abdominal pain, recurrent abortion, premature birth, and infertility.
- Complications of chlamydiosis can include endocarditis, myocarditis, renal disease, hepatitis, anemia, multiorgan failure and neurological signs such as encephalitis, meningitis and myelitis. Deaths are possible.

Diagnostic Tests

- C. psittaci infections in people can be diagnosed by methods similar to those used in birds.
- Cross-reactivity with chlamydiae circulating in human populations (Chlamydia pneumonia and Chlamydia trachomatis) can be an issue in some tests, such as antigendetection assays.
- A combination of clinical signs, serology and epidemiological association with birds has been used to diagnose psittacosis in many cases, but the use of PCR is increasing.
- In humans, C. psittaci can be found in sputum, pleural fluid or blood during the acute stage of the disease. Microimmunofluorescence (MIF) and ELISAs are commonly used serological tests. Treatment with antibiotics can delay or diminish the antibody response.

Treatment

Psittacosis is treated with antibiotics effective for C. psittaci, combined, if necessary, with supportive care. Surgical

intervention may be required in cases of endocarditis. Infants can survive in erythromycin-treated pregnant women infected with zoonotic chlamydiae.

Disinfection

This organism is reported to be resistant to acid or alkali. But Some of the disinfectants expected to be effective against C. psittaci include QAC compounds, aldehydes (e.g., formaldehyde, glutaraldehyde), 70% isopropyl alcohol, sodium hydroxide and chlorophenols.

Guidelines for prevention of chlamydial zoonosis

- There is no vaccine for avian chlamydiosis, and complete eradication appears impractical due to a large number of potential hosts. However, steps can be taken to reduce the risk of infection.
- To prevent the introduction of avian chlamydiosis into a facility, new birds should be examined for signs of illness, quarantined for at least 30 days, and tested. Birds that have returned from events such as shows or fairs are also isolated. Follow the rules for import or export of pet birds.
- Wild birds should be excluded, and wild rodents, which might act as mechanical vectors, should be controlled.
- Storage of food in clean and sealed containers. Regular cleaning and disinfection of the premises and equipment also aid control. Good hygiene, including frequent hand washing, should be employed when handling birds, feces and their environments. Eating and drinking should be discouraged in these situations.
- The routine use of prophylactic antibiotics has been discouraged because it may favor the development of antibiotic-resistant strains of C. psittaci and other bacteria.
- Any bird that has regular contact with the public (e.g., birds in schools and long-term care facilities) should be routinely screened for C. psittaci.
- Personal protective equipment (PPE) should be used when handling birds or cleaning their cages.
- Carcasses, tissues and contaminated fomites should be handled carefully. Dead birds should be immersed in disinfectant solutions to reduce the risk of aerosolization.
- Necropsies should be done in a laminar flow hood. If a hood is unavailable, PPE should be worn.
- Standard infection-control practices and droplet transmission precautions have been recommended for hospitalized human patients, and isolation has not generally been thought necessary. However, significant person-to-person transmission has been reported from a few severely ill people. This suggests that additional precautions such as isolation may sometimes be advisable.

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*More Reference can be provided on request.



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