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ARTICLE

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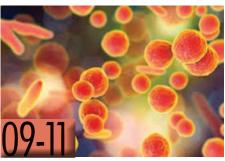
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POULTRYRF\/I E OF INDIAN POULTRY INDUSTRY

Volume 58 | Issue 11 | July 2024















Prof. (Dr.) J. L. Vegad Prof. (Dr.) R.N. Srinivas Gowda Prof. (Dr.) Purnendu Biswas Prof. (Dr.) P.K. Shukla











Tarun Shridhar

♦ INDIAN POULTRY REVIEW | 03



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The Edit POULTRY POLICY PARADOX



The current administration exhibits a Jekyll and Hyde nature in its approach towards the poultry industry. Poultry farming in India is crucial for producing nutritious food such as eggs and chicken meat to address the protein needs of millions in the country. However, this industry faces challenges from inconsistent government policies at both the Union and State levels, often creating a blurred and complex regulatory environment.

Recent developments highlight attempts by authorities to regulate pollution and prevent cruelty to animals, frequently targeting the poultry sector. Over the past few years, poultry farmers have faced various penalties and eviction orders from regulatory bodies, ostensibly to control pollution or ensure animal welfare. This has created significant hurdles for those involved in poultry farming.

In a seemingly contradictory move, both the Union and several state governments have recently introduced substantial support and subsidies for small-scale poultry farms in rural districts. These initiatives aim to encourage individuals to participate in domestic poultry farming, contributing to the country's growing poultry industry. However, these ventures must comply with stringent government regulations, despite the limited experience many farmers have in managing environmental impacts.

Pollution control remains a significant challenge for these entrepreneurs. The lack of a uniform policy across states adds to the confusion, as pollution control regulations vary significantly from one region to another. This inconsistency often leads to questions about the effectiveness and fairness of the regulations, revealing a less favourable side of the administration. The complex and sometimes contradictory policies create obstacles for poultry farmers, who struggle to navigate the varying requirements and maintain compliance across different states.

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G. N. Ghosh Managing Editor

Indian Research

Effect of Supplementing Different Sources of Selenium on Growth Performance, Feed Utilisation, Blood-Biochemical and Carcass Traits in Kuroiler Chickens

By

N. Kaushik, D. K. Singh*, D. Roy, A. Kumar, A. Fahim, A. K. Verma and M. K. Bharti

College of Veterinary and Animal Sciences, Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut

The study was conducted at Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut (UP) to assess the growth performance, feed utilisation, blood-biochemical and carcass traits utilising 160 Kuroiler chickens from June 10th to August 5th, 2022. Feeding trial was designed into 04 dietary groups viz. T1 (control, without selenium), T2 (0.3 ppm inorganic Selenium), T3 (0.3 ppm organic Selenium) and T4 (0.3 ppm Nano-selenium) in different treatment groups along with basal starter and finisher diet. Body weight was found to have significant variation in all the treatment groups from 2nd to 8th weeks of age and increases in all dietary groups. Similarly, body weight gain was found to be differ significantly from 1st, 2nd, 3rd, 5th, 6th and 8th weeks while forest of the age groups it was observed statistically nonsignificant. Overall weight gain was found highest in T4 group (2092.30 g) followed by T3 91930.23 g), T2 (1812.00 g) and T1 (1724.13 g). Weekly fed consumption was observed to have significant variation from 1st to 8th week. Feed consumption in the 8^{th} week was highest in T1 (999.10 g) followed by T3 (935.25 g), T2 (911.00 g) and T4 816.60 g). Feed conversion ratio was found to be statistically non-significant during starter phase (1d-21d) whereas, significant differences were observed for FCR during finisher phase (22d-56d).

However, FCR was found to have insignificantly affected by feeding selenium during overall phase (1d-56d). All the blood-found to have in significantly affected by feeding selenium during overall phase (1d-56d). All the blood-biochemical parameters were found to be non-significantly influenced by feeding selenium sources.

Similarly, all the carcass quality parameters were found significant variations in all groups. Live weight was found higher in T3 and T4 as compared to control. Shrinkage % found significantly lower in T3 and T4 than control. Gizzard % is significantly higher in T3 followed by T1, T3 and T4. Cut-up parts (neck and drumstick) were found similar in T3 and T4 as compared to control. Shrinkage percentage found significantly lower in T3 and T4 than control. Gizzard percentage is significantly higher in T2 followed by T1, T3 and T4. Cut-up parts (neck and drumstick) were found similar in all experimental groups whereas wings, thigh breast, back percentage were found to have significant differences. Thighs significantly higher in control (T1) and Breast significantly lower in T2 and Back percentage significantly lower in control than other dietary groups. Digestive organise except spleen weight were found to be insignificantly affected by feeding of selenium in all groups.

Sensory evaluation revealed that colour, appearance and flavour were found to be non-significantly influenced through

selenium feeding while rest parameters were observed to have significant effect of selenium supplementation. Therefore, it may be concluded that inorganic, organic and nano selenium @ 0.3 ppm improved the growth performance and carcass characteristics in Kuroiler chickens without adversely affecting the blood-bio-chemicals.

Dietary Supplementation of Germinated Maize on Laying Performance and Egg Parameters in Kadaknath

By

A. K. Karoriya and A. Jain* Department of Veterinary Physiology and Biochemistry, College and Veterinary Science & A. H., Mhow Nanaji Deshmukh Veterinary Science University (M.P.)

Kadakanth is an important Indian poultry breed which is well known for its meat quality along with some negative points such as poor egg production, slow growth rate, smaller body size as well as late sexual maturity. Faster growth and increase output in terms of meat and eggs, number of feed additives including antibiotics, probiotics, enzymes, vitamins, hormones and medicinal plants have been used. Now a days economics is also one of the important factors in poultry farming as Kadaknath is reared by small and marginal farmers. So scientists have to find out the cheaper way to rear these bird. One of the important methods is to germinate the grains to increase the nutritive value of these grains and millets.

At present, the feed industry is using maize, as basic energy source in poultry diets. Nutritional value of grains improves due to the conversion of complex compounds into simpler and assimilable form and also minimises the effect of anti-nutritional factors during germination also reduced the cost of rearing as no costly feed supplements are added to the poultry feed. A total of 128 day old Kadaknath female chicks belonging to same hatch were used for the experiment. On arrival, the chicks were weighted and equally distributed randomly into four treatment groups T0, T1, T2, and T3. Each group was divided into four replicates of 8 chicks each. Group T0is kept as control. Groups T1, T2 and T3 were supplemented with germinated maize @ 50%, 75% and 100% of total cereal component.

Supplementation of germinated grains @ 50 and 75 per cent in diets of Kadaknath layer birds had very good effect on the laying performances and along with better increased number of eggs produced. The total egg production in percentage was 30.8, 40.73, 44.62 and 35.72, respectively, for T0, T1, T3 and T3 groups. Also the age at first laying was 5 month 15 days, 5 month 3 days, 4 month 21 days and 5 month 8 days for T0, T1, T2 and T3, respectively.

All the egg parameters like egg weight, albumen and yolk volume, egg shell weight, and egg shell thickness were significantly increased with better returns and economical to the farmers especially the backyard farmers who reared these Kadaknath birds.

Source: XXXVII Indian Poultry Science Association Conference, November 2022

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Article

Mycoplasma: A Never Ending Story in Commercial Poultry Production

Wouter Depondt Huvepharma, Bulgaria

Mycoplasma spp., identified up to now, (M. gallisepticum, M. synoviae, M. iowae) have been negatively affecting commercial poultry production for many years. The poultry industry and scientific community have made great strides in increasing the knowledge of the biology of these bacteria since they were first identified, but much is still to be revealed.

Mycoplasmas are small bacteria that lack a cell wall and certain metabolic pathways, both important targets for antibiotics. This is important to remember when choosing an antibiotic for control or treatment. Mycoplasmas were often considered to have a limited survival time outside the host.

However, some recent data show that animal mycoplasma species can survive for variable time periods outside the host, depending on the species, moisture, pH, presence of organic material and temperature. Some species have been shown to survive for 50-150 days at 4°C in liquid media and from 7-14 days under dry conditions at 30°C. Recently M.synoviae was shown to survive for nine days on synthetic materials.

The presence of persistently infected populations (backyard and wild birds) ensures that the biosecurity of surrounding flocks is continually challenged. These are important reasons why mycoplasma is still a major problem in the poultry industry. Secondly, antigenic variation and intracellular location of Mycoplasma spp. help the pathogen to evade the immunity system, leading to chronic infected animals and the fact that vaccines can only help, in the best case scenario, to reduce production losses and clinical symptoms.

The current approaches to control avian mycoplasma include continuous surveillance and quarantine measures, medication, vaccination and/or elimination of infected breeding flocks. To maintain mycoplasma-free flocks it is important to use only negative replacements, use single age farms (isolated if possible), depopulate and disinfect between flocks, maintain good biosecurity and set up a monitoring program.

Elimination of a positive breeder flock is the surest way to eliminate the shed of M. gallisepticum or synoviae, but this is not always feasible. Positive flocks should be isolated as much as possible; the eggs and chicks should also be segregated. Once a flock is infected or vaccines are unable to control mycoplasma, antibiotics are still required.

The clinical outcome of this antibiotic treatment depends on three crucial steps in the decision process of the veterinary surgeon: Selecting the correct antimicrobial, considering: Known or suspected antimicrobial susceptibility of the pathogen. Ability of the antimicrobial to sufficiently reach the site of infection.

- Other features
- Correct dosing and administration
- Product choice, with a bioavailable/potent compound and an appropriate formulation

Pathogen		Number of Isolates	MIC 50	MIC 90	Range
	Tiamulin	20	0.001	0.025	0.0005-0.25
Mycoplasma gallisepticum	Tylosin	7	0.015	0.015	0.0078->0.015
Sumseptieum	Tilmicosin	5	0.12	0.12	0.12
	Tiamulin	28	0.1	0.25	0.05-0.5
Mycoplasma synoviae	Tylosin	10	0.015	0.12	0.15->0.5
	Tilmicosin	17	0.03	0.125	0.015->0.125

Table 1: Antibiotic susceptibility surveys showing limited resistance to M.gallisepticum and synoviae for tylosin (Pharmasin), tilmicosin (Tilmovet) and tiamulin (Vetmulin).

Selecting the Correct Antimicrobial

The susceptibility of a pathogen can be based upon susceptibility testing, which is, unfortunately, complicated and time demanding for Mycoplasma spp. For this reason, the clinical experience of the veterinarian, farm history and antibiotic susceptibility surveys (Table. 1) are also of importance.

In addition to the susceptibility outcome, the antibiotic needs to reach sufficient concentrations in the respiratory tract and preferably also be present intracellularly (as mycoplasmas are located intracellularly). Pharmasin (tylosin), Tilmovet (tilmicosin) and Vetmulin (tiamulin) not only deliver high concentrations in the respiratory tract (Fig. 1), but also show beneficial intracellular/ extracellular ratios of up to 75.

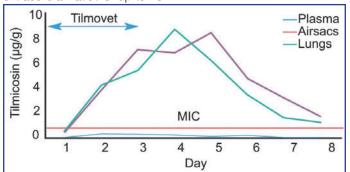


Fig. 1: Pharmacokinetic behaviour of Tilmovet 250mg/ml after three days of treatment (day 1, day 2 and day 3) at 15g/kg bodyweight. Levels in lung and airsacs stay above MIC 90 for at least eight days.

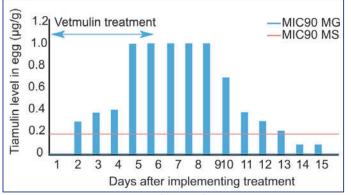


Fig. 2: Concentration of tiamulin (Vetmulin) in the egg, during and after treatment.

Other features are also of importance when choosing the right antimicrobial to treat and control mycoplasma. Some products are better suitable for layers (Pharmasin), whilst others are more suited for breeders (Vetmulin) or for start-up (Tilmovet). Pharmasin, for example, does not have any negative effect on water intake, is very safe and with no known incompatibilities. Moreover, Pharmasin has a zero withdrawal time for eggs in the EU, which makes the product ideal for the control and treatment of Mycoplasma spp. in layers. Vetmulin has a very unique feature: it ensures that concentrations in the eggs remain above the MIC90 for both M. gallisepticum and M. synoviae for several days, which is the reason why excellent results are achieved to control vertical transmission in breeder stocks in the field. The slow elimination phase of Tilmovet (Fig. 1) results in prolonged continuous tissue concentrations, making it less dependent on variable feed and water intake. Some antibiotics are known to have a negative influence on the immunity build-up, possibly interfering with vaccination response. On the contrary, the macrolides and specifically Tilmovet, have been shown to have a positive effect, making the product ideal for start-up and for pullets.

Correct Dosing and Administration

After choosing the ideal antibiotic based upon susceptibility, pharmacokinetic behaviour and additional features, a correct administration is also of critical importance. Dosing should be done in grams per kilogram live body weight, independently of the application form. By doing so, misdosing will be avoided by taking into account the changing ratio of body weight/water; or feed intake, which is especially important in fast growing birds, such as broilers. Correct dosing in mg/kg body weight can easily be achieved with the Huvepharma Dose Calculator, freely available for iPhone and Android mobile devices.

In addition to the dosage per kg body weight, the dosage regimen is also of importance. A daily dose can be administered in different ways, either continuously or as a pulse. For time-dependent antimicrobials, such as Pharmasin (tylosin), Tilmovet (tilmicosin) and Vetmulin (tiamulin), the efficacy is determined by the period during which the bacteria are exposed to the antimicrobial at a concentration just above the MIC (T>MIC).

The most important parameter is the time period in which the concentration is higher than the MIC (T>MIC) at the site of infection. For this reason, the highest efficacy can be expected if these antimicrobials are administered continuously over 24 hours, for a sufficiently long period.

The most important parameter is the time period in which the concentration is higher than the MIC (T>MIC) at the site of infection. For this reason, the highest efficacy can be expected if these antimicrobials are administered continuously over 24 hours, for a sufficiently long period. For concentration-dependent antibiotics, for example apramycin, a high concentration (Cmax) several times higher than the MIC of the targeted pathogen at

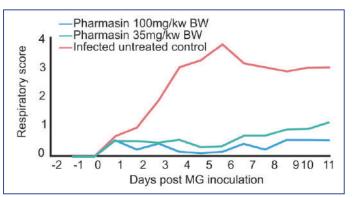


Fig. 4: Mean respiratory score of M. gallisepticum challenge study with different dose levels of Pharmasin.

Classification	Antibiotics	Goal of therapy	PK/PD Param- eter
Concentration dependent	Apramycin, Paromomycin, Polymyxines	Maximise concentrations	C max/MIC
Time dependent	Tylosin, Tilmicosin, Tiamulin, Penicillins, Cephalosporins	Maximise duration of exposure	T>MIC
Mixed properties	Doxycycline, Quinolones, Florfenicol	Maximise amount of drug	24h-AUC/MIC
Tiamulin	28	0.1	0.25
Tylosin	10	0.015	0.12
Tilmicosin	17	0.03	0.125

Table 2: Classification of antibiotics based upon their ideal dosing regimen.

the site of infection, will result in a faster and better response. For these antimicrobials, the most important parameter is the Cmax/MIC.

Consequently, a pulse medication will work better for these types of antimicrobials. Mycoplasma efficacy studies with Pharmasin, Vetmulin and Tilmovet indicate that therapeutic levels for a minimum of five days are appropriate. For this reason, a minimum treatment period of five days is recommended for Pharmasin and Vetmulin and of three days for Tilmovet. Depending on the risk of exposure, the treatment can be repeated every four weeks (low risk) up to every two weeks (high risk, like multi-age ---farms).

Product Choice

The formulation of the veterinary product will also influence the clinical outcome of an antimicrobial treatment. Stability, solubility and bioavailability of the active compound can be optimised by the choice of a correct product (brand). The absorption and distribution rate of a product in the body has a direct and critical impact on the clinical outcome of the treatment.

Often, veterinary products containing the same amount of active substance are considered as equivalent. However, the behaviour of a pharmaceutical product depends on several product features such as:

- Quality of the active ingredient (crystal form and size, impurities, presence of undesired substances such as heavy metals)
- Choice and quality of the salt (for example: tartrate, phosphate or hyclate)
- Formulation: used excipients and type of formulation (simple mixture, carrier or granulated)

In vivo studies, although time consuming and expensive, can confirm the efficacy of the products at different dosing regimens

after challenge with the pathogen.

Results from these trials allow for a more cost-efficient, more efficacious and more sustainable use of products, which is especially important when justifying antimicrobial therapy. The efficacy of Pharmasin to control mycoplasma was tested at different dosing levels (Fig. 4). Broilers (n=45) were kept in isolators and challenged with a M. gallisepticum isolate (Italy, 2012, MIC value <0.015|jg/ml).

The treated groups were given 35 and 100 mg tylosin/kg body weight respectively for five days, starting one day post-challenge. The control group was infected but did not receive treatment. Monitored parameters were, amongst others, clinical scoring of respiratory disease, macroscopic scoring of the respiratory tract, weight gain, mortality and M. gallisepticum recovery from trachea, airsacs and lungs.

Both dosing levels were efficacious in protecting against the detrimental consequences of M. gallisepticum infection as indicated by the difference with the infected untreated control group. Despite fine-tuning of management, vaccination schemes, feeding, housing and biosecurity, animals can still become diseased. This is why antibiotics are, and will stay, essential for protecting animal health and welfare as well as the safe production of food of animal origin. However, a responsible and wise use of medicines is mandatory to safeguard the use of veterinary medicines in the long term. This means targeting the pathogen with the right product and administering it correctly.

One such major pathogen is mycoplasma, for which Huvepharma can offer the right tools and the right advice based upon extensive field experience and product specific efficacy trials.

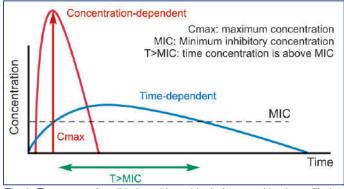


Fig. 3: Two types of antibiotics with an ideal pharmacokinetic profile in regards to efficacy.



Article

Indian Animal Health Industry— The National Treasure, Less Explored



Introduction

John Sculley - the famed entrepreneur and high-tech startup investor, once said, "No great marketing decisions have ever been made on qualitative data."

Yes, we are discussing good and tangible quantitative data for our industry. The data should be beyond imaginative or interactionbased numbers. Data will be based on robust logic, market research, and sector specific.

Indian Animal Health Industry is undoubtedly a hot spot – amongst the top 3

in all the livestock / poultry and aqua sectors. This business is not only growing by volume; we are growing by value, geographic expansion, and innovations.

No wonder this 'investor-friendly sector' can attract investment for organic and inorganic growth of the organisation- be it capacity building in manufacturing, investment in R&D, investment in launch of new products, expansion in new species segment, acquiring a portfolio or brand etc. Credible data helps us.

Sadly, the lack of credible data makes us defensive. At times we depend on data generated by sources from overseas market research groups. So,

- It is time to create an innovative database of our own
- It is time to have a robust quantitative and logical database for the sector we serve

Purpose

To develop a credible, India specific animal health industry database by reaching out to the organised and unorganised sectors. There are roughly 350 animal health companies in India including multinational and Indian companies.

Although animal health companies are based in urban areas but our market lies primarily in the rural areas; its field force, distribution channel caters vastly to rural and urban areas. Hence, we feel that instead of just a retail-oriented market survey a new approach based on animal population and its consumption of vaccine, medicines and nutraceuticals will be more practical and realistic.

Key Features and USPs

- Extensive consumption-based market research
- Species segment specific

- Product segment specific
- Retail audit
- Client specific questionnaire
- Professionally trained interviewer
- Data integrity
- Confidentiality
- Periodic update
- Software based
- Precision
- Periodic initially biannual, from year 2, quarterly
- Customisation Regional / product specific

Sample Data

Species	(in million)	Average annual spending on vaccine (Rs)	Average annual spending in health care/Feed additives (Rs)	Vaccine spending in Rs Crore	Healthcare spending in Rs Crore	TOTAL (₹ in CR)
Cross Breed Female	26.22		1500		3933	
Other Female Cattle	46.73		500		2337	
Total Adult Female Cattle	72.95					
Other Cattle	126.13					
Total Cattle	199.08	35		697	6270	6966
Adult Female Buffalo	54.47		1500		8171	
Other Buffalo	50.87		500		2544	
Total Buffalo	105.34	35		369	10714	11083
Sheep	71.56	10	50	72	358	
Goat	140.54	10	50	141	703	
Sheep & Goat				212	1061	1273
TOTAL RUMINANT				1278	18044	19322
Broiler	4800	1	6.8	480	3264	3744
Layer	280	20	48	560	1344	1904
Breeder	32	60	685	192	2192	2384
TOTAL POULTRY						8032
AQUA						1250
COMPANION ANIMALS						600
OTHERS			i i i i i i i i i i i i i i i i i i i			200
TOTAL AH						29404

Given the above background we can say that Indian animal health segment is huge (INR 30,000 crore) – much more than a conservative estimate of INR 10,000 crore. Unfortunately for many decades this industry remained under pharma dominated companies. Consolidation of pharma sector at the international level saw many mergers and acquisitions in animal health

business (worldwide) and lead to emergence of many national / regional players in India.

However, we need to acknowledge the fact that the Indian pharma sector has acquired the status of "Pharmacy of the World" due to its investment in R&D, manufacturing and improvement of regulatory standards. However, our own animal health segment is lagging far behind from the pharma sector.

The segmental attractiveness as narrated below opens up scope for future investment in R&D, manufacturing of APIs / bulk drugs / superior formulation in India.

Segmental Attractiveness

SEGMENT	SPECIES	ATTRACTIVENESS
Therapeutics	All	Poor - AMR concerns /No new molecule
Biologicals	Ruminants	High
Biologicals	Poultry	Very High(Technology Oriented)
Feed Additives /Premix	Poultry	Moderate to high Volatile/ import (API, Vitamins) dependent
Food/Grooming / Biologicals	Companion Animals	Very High
Feed / Neutraceuticals/ Immunostimulants	Aqua	Moderate / High

Through this article I want to urge upon investors / policy makers that let us not undermine this segment. We need more than what has been done so far. Leveraging the AHIDF or similar schemes we need to invest in API manufacturing, invest in



process improvement of bulk drug manufacturing so that we can compete with Chinese manufacturers. Such investments in R&D, manufacturing of vaccines, APIs, formulation can be done keeping an eye on the gobal animal health market (currently at USD 62.40 billion).

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COVER POULTRY CONSUMER TRENDS 2024

Poultry meat consumption worldwide will have the highest growth, according to FAO and OECD projections to 2032, and by 2035, Generation Z will be the primary purchasers of protein. This will have a significant impact on the way that chicken is bred, processed and marketed. **IPR** peeks into the future to see are we ready?

The global poultry market size was reasonably estimated to be approximately USD 378840 million in 2023 and is poised to generate revenue over of over USD 628510 million by the end of 2030, projecting a CAGR of around 7.50% from 2023 to 2030. According to EMR market research, the Indian poultry market, currently valued at USD 28.18 billion, is expected to grow at a CAGR of 8.1% in the forecast period of 2024-2032 to reach a value of approximately USD 44.97 billion by 2032. In India, Turkey and Indonesia, the poultry industry remains one of the fastest growing segments of the agricultural sector, driven primarily by the growing demand for animal protein and the increasing use of eggs for the bakery and confectionery sectors.

Generation Z will transform how chicken is marketed. This demographic will be extremely value-driven and believe their food choices say something about them. Consumers today show greater interest in aspects directly related to the livestock sector, such as animal welfare, environmental care and health. As the poultry segment has the lowest carbon footprint, these trends could result in more of the global population preferring chicken meat over options such as pork and beef.

Chicken marketers need to start planning how to future-proof communications with the unique consumer expectations and needs of Generation Z. Michele Murray, Executive Vice President, Food Agriculture and Ingredient Practice, Ketchum, says, "Our future consumer is really forging a new food future. What I mean by that is that they're

doing things differently from their parents in terms of food." For example, 68% of the Generation Z say they are cooking differently than their parents in the United States, with only 20% indicating that the way they ate as kids impacts the way they eat now.

"We're seeing a major shift in how this particular target audience, Generation Z is choosing their food, making purchasing decisions and their general attitude about food," she added. One of the biggest differentiators between Generation Z, born between 1997 and 2012, and previous generations is that there is a large part of this demographic that considers themselves food evangelists. This is likely due to their lifelong exposure to social media and the internet. "When we first identified this as a consumer segment back more than 10 years ago, 22% of the overall population fit into that food evangelist category," Murray explained. "But for Generation Z, we found that over half describe themselves as food evangelists." In other words, this demographic is highly interested in understanding more about food and sharing that food story with the people around them.

Generation Z is also highly value-driven when it comes to the food they purchase in terms of the environment. They also believe their food choices say something about them – from sustainability to body issues and even when it comes to certain political issues. "Compared to Generation Z and boomers, most of Generation Z says they feel really judged about eating patterns," said Murray. "They feel the weight of the world to make certain decisions about food and I think we're seeing that pressure come through in different ways." While some members of Generation Z aren't yet purchasing food with their own money, it's still important to pay attention to what they want. "We have this canary in the coal mine in terms of the signals that we're seeing. It's important for marketing and brands to start evolving what we're doing so that we can keep check with what those values are," she added.

FAO and OECD estimate that total meat consumption will reach 91 million tons by 2032, thanks to the social perception of this food, the lower price of poultry meat compared to other types of meat and the fact that it contains a healthy combination of protein and low fat.

Poultry meat production is considered more efficient and requires fewer resources, making it a more sustainable option. In contrast, red meat production requires significant resources and can cause high greenhouse gas emissions. Poultry production will increase its dominance within the meat market by accounting for half of all additional meat produced in the next decade.

Poultry production will expand rapidly in countries with feed grain surpluses, such as Brazil and the United States. Expansion



is also expected in Asia, as the shift away from pork caused by African Swine Fever outbreaks benefited poultry, especially in China in recent years. In India, Turkey and Indonesia, the poultry industry remains one of the fastest growing segments of the agricultural sector, driven primarily by growing demand for animal protein and the increasing use of eggs for the bakery and confectionery sectors. Poultry meat has advantages over other meats in terms of production duration, costs, feed conversion ratio and proximity to growing urban markets.

However, large-scale poultry production is more prone to disease. For example, constant outbreaks of highly pathogenic avian influenza (HPAI) affect poultry meat and egg production in many countries. Such outbreaks are easy to detect because of high mortality rates and clinical signs associated with the disease. This allows for quick implementation of effective control measures and vaccines to prevent its spread. Therefore, HPAI is not expected to affect medium-term projections.

Although many factors have boosted the consumption of poultry meat, its production also faces environmental and sanitary challenges, especially with respect to the use of antibiotics and animal welfare. For this reason, sustainable and responsible poultry production practices must be promoted to ensure long-term growth of the sector.

As per the World Population Review, the United States ranks as the top consumer of chicken globally. Chicken is a great source of protein and it is significantly less expensive when compared to other types of meat, such as beef and seafood. Therefore, there are a lot of people who eat chicken as their main protein regularly. Every year, the United States consumes approximately 15,000 metric tons of chicken, placing it significantly in front the second-ranked region. The US adds chicken to just about everything. For example a lot of people consume chicken wings when they watch sporting events. Chicken stock is also a popular ingredient in soups. People even stuff chicken with other types of ingredients. Therefore, chicken is incredibly popular in United States.

While at it, the US is looking forward to the consumer of 2035 and the issues that will impact their protein choices. There are two tracks to this research, one track that focuses on consumer trends of today and what will be expected in 2035 and how advancing digital technology will impact how the chicken will be sold and marketed in the future. And the second track is set to explore how the industry will meet consumer expectations by adapting new and existing technologies to raise and process broilers utilising fewer resources with improved welfare, food safety and convenience.

With inflation, labour shortages and feed costs above the

historical norm challenging the chicken industry, it's important to think about the opportunities that could increase demand. "Over the last four or five years, we've gone through a period where we've used the word unprecedented a lot. What's the path forward?" Brian Earnest, Lead Economist, Animal Protein, CoBank, said.

He shared his thoughts on three of the biggest opportunities for chicken right now.

- 1. Automation and other technology improve efficiency: Emerging technologies, including automation, could help counter some of the labour shortages that cause stress throughout the chicken supply chain. "Chicken production is very agile and it's been very good at adapting technology and automation to combat some of the labour issues they face in the plant," he explained.
- 2. The US has developed a taste for international flavours and dark meat: Over the past five to ten years, international flavours have become more popular with Americans. This is largely due to a surging interest in new recipes by millennials and Generation Z. Many of these international flavours complement chicken well, setting the protein up for success. In addition, while most consumers have traditionally gravitated towards white meat, that is now changing, said Earnest. "Exports have historically been a major disappearance outlet for dark meat and while that probably still holds true, I think it pairs well with that conversation about technology where increased adoption of automated deboning for thighs or leg quarters helps," he added.
- 3. Chicken is the value protein: Consumers are still worried about high prices, wih 64% predicting that the cost of food will continue to go up in the next year, according to a recent study from Purdue University. As a result, consumers are thinking carefully about their food purchases and budgets to save money. "I think chicken has an opportunity to present itself as the value offering for the consumer this year," explains Earnest.

Chicken Concumption

Which Country Consumes the Second-Most Chicken?	
Country	Consumption
China	12,555
Brazil	10,287
Mexico	4,632
Russia	4,491
Indonesia	3,744
India	3,594
Japan	2,818
United Kingdom	2,222
Iran	2,183
Argentina	2,089

China consumes the second greatest amount of chicken in the world. It consumes approximately 12,555 metric tons of chicken every year. Even though China is significantly larger than the United States, it does not consume as much chicken as the United States. That is because China has a more varied diet than the United States. There are plenty of other foods that people in China like to eat that people in the United States might not consume. Even though China still consumes a lot of chicken, it also makes a lot of chicken.

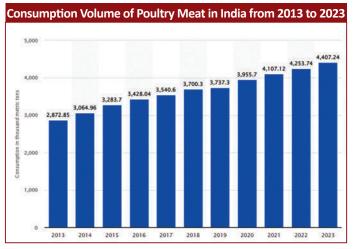
Europe consumes a lot of chicken as well. There is no single country in Europe that consumes as much chicken as the

United States or China because the countries in Europe are so much smaller. On the other hand, if you put all the countries in Europe together, it consumes a comparable amount of chicken to the United States and China. In total, Europe consumes approximately 11,000 metric tons of chicken every year. This means that chicken is one of the most popular foods in Europe, but it is certainly not the only one. There are plenty of other foods that people eat regularly in Europe as well.

On an average, India consumes about 3800 metric tons of chicken annually, making it one of the largest consumers of chicken in the world. The consumption of chicken in India has been steadily increasing due to changing dietary preferences and a growing population.

Chicken has long been a staple in Indian cuisine, gracing dinner tables across the country in various forms and flavours. India is a land of diverse culinary traditions, and chicken dishes hold a special place in the hearts of many. From succulent tandoori chicken in the north to spicy chicken curries in the south it's no secret that chicken is a beloved protein source. In 2023, the consumption of poultry meat in India was found to be over four million metric tons.

To meet the growing demand, the poultry population in the country has grown at a rapid pace. In 2003, the poultry and livestock population in India were almost the same but the poultry sector has grown a lot more comparatively ever since. In 2019, the population of poultry in India was over 800 million. There was 16 percent increase over the last five years. In 2019, the Indian state of Tamil Nadu had the greatest population of poultry in India accounting for more than 100 million. According to sources, India exported more than 7,000 metric tons of poultry meat to other countries. Even though the volume was high, it was less than the volume exported in 2016. For the same period, import of poultry meat was low but followed an increasing trend.

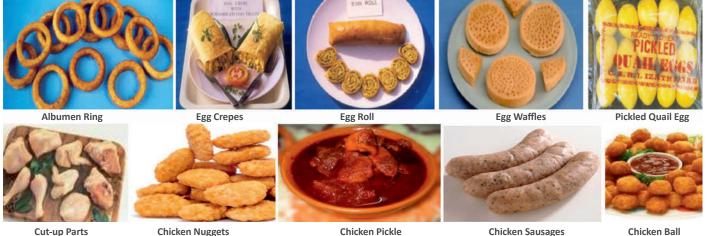


India's love for chicken isn't really uniform across the nation. While some regions are known for their high chicken consumption, others prefer alternative protein sources or are constrained by cultural and dietary practices. For example, states in the northeastern region of India have a higher affinity for poultry, whereas some southern states may lean more towards vegetarianism. Chicken consumption trends are also closely tied to economic factors. As India's economy continues to grow, more people have access to poultry products, contributing to the overall consumption figures. Urbanisation and changing lifestyles are driving the demand for convenient, proteinrich options like chicken.

Chicken consumption in India is undoubtedly substantial, reflecting the country's diverse culinary heritage and the evolving preferences of its people. The country's culinary lanscape is rich with local delicacies, many of which feature chicken as a key ingredient. From butter chicken in Punjab to Chettinad chicken in Tamil Nadu, these regional dishes play a significant role in driving chicken consumption within their respective areas.

India's consumers prefer to buy freshly butchered chicken meat at open or "wet" markets; such purchases constitute more than 90 percent of the total poultry sales volume. Poultry processing is still at a nascent stage as consumers prefer freshly slaughtered birds on road side and in the presence of buyers, though such practice needs immediate stopping and improvement for scientific processing of broilers. This practice needs immediate modification by regulations and monitoring from time to time. Although by contrast, processed chicken meat constitutes only around seven to 10 percent of total chicken sales volume, it is growing between 15 to 20 percent due to the growing middle class. This has driven sales not only in retail, but also fast food restaurants as well as the hotel, restaurant and the inistutional sector. Hygeine especially has become of high importance to the consumer post the COVID-19 pandemic.

To meet this increased demand, the major poultry companies have been expanding their slaughtering and processing facilities and they are offering the retail sector a wider range of processed chicken products such as frozen chicken burgers, salami, nuggets, result in process efficiency for achieving lower production costs and higher yields. Traditional chicken products are biryani, curries, kababs, koftas (balls), pickles, soups and tandoori (roasted), tangri-kabab and different preparations of chicken in restaurants or hotels. The tough meat, especially from spent-hens or meat-type breeders, and old eggs have to be properly utilised through different processing methods as the consumers may not like to buy and process such raw material. However, once the same are properly processed ("Further processing" or "Value addition"), they will be ready to eat and pay more! In this direction too, Indian Council of Agricultural Research (ICAR) - Central Avian Research Institute (CARI), Izatnagar, Uttar Pradesh and Indian Veterinary Research Institute (IVRI), Izatnagar, Uttar Pradesh have developed some value added poultry meat products such as chicken idlies, chicken kebabs, chicken meat balls, chicken nuggets, chicken patties, chicken sausages, chicken steaks, chicken gizzard pickle, chicken gizzard snacks, chicken skin-meat cutlets, cooked chicken meat block, cooked chicken rolls, dehydrated chicken soups, egg-meat patties, intermediate moisture chicken meat, marinated chicken breast fillets, mixed chicken loaf, tandoori chicken, tandoori quail etc. It is very important to remember that majority of the value added chicken meat products such as meat balls, nuggets, patties



Cut-up Parts

Chicken Nuggets

Chicken Pickle

and sausages are made from deboned meat (meat from back, breast, leg and wing).

sausages and tikkas. Chilled and frozen chicken parts are also now available in certain high-end groceries where more affluent consumers are willing to pay the 30 to 40 percent permium over wet market prices. Positive role of integrators and corporates in the industry following advanced technologies will enhance the practical adoption of poutry farming by large segment of the society. Consumption and increase in percentage of processed foods will be utilising the major quantum of the raw products, resulting in the market expansion to various new varieties of poultry products. Marketing of branded eggs is necessary as branded products fetch more money than unbranded and source-unknown products. Branded eggs' demand and availability has improved largely over the years.

Boosting consumption of egg and egg products in the domestic market is very vital for the sustained growth of the layer industry. Apart from traditional egg preparations such as boiled egg, egg curry, omelettes, pickles, poached egg, scrambled egg etc. some commercial egg products also have marketing potential.

The growth in the broiler segment is expected to remain strong due to consumer preference for chicken meat, increasing income levels and changing food habits.

Value addition of chicken meat is carried out by both the organised and unorganised sectors. Poultry meat based fast food industries have great potential in India but mainly in big cities and metros. One must aim at simple and relevant technologies to

However, there are certain contraints which affect the profitability of the poultry industry at the moment. First, unorganised marketing of eggs and chicken meat is one of the major issues in poultry production itself. Low advertisements on usefulness of poultry products hinder market awareness at large. Poultry meat and eggs contain all the essential nutrients required for sound health. Eggs are also free from adulteration since they are very difficult to adulterate. The industry needs more propaganda through various agencies. Safety and health issues in the minds of the consumer masses should be addressed directly. Proper market set ups are essential for the products to be sold comfortably. At present, in small cities and rural areas, wet markets, inadequate food stalls and lack of infrastructure hamper progress. Improper and lack of investments in cold chains affects the expansion of marketing and production of poultry eggs and meat products. It is one of the limiting factors for not transporting poultry products across the country. And finally, inadequate trained personnel is a major handicap for the Indian poultry industry. People should be encouraged to join different courses and programmmes to gain adequate knowledge and skill for proper mangement of chicks, growing and adult birds. It is a serious concern and needs many more training and R&D programmes by the government and the private sector to face the growing demand in the market.



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Article

Smart Animal Husbandry Means a Better Environment

SHRIDHAR speaks



Tarun Shridhar Former Secretary, Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India

griculture is both a culprit and a victim of climate change, proclaimed a speaker in a recent conference. further elaborating that it is the livestock which happens to be the bigger culprit, while crops were the bigger victim. It is such misaivings, rooted less in science and more in populist jingoism, that tend to stigmatise an important sector of our economy. Livestock sector is routinely vilified as a major contributor, now curiously termed culprit, to environmental damage and climate change. Powerful voices in the developed world that influence global agenda have begun to question the how. and how much of the animal protein we should produce. Perhaps they have missed out that all this while, in other parts of the world, many are experiencing extreme hunger, malnutrition and poverty; and access to sufficient livestock foods is a far crv for them. At the same time, national governments through the United Nations, have agreed to work towards achieving the Sustainable Development Goals (SDGs); a collaborative effort to tackle the severest of global problems such as hunger, poverty, pollution and climate change. Despite the irony of the situation, what is appreciable is that along with the commitment to the SDGs is the declaration to move forward to economic prosperity for all. However, the challenge

posed by climate change, greenhouse gas emissions in particular, is serious; and the livestock sector too needs to become smarter and resilient to stand up to it.

livestock provides valuable That nutritional benefits as well supports the livelihoods of rural communities is recognised by all. Demand for animal products is expected to scale up with the growing global population. Therefore, worldwide livestock production is registering a consistent increase in response to demands from an increasingly affluent and urbanised population. According to the United Nations' Food and Agriculture Organisation (FAO), demand for animal-source foods (ASF) in low and middle-income countries more than quadrupled from 1970 to 2012. Though growth had slowed thereafter, demand is still predicted to increase by 35% from 2012 levels by 2030, and by 50% by 2050.

Along with the gains in production efficiency, greenhouse gas (GHG) emissions from livestock too are said to be on the rise. The Intergovernmental Panel on Climate Change (IPCC) special report flags considerable emissions originating from the Agriculture, Forestry, and Livestock sectors; livestock is estimated to generate nearly 15% of global anthropogenic GHG emissions, with cattle contributing nearly two thirds of this. National commitments to reduce GHG emissions are therefore, expected to include livestock systems in climate change mitigation and adaptation plans. Successful action on climate change through practical action in livestock agrifood systems is an urgent priority, but it must not come at the expense of other sustainability objectives, particularly those relating to ending poverty and achieving zero hunger by 2030. Hence, the FAO advocates a balance between the benefits of livestock for nutrition, health and well-being, and the pressing

the climate crisis, which too threatens food security. "Low-carbon livestock" can help countries achieve a balance whereby ASF, such as meat, milk, eggs, cheese and yoghurt feed the hungry and malnourished, yet are produced in a way that minimises the overall output of greenhouse gases. And while there are many opportunities to reduce livestockrelated emissions, the FAO outlines five key areas for practical action towards low-carbon livestock to help focus global efforts in achieving this goal. It estimates that improved management practices alone could reduce net emissions from livestock systems, methane in particular, by about 30%.

need to reduce GHG emissions to tackle

Climate change is a global problem that demands integrated solutions at local, national, and regional levels. So the burdens should be addressed, rather than shifted. Shaping a sustainable future will depend on understanding the diversity and complexity of livestock systems and the particular challenges stakeholders face against the odds of climate change. What works for a producer in a capitalintensive system can be very different from what works for a pastoralist or a mixed crop-livestock smallholder. Sustainable action means respecting these differences, and working closely with these diverse stakeholder groups to develop relevant and practical actions for everyone. FAO recommends the following five actions for wide implementation in the belief that these would have measurable and rapid impacts on livestock emissions: 1) Boosting efficiency of livestock production and resource use; 2) Intensifying recycling efforts and minimising losses for a circular bioeconomy; 3) Capitalising on naturebased solutions to ramp up carbon offsets; 4) Striving for healthy, sustainable diets and accounting for protein alternatives; and 5) Developing policy measures to



drive change.

Livestock stands apart from other sectors because it is organic, so carbon can never be eliminated from it, as it could for example from the transport or energy sectors. The key to promoting "climate smart" practices in the face of increasing demand is to improve productivity and resource use efficiency. Emission intensities vary widely within and across livestock systems, particularly for ruminants. Adoption of better management practices would result in production efficiency. Technological innovations such as improved feeding, animal health, genetics, general husbandry and information technology are scaling up productivity, making resource use more efficient with potential to reduce environmental impact.

Agrifood systems rely on natural resources as primary inputs. However, the future of food is under threat as resources are being consumed unsustainably and inefficiently, hence compromising natural cycles of replenishment. FAO encourages promoting a circular bioeconomy, i.e. recycling resources at every possible step in agrifood systems and thus minimising the loss of resources and nutrients. Countries making better use of the biomass would see better economic and environmental returns. Unused crop residues, food waste, and agro-industrial by-products are lost opportunities to recycle and optimise resource use efficiency and can be repurposed for animal feed. Manure and slaughterhouse waste can be used to generate fertiliser and biogas as a source of renewable energy.

The Global Livestock Environmental Assessment Model (GLEAM) of the FAO

takes a life cycle assessment approach to estimating emissions from livestock systems, following the guidelines issued by the IPCC. It is a GIS framework that simulates the biophysical processes and activities across the livestock supply chains. The aim of GLEAM is to quantify production use of natural resources Buffalo milk: 0.5; Pork: 0.8; Chicken meat: 0.5; Chicken eggs: 0.3.

Another study of FAO categorically concludes that "Climate change has major impacts on livestock keepers and on the ecosystems, goods and services on which they depend". Climate change impacts livestock in multiple ways such as adverse changes in production patterns, quality of feed crop and forage, water availability, animal growth and milk production, diseases, reproductive health and cycle, biodiversity etc. Regions identified as the most vulnerable to climate change are Sub-Saharan Africa and South Asia. And

these are also regions where farmers and rural communities rely the most on livestock for food, income and livelihoods, and where livestock is expected to contribute increasingly to food security and better nutrition.

Livestock systems in these regions,

The key to promoting "climate smart" practices in the face of increasing demand is to improve productivity and resource use efficiency

in the livestock sector and to identify environmental impacts of livestock so that appropriate adaptation and mitigation scenarios could be created for a more sustainable livestock.

Looking across livestock species in GLEAM, cattle are the main contributors to GHG emissions, producing about 5 gigatonnes (Gt) CO, equivalent (eq.) per year, accounting for more than 60% of all livestock emissions. Pigs, chickens, buffaloes and small ruminants contribute much less, each representing between 7 and 10% of the sector's emissions. Total emissions (expressed in CO, eq.) vary considerably by commodity, with those from cattle far outstripping the combined impacts of all other livestock species, accounting for over 60% of all livestock emissions. Emissions from beef cattle are greatest, followed by those from dairy cattle. The breakup is as follows: Gigatonnes emission CO, eq. per year: Cattle beef: 3.2; Cattle milk: 1.6; Small ruminant meat: 0.4; Small ruminant milk: 0.2; Buffalo meat: 0.2;

especially in India, have evolved over a long period based on the availability and opportunities afforded by the diverse natural resource base supported by strong traditional knowledge, and in modern times also by robust scientific research. Since India is the biggest nation in South Asia, both in geography and population, it is imperative that we guard and protect our livestock from the debilitating effects of climate change; global warming to be specific, and not fall prey to the clamour and efforts to paint livestock farming as a perpetrator of the adverse climate phenomenon; rather livestock should be recognised as a victim of global warming and rescued. The GLEAM data too substantiates this. With no beef industry and negligible industrial dairy, how low our share in these greenhouse gases would be is anybody's guess.

Let us celebrate our livestock, encourage it to grow and become "smart"; and be a part of the solution.



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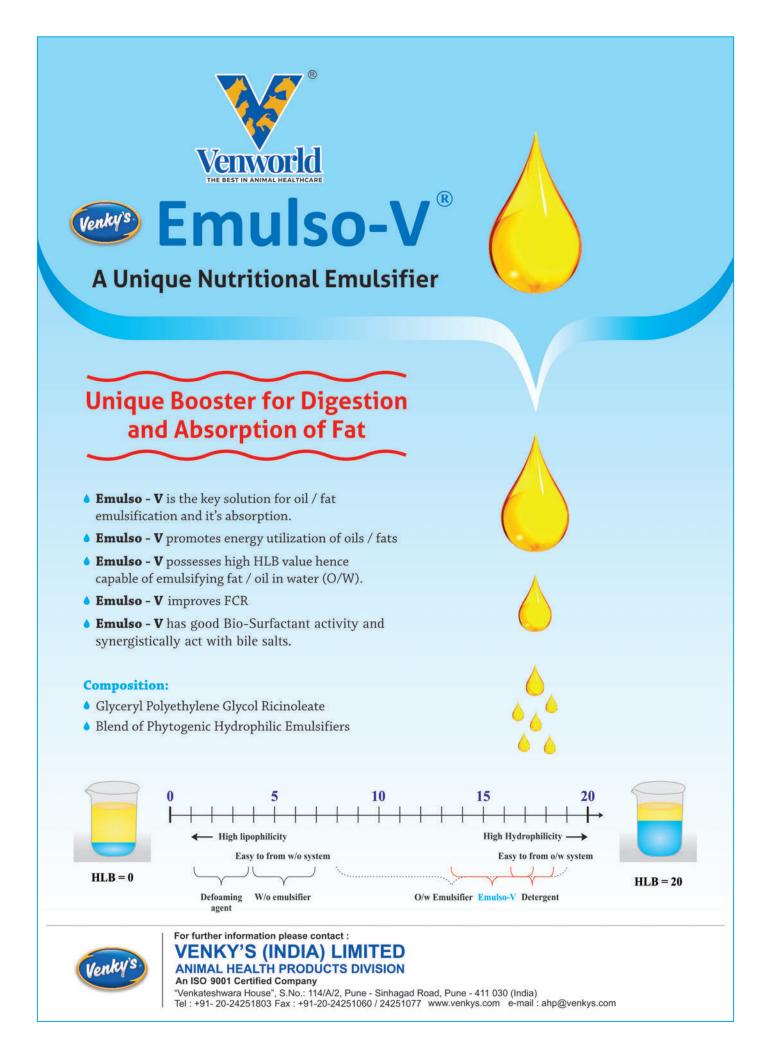
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Company in Focus

STALLEN SOUTH ASIA PRIVATE LIMITED



Stallen stands out as a leading name in India's animal health sector offering a diverse range of products tailored for poultry and cattle across four distinct divisions. **IPR** profiles its healthy growth trajectory, leading by change and setting a standard by bridging the gap between global standards and local requirements

The poultry sector has emerged as one of the fastest growing sectors among livestock species. The industry has evolved into a key player in the supply of affordable protein sources, driving development of value chains that cater to raging consumer

demand. Simultaneously, the veterinary healthcare sector in India is experiencing significant growth, with the market size estimated to be USD 1.25 billion in 2024, projected to reach USD 1.89 billion by 2029, indicating a robust CAGR of 8.63% during the forecast period.

THE BUSINESS

From its inception in 1997, Stallen South Asia Private Limited has emerged as a key player offering indigenous solutions and expertise in animal health. In

reponse to India's rapidly growing market dynamics, Stallen and contemporary players in the market are not only contributing to the growth of the poultry industry, but also fostering a resilient and sustainable ecosystem for animal health management in the country.

Stallen offers a diverse range of products tailored for poultry and cattle across four distinct divisions. These divisions encompass

feed additives, biosecurity solutions, formulations and vaccines, showcasing the company's comprehensive approach to animal health management.

Since inception, Stallen has constantly developed to stay in line



Dr. Sanjay Singhal Chief Operating Officer Stallen South Asia Pvt. Ltd.

with the evolving industry standards— in 2010 the company entered into a JV with FATRO from Bologna, Italy. This JV enabled Stallen to import and distribute a wide range of killed and live vaccines, further solidifying its position in the market.

Founded by B. V. Parikh, a visionary and respected industry expert with previous employment at May & Baker, Stallen originally operated as a contract manufacturer of veterinary products for a multinational corporation. With his son,

Amit Parikh at the helm, the company rapidly grew in prominence and became an independent entity as a result of his proficiency in pharmaceutical manufacturing and sales of poultry feed additives and sharp business acumen. The company is now headed by Jagruti Parikh, Managing Director and the next generation young and dynamic Director, Aniket Parikh and his team of experts. Dr. Sanjay Singhal, is the Chief Operating Officer and brings his

Aniket Parikh

Director

Stallen South Asia Pvt. Ltd.



extensive experience and talent to the crucial growth phase of the Indian livestock industry. Today under this able leadership, Stallen, in partnership with FATRO from Italy, runs its five advanced manufacturing facilities across multiple markets.

VISION

With a mission to excel in poultry healthcare with a comprehensive offering of high quality products and services, Stallen strives to be the ultimate one stop solution for customers' veterinary needs.

Over the past 25 years, Stallen has expanded its footprint and capacities in the market. Today, Stallen's export operations span more than 50 countries across six continents serving as a testament to the company's product quality and service.

In its attempt to be completely self sufficient, Stallen has backward integrated and now controls the end-to-end supply chain. As a result, the company currently oprerates five different manufacturing locations in addition to the two supply plants of FATRO - two Feed Additives Manufacturing Units in Palghar and Sajjanpada, both in Maharashtra, India; Feed Additives and Cattle Feed Premix Manufacturing unit in Alexandria, Canada; Therapeutics and Formulations Manufacturing unit in Nandore, Maharashtra, India and a Halquinol API Manufacturing unit in Vatva, Gujarat, India.

All of Stallen's plants are certified and regularly audited by ISO, GMP and FDA along with approvals from international regulatory bodies, attesting to their adherence to rigorous standards in manufacturing and product safety.

THE USP

Stallen South Asia based in Nandore, Maharashtra, specialises in manufacturing a wide range of feed additives and supplements. Their product prortfolio includes antibacterial solutions, treatments targetting mycoplasmal infections, deworming agents, performance enhancers, anthelmintics, mineral supplements, toxin-binding formulations, antidiarrheals, growth promoters, anticoccidials, water sanitation products, fly control solutions and disinfectants. These line of products are meticulously crafted and made available in various convenient forms such as tablets, boluses, powders and oral liquid solutions.

The factory follows a specialised manufacturing process with top of the line equipment and facilities. For example mixing and blending equipment for creating formulations, granulation machinery for solid products, liquid mixing and filling lines for liquids and packaging lines for various forms of products. Quality assurance measures are integral to the manufacturing process. Raw materials are tested for purity and quality before use. During production, in-process checks are conducted to ensure consistency and adherence to specifications. Finished products undergo rigorous quality control testing for efficacy, safety and compliance with regulatory standards. The factory operates in complaince with regulatory requirements set by local and international regulatory bodies, with approvals from China, Iran, Australia and more. This includes adherence to Good Manufacturing Practices (GMP) and documentation of processes to ensure product quality and safety.

The company's formulation unit in Palghar, Maharashtra is a crucial facility for manufacturing pharmaceutical products that range between regular therapeutic drugs as well as beta-lactem formulations. The formulation unit is equipped with state-ofthe-art facilities and machinery required for the formulation and production of pharmaceutical products. This includes equipment for mixing, blending, granulation, drying and packaging. The capacities are built for effervescent tablets, liquid form (oral and topical), oral powder, bolus and ointment. Rigorous quality control measures are implemented throughout the formulation process to ensure that the final product meets regulatory standards and specifications. This includes testing the raw materials, in-process samples and the finished product for purity, potency, stability and safety. The formulation unit operates in compliance with regulatory requirements set by authorities such as the Food and Drug Administration (FDA) in India. This includes adhererence to Good Manufacturing Practices (GMP), documentation of processes and regular inspections to ensure quality and safety standards are maintained.



THE STAMP OF INNOVATION

Stallen has commenced the production of Halquinol to maintain its commitment to quality, affordability and timely delivery. Halquinol is a non-antibiotic growth promoter classified under hydroxy-quinolines. This compound comprises 5-Chloro-8-hydroxyquinoline, 5, 7-Dichloro-8-hydroxyquinoline, and 7-Chloro-8-hydroxyquinoline, with the product Halquinol 98% manufactured in accordance with BP 80 (British Pharmacopeia 1980) specifications. Stallen offers Halquinol 98% as a chemical API for use in veterinary formulations and feed additives, alongside the commonly available 60% and 12% variants. With its adherence to BP specifications and increased monthly production capacity, Stallen is well-equipped to cater to global demand, holding valid registrations for Halquinol in over 15 countries.

In its strategic vision Stallen includes gradually introducing a range of APIs from its Vatva facility, aiming to reduce reliance on imported products from China in the animal health sector. The Vatva plant marks the fifth addition to Stallen's manufacturing infrastructure, complementing its existing feed additive and veterinary formulation facilities in Palghar, as well as feed premix and additive manufacturing unit in Canada. This trategic expnsion underscores Stallen's commitment to self sufficiency and quality assurance in delivering essential solutions for animal health and nutrition.

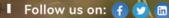


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Exploring Chemistry, Improving Life

IPR Espresso

New Invention That Could End Brutal Practice of Culling Male Chicks

Scientists have invented a new method to determine the sex of yet-to-hatch chickens by "sniffing" chemicals on eggshells, an advancement that could end the brutal practice of culling male chicks.

Most hatcheries across the world still sort chicks by their sex a day after they hatch, with male chicks being brutally culled immediately. Some European countries have already banned male chick culling or plan to phase it out. But if the sex of an egg is determined early on in incubation, billions of male eggs could be humanely diverted, said researchers including those from the University of California, Davis.

The new study, published in the journal PLoS One, demonstrated that it is possible to sort eggs by sex early in incubation, based on volatile organic chemicals emitted through egg shells. The new invention detects volatile organic compounds (VOCs) given off by the developing embryo that diffuse out of the shell. Scientists first assessed if there was a detectable difference in the chemicals given off by male and female embryos. They initially developed a sensing chip technology to collect and analyse organic chemicals in the air. Suction cups used for the industrial handling of eggs were then adapted to "sniff" air from the eggs without opening them. The sex of the eggs was then confirmed by DNA analysis.

INTERNATIONAL

"We found that there are volatile chemicals from the egg, a scent that you can capture and sort statistically," study co-author Tom Turpen said in a statement.

Scientists could use the new technology to identify male and female embryos at eight days of incubation with 80 per cent accuracy, based on two minutes of sampling.

Researchers noted that the presence of a class of volatile chemicals known as fatty acid esters, including isobutyl acetate, ethyl butyrate and isopropyl butyrate, could help define sex differences.

Other organic compounds, like decanal, m-cymene, d-limonene, b-thujene or tetradecane, were also listed for their sex differentiation ability. "Our VOC-based method could correctly differentiate male from female embryos with more than 80 per cent accuracy," researchers wrote in the study. "There are abundant egg-derived VOCs that can be used to statistically classify embryos by sex, non-invasively, early in incubation with high confidence," they noted. Researchers believe the hardware platform invented at UC Davis could be integrated into hatcheries.

Scientists believe a rapid suction-cup sampling method could be developed to test a lot of eggs at the same time. They hope to further develop high performance chemical sensor microchips integrated with routinely used egg handling machinery for determining the sex of yet-to-hatch chickens in the future.

India's Pain is Pakistan's Gain in Global Maize Market as Exports Drop to a Trickle

Pakistan has gained at India's cost in the world corn (maize) market, particularly South-East Asia, as domestic prices are ruling higher than the global prices, exporters and traders said. This is in view of demand from the poultry and starch sectors besides for ethanol production amidst drop in the coarse cereal's production this crop year to June.

According to the Ministry of Agriculture and Farmers' Welfare, the production of maize during kharif and rabi seasons has been pegged at 32.47 million tonnes (MT) against 35.36 last crop year. The hard crop's production has been projected lower in kharif as well as rabi season.

On the other hand, with the Centre banning diversion of sugarcane for ethanol production, the demand for maize has increased. Apart from this, there is an increased demand from poultry and starch sectors for maize. "Indian maize is out of the global market as domestic prices are higher. Prices at the farmgate are around Rs. 2,150 a quintal. This itself translates to \$260/tonne in the global market putting India out," said a New Delhi-based exporter.

"India's loss is Pakistan's gain in the Asian market. It is selling maize at \$240-50 a tonne. In contrast, our prices are over \$300," said M Madan Prakash, President, Agri Commodities Exporters Association.

In the domestic market, the weighted average price of maize

NATIONAL

is currently Rs. 2,132 a quintal compared with Rs. 2,039 a year ago.

According to the International Grains Council, maize prices are 35 per cent lower year-on-year with Argentina quoting at \$188, US at \$189 and Brazil at \$191 a tonne free-on-board.

On the Chicago Board of Trade, maize futures are down about 10 per cent at \$4.25 a bushel (\$161.31 a tonne). Prices are lower this year as global production is forecast to be 1,234 MT compared with 1,163 MT last year.

The US Department of Agriculture said Pakistan's maize exports are likely to top 1.5 MT on good harvest, lower feed demand resulting in a good exportable surplus. Vietnam, Malaysia and Sri Lanka have turned out to be the top buyers. "Though there are quality issues with Pakistan's maize, buyers are opting because of the price. For India, only some loyal buyers in eastern Malaysia are purchasing," said Prakash.

According to the Agricultural and Processed Food Products Export Development Authority (APEDA), Indian exported 1.34 MT of maize during April-December 2023 valued at \$400 million, while shipments in the 2022-23 fiscal were 3.45 MT valued at \$1,116 million.

Maize on CBOT is between Rs. 12,000-14,000 a tonne and the poultry sector wants to import it. "Even if the government imposes the 50 per cent duty, it will still work out to be a cheaper option," said a grain trade analyst.

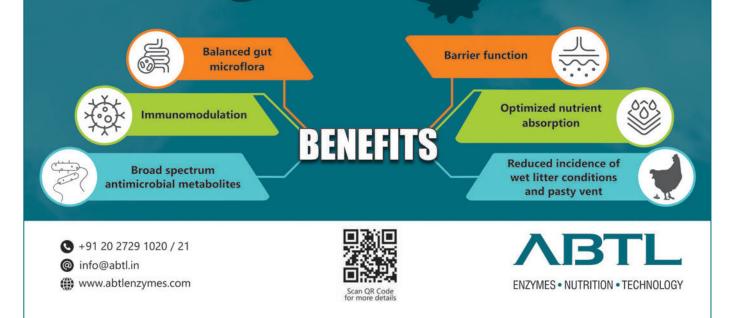
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ABTL at Nepal-India Poultry International Expo 2024

n both India and Nepal, poultry has for long been a cornerstone of economic growth and livelihood generation. The Nepal – India Poultry International Expo 2024 was organised as a testament to the enduring relationship between the two countries and the recognition of the poultry sector being a vital component of the agricultural landscape, supporting the livelihoods of millions and ensuring food security across the countries.

ABTL participated in this landmark expo which facilitated interaction and the forging of new partnerships. With its motto of "Where Innovation Meets Technology", ABTL is committed to setting new trends, enhancing products and services, and transforming global innovations into practical utilities.

According to a spokesperson from ABTL, "As one of the largest enzyme manufacturing companies in India and Southeast Asia, we strive to provide innovative solutions and offer a broad portfolio of products to help our customers turn challenges into significant business opportunities. Many of our customers face fluctuating raw material prices and volatile markets. ABTL's enzymatic solutions help them reduce raw material costs by improving efficiency with more sustainable alternatives. We also assist our customers in reducing their carbon footprint through the application of our enzymes and bio-solutions."





Toxi-Shield Forte

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(Organic acids + Para-formaldehyde + Gentian violet

- + Diatomaceous earth + MOS
- + Yeast based Toxin deactivating enzymes
- + Phytochemical actives
- + Sinamaldehyde)

Broiler Layer Breeder



Event

B V Bio-Corp's Seminars in Nepal



Corp Pvt Ltd hosted technical seminars, Venkateshwara B V Bio-Corp Pvt Ltd hosted technical seminars for poultry farmers on 31st May and 1st June at Chitwan, Nepal.

Jivan Kunwar, Nepal Country Manager for Venkateshwara B V Bio-Corp Pvt. Ltd., welcomed the attendees, and Deepak Khosla, General Manager, Marketing, provided the opening remarks.

In the first seminar, Dr. Sunil Nadgauda, DGM, Nutritional Services, spoke on "Commercial Layer Nutrition." He covered a range of topics, including the following:

- Importance of body weight monitoring in rearing period and its impact on laying productivity
- Early Laying Nutrition to maximise peak production and to maintain the consistency
- Benefits of Phase Feeding to reduce the overall egg production cost and to optimise the efficiency
- Alternative sources of protein and energy and precautions to be taken while using alternative feed ingredients
- Maintaining the egg shell quality during extended laying periods
- Innovative premix solutions to simplify the feed manufacturing process and also to avoid errors during feed production. MIXIBLEND 0.4% Layer Composite premix is the innovative and simple solution which provides additives part in required proportion to boost the productivity

A Q&A session followed the presentation.

Dr. Parag Mahadik, AGM Marketing, Ventri Biologicals explained about Newcastle Disease (ND) which is the fourth top poultry disease in the world causing huge losses for the industry. As ND virus is a single stranded RNA virus, lot of modifications are happening in it. There is no sterile immunity after ND vaccination. Therefore, there is a need to repeat vaccination frequently. India is endemic to velogenic strains of ND. In India, Nepal and other Asian countries genotype VIII or XIX is prevalent and this component is updated in Ventri Biologicals' vaccines.

Dr. Harshakumar Shetty, General Manager, Breeder Sales & Technical Support, led the second seminar focused on "Vencobb 430 Breeder Management Updates." His presentation included:

- Importance of uniformity in broiler breeders and how to achieve it
- Importance of grading in broiler breeders and its impact on uniformity
- He also discussed regarding calculation of feed increment and feed allocation after grading
- Emphasised on feed management and body weight management in female during growing and laying phase
- Preparing pullet for maximum performance
- Standard recommendation regarding light stimulation and also discussed

INDIAN POULTRY REVIEW 36

about the lighting schedule during growing and laying in open as well as environmentally controlled houses

- Requirement of energy for maintenance, growth and production during laying period
- Ways to prevent fatty liver, calcium tetany
- Male management for achieving better fertility

Dr. H. K. Rohilla, DGM, Broiler Breeder Technical Services (North India), shared his insights on dealing with Infectious Bronchitis in broiler breeders, layers, and commercial broilers. He discussed the disease's transmission, symptoms, and prevention strategies, supported by various case studies.

Each seminar was attended by approximately 100 poultry farmers from Chitwan, Pokhara, and nearby areas. Jivan Kunwar concluded the events with a vote of thanks, and the local Venworld team organized the seminars.





WE ARE HIRING

Seeking a Dynamic Executive Secretary to Support Our Leadership Team

Age: Location: Type of Employment: Reporting to:

Permanent President

Bangalore

40 years and above

Skills & Competencies

MS Office, Tally, Experience with IM solutions (SMS, Skype, WhatsApp), setting up virtual meetings, exposure to digitisation. Should be mobile, proficiency in Kannada, (read, write, speak) and English (read, write, speak).

Experience & Qualifications

Minimum 8 years as Executive Secretary in any sector, exposure in crop agriculture and livestock (poultry) agriculture is a plus. Must be a graduate.

Salary

As per market standards (including variables and incentives)

Role

KPFBA's Executive Secretary acts as the CEO of the association, responsible for revenue streams, membership drives, accounting, coordination with auditors and lawyers, government liaisoning, event management, media management, member engagement and member integration. The secretariat oversees the activities of Poultry Disease & Raw Material Diagnostic Lab.

Event

Indian Herbs' Seminar at Midnapore



Indian herbs Specialities Pvt. Ltd. organised a seminar at Midnapore, West Bengal on 8th June. The seminar was graced by Chief Guest, Dr. Purnendu Biswas, Former Vice Chancellor, W.B.U.A.F.S.; Guest of Honour, Madan Mohan Maity, Chairman NECC (East Zone), and Dr. Sudipto Haldar, Research Director, Agrivet Research and Advisory Pvt. Ltd.

Key highlights included insightful addresses by Dr. Purnendu Biswas and Madan Mohan Maity, along with a session by Dr. Sudipto Haldar on 'Layer Nutrition, Management, and Disease Diagnostics.'

Dr. Shivi Maini delivered an engaging presentation on "Novel Phytogenics for Summer Stress Management in Layers." The seminar witnessed the enthusiastic engagement of the Indian Herbs' sales team of Paramartha Roy, National Sales Manager; Tirthankar Bannerjee, Sales Manager (East Zone), Khokan Paul, Subhadip Mondal and Kaushik Paul.

The seminar saw active participation from over 60 prominent layer farmers, integrators, feed millers, and patrons. The event fostered a vibrant exchange of ideas, experiences, and best practices, nurturing a collaborative spirit and creating an environment conducive to collective learning and growth.







Organized by IEAC

Indian Poultry Jounalists' Association is pleased to announce the series of Technical Seminars and Award Function for 2024 & 2025

IPJA Tech	Received and the second
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Event Partner	Rs. 2,00,000
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*Rates are for each Technical Seminar

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Launch

Srinivasa Farms Launches State-of-the-Art Egg Grading Centre in Vijayawada

Srinivasa Farms inaugurated a cutting-edge egg grading centre at Vijayawada on 9th June, underscoring its commitment to delivering high-quality, affordable nutrition to Indian households. This significant development is a part of their broader vision, encapsulated in the #HealthyBharat initiative, which aims to promote wellness through superior food products.

The new facility, a first of its kind in the region, will ensure that every egg under the brands Freshen and Hello Eggs meets the highest standards of freshness and quality. Each egg processed at the centre will be delivered to consumers within 24 hours, guaranteeing unparalleled freshness from farm to table. This rapid delivery system is a testament to Srinivasa Farms' dedication to maintaining the nutritional value and quality of their products.

Consumers can find Freshen and Hello Eggs at major retail outlets including Reliance Retail, Ratnadeep, and More Stores, ensuring easy access to these top-quality eggs. Srinivasa Farms continues to lead the industry with innovations that support their mission of fostering a healthier nation.







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Announcement

AB Vista Appoints Atmaram Yadav as South Asia General Manager



AB Vista, a global leader in innovative feed ingredients and technical services announced the appointment of Atmaram Yadav as the new General Manager for South Asia. This strategic move underscores the company's dedication to excellence and growth in this key region.

Mr. Yadav brings with him over 25 years of extensive experience in the poultry industry, including 14 impactful years with AB Vista. Throughout his career at the company, he has been instrumental in market development, customer relations, and strategic planning.

In his new role, Mr. Yadav will oversee operations and strategic initiatives across South Asia. He aims to drive growth, enhance customer engagement, and foster innovation. His proven track record and deep industry knowledge position him perfectly to lead AB Vista into a new era of success. "I am honoured to take on this new role and lead the South Asia region for AB Vista," said Atmaram Yadav. "I look forward to working closely with our talented team and valued partners to continue our journey of growth and innovation. Together, we will build on our achievements and strive to deliver exceptional value to our customers."

Dieter Suida, Global Commercial Director of AB Vista, expressed his confidence in Mr. Yadav's appointment, stating, "Atmaram's extensive industry experience and deep knowledge of our business make him the perfect fit for this role. His leadership will undoubtedly contribute to our continued success and strengthen our commitment to delivering innovative solutions to the poultry industry in South Asia."

Wedding in the GLOCREST Family

GLOCREST Pharmaceutical announced the wedding of its Director and Board Member, Nishank Kaparthy on 27th March.

The wedding was graced by numerous distinguished guests including veterinarians, poultry consultants, nutritionists, feed millers, sales persons, CEOs and MDs of leading poultry companies. Employees of GLOCREST and Krishna Group also attended the wedding in full force.

Heartfelt congratulations to Nishak Kaparthy and his spouse for a long and happy married life.









VENKATESHWARA B.V. BIOCORP PRIVATE LIMITED Venkateshwara House', S. No. 114/A/2, Pune-Sinhagad Road, Pune-411030 Tel.: (020) 24251803, Fax: +91-20-24251060/24251077, Website: www.venkateshwarabvbiocorp.com





VH STEG[™]

Salmonella Polyvalent Inactivated Vaccine

Vaccine is produced by *In-Vivo* Antigen Expression Technology & is recommended for active immunization of the breeder flock. Each dose of vaccine contains more then 2.5 x 10[°] CFU each of Salmonella Gallinarum, Salmonella Enteritidis & Salmonella Typhimurium in inactivated form for greater protection.

Advantages of Ventri's Salmonella Polyvalent Vaccine

- Polyvalent vaccine is having wide antigenic spectrum and contains S. Gallinarum, S. Enteritis & S. Typhimurium.
- Inactivated vaccine is administered parentally & generates humoral antibodies to provide Material Derived Antibody M D A.
- Very safe to handle.
- Bacterial shading is reduced in the flocks where vaccine is used and increase in egg production (HHP), increase in hatchability, decrease cull chicks is observed.
- Flock should be screened for salmonella infection before vaccination.
- Proven vaccine to reduce salmonella infection in subsequent flocks

Vaccination Programme:

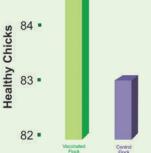
Vaccinate sero - negative flocks, tested by Salmonella quick agglutination plate test applied with a gap of 21 days between two consecutive testing before vaccination of flock. Vaccinate breeder at 16 & 20 week age Revaccinate at midlay.

Consult the experts for vaccination.

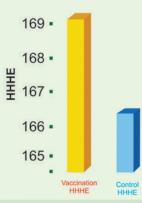
Storage :

Store at 2-8°C









@ 0.5 ml per bird

Dose :

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Answer for

battle against

Salmonella

in Poultry.



VENTRI BIOLOGICALS

(Vaccine Division of VHPL)

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