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Readership — Poultry Wide

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ANIMAL FEED SUPPLEMENT

BETAINE HCL

Properties

ITEM	RESULT
Appearance	White Powder
Assay %	98 – 100.5
Loss on drying %	Max 1.0
Microbiology	
Total plate count (cfu/gm)	Max 1000
Yeast and Mold (cfu/gm)	Max 100
Salmonella	Negative
E.Coli	Negative
Salmonella	Negative

Dosage 250g to 500g per ton of feed
Packing 25 kg Bag
Self life 2 year
Storage Store at room temperature, away from heat and direct light.

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POULTRY

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CHLORTETRACYCLINE 15%

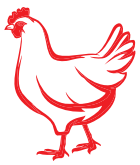
CTC SPECIFICATION

TESTS	LIMITS
Appearance	Brown to dark brown powder/granule not lumpy or moldy, no unpleasant odor
Identification	Positive
Fineness	0.425mm 90% min. pass through
Loss on Drying	8.0% Max.
PH Value	5.0-7.5
Heavy Metals	20ppm Max.
Arsenic	2ppm Max.
Content	15.0% Min.
TC Content	1.2% Max.
EPI-CTC	0.9% Max.

Storage : Store in a protected location, avoid excessive heat and keep package closed to avoid contamination

Packing : Chlortetracycline is available in 25kg polyethylene bag

Shelf Life : 24 Month



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INDEX OF ADVERTISEMENTS

* Demo-cataract *

Has democracy outlived its purpose? Can observe that in India, the rights of freedom are abused to the hilt. Freedom of speech to abuse the president, prime minister or any one for the matter. Freedom of religion where any one minor religion will exploit distort and abuse the another. Freedom of Press to accuse for the sake of opposition despite the whole matter be false.Freedom of the minority is abusing the majority. The Judicial system which has lakhs of cases for decades on going or pending but will open midnight or late hours just to give relief to the known criminal under the garb of right to justice. All these are openly decaying the values of expectations of a true democracy.

India is plagued by such a deteriorating system with no check on reforming it.

In India the recent election was fought by 28 fragmented parties but united against the current popular prime minister- how come a whole opposition get united to fight only one flawless and popular Prime Minister? The local and regional parties won their seats against various mandates, but the elected leader of opposition is usingthenewfound power for their own personal visions, irrespective of the common good

In India any good policy introduced by the current government is blatantly opposed for the sake of it obstructing even if it costs the nation's interest. The opposition in democracy today is synonymous with a first disguised enemy of the nation with a stamp of approval.

Lack of awareness and farsightedness even amongst the literate to give away a vote for a small freebie or emotional cause pushes the whole nation for the next several years. The importance and power of vote is still not understood by many.

What is shocking is that the USA is also seen to be similar of characteristics. The election campaign gets too personal and abusive by the opposition. We see similar trend of unhealthy campaign in the USA, when the people's wishes are narrowed down to the personal agenda. The element of healthy opposition or the role of opposition as a good check and balance are lost.

In Europe, most of the Democracies are not efficiently working and are flawed with issues causing unrest with the people.

Has a cataract formed in the vision of democracy? Does it need vision correction?

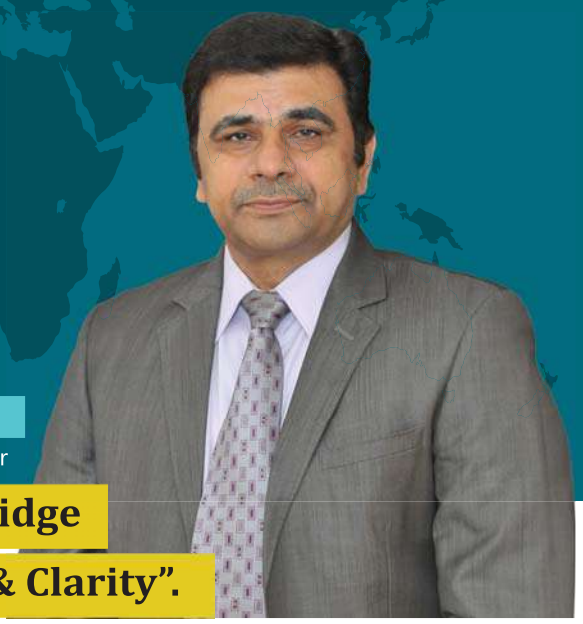
A point to ponder is how come the Pet food (favourable Import duties) and now Aqua get special attention in Budget but the more important Poultry always get poor treatment? Could we do better in representations to the government, social media etc to attract better attention? It has become a routine that every Cristi of Maize or Soya there has to be flurry of activity to get a bit of temporary concessions. When will there be a permanent solution or a lasting policy to help the Poultry farmers of the industry?

It is sad that a particular religion gets targeted again and again globally. It's a few violent mindset people who have destroyed their image. But maybe if an atrocity or wrong is being done, the good ones in the community need to raise their voices in support of truth and justice. This may prevent the whole community getting the negative image.With time things may change for better.

Engormix

ABTL

Engormix recently conducted a series of interview featuring Mr. O.P. Singh – MD, & Mr. Sumit Sipany – Asst. Manager (Marketing) on most important aspect for any organization i.e., Communication & Branding.



Mr. O. P. Singh
Managing Director

"Good Communication is the bridge between Confusion & Clarity".

Below are the set of few questions asked by Mr. O.P. Singh during an interview:

- ABTL has rapidly gained recognition in the animal feed industry. How has effective communication played a role in establishing and maintaining ABTL's brand presence both locally and internationally?
- How does ABTL ensure consistency in brand messaging and values across different medias?
- How does the company communicate its commitment to innovation and differentiation to its target audience amidst a competitive landscape, particularly in markets like South-East Asia?

Scan the QR code & watch exclusive the interview

Engormix

ABTL

"Marketing is the creative use of truth & an art of aligning your brand".

Below are the set of questions asked by Mr. Sumit Sipany during an interview: -

- Elaborate your view on why marketing and branding is necessary for a company in this industry?
- How does ABTL connect and communicates with customers and Stakeholders?
- What are the key points of an effective communication plan for the companies in the animal and health nutrition industry?
- What advice would you give to someone aspiring to enter the field of marketing in this field?

Mr. Sumit Sipany
Assistant Manager - Marketing

Scan the QR code & watch exclusive the interview

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Feed Enzymes Global Leader focused on expanding portfolio at NOVUS

CHESTERFIELD, MO (June 26, 2024) – 
José Otávio B. Sorbara, Ph.D., is charting the direction of a growing product portfolio at NOVUS. Sorbara was named the intelligent nutrition company's Feed Enzymes Global Leader following the company's acquisition of BioResource International, Inc. (BRI), earlier this year.

In this new role, Sorbara owns developing the strategy and managing the innovation pipeline for NOVUS's enzyme products while supporting the commercial team as it works to grow the feed enzyme business around the world.

"Enzymes are more important than ever for the animal agriculture industry," Sorbara says. "They play a crucial role in optimizing feed formulations, making them more cost-effective for feed millers and farmers. By enhancing the digestibility of nutrients in the feed, our enzymes improve the overall nutritional value of the diet for animals. This not only boosts animal performance but also reduces waste and environmental impact by minimizing nutrient excretion."

He says coupling BRI's products and expertise in fermentation with NOVUS's own CIBENZA® Enzyme Feed Additive not only provides more options to customers it also allows the company to innovate solutions for tomorrow's nutrition and performance challenges.

Laura Munoz, senior director of Global Strategic Marketing & Business Development says Sorbara's expertise with enzymes as well as in managing and fostering collaboration of global and regional teams will be an asset to grow the company's market share in the enzyme sector.

"As an expert, José helped expand market opportunities for various enzymes while with DSM. His understanding of the sector is definitely an asset as we work to grow our enzyme portfolio," Munoz says. "We're confident that José's leadership will allow us to meet our goals as well as continue to solidify our commitment as a trusted partner for our customers," Munoz says.

Sorbara spent the last 17 years with dsm-firmenich where he most recently served as the Global Innovation Lead for Poultry. He also previously held technical, marketing and category management roles at the company. He earned his doctorate in poultry nutrition from the State University of Maringá (UniversidadeEstadual de Maringá) in Brazil.

He is a member of the Poultry Science Association and resides in Brazil.

NOVUS is the intelligent nutrition company providing solutions for the animal agriculture industry around the world. The company's portfolio includes trace minerals, nutritional enzymes, feed digestibility and meat quality solutions, and methionine supplementation products., as well as a network of experts globally who provide guidance on management best practices. To learn how NOVUS is Made of More, visit novusint.com.

For information about the solutions NOVUS offers through its enzymes portfolio, visit www.novusint.com.

NOVUS delivering more attention to distribution partners

CHESTERFIELD, MO (July 17, 2024) – Adam Banaszak has joined NOVUS as Director of Global Channel Management. In this new role, he's responsible for solidifying the leader in intelligent nutrition as the top choice for distributors of animal nutrition solutions.

"For the past few years, the NOVUS team has done an amazing job of refocusing the business and setting a trajectory for growth," Banaszak says. "My goal is to enable that growth in markets where we work through channel partners, i.e. distributors."

Banaszak comes to NOVUS from Trouw Nutrition where he served as general manager responsible for all aspects of the company's export business across major markets in Asia Pacific from South Korea to New Zealand. He is based in Thailand.

NOVUS Senior Vice President and Chief Commercial Officer Ed Galo says Banaszak's expertise in commercial leadership and business development made him a perfect fit for this new role.

"Our long-term strategy involves both growing our direct business and significantly enhancing the way we work with distribution partners to optimize our market coverage across all important animal protein-producing regions of the world, ensuring our customers have access to our intelligent nutrition solutions. Our global team and channel partners allow us to achieve maximum leverage of our current asset base, intellectual property, and application expertise, and bring exceptional service to our customers." Galo says. "Adam's expertise in bringing people and plans together will be critical towards the realization of our goals."

Banaszak says managing distributors has been a critical element of his most recent experience and, having done that across many markets and cultures, he feels confident he can add value to "the already amazing NOVUS team, not by myself, but rather by becoming a part of the global NOVUS team."

NOVUS is the intelligent nutrition company providing solutions for the animal agriculture industry around the world. The company's portfolio includes trace minerals, nutritional enzymes, feed digestibility and meat quality solutions, and methionine supplementation products, as well as a network of experts globally to provide guidance on management best practices.

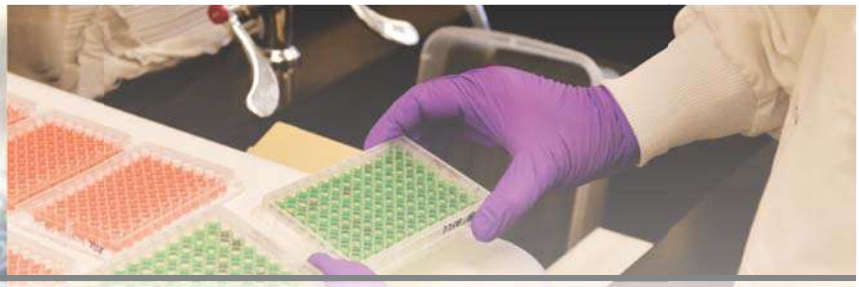
For information about partnering with NOVUS, visit novusint.com.

NATIONAL EGG CO-ORDINATION COMMITTEE

DAILY/MONTHLY EGG PRICES SUGGESTED BY NECC AND PREVAILING PRICES AT VARIOUS PRODUCTION CENTRES (PC) AND CONSUMPTION CENTRE (CC)

FOR THE MONTH OF JULY_2024

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	29	30	31	Average
NECC SUGGESTED EGG PRICES																																
Ahmedabad	550	550	550	550	550	550	560	570	575	575	575	575	575	575	575	575	580	585	585	560	560	540	540	520	520	520	520	520	520	520	520	552.9
Ajmer	520	520	510	510	510	525	535	535	535	525	525	525	525	525	525	525	525	525	525	520	485	485	450	450	450	450	425	425	440	-	-	501.03
Barwala	513	513	513	513	513	519	527	530	530	530	530	530	530	530	530	530	530	530	495	485	485	455	449	424	422	410	410	410	410	410	410	487.61
Bengaluru (CC)	560	560	560	560	560	560	560	565	565	565	565	565	565	565	565	565	570	570	570	570	570	570	570	570	550	550	525	500	490	490	490	553.55
Brahmapur (OD)	545	557	557	557	557	557	567	572	577	577	577	577	577	577	567	567	567	567	557	540	525	525	515	505	505	485	485	485	485	485	470	540.84
Chennai (CC)	580	580	580	580	580	580	580	580	580	580	580	580	580	580	580	580	580	580	580	-	580	580	580	580	580	580	560	540	540	520	520	572.67
Chittoor	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	573	-	573	573	573	573	573	573	553	533	533	513	513	565.67
Delhi (CC)	535	535	535	535	535	540	550	550	550	550	550	550	550	550	550	550	550	550	550	550	530	520	500	470	470	460	440	440	440	440	440	518.23
E.Godavari	530	535	535	535	535	540	545	550	555	555	555	555	555	555	555	555	555	555	555	520	520	520	520	485	485	475	475	475	475	475	475	526.13
Hospet	515	515	515	515	515	515	515	520	520	520	520	520	520	520	520	520	525	525	525	525	525	525	525	525	505	505	480	455	445	445	445	508.55
Hyderabad	525	525	525	525	525	525	525	530	530	530	530	530	530	530	530	535	540	540	540	520	520	520	520	490	490	460	460	460	460	460	460	512.58
Jabalpur	555	555	555	530	530	535	545	550	550	550	540	540	540	550	555	555	555	555	555	530	530	530	520	500	470	460	450	450	450	-	-	527.24
Kolkata (WB)	612	612	612	612	612	617	632	632	632	632	632	632	605	605	595	595	595	595	585	570	570	570	560	560	545	530	530	530	530	530	510	586.42
Ludhiana	512	512	512	495	495	505	521	526	528	528	515	515	515	521	521	521	521	521	521	505	485	465	485	422	450	422	422	405	405	409	410	486.77
Mumbai (CC)	595	595	595	595	595	595	595	600	600	600	600	600	600	600	600	600	600	600	600	600	580	580	580	560	550	530	520	520	510	510	510	577.9
Mysuru	565	565	565	565	565	565	565	570	570	570	570	570	570	570	570	570	573	573	573	573	573	573	573	573	550	550	525	500	495	495	495	557.39
Namakkal	515	515	515	515	515	515	515	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	490	460	450	450	450	509.19
Pune	595	595	595	595	595	595	595	601	601	601	601	601	601	601	601	601	601	601	601	601	580	580	580	560	540	540	520	520	520	520	520	579.29
Raipur	550	550	550	535	530	535	540	540	545	545	540	540	540	540	540	545	545	550	550	540	520	510	505	495	490	465	450	445	445	-	445	520.67
Surat	575	580	580	580	580	580	580	585	585	585	585	585	585	585	585	585	590	595	595	595	575	575	565	545	535	525	525	525	525	525	525	569.03
Vijayawada	540	540	540	540	540	540	545	550	555	555	555	555	555	555	555	555	555	555	555	530	530	530	520	500	500	480	480	480	480	480	480	530
Vizag	545	550	550	550	550	555	560	570	575	575	575	575	575	575	575	575	575	575	575	550	550	550	540	500	500	485	485	485	485	485	485	543.71
W.Godavari	530	535	535	535	535	540	545	550	555	555	555	555	555	555	555	555	555	555	555	520	520	520	520	485	485	475	475	475	475	475	475	526.13
Warangal	527	527	527	527	527	527	527	532	532	532	532	532	532	532	532	537	542	542	542	522	522	522	522	492	492	462	462	462	462	462	462	514.58
Prevailing Prices																																
Allahabad (CC)	581	571	571	562	562	562	581	586	586	586	586	586	590	590	590	590	590	590	590	571	562	548	548	538	524	500	500	500	490	490	490	558.42
Bhopal	560	560	560	560	540	540	545	550	555	550	555	545	545	545	545	555	545	560	560	560	540	530	530	520	510	500	490	480	490	485	485	535.32
Indore (CC)	550	550	550	540	540	540	550	550	550	550	550	550	550	550	550	550	560	560	560	540	530	520	500	490	480	480	465	465	465	465	465	526.29
Kanpur (CC)	576	576	577	562	548	548	567	567	567	567	567	567	567	567	567	567	567	567	567	567	567	524	524	500	490	481	471	471	471	471	471	540.84
Luknow (CC)	583	577	577	567	567	577	590	590	590	590	577	577	583	583	583	583	583	583	583	583	567	550	550	533	510	500	483	473	473	473	473	555.19
Muzaffurpur (CC)	580	580	580	580	580	585	595	595	596	596	596	596	596	596	596	596	596	596	596	551	551	551	515	515	490	490	480	480	480	480	480	557.87
Nagpur	560	570	560	560	560	560	555	555	555	565	565	550	555	555	555	560	560	560	560	545	545	540	520	500	500	490	470	450	450	-	-	538.97
Patna	580	580	580	580	580	585	595	595	596	596	596	596	596	596	596	596	596	596	596	551	551	551	515	515	490	490	480	480	480	480	480	557.87
Ranchi (CC)	581	581	581	581	581	581	590	595	595	595	595	595	595	595	595	595	595	595	595	586	555	550	543	543	524	524	500	500	500	500	495	565.68
Varanasi (CC)	567	567	557	550	557	567	583	590	590	580	573	573	583	583	583	583	583	583	583	567	550	533	517	500	490	467	460	460	460	467	467	544.29



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Bacillus subtilis DSM 32540 and
Bacillus amyloliquefaciens CECT 5940

Striving for immunized GUT, Healthy Digestion

EXCELLENT PERFORMANCE

Optimizes gut health

Prevents diseases

Enhance performance

Benefits

01 Improve gut health by supporting growth of gut friendly bacteria

02 Improve feed efficiency and Performance of the bird

03 Induces resistance to environmental transition stress impact on gut health

04 Replacement of AGP free feed production along with disease prevention

05 Higher and faster return on investment

06 The best immuno modulator and enrich appetite of bird

07 Inhibits growth of pathogens like Clostridium perfringens, Salmonella species and E. Coli

08 Introduction of secondary metabolites strengthens Villi integrity for effective nutrients absorption

Dosage

UT VENBIOL GOLD
500gm/ metric ton
of feed

Composition

Preparation of ***bacillus subtilis DSM 32540, bacillus amyloliquefaciens CECT 5940*** and calcium carbonate as a carrier with a minimum guaranteed concentration of $2X10^9$ CFU/gm of product.

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HIPRA UNIVERSITY ON SALMONELLOSIS – INDIA

HIPRA India, in collaboration with Nagpur Veterinary College, conducted the HIPRA University – Salmonella, an event at Nagpur for the first time since 2020.

The event was attended by around 50 veterinarians from across India who gathered to learn the latest updates on Salmonella control, its importance in food safety, and how it can be managed using high-tech vaccines like Avisan Secure.

The lectures were delivered by renowned poultry consultant Dr D. Chandrasekaran and professor from Department of pathology , Nagpur Veterinary College , Dr Nitin Kurkure followed by presentations from HIPRA speakers Dr Shyam Vane (Business Manager, HIPRA India), Dr Pradip Doiphode (National Key Account & Sales Manager, HIPRA India), Dr Deepak Koli (Technical Services), Dr Myeong Seob Kim (Regional Technical & Marketing Specialist, Asia), and Dr Santiago De Castro (Development Mobility Assignment as Business Support in Asia).

The event also had a practical necropsy session where the attendants could observe the clinical and subclinical lesions produced by Salmonella Gallinarum.

Before closing the event, a Kahoot game was organized, with several prizes that kept the participants engaged and enthusiastic followed by distribution of certificate of

participation to all the delegates.

With this event, successfully managed by our India team, HIPRA reinforces one of its strategic products in one of the most important countries for the poultry business around the world.









Biosecurity and its importance in Poultry Industry

Suchanda Doloi, Abdul Kasheef and Pankaj Deka
College of Veterinary Science, Assam Agricultural University, Khanapara

Biosecurity is a modern day practice introduced out of a need to protect the poultry from an intentional or unintentional threat of a biological agent. In everyday management, biosecurity is an endless endeavour to keep viral disease agents or the spread of such disease agents at bay. Any time there is an outbreak, health officials are concerned because deadly viruses can continuously change and officials have to determine how it happened and if it can become epidemic. Therefore, biosecurity of poultry farms is an important and vital practice to reduce the burden of any disease producing agent in any commercial operation. Biological agents, infectious/non-infectious, are such things as viruses, bacteria, fungi and protozoa are responsible for disease outbreak in poultry. Different sources that can introduce these agents into a farm or spread infection within or between the farms are demonstrated in Fig.1.

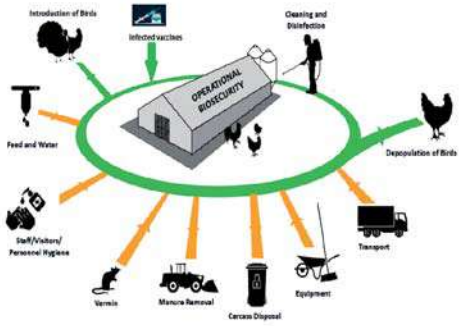


Fig .1. Different sources that can introduce diseases into a farm or spread infection

The poultry industry, in many parts of the world has been applying some kind of biosecurity measures for many years. However, in spite of the large quantity of information available to the poultry industry on health maintenance and good management, economic losses in INDIA because of various diseases like avian influenza, Ranikhet disease etc which occur due to compromise in biosecurity was worth more than milliondollars annually. This is because, in many cases, biosecurity measures including vaccination programs are not practiced effectively. Diseases not only increases mortality, but also could result in lower FCR, lower egg production rates, reduce product quality and lower customer satisfaction, which all leads to enormous financial losses to the producers and that would reflect in increased prices to the consumers.

In response to above hurdles every poultry company must develop and rigorously apply a comprehensive biosecurity program. To achieve desired impact, biosecurity programs must include major elements such as controlled movement of personal and vehicles, physical barriers, efficient manure/ dead bird management system, cleanliness and hygiene, clean inputs and closely monitored vaccination programs to assure their successful application.

With the tendency for larger farms and with higher bird density, the above mentioned sources can spread disease directly or indirectly, contribute to dissemination of infectious agents. There could be severe losses following a disease outbreak or the emergence of a more pathogenic form of a given disease. Specific factors such as the virulence of the agent, the immune status of the flock, previous exposure to immunosuppressive agents or conditions, housing design, stocking density and environmental conditions are all variables that can influence the extent of losses following a disease outbreak.

Current status of poultry industry and factors responsible for disease outbreaks:

Maintaining the excellent health of poultry flocks is the primary objective of any producers since a healthy flock is usually a profitable flock. Despite progresses in prevention and

control strategies of all infectious diseases, it is still difficult to keep a commercial poultry farm disease free. The emergence of new diseases and variants of existing diseases are becoming more common in the industry. Genetic changes in the microorganisms might have, in part, contributed to this situation. Similarly, genetic changes in the birds might have also altered their susceptibility or resistance to diseases. Global trading and travelling have made it difficult to keep disease to limited areas or regions. With the current tendency for the regulatory agencies, in many part of the world, to further limit the use of antibiotic growth promoters and therapeutic antibiotics, more effort must be directed to disease preventive strategies rather than the use of pharmacological treatments.

There are complex interactions among poultry, disease agents and the environment. Factors directed at specific or non-specific immunity of the birds can affect their ability to resist disease if exposure to the agent occurs. Activities directed at the disease agents mainly influence the exposure of the birds to the agent. Environmental factors can also affect both the bird and disease agent.

Biosecurity :

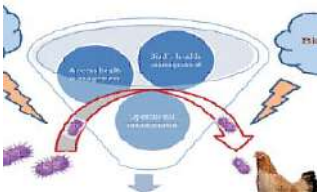
It can be defined as a set of management practices which, when followed, reduce the potential for the introduction and spread of disease agents onto and among site. Many people believe that biosecurity only involves implementing a strict visitor control and farm cleaning program. In reality, a comprehensive biosecurity program includes many other factors to be considered. In any commercial poultry operation, flock health must be excellent in order to achieve maximum profitability. Health status can often be directly correlated with the comprehensiveness of the biosecurity program implemented in an operation. It should also be noted that competence of the immune system of birds is of critical importance.

Biosecurity is the efficient use of common sense hygiene procedures in preventing the adverse effects of a disease. Clearly, a biosecurity plan must be adapted for each operation because each operation usually has its own unique situations. There is no standard formula applicable to all poultry commercial farms.

Principles of biosecurity:

The fundamental principles of biosecurity (Fig.2) are:

- ✓ Preventing the introduction of disease-causing pathogenseither between farms or within the farms (Bio-exclusion)
- ✓ Preventing the transmission of disease-causing pathogenseither between farms or within the farms (Bio-confinement)



A comprehensive Biosecurity program:

When a disease outbreak occurs, people tend to point fingers at someone or something else as being responsible for induction the disease agents. Under these circumstances, everyone should make an effort to keep an open mind and to help investigate how the problem began in the first place. The objective is to solve the problem and not simply determine who was at fault. Thus, it is imperative that all employees at all level have a complete understanding regarding the policy on the biosecurity program. It is recommended to make check lists and ensure that training is on-going, even when times are good and no disease is present.

A biosecurity program should be applied with the same intensity to all sectors of a company. It must be practical and easily understood by

everyone within the company. Consistency in following biosecurity rules throughout the year (i.e. production cycle) is very important. Biosecurity program implementation comes at little cost when compared to the costs associated with a disease outbreak and can make a difference between success and failure in a poultry operation.

Farm Standards for Complete Biosecurity:

- Poultry production area must have well developed fence or boundary, establishing a clearly defined biosecurity zone.
- In case of mixed farming system, there must be well defined grazing areas for other animals without interfering the poultry production system.
- There must be provision for separate clothes and boots for visitors.
- A footbath area should exist in all farm entries such as entrance for individuals, and vehicles.
- There must be provision for well-developed drainage system.
- Poultry house must be designed in such a way that the entry of wild birds and access to vermin is minimal.
- Poultry drinking water and feed must meet physio-chemical and microbiological standards.
- Only one poultry species should be rearedat one time in production areas, reducing the risk of disease transmission.
- Better storage facility for feed ingredients.
- Separate weighing machine for the production areas.
- A downtime of minimum 15-30 days between broiler flocks, 1.5-2 months between layer flocks and 1.5-2 months between breeder flocks should be maintained.

Routine Biosecurity Practices

Routine biosecurity measures to maintain the poultry farm are discussed as follows.

- Farm personnels should wear clean clothesand footwear.
- Hand sanitizers should be used before enteringand exiting poultry house.
- Farm personnels should not have had recent contact with outside farm birds or poultry waste and other pet animals and livestock.
- Farm visitors should be discouraged, especially contract persons like veterinarians and service providers. Protective clothing and footwear should be provided for all visitors. Visitor guidelines should be properly mentioned outside and inside the farm.
- Avoid entrance of pets, wild birds and livestock inside the farm.
- Routine cleaning and disinfection of farm are standard practices in biosecurity. Spraying disinfectants inside the farm should be done thrice a week whereas in diseased condition once or twice a day depending on the nature of disease.
- Disinfection protocols should be introduced and all vehicles visiting the farm should be strictly disinfected.
- Most drinking water comes from surface supply sources. So, treated water should be used for such water sources or during diseased condition.
- Farm should be properly disinfected and fumigated before entry of new batch of chicks.
- Hatching eggs should be thoroughly disinfected or sanitized to prevent contamination of hatcheries.
- Workrooms should be maintained clean.
- Poultry farm equipment, such as cages, rakes, egg crates, drinker and feeders should not be shared between farms or

neighbours.

- Routine maintenance of farm records should be conducted whenever possible. Maintain record for visitors and their purpose.
- Litter delivery vehicles trucks carrying new or previous litter must be cleaned and disinfected between production areas.
- Other delivery vehicles (e.g., gas, chicks, prepared flocks, eggs and feed) and drivers should not be allowed to enter in farm premises.

Structural biosecurity:

- Fencing of farm perimeter to prevent entry of other animals or visitors.
- Testing water source for minerals, bacteria, chemical contamination and pathogen load.
- Construction of concrete stage with suitable water and power supply for sanitation of vehicles.
- Suitable location for storage of bagged feed, litter or farm equipment to prevent contamination from live birds and exposure with pests or rodents.
- All-weather roads are crucial within the farm to ease cleaning and to prevent spreading of microbes by vehicles and foot wear.
- Farm should have facilities for safe scientific disposal of dead birds.
- Safe housing, with suitable wild birds and rodent proofing.
- A three-metre boundary of land around the building must be kept free of all vegetation and adequately demarcated to prevent rodent and wild life activity.

Operational biosecurity:

- Routine operation manuals should be developed for day-to-day activities carried out in feed mills, hatcheries, breeding and grow-out facilities incorporating emergency plans.
- Proper decontamination and disinfection of equipment, houses etc., following depletion of flock.
- All visitors and workers require to shower and use clean farm clothes to prevent cross contamination between them.
- Keep record of all the visitors and their purpose. Ensure they are aware of the biosecurity guidelines.
- In breeder unit, no vehicles or equipment should be allowed within the farm area from the time of delivery of flock until disposal.
- In commercial broiler unit, a minimum inter flock interval of two weeks is recommended.
- Integrated pest management program should be used to control pest and rodent through biological, chemical and mechanical means.
- Appropriate disease diagnosis facilities with routine monitoring and proper vaccination schedule should be implemented.
- In small scale egg production unit, all-in-all-out system should be followed. When it is not possible, pullets should be obtained from a source free of vertically transmitted diseases.
- Decontamination of egg packing materials etc. should be done at the point of entry of farm.
- Routine disease monitoring procedures like postmortem examination and periodic serum antibody assay to determine immune status of the flock, clinical surveillance of disease should be done.
- Regular culling of unhealthy, unproductive and diseased birds is critical for effective biosecurity measures.

Conclusion:

In commercial integration, poultry diseases occur separately or in combination with other infectious agents and management

problems. Immunosuppressive infections with agents such as infectious bursal disease, chicken infectious anaemia, marek's disease predispose flocks to the effects of respiratory viruses such as infectious bronchitis, Newcastle disease and infectious laryngotracheitis. Opportunistic bacteria including virulent E. coli, often complicate these infections. The fight against these agents will be an on-going effort and biosecurity measures must be the first line of defence in this battle. In spite of strict control measures, no one can guarantee that everything will always go as planned. It really does not matter how comprehensive your biosecurity measures are on paper, but rather whether the program is implemented correctly in farms or not. It is often said that a comprehensive biosecurity program that is properly implemented will not eliminate the possibility of disease but will reduce the probability. When a disease outbreak occurs, this generally indicates that there has been a breakdown in the program's implementation. As the industry continue to develop and become even more competitive, it is clear that a solid biosecurity program is essential for a company to survive and remain profitable in the poultry business.

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Broiler Lifting Rates for the month of JUNE_2024

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	142	145	145	147	147	147	147	147	147	139	139	130	133	136	139	139	139	139	139	129	124	119	119	119	119	119	110	110	110	112	
Karimnagar	142	145	145	147	147	147	147	147	147	139	139	130	133	36	139	139	139	139	139	129	124	119	119	119	119	119	110	110	110	112	
Warangal	142	145	145	147	147	147	147	147	147	139	139	130	133	136	139	139	139	139	139	129	124	119	119	119	119	119	110	110	110	112	
Mahaboobnagar	144	147	147	147	147	147	147	147	147	139	139	130	133	136	139	139	139	139	139	129	124	119	119	119	119	119	110	110	110	112	
Kurnool	144	147	147	147	147	147	147	147	147	139	139	130	133	136	139	139	139	139	139	129	124	119	119	119	119	119	110	110	110	112	
Vizag	135	135	135	135	135	135	135	135	135	130	130	130	132	134	136	136	136	136	136	136	136	136	136	138	138	138	129	129	129	129	
Godavari	146	149	149	149	149	149	149	149	149	141	141	136	139	142	145	145	145	145	145	135	135	130	130	132	132	132	123	123	123	123	
Vijayawada	146	149	149	149	149	149	149	149	149	141	141	136	139	142	145	145	145	145	145	135	135	130	130	132	132	132	123	123	123	123	
Guntur	149	149	149	149	149	149	149	149	149	141	141	138	141	144	145	145	145	145	145	135	135	130	130	132	132	132	123	123	123	123	
Ongole	149	149	149	149	149	149	149	149	149	141	141	138	141	144	145	145	145	145	145	135	135	130	130	132	132	132	123	123	123	123	
Chittor	147	149	149	140	142	144	149	152	154	154	154	150	145	148	150	152	152	140	140	140	142	144	144	144	126	129	131	130	130	130	
Nellore	147	149	149	140	142	144	149	152	154	154	154	150	145	148	150	152	152	140	140	140	142	144	144	144	126	129	131	130	130	130	
Nammakkal	140	140	140	140	138	138	138	138	138	138	138	138	138	138	138	138	133	133	133	133	133	133	133	133	133	133	133	133	133	133	

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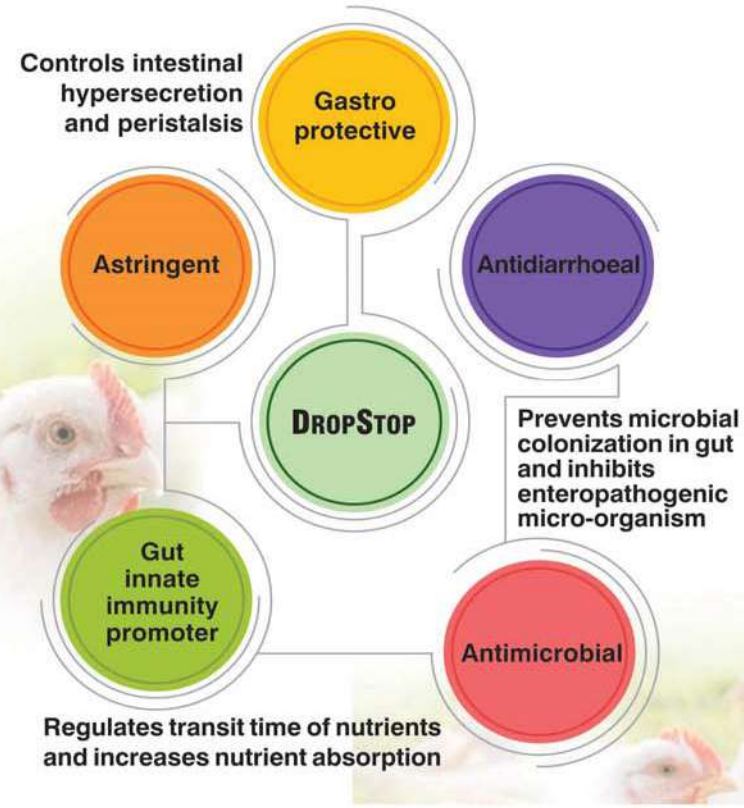

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Unveiling Success: Indian Herbs Specialities organized Spectacular One-Day Technical Seminar at Midnapur, West Bengal on June 8, 2024

INDIAN HERBS SPECIALITIES Pvt. Ltd. organized a Spectacular One-Day Technical Seminarin Midnapore, West Bengal, on June 8, 2024. This seminar was a resounding success, leaving an indelible mark on the attendees and organizers alike. The seminar's thematic focus on 'Layer nutrition, management and disease diagnostics' addressed crucial aspects vital for the sustainable layer farming operations.

The esteemed presence of Chief Guest, Dr. Purnendu Biswas, Ex Vice Chancellor, W.B.U.A.F.S, Guest of Honour, Mr. Madan Mohan Maity, Chairman NECC (East Zone) and Dr. SudiptoHaldar Director, Agrivet Consultancy elevated the seminar to a prestigious platform. Key highlights of the seminar included noteworthy address by Dr. Purnendu Biswas, Mr. Madan Mohan Maity and insightful session by Dr. Sudipto Haldar on 'Layer nutrition, management and disease diagnostics'.

This session was complemented by Dr. Shivi Maini's presentation on 'Novel Phytogenics for Summer Stress Management in Layers', offering innovative solutions to prevalent challenges in layer farming. The

enthusiastic engagement of the West Bengal Sales team, led by Mr. Paramartha Roy, National Sales Manager and comprising Mr. Tirthankar Banerjee Sales Manager (East Zone), Mr. Khokan Paul, Mr. SubhadipMondal and Mr. Kaushik Paul further exemplified INDIAN HERBS dedication to fostering strong customer relationships and providing unwavering support to the farming community.

Furthermore, the active participation of over 60 top layer farmers, integrators, feedmillers, and patrons underscored the event's significance and relevance within the West Bengal poultry-Layer community. The vibrant exchange of ideas, experiences and best practices fostered a collaborative spirit, nurturing a conducive environment for collective learning and growth.

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Visionary Leader in Animal Healthcare Honored with PhD in Poultry Science

Dr. K N Reddy was Conferred with an Honorary Doctorate in Poultry Science from the European International University

Dr. K N Reddy, CEO of Natural Remedies and a leading figure in animal healthcare, has been awarded an honorary Doctorate in Poultry Science by the esteemed European International University. With over 30 years of expertise, Dr. K N Reddy has transformed Natural Remedies into a global leader in Phytogenic solutions for animal health.

Under his leadership, Natural Remedies has expanded its reach to 45 countries, contributing significantly to the US Pharmacopeia, British Pharmacopoeia, and Indian Pharmacopoeia. Dr. K N Reddy's innovative strategies have driven the company's growth and commitment to sustainable, nature-based healthcare solutions.

Hailing from Warangal, Dr. K N Reddy embraced his journey by pursuing a bachelor's degree in Poultry Science from Kakatiya University. His dedication and vision have since led to groundbreaking contributions in the field.

As an EC Member of CLFMA and chairholder for various poultry boards, Dr. K N Reddy advocates for continuous learning and innovation. His leadership has been instrumental in positioning Natural Remedies as a pioneer in developing safe, effective, and sustainable Phytogenic solutions.

Dr. K N Reddy's mantra, "Ordinary people with extraordinary commitment can produce outstanding results" encapsulates his approach to leadership and innovation. His contributions continue to shape the future of poultry health and animal healthcare globally.

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Managemental Factors Affecting Hatching of Chicken Eggs

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Introduction

At the time a fertile egg is laid, there is already a small embryo floating on the yolk. The vitality of this embryo must be preserved during storage until the point in time when the incubation process starts. To achieve this, the eggs are handled carefully and temperature fluctuations avoided as much as possible under practical conditions (Barten, 2007). Beside this common practice, specific management procedures may help to minimize the loss of hatchability during extended egg storage. Optimum hatchability and chick quality can only be achieved when the egg is held under ideal conditions between laying and setting in the incubator. Once the egg is laid, its hatching potential can be only maintained, but not improved.

The following factors are of major importance for the production of hatching eggs that produce high quality chicks:

A. The genetic make up

The genetic makeup of the parent stock is very important. The parent stock should be vigorous. Here again rearing plays an important part. Sexing errors need to be eliminated as chicks from false crossings do not possess the predicted characteristics.

B. The housing of the flock

The parent stock flock needs to be housed in well ventilated houses with correct indoor temperatures, litter in good condition (dry, not dusty, not crusty, without moulds), a well adjusted lighting program, sufficient feeder and watering space per bird. Ventilation is the most efficient method to reduce the amount of micro organisms in the air, which may contaminate the hatching egg. A correct control of the fans-eliminates draught, maintains an ambient temperature and supplies sufficient fresh air in the house. At the onset of lay the depth of litter should not be too deep as this may result in many floor eggs. Instead of wood shavings coarse sand may be used. If drinkers stand or hang above the litter wet spots may be found, in which rotting bacteria may develop. Concrete floors are essential for a good disinfection and the prevention of repeating worm infestations.

C. Flock health and applied vaccination program

Never vaccinate against Infectious Bronchitis (IB) during the laying period. The importance using only hatching eggs from healthy disease free parent stock will be clear in one realizes that a number of poultry diseases are egg transmitted to the offspring. Use only PPLO and Salmonella pullorum free parent stock. It is well to remember that the temperature and the humidity of the incubator create perfect conditions for the development of micro-organisms which are the causative agents of many poultry diseases. Also the incubator is an ideal place for multiplication and distribution of diseases which are on or inside the hatching eggs (Brooder's pneumonia & Omphalitis). Some anti-coccidiostats and antibiotics may be harmful to the hatching result if applied during the laying period.

D. Feed and water

At the onset of egg production, special attention should be paid to the vitamin and trace element contents of the ration as well as to a proper balance in calcium allowances. Thin shelled eggs lower the hatching result. During stress periods give extra vitamins. Unbalanced feed and diseases may cause enteritis, whereby the absorption of the nutritional compounds decreases, which results in poor hatching eggs, lower hatchability and weak day old chicks. Drinkers and feeders need to be cleaned regularly to prevent the growth of moulds and the development of other micro-organisms. Pure – non ferrous – drinking water should be provided to obtain a good production and good hatching results.

E. Male to female ratio

As production starts at least 8 males per 100 hens should be present. Ten males per 100 females represent the utmost limit. An excess as well as a shortage of males will cause fertility problems in the flock.

F. Age of the flock

It is wrong to expect good hatching results of first quality chicks from birds of 24 weeks or less. One should not collect hatching eggs from light breeds before 25 weeks of age. The poor hatching results at the onset of egg production is probably due to the relatively small yolks. Best hatching results are obtained from eggs collected from birds between the 8 and 13 months of age.

G. Flock performance

Generally, there exists a positive correlation between production and hatchability. Any factor bringing about a drop in production may affect hatchability as well.

H. Egg-size

In general large eggs do not hatch well. The acceptable weight of hatching eggs ranges from 50 to 70 grams. Neither to large nor too small eggs is used for hatching.

I. Shell quality

In selecting hatching egg, the requirements regarding shell quality and egg shape will be higher for layers than for broilers. Thin shelled eggs tend to crack more easily with the consequent risk of contaminating other eggs and they should, therefore, not be used as eggs for hatching. At peak production, during periods of extreme temperatures and at the end of the production period, special attention should be given to a proper balance in calcium allowances (supplementary oyster shell).

J. Nesting arrangements

With individual nest boxes, 1 nest per 5 hens should be provided and a satisfactory layer of clean nesting material should be available. The nests, if not automatic or semi automatic, should have clean litter. Broken eggs and dirty litter must be removed promptly since their contents must be considered as a potential hotbed of parasitic micro-organisms. To prevent roll-away nests getting dirty take care that bottom of the nest has a good slope and is cleaned regularly.

K. Gathering eggs

Frequent egg collections are determined by the season of the year, climatic conditions and the type of nests. At the moment an egg is laid it has a temperature of 410C (1050F) which is the body temperature of the hen. After an egg has been laid this temperature should decrease gradually till 270C (800F) within approximately 6 hours. At this temperature the embryonic development slows almost to a standstill. If hatching eggs are kept at temperature above 270C the blastodisc development continues and when cooled down this overdevelopment blastoderm may later on die. Cooling down too quickly is not good. In this case the blastodisc development is delayed which may result in a week blastoderm, which may die too. Those hatching eggs having a chance of

gradual cooling-down get strong blastodisc which may well stand storage and transport. From the foregoing it is obvious that frequent collections of hatching eggs is a must to obtain high quality hatching eggs.

L. The storage of hatching eggs

For the storage of hatching eggs one needs a good egg storage room. This room should have two compartments, one for cleaning, grading of eggs and storage of packing material and the other for the storage of hatching eggs. The latter needs to be fitted with a cooling and heating system and should be well insulated to maintain a constant temperature and humidity. For each square meter one may store 22 boxes (each of 360 eggs = 7920 eggs). In general it is recommended to store hatching eggs at a temperature of 180C. However one needs to distinguish according to the length of the period that the eggs are stored. The optimum temperature for eggs which are stored during 3 to 4 days is probably 180C. For a period from 4 up to 7 days the optimum temperature should be 160C.

If the storage is for more than 7 days the temperature needs to be 15-160C. When the temperature is lower, dew on the eggs can occur. During storage loss of moisture from the egg takes place due to water evaporation. The correct relative humidity is 72%. Storing conditions however must never reach the dew-point when condensation on the shell surface would provide favourable conditions for microbial growth. It is absolutely necessary to maintain a constant temperature, otherwise the relative humidity will fluctuate too. The ventilation needs to be restricted to a minimum. If a cooling system is not present, during the night fresh cool air may be let in, while during the hot periods of the day the egg storage room should be kept locked. During the transportation of hatching eggs avoid shocks in order to prevent cracks. At least twice a week (better daily) the eggs need to be taken from the egg supply farms and transported to the hatchery if an egg storage room is not available on the farm.

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Organic Meat Production

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In India, The National Standards for Organic Production developed by Ministry of Commerce and Industry, Government of India, provides guidelines for organic production. There are no worldwide regulations especially for governing the processing of organic meat, however guidelines for the production, processing, labeling and marketing of organically produced foods have been given by Codex Alimentarious Commission which was utilized by various countries to set their own standards, similarly India promulgated the National Standards for Organic Production (NSOP). Organic meat production consists of some basic principles in accordance with standards (NPOP, 2005). It mainly includes two segments; (A) Animal Husbandry, (B) Processing and Handling of Food.

A. Animal Husbandry:

1. Animal Husbandry Management

The certification programme shall ensure that the management of the animal environment takes into account the behavioral need of animal. It includes sufficient free movement, fresh air, natural daylight, fresh water resting area and protection against excessive sunlight, temperature, rain and wind

All animals shall have access to open air and/or grazing area. Poultry and rabbits shall not be kept in cages. Landless animal husbandry systems shall not be allowed.

The natural day length is prolonged by artificial lighting according to species, geographical considerations and general health of animals.

Herd animals shall not be kept individually.

2. Length of Conversion Period

Animal products may be sold as "product of organic agriculture" only after the farm or relevant part of it has been under conversion for at least twelve months and provided the organic animal production standards have been met for the appropriate time.

Animals present on the farm at the time of conversion may be sold for organic meat if the organic standards have been followed for 12 months.

3. Brought-in Animals

All organic animals should be born and raised in the organic holding. When organic livestock is not available, the certification programme shall allow brought-in conventional animals according to the following age limits: 2 day old chickens for meat production, piglets up to six weeks and after weaning and calves up to 4 weeks old which have received colostrums and are fed a diet consisting mainly of full milk.

Breeding stock may be brought-in from conventional farms but maximum replacement rate should be 10 percent.

4. Breeds and Breeding

- Breeds should be chosen which are adapted to local conditions.
- Reproduction techniques should be natural.
- Artificial insemination is allowed.
- Embryo transfer techniques are not allowed.
- Hormonal heat treatment and induced birth are not allowed unless under veterinary advice.
- The use of genetically engineered species or breeds is not allowed.

5. Mutilations

- Mutilations are not allowed.

The certification programme shall allow the following exceptions: castrations, tail docking of lambs, dehorning, ringing and mulesing.

6. Animal Nutrition

The livestock should be fed 100% organically grown feed of good quality.

Minimum 50% feed shall come from the farm itself or produced in co-operation with other organic farms in the region.

The following products shall not be included nor added to the feed; synthetic growth promoters, appetizers, preservatives, artificial colouring agents, urea, farm animal by-products (e.g. abattoir waste) to ruminants, droppings, dung or other manure (all types of excreta), genetically engineered organisms or products etc.

Vitamins, trace elements and supplements shall be used from natural origin.

7. Veterinary Medicine

Natural medicines and methods, including homeopathy, ayurvedic, unani medicine and acupuncture, shall be emphasized.

The uses of conventional veterinary medicines are allowed when no other justifiable alternative is available but the withholding period shall be at least double the legal period.

Synthetic growth promoters and hormones for heat induction and heat synchronization are prohibited.

Vaccinations shall be used only when diseases are known or expected as in endemic cases.

8. Transport and Slaughter

Transport and slaughter should minimize stress to the animal. Transport distance and frequency should be minimized.

Animals should be inspected regularly during transport.

Animals should be watered and fed during transport.

Each animal shall be stunned before being bled to death but exceptions can be made according to cultural/religious practices.

No chemical/synthesized tranquilizers or stimulants shall be given prior to or during transport.

B. Processing and handling of food

1. General

Organic products shall be protected from co-mingling with non-organic products.

All products shall be adequately identified through the whole process.

The certification programme shall set standards to prevent and control pollutants and contaminants.

Organic and non-organic products shall not be stored and transported together except when labeled or physically separated.

Certification programme shall regulate the means and measures to be allowed or recommended for decontamination, cleaning or disinfection of all facilities where organic products are kept, handled, processed or stored.

Besidesstorageatambienttemperature, the following special conditions of storage are permitted: controlled atmosphere, cooling, freezing, drying and humidity regulation.

2. Pest and Disease Control

Pests should be avoided by Good Manufacturing Practices (GMP) and recommended treatments are preventive, mechanical, physical, biological methods and pesticidal substances approved in national standards.

3. Ingredients, Additives and Processing Aids

The ingredients used should be

organic.

In cases where an ingredient of organic agriculture origin is not available in sufficient quality or quantity, the certification programme may authorize use of non organic raw materials subject to periodic re-evaluation. Such non-organic raw material shall not be genetically engineered.

Water and salt may be used in organic products.

Minerals (including trace elements), vitamins and similar isolated ingredients shall not be used.

For the production of enzymes and other micro-biological products the medium shall be composed of organic ingredients.

4. Processing Methods

Processing methods should be based on mechanical, physical and biological processes.

The following types of processes are approved: smoking, extraction, precipitation and filtration.

Extraction shall only take place with water, ethanol, plant and animal oils, vinegar, carbon dioxide, nitrogen or carboxylic acids. These shall be of food grade quality, appropriate for the purpose.

Irradiation is not allowed.

Filtration substances shall not be made of asbestos nor may they be permeated with substances which may negatively affect the product.

5. Packaging

The materials used must not affect the organoleptic character of the product or transmit to it any substances in quantities that may be harmful to human health.

Use of PVC materials is prohibited.

Laminates and aluminum should be avoided.

Recycling and reusable systems shall be used wherever possible.

Biodegradable packaging materials shall be used.

6. Labeling

Labeling shall convey clear and accurate information on the organic status of the product.

Where a minimum of 95% of the ingredients are of certified organic origin, products may be labeled “certified organic” or similar and should carry the logo of the certification programme.

Where less than 95% but not less than 70% of the ingredients are of certified organic origin, products may not be called “organic”. The word “organic” may be used on the principal display in statements like “made with organic ingredients” provided there is a clear statement of the proportion of the organic ingredients.

Where less than 70% of the ingredients are of certified organic origin, the indication that an ingredient is organic may appear in the ingredients list. Such product may not be called “organic”.

The person or company legally responsible for the production or processing of the product shall be identifiable.

7. Storage and Transport

Integrity should be maintained during storage and transportation of organic products.

Organic products must be protected at all times from co-mingling with non-organic products.

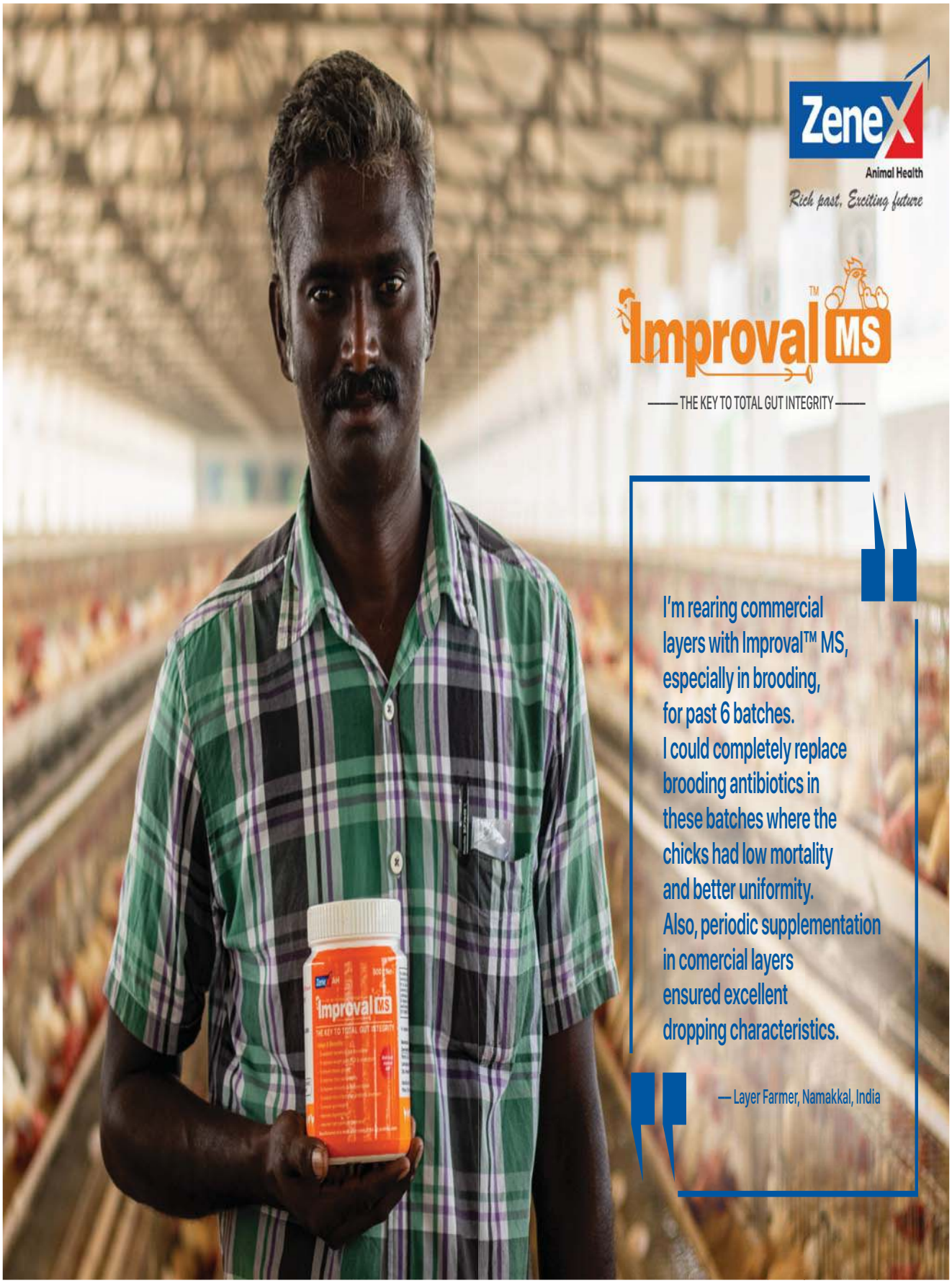
Processing aspect especially concerned to organic meat

Essential requirement especially for organic meat production are facilities of certified slaughter unit, meat inspection, meat processing, sanitation, safety measure (HACCP), waste management, record keeping etc. In the United States, the animals slaughtered in a federally inspected plant, and certified organic meat must additionally

be slaughtered in a certified organic slaughter facility. Animals to be slaughtered must be certified organic, and be traceable by individual animal or flock. Once a facility is located, it may require a trip of several miles for animals that can lead to stress and loss of meat quality (Minka and Ayo, 2010). An option now available is the mobile slaughter unit (MSU). In 2010, the USDA announced compliance guidelines for MSUs (Food Safety and Inspection Service (FSIS), 2010). Among the advantages of an MSU versus a fixed structure are the lower costs and reduced stress on animals. The live animal must be inspected prior to killing and there must be a means of humane stunning before killing.

The application of physical and chemical interventions and combinations thereof is advised to extend meat and poultry quality and safety by the inhibition or inactivation of microbes. The manufacture of organic meat and poultry products may include the use of hot water and/or organic acid rinses for pathogen inactivation on carcass surfaces, vacuum packaging, refrigerated storage of carcasses and fabricated cuts, use of approved substances in further processed and/or ready-to-eat (RTE) products, and low-temperature storage, distribution, and retail display. Food antimicrobials have been successfully applied to carcasses for inhibition of spoilage and pathogenic microorganisms, incorporated into brine and marinating solutions and injected into nonintact products for deep-tissue decontamination, added into formulations of, or applied topically to surfaces of processed products to inhibit surface-contaminating microbes (Schirmer and Langsrud, 2010). Antimicrobials approved for use in organic food manufacture, including weak organic acids, chlorine and oxidizing compounds, microbially produced antimicrobial substances, and biopreservation technologies. Numerous studies have detailed the efficacy of LAB-derived biopreservation technologies for the inhibition of Gram-negative and Gram-positive microbes on fresh and processed meat and poultry (De Martinis et al., 2002).

Processors must continue the record keeping paper trail that was begun by the producer to ensure the integrity of the final organic product. Ingredients and processing aids must be documented as to certify the meat or meat products organic. The management of liquid and solid waste products during meat and poultry processing in fixed facilities is similar for both conventional and organic processing systems.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Constraints and Remedies of Poultry Farming in Northwest Himalayan region

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Introduction:

In north-western part of Himalayan of India shows varied climatic and topographic features. This area show signs of an extremely cold and dry climate for most of the year, which hinders the growth and productivity of biomass. At this region altitude varies from 3048-3658m from mean sea level. Every year during winter, the temperature falls to -35°C. Here, the atmospheric oxygen pressure is 30% lower than at mean sea level. Vegetation cover is therefore very scarce in these areas. These types of cold and desert like conditions are not suitable for the natural habitat of poultry birds. The awareness and importance of poultry farming amongst farmers has increased day by day due to the sustained hard work of the state government, animal husbandry department, non-governmental organizations (NGOs) and a few agro-animal researchers. Day by day, a huge demand for poultry meat and eggs has created due to presence of army personnel, increased tourism, changing lifestyle and eating habits. There is an huge opportunity for farmers to participate in an occupation like poultry farming during this time due to traditional agricultural activities cease in winter. Therefore, despite numerous constraints, the poultry industry has good potential for expansion in this region.

Major constraint:

For successfully doing poultry farming business; it is essential to understand the constraint and difficulties facing poultry farming in cold region

Religious sentiments:

The major communities in this region are of Buddhist religion. Therefore majority of people are vegetarian and against killing animals. Their attention in poultry is limited to the keeping of egg laying birds.

Extreme cold and hypoxic environment:

Due to poor homeothermic capabilities, day old chicks of any poultry species are physiologically prone to the adverse effects of cold stress. Hypothalamus of birds not fully develops up to 10th day of age. The temperature range for optimal production is 17 to 23°C (thermo-neutral zone) for adult stage. The growth and production parameters of these birds affected if any variation above or below this range. In this region, the temperature fluctuates from +35°C in summer (day time) to -35°C in winter season (night time). I exert stress on the homeothermic control system of the bird, as well as requiring huge expenditure maintaining to optimum temperature during the extreme of winter. The altitude in this region varies from 3048-3658m, which directly affects the hatchability percentages of chicks because of the reduced partial pressure of the oxygen in the air. This single factor is responsible for the absence of any hatchery in this region and in turn the non-popularization of poultry farming in this region. Cold stress coupled with the hypoxic and dry environment (RH=35-45%) reduces the optimum production and livability potential of poultry birds.

Poor availability of day old chicks and poultry feed:

It is difficult to procure day old chicks and readymade poultry feed in the winter season due to absence of hatcheries and poultry feed mills as well as due to isolation of this region from the other parts of the country (for at least 6 months). There is difficulty of transportation at high altitude mountains which leads to high transportation charges may also add to the burden on farmers. Local availability of poultry feed ingredient is also minimal and there are limited sources to get them on a regular basis.

Suitable breeding stock:

Considering the climate conditions and constraints, selecting an appropriate breeder population for broilers and layers becomes very difficult. There is need of such breeder birds which able to withstand at harsh climatic conditions and produce optimally. White leghorn and RIR are good enough for egg production purposes. These two breeds survive well with good production performance even in backyard farming. F1 strains of slow growing commercial broilers are suitable for backyard farming. In poultry houses with better temperature control, fast growing Vencobb broilers have been found more economical by virtue of their rapid body weight gain and better feed conversion ratio (FCR). But in general, cockerels of slow growing strains like Chabro and dual purpose Indian varieties such as Vanraja will be more appropriate because of their hardy nature and better survivability at the farmers level.

The average body weights of day old chicks and 6 weeks old Vanraja chicks are 37.97 gm and 810 g, respectively at an altitude of 1585m above mean sea level. The average feed conversion ratio (FCR) is 2.64 at the 6th week with 22.63 % of total mortality during this period. The growth of broilers at high altitude is less as compared to plains and also they consume more feed per unit of body weight gain.

Therefore, to encourage poultry farming at the backyard level, there is a need to introduced dual purpose broody native birds.

Housing systems:

The housing of poultry birds is very difficult in cold, arid climates especially in the winter season. In order to maintain the optimum temperature of 35°C inside brooder and 21-23°C inside grower and layer houses, some special care and modification to the design of traditional poultry houses are needed.

The different types of houses which are currently used by local farmers are as below:

- **Over Ground Mud Walled Poly Sheds:**
- **Semi Under Ground Mud / Stone Walled House:**
- **Trombay Walled Shed:**

Point for low cost, ideal housing for poultry for in cold, arid region:

House can be semi-underground to over ground, provided ventilation is optimized. It should be doubled walled with some insulating space between the walls. Mud brick walls are better insulators and cheaper. The roof should be doubled layered with space for polycarbonate sheets to trap solar radiation during the day. The outer surface of the walls facing the sun should be painted black. Large glass walls or glass windows should be provided to trap heat during day. Additional covering of black and white polythene over the walls/ windows in day and night time will increase the heat retention capacity of the shed. Doubled layered curtains made of bags or sacks can used as double doors to prevent incoming chilled air while opening and closing of the door. A false ceiling is vital. House

should not be too long, too wide and too high. Smaller houses are better for maintaining temperature and humidity. Ventilators should be constructed to prevent direct entry of draughts. Packaging materials should be used to fill walls and roofs, e.g. chopped wheat or paddy straw. Lucerne hay or any cheap dried stacks of herbs or plants mixed in mud can improve insulation. Inside, the bottom one third or walls should be cemented or covered with tin or aluminium sheet and the corners rounded. During the night, curtains can be used to cover glass windows or poly carbonate sheet to avoid chilling or ply wood made folded shutters can be used to cover window or poly carbonate sheets. The housed should be face south-east to get maximum sunlight.

Feeding Management:

In the poultry industry, feed constitutes the major input that decides the profit margin. However, there is no feed industry, which is producing commercial poultry feed for high altitude chicken. So, available commercial broiler feed has no nutritional composition to meet the maintenance and productive requirement of birds at high altitude. Therefore, unless suitable feed formulation is developed, their genetic potential will not be expressed fully even of most suitable broiler strain. In broiler production, maximum expenditure is on feed. It is thus essential that a proper feed conversion ratio is achieved. For this, it is extremely imperative that birds are fed a balanced ration. In the high altitude region, it is recommended that the starter ration should have 20% crude protein and 3100 kcal energy while the finisher should have 18% protein and 3200 kcal energy. The starter ration is appropriate for birds up to 4 weeks of age and subsequently finisher ration should be given.

In cold and high altitude areas, it is not advisable to feed broilers ad-libitum. Broilers can survive in hypoxic and cold stressed condition only by reducing their rate of body growth, and ad-libitum feeding leads to ascites and other metabolic diseases in these birds. It also predispose the birds to other diseases. Feed restriction is a simple measure that can be used to curtail mortality in broilers.

Possible strategies for controlling Ascites in cold stressed (5-15°C) birds at high altitude:

Common salt has to include less (0.15-0.3%) in the ration. Alkalinise the ration by adding NaHCO3. Add selenium to the diet to increase antioxidant status. This region is rich in salts because of drinking water typically obtained from springs, so it should be kept stored overnight and the following day and the upper scum layer removed before supplying to the birds. Birds on high density nutrients such as high energy, high protein diets are more prone to ascites. Feed a low protein ration, low energy diet during the first 14 days. Nitric oxide helps to prevent the ascites. L-arginine supplementation reduces the incidence of ascites by helping in the synthesis of endogenous nitric oxide which causes vasodilatation. Coenzyme Q10 has a beneficial effect in ascites mortality, when included in 40 mg/kg of feed. Frusemide (a diuretic) at 0.001%, 0.005% and 0.01% significantly reduces ascites without lowering the final body weight. Increasing dietary bicarbonate and reducing dietary chloride has potential as a low cost and effective method to reduce ascites in broiler chickens. Naked neck birds are more competent homeotherms and prevent superior levels of HSP-70 in the organs that are first affected by Ascites Syndrome (AS). Therefore naked neck broilers would be less susceptible to ascites. A combination of ascorbic acid and chromium supplementation can offer a potential way of preventing the detrimental effects of cold stress in laying hens. A combination of vitamin C, vitamin E and zinc (antioxidant components) can provide protection to the endothelial lining

of the lungs and heart and some protection from the onset of ascites. Restricted feeding helps prevent ascites. In the day time, all windows should be kept in open and at least two windows during the night, depending on local weather conditions, to provide maximum ventilation. Better ventilation prevents ascites. All broiler attaining 1 kg of body weight should be sold immediately

High Altitude and Hatchability:

Hatchability of eggs was declined when incubated at high altitude beyond 750m from the mean sea level. Above this level, particularly beyond 1050m, there is considerable decline in hatchability. Low oxygen is the probable cause of poor hatchability and lower level of hemoglobin in growing embryos. The later may be the cause of death of embryos. There may be other factors associated with low air pressure at high altitude resulting in poor hatchability. Simply by restoring sea level air pressure in the incubating chamber improves hatchability considerably. But, a more practical way to restore hatchability at a high altitude is to inject oxygen in incubating and hatching chambers in order to achieve 23 to 23.5% oxygen content in the air.

Conclusion:

In the cold, arid Himalayan region of India, where the altitude is 3048-3658m above the mean sea level (MSL) and the temperature rages from +35°C to -35°C, poultry farming is very difficult task. There are many constraints contributing to this, including limited availability of feed, lack of subsidies germplasm, limited poultry feed ingredient and poor knowledge regarding poultry farming. Important factors which have influenced poultry production are the unavailability of poultry feed and the existence of harsh climatic condition. There is need of specific high yielding variety of layer or broiler breed for high altitude region. The existing local poultry breeds exhibit very poor eggs and meat production. The housing system of poultry is different for cold arid climate. For maintaining the optimum temperature (35°C inside brooder and 15°C to 20°C inside grower and layer house) requires modification in the design of traditional poultry housing. Fertility and hatchability are the main problem at high altitude. Ascites is the major problem in broiler bird's health management at high altitude.

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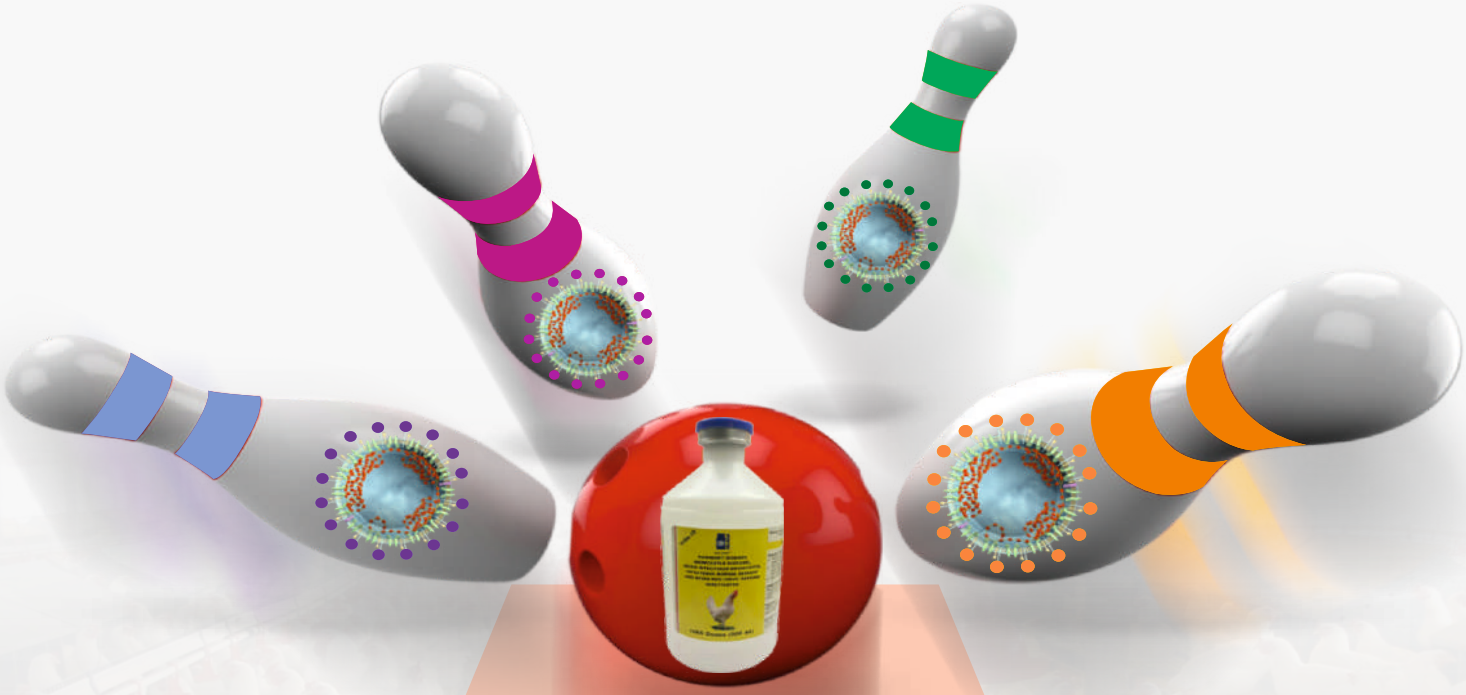

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