

DAIRY PLANNER

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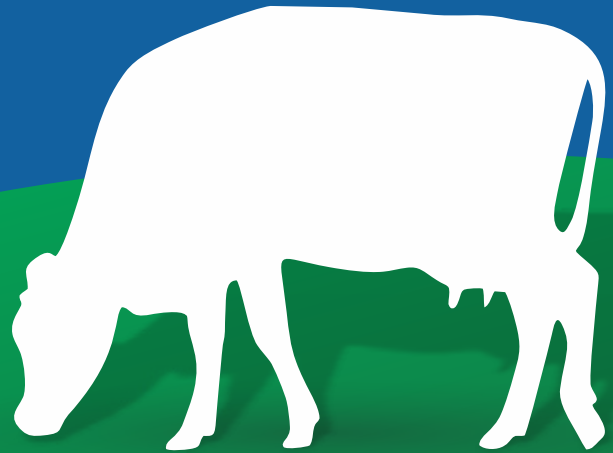
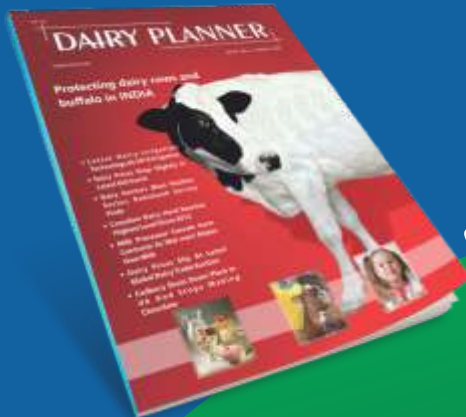


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From the Pen of Chief Editor



Unlocking the Untapped Potential of Dairy Farming: A Pathway to Agricultural Prosperity

Dairy farming stands as a cornerstone of agriculture, wielding immense potential to shape economic growth, nutritional security, and sustainable livelihoods. In a world increasingly attuned to the need for resilient and sustainable food systems, the significance of dairy farming cannot be overstated.

Firstly, the economic potential of dairy farming is colossal. It serves as a livelihood source for millions, particularly in rural areas, fostering employment opportunities across the production chain. From small-scale family-owned farms to large commercial enterprises, dairy farming encompasses a spectrum, offering diverse business models suitable for varying scales of investment. The demand for dairy products, including milk, cheese, yogurt, and butter, continues to surge globally, presenting a lucrative market for dairy farmers to tap into.

Moreover, the nutritional significance of dairy cannot be overlooked. Dairy products are a prime source of essential nutrients, including calcium, protein, vitamins, and minerals, vital for human growth and development. The versatility of dairy makes it an integral part of diets worldwide, contributing significantly to meeting nutritional requirements, especially in regions where access to diverse food sources is limited.

However, the true potential of dairy farming lies not only in its economic and nutritional aspects but also in its sustainability and environmental impact. Sustainable dairy practices encompass efficient resource utilization, waste management, and animal welfare. Embracing technological advancements in farming techniques, such as precision agriculture, automated milking systems, and biogas production from cow manure, can significantly reduce the environmental footprint of dairy farming while optimizing productivity.

Furthermore, dairy farming presents an opportunity to foster innovation and research. Advancements in genetics, nutrition, and animal husbandry techniques contribute to enhancing milk yield, animal health, and overall farm efficiency. Collaborations between research institutions, governments, and dairy farmers can accelerate the development and adoption of innovative practices, thereby driving the industry towards sustainability and profitability.

Nevertheless, challenges persist in realizing the full potential of dairy farming. Issues like fluctuating market prices, access to resources, and sustainable land use practices require attention. Governments and stakeholders must collaborate to provide necessary support, including access to finance, training, and technological resources, to enable dairy farmers to overcome these challenges and thrive.

In conclusion, dairy farming stands at the cusp of transformational growth, holding immense promise as a catalyst for agricultural prosperity. Harnessing its potential requires a concerted effort from all stakeholders, emphasizing sustainability, innovation, and equitable development. By leveraging technological advancements and embracing sustainable practices, the dairy industry can not only meet the rising global demand for nutritious dairy products but also contribute significantly to economic development and food security worldwide.

Vishal

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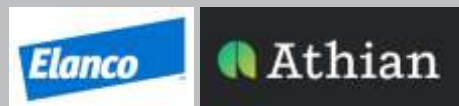
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Exploring the Lucrative Realm of Dairy Farming: Unveiling the Potential

Siddhi Gupta and Parth Rai Gupta
Co-Editor

Dairy farming stands as one of the oldest agricultural practices known to humanity. From providing essential nutrients to serving as a source of livelihood for millions, the industry has evolved significantly over time. In the contemporary era, the potential of dairy farming has expanded exponentially, driven by technological advancements, changing consumer preferences, and the quest for sustainable food sources. In this article we delve into the multifaceted world of dairy farming, exploring its potential, challenges, and the promising future it holds.

Historical Foundations

The dairy industry has a long history, dating back to ancient times around 7000 BC. It began as a domestic practice and evolved into a global economic powerhouse. The industry's expansion was facilitated by various civilizations, including ancient Egyptians, Indians, and European monasteries. The Middle Ages saw advancements in dairy processing methods, leading to the creation of butter and yogurt. European monasteries also played a crucial role in refining cheese-making techniques, resulting in a diverse range of cheeses.

The dairy industry's global presence expanded with colonization and trade routes, with European settlers introducing dairy farming to the Americas.

Technological innovations in the 19th and 20th centuries, such as pasteurization by Louis Pasteur and refrigeration and transportation advancements, revolutionized dairy production. Today, major players like the United States, India, China, and European nations supply dairy products worldwide.

Despite facing contemporary challenges, the dairy industry continues to adapt through innovation, meeting the evolving needs of a globalized world. Automation, genetic advancements, and precision farming techniques have enhanced efficiency and productivity while ensuring animal welfare. Plant-based alternatives have also gained traction, challenging traditional dairy products and prompting the industry to diversify its offerings.

Economic Significance

The dairy industry is a vital global economic pillar, playing a crucial role in agriculture, nutrition, and commerce. Its growth, challenges, and innovations are influenced by various factors such as employment, agricultural contribution, revenue generation, consumer preferences, technological advancements, regulatory environment, global supply chain, sustainability concerns, health and nutrition, and market diversification.

Employment and livelihoods are crucial for the dairy industry, with jobs across farming, processing, distribution, and retail. Dairy farming drives demand for crops, creating interdependencies within the agricultural ecosystem. Revenue generation and trade also contribute to national economies through exports and imports of dairy products.

Consumer preferences, influenced by health awareness, dietary trends, and cultural factors, drive the demand for dairy products. Technological advances, such as automated milking systems and advanced processing techniques, enhance productivity and ensure food safety. Compliance with stringent regulations often influences production methods, distribution channels, and market access.

The dairy supply chain involves multiple stakeholders, including farmers, processors, distributors, and retailers. Factors like climate change, geopolitical tensions, and transportation disruptions can significantly impact the supply chain, affecting prices and availability. Sustainability concerns, such as reducing greenhouse gas emissions and managing water usage, are critical for the industry's long-term viability.

Health and nutrition are also important, as the dairy industry faces the challenge of meeting diverse nutritional needs while addressing health implications of certain dairy products. Diversification opportunities lie in expanding markets beyond traditional dairy products and exploring new consumer segments.

Technological Advancements

The dairy industry is undergoing a transformation due to rapid technological advancements. Automation and robotics have replaced manual labor, streamlining the milking process and ensuring higher precision and efficiency. Data analytics and IoT have enabled farmers to make informed decisions by collecting data on milk production, cow activity, and environmental conditions. This data provides insights into herd health, optimizes feed composition, and predicts milk yields, maximizing efficiency and minimizing waste.

Precision farming techniques, including sensors and wearable devices, have transformed dairy management by tracking individual cow behavior for tailored feeding regimes and health monitoring. Biotechnology and genetics have revolutionized breeding practices, with genomic data helping breed cows with desirable traits such as higher milk yield, disease resistance, and better feed conversion efficiency. This leads to more productive and sustainable dairy operations.

Technological innovations have also improved the industry's environmental footprint, with methane digesters converting cow manure into energy and precision irrigation systems conserving water. However, challenges persist, such as affordability and accessibility of technology for small-scale farmers, and data privacy and cybersecurity concerns surrounding sensitive farm data collection and utilization.

The future of the dairy industry lies in emerging technologies like

artificial intelligence (AI), blockchain for supply chain transparency, and biotechnology for creating alternative dairy products. Balancing technological advancements with accessibility and sustainability will be key to ensuring a prosperous future for the dairy industry.

Sustainable Practices

The dairy industry, a vital part of global agriculture and nutrition, is facing significant environmental challenges. These include greenhouse gas emissions, land and water usage, and waste management. Dairy farming contributes to methane and nitrous oxide emissions, which contribute to climate change. Deforestation and water consumption strain ecosystems, leading to habitat loss, soil degradation, and water scarcity in some regions.

Sustainable practices include emission reduction strategies, efficient resource management, and renewable energy integration. Precision farming practices, such as optimized feed formulations and water-efficient irrigation, can minimize resource consumption while maintaining productivity. Renewable energy sources like solar or wind power can reduce reliance on fossil fuels and contribute to a more sustainable energy mix.

Innovative solutions include alternative feed sources, circular economy approaches, and technology for sustainability. Research into alternative feed sources, such as algae or insect-based feeds, can reduce the environmental impact of conventional feed crops. Circular economy principles, such as

converting cow manure into biogas for energy or compost for fertilization, close the waste loop and minimize environmental impact.

Technology advancements, such as IoT-enabled sensors and data-driven decision-making, play a pivotal role in achieving sustainability goals within the dairy industry. Collaboration among stakeholders, including farmers, policymakers, researchers, and consumers, is essential for driving systemic change toward sustainability. Incentives, subsidies, and education programs can accelerate the industry's transition to eco-friendly methods.

The dairy industry faces a critical juncture where addressing sustainability concerns is not just an option but a necessity. By embracing innovative practices, technological advancements, and collaborative efforts, the industry can pave the way for a more sustainable future.

Health and Nutrition

The dairy industry, a vital component of global nutrition, is facing a transformation as health consciousness and dietary preferences evolve. Dairy products are rich in essential nutrients like calcium, protein, vitamins, and minerals, which are crucial for bone health, muscle development, and overall well-being. However, some individuals face dietary restrictions, such as lactose intolerance, saturated fats, and cholesterol, leading to shifts in consumer preferences towards healthier alternatives.

Product diversification has led to the rise of plant-based alternatives, such as almonds, soy,

and oats, catering to lactose-free or vegan consumers. Functional dairy products have also been created, fortified with probiotics, omega-3 fatty acids, or reduced levels of certain components. These products aim to address specific health concerns and cater to niche consumer segments.

Health-driven innovations include reduced fat variants and enhanced nutritional profiles. Nutritional awareness and education about the nutritional composition of dairy products are essential for informed decision-making. Balancing tradition with innovation ensures the industry remains relevant and accessible to a wider spectrum of consumers.

The dairy industry's evolution towards health-centric product diversification is a pivotal moment, as it addresses current consumer demands while paving the way for a more inclusive and versatile future. Health, nutrition, and product diversification represent a responsive approach to evolving consumer needs, solidifying its role as a provider of essential nutrients while adapting to meet the diverse and ever-changing preferences of consumers worldwide.

Global Market Dynamics

The dairy industry is a vital component of global trade, supplying milk, cheese, butter, and powdered milk to various countries. As the industry evolves, emerging markets and changing trade dynamics present both challenges and opportunities. International exchange involves exporting and importing dairy products, while trade balances are influenced by countries like New Zealand, the European Union, the

United States, and Australia. Emerging markets include the Asia-Pacific region, where rapid urbanization, increasing disposable incomes, and changing dietary habits drive a surge in dairy consumption. The Middle East and Africa also witness growing demand for dairy products due to population growth, urbanization, and a rising middle class.

Regulatory challenges include varying standards across countries, which can be addressed by harmonizing standards. Market diversification is crucial for the industry's growth, as it must explore new markets and adapt products to local tastes and preferences. Technological advancements, such as cold chain logistics, traceability systems, and digital platforms, facilitate global trade by optimizing supply chains, ensuring food safety, and reducing transportation costs. Sustainability practices, such as eco-friendly production methods and reduced carbon footprints, are increasingly influencing trade partnerships.

The dairy industry's future outlook is uncertain, but its ability to adapt to changing consumer preferences, sustainably meet production demands, and forge strategic trade partnerships will be pivotal. Aligning with evolving market trends and navigating complexities will position the industry for a dynamic and resilient future.

Challenges and Opportunities

The dairy industry faces numerous challenges, including environmental concerns, evolving consumer preferences, and economic volatility. Balancing

increased production with sustainable practices is crucial for the industry's long-term viability. Traditional dairy consumption must adapt to these changing needs. Economic volatility, including fluctuating commodity prices and trade disruptions, impacts dairy operations' stability and profitability.

Opportunities for growth include technological advancements, product diversification, and global market expansion. Technological advancements, such as precision farming, data analytics, robotics, and biotechnology, offer enhanced efficiency and productivity. Product diversification, such as plant-based alternatives, functional foods, and fortified products, caters to diverse consumer segments. Emerging markets in Asia, Africa, and the Middle East present significant growth opportunities due to rising disposable incomes, urbanization, and changing dietary habits.

Strategies for overcoming challenges include sustainability initiatives, innovation and research, and collaboration and adaptability. Investing in sustainable practices, such as renewable energy adoption, efficient resource management, and circular economy approaches, mitigates environmental impact and enhances brand value. R&D initiatives focusing on product innovation, alternative feed

sources, and process optimization foster competitiveness and address evolving consumer demands.

The dairy industry's growth trajectory requires a balancing act of navigating challenges while capitalizing on opportunities. By proactively addressing challenges, harnessing technological advancements, and capitalizing on emerging market trends, the industry can chart a path toward resilient growth.

Future Prospects

The dairy industry is poised for significant transformation due to rapid technological advancements, shifting consumer preferences, and sustainability imperatives. Advancements in precision agriculture, biotechnology, and genetics will optimize dairy operations, leading to improved productivity and resource utilization. Sustainable innovation will be crucial, with methane capture technologies, regenerative agriculture, and circular economy approaches becoming integral to future dairy operations.

The rise of plant-based dairy alternatives will drive health-conscious consumers and environmental concerns, blurring the line between traditional dairy and plant-based options. Functional and personalized nutrition will increase consumer demand for dairy products

tailored to specific health needs, incorporating probiotics, omega-3s, and other beneficial components. Transparency and traceability will be essential, with blockchain and other traceability technologies enabling consumers to trace the journey of dairy products from farm to table.

Global market dynamics will shift towards emerging markets, driven by growing middle-class populations in Asia, Africa, and the Middle East. Trade realignment will result from geopolitical shifts, trade agreements, and market diversification. Environmentally, the dairy industry will intensify efforts to reduce its carbon footprint through investments in renewable energy, methane reduction strategies, and sustainable land management practices. Circular economy adoption will minimize waste and contribute to a more sustainable production cycle.

Embracing these transformative trends will ensure the industry's resilience and continued relevance. By embracing technological advancements, fostering sustainability, understanding evolving consumer needs, and exploring new market frontiers, the dairy industry is poised to undergo a remarkable transformation, positioning it as a pivotal player in nourishing the world's population sustainably in the future.

Conclusion

In conclusion, dairy farming stands as a cornerstone of the agricultural sector, offering vast potential for economic growth, technological innovation, and nutritional sustenance. The industry's ability to adapt to evolving consumer demands while embracing sustainability will be pivotal in unlocking its full potential. With continued advancements and strategic initiatives, dairy farming is poised to play a pivotal role in meeting global food demands while fostering economic prosperity and environmental stewardship.



Jasneet Singh

Mastitis Management and Prevention: Ensuring Udder Health in Dairy Animals

Mastitis, the inflammation of the mammary gland, is a significant concern in dairy farming. It not only affects milk production but can also compromise the overall health and well-being of dairy animals. Effective management and prevention strategies are essential to maintain udder health and ensure a productive and sustainable dairy operation.

Understanding Mastitis

Mastitis is commonly caused by bacterial infections, with pathogens entering the udder through the teat canal. Other factors, such as poor milking hygiene, inadequate nutrition, and environmental conditions, can contribute to its development. Identifying the signs of mastitis early is crucial, including swelling, redness, heat, and changes in milk consistency or colour.

Management Strategies

1. Hygiene Practices

Maintaining proper milking hygiene is paramount in mastitis management. Regularly clean and sanitize udders and teats before milking to minimize the risk of bacterial contamination. Proper cleaning of milking equipment is equally important to prevent the spread of infections.

2. Timely Milking Routine

Establish a consistent and gentle milking routine. Ensure that cows are not overly stressed during milking, as stress can compromise their immune system, making them more susceptible to infections. Regular and complete milking helps prevent the accumulation of milk, reducing the risk of bacterial growth.

3. Dry Cow Management

Proper management of dry cows is crucial in preventing mastitis. Implement a dry cow therapy program, which involves treating udders with antibiotics during the dry period to eliminate existing infections and protect against new ones.

4. Nutritional Management

Provide a balanced and nutritionally rich diet to enhance the immune system of dairy animals. Proper nutrition contributes to overall health and helps cows resist infections. Ensure access to clean water, as dehydration can increase the likelihood of mastitis.

5. Culling Infected Cows

Identify and isolate cows with chronic or severe mastitis to prevent the spread of infection to healthy animals. In some cases, culling may be necessary to maintain the overall health of the herd.

Prevention Strategies

1. Regular Monitoring and Testing

Implement a routine monitoring program to identify mastitis early. Conduct regular somatic cell count (SCC) tests, which can indicate the presence of infection before clinical signs appear.

2. Vaccination

Consider vaccination programs to protect against common mastitis-causing bacteria. Consult with a veterinarian to determine the most appropriate vaccines for your herd.

3. Comfortable Living Conditions

Provide comfortable and clean living conditions for dairy animals. Proper bedding, well-ventilated barns, and dry environments help reduce stress and minimize the risk of bacterial contamination.

4. Training and Education

Train farm personnel on proper milking techniques, hygiene practices, and the

early detection of mastitis. Educate staff about the importance of prompt reporting and treatment.

Conclusion

Effective mastitis management and prevention are essential components of successful dairy farming. By implementing a comprehensive approach that includes proper hygiene, nutrition, routine monitoring, and vaccination, dairy farmers can promote udder health, ensure milk quality, and maintain the sustainability of their operations. Regular veterinary consultations and staying informed about the latest advancements in mastitis control contribute to the overall success of a dairy farm.





New Born Calf Management



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Introduction

The initial hour following a calf's birth is a pivotal moment in the calf's life. During this period, several crucial actions should be taken to ensure the calf's well-being:

1. **Clearing Airways:** It's essential to cleanse the nostrils and mouth of the calf to facilitate unobstructed breathing. This step helps prevent potential respiratory issues, ensuring the calf breathes easier.
2. **Maternal Care:** Allowing the mother cow to lick the calf clean serves multiple purposes. This maternal attention promotes blood circulation in the calf's body, contributing to its overall health. Additionally, it prepares the calf for those significant milestones of standing up and walking.
3. **Umbilical Cord Care:** Approximately 2 inches from the base of the umbilical cord, securely tie it with a thread and then carefully cut the remaining portion using a clean instrument. To minimize the risk of infection, the navel should be dipped in a tincture of iodine solution with a concentration of 7% or higher. This treatment should be repeated after 12 hours. The use of teat dip or weaker iodine solutions should be avoided, as a poorly maintained navel can become a gateway to serious infections.
4. **Colostrum Feeding:** Within the first two hours of birth, newborn calves should receive 2 liters of colostrum, followed by an additional 1-2 liters (adjusted according to the calf's size) within the first 12 hours. Colostrum, the first milk from the mother, is rich in antibodies that grant the calf essential immunity. It's crucial to understand that providing colostrum after 24 hours of birth is less effective in conferring immunity. To safeguard the calf from diseases, it must obtain sufficient colostrum for the first three months of its life, making it a literal "passport to life."
5. **Hand-Feeding for Assurance:** Hand-feeding newborn calves is recommended to ensure that each calf receives an adequate and measured quantity of colostrum. Some calves may not nurse sufficiently from their mothers, so this practice guarantees that the farmer knows precisely how much colostrum each calf receives.
6. **Deworming and Vaccination:** As the calf matures, it's crucial to maintain its health through regular deworming and vaccination. Monthly deworming should commence within 10-14 days of age and continue until the calf reaches

six months. This regimen helps control internal parasites that can negatively affect the calf's health.

Consult with a veterinarian when the calf reaches three months of age to discuss vaccination options.

Vaccination is a pivotal measure for protecting the calf from an array of diseases, forming an essential part of preventive healthcare.

7. Calf Starter Feed for Growth:

Introducing a calf starter feed, typically from the second to eighth week of age, is recommended to enhance growth and stimulate early maturity in the calf. This supplementary feed plays a key role in supporting the calf's overall development.

These guidelines encompass various aspects of caring for newborn calves, from the critical first hour following birth to the ongoing management of their health and nutrition. Diligent adherence to these practices is essential for ensuring the well-being of cattle on a farm. Seeking advice from a veterinarian or agricultural expert, tailored to specific farm conditions, is always a prudent course of action.

Calving Pen

A calving area, often referred to as a calving box or stall, is a crucial component in the management of cattle during the calving process. Here are the key points about the design and location of a calving area:

1. Dimensions and Ventilation:

The calving area should be designed as a loose box or stall and be spacious enough, typically measuring 3 meters by 4 meters, which equals 12 square meters in size.

Adequate ventilation is essential to ensure good air quality for the cow and calf. Proper air circulation helps maintain a comfortable and healthy environment.

2. Lighting: Sufficient lighting is crucial within the calving area. This allows for better visibility and is especially important during nighttime calving events. Adequate lighting aids in monitoring the cow and calf, ensuring a safe and successful calving process.

3. Protection and Isolation: The primary purpose of a calving area is to provide a safe and protected space for the cow and her calf during the calving process. This enclosure prevents threats from other

cows, such as aggression or interference, which can occur when multiple cows are present in the same space.

4. Proximity to Attendant

Quarters: It's advantageous to consider the location of the attendant's living quarters in relation to the calving pen. Having the attendant's quarters in close proximity to the calving area can be beneficial, particularly for nighttime calving.

Management After Calving

- Udder and hind quarter should be washed with lukewarm water containing an antiseptic solution of potassium permanganate lotion and dried with clean cloth. Cows may be milked to alleviate udder pressure.
- If day old weaning is not practiced the calf can be allowed to remain with the mother in the calving pen for 7 to 10 days. Otherwise the calves can be removed immediately to calf pen. The maternal instinct is more, cow's eyes can be blindfolded before the calf is removed. The placenta is to be expelled within 12 to 24 hours after parturition. If it is not expelled in 24 hours, seek the help of a Veterinarian be removed manually.



- The body temperature should be noted prior to manual removal. Attempts should be made systemically to minimize fever in the case of pyrexia. Systemic infection can otherwise be identified. Cows should be closely watched for symptoms of any metabolic diseases, such as milk fever, grass tetanus, ketosis, acidosis, and should be promptly treated.

Colostrum Feeding

The first milk secreted after parturition is Colostrum. It contains significant quantities of gamma globulins, which are nothing but anti-bodies formed by the cow against antigens throughout her lifetime. Absorption of these antibodies gives the calf a passive immunity umbrella. Colostrum is highly fortified source of nutrient having 7 times the protein and twice the total solids of normal milk, thus it gives an early boost in portion and solid intake. It contains higher amount of minerals and vitamin A which are essential to combat disease. Ingestion of these through colostrums substantially increase the calf's survivability. Colostrums give a laxative effect which is helpful in expulsion of meconium (first faeces). The cows should be vaccinated against contagious and infectious diseases which help to increase the quantity and quality of gamma globulins in colostrums. Similarly, colostrums of mature cow possess large quantities of gamma globulins because they have greater chance of exposure to many infections. The gamma globulins must be absorbed as such across the intestinal wall into blood stream without being broken down into the constituent peptides or amino acids. In the first few hours of life, this permeability is rapidly lost. Many studies have shown that within the first 1-2

hours of life, these globulins migrate through the intestinal wall at the highest speeds. Bringing this into context. In the first 15-30 minutes, it will be very useful to feed the colostrum, followed by a second dose in around 10-12 hours. The absorptive cells lining the small intestine are immature at birth. In this stage they indiscriminately take up large molecules like immunoglobins. As the calf grows older hour by hour, there is a transition of epithelial cells of small intestine from immature type to mature type which cannot allow large protein molecules. As the more and more cells mature the capacity of the calf to absorb immunoglobins diminishes proportionately until 'closure' when no more absorption can take place. This phenomenon is called 'gut closure'. Concentration of antibodies at 'closure' is directly related to the disease resistance of the calf. If the calf had only consumed a small amount of colostrum immunoglobins at closure, the declining concentration soon places the calf in a critical immune position. This raises morbidity and also contributes to calf mortality. The sum of colostrum to be supplied is 1/10th of the weight of the body.

15-30 minutes of life - 5-8 % of body weight

10-12 hours of life - 5-8 % of body weight

2nd day - 10% of body weight
3rd day - 10% of body weight

Excess colostrums can be milked out daily otherwise the calves can drink in excess and results in calf scour. The excess colostrums can be stored by refrigeration and can be used to other calves or orphan calves. Colostrums can also be frozen and stored indefinitely. Colostrums can also be fermented

naturally and stored and can be used for 5-7 days. Colostrum substitute: colostrum substitute may be used in case of non-availability due to accidental death of the mother or agalactia colostrum substitute. It can be prepared by combining one litre of milk and 30 ml of castor oil with 2 whole eggs. They have to be served three times a day.

Weaning

Weaning is the process of gradually making a calf independent of its mother's milk. In the context of early weaning, a different approach is taken where the cow is not allowed to suckle its calf. Instead, the following steps are typically followed:

1. **Complete Milking of the Cow:** The first step in early weaning is to completely milk out the cow. This ensures that there is no milk left in the udder, reducing the calf's access to its mother's milk.
2. **Feeding Whole Milk or Skim Milk to the Calf:** To compensate for the lack of access to the cow's milk, the calf is provided with whole milk or skim milk. This milk is typically formulated to meet the nutritional needs of the calf and is often delivered via a bottle or other feeding methods.

Early weaning is commonly practiced for various reasons, including better control over the calf's diet and development, improved management of the cow's milk production, and specific breeding or health-related considerations. By implementing this approach, the farmer can ensure that the calf receives the necessary nutrients for its growth and development while gradually transitioning it to a diet that doesn't rely on the cow's milk.



Understanding the Challenges of Retained Placenta in Animals: Causes, Implications, and Solutions

Introduction:

The process of parturition is a critical and often miraculous event in the animal kingdom. However, complications can arise, and one such challenge is the retention of the placenta. This problem is more seen in dairy animals. After 2-6 hours of parturition placenta expels out. When the foetal membranes does not expel naturally till 24 hours then this condition is called retention of placenta. This condition is not only discomforting for the animal but also poses significant health risks. In this article, we will explore the causes, implications, and potential solutions for retained placenta in animals.

Causes of Retained Placenta:

Hormonal Imbalances: Hormonal changes are essential to the birthing process. The placenta may be retained if there are any changes to the delicate hormonal balance that governs labor and the postpartum period.

Dystocia (Difficult Birth): The placenta may remain in the body if delivery of foetus is difficult or takes a long time. The foetus size, anatomical anomalies, or incorrect placement during birth might all be the cause of this.

Metabolic Disorders: Animals suffering from underlying metabolic abnormalities, such as hypocalcemia (low calcium levels), may find it difficult to contract their uterus, which might result in the placenta being retained.

Nutritional imbalance: Deficiency of vitamin A and mineral like selenium in animal diet also contribute for occurrence of this condition.

Implications of Retained Placenta:

Infection Risk: Retained placenta provides a perfect habitat for bacterial development. The danger of infection increases with the length of time the placenta stays in the uterus. The animal's general health may be harmed and systemic problems may result from this.

Uterine Complications: Long-term placental retention may harm the uterus and result in conditions like endometritis or metritis, which may affect the animal's ability to reproduce in the future.

Reduced Milk Production: Retained placenta can disrupt the hormonal balance necessary for proper lactation. This may result in reduced milk production, affecting the health and growth of the newborn.

Solutions and Management:

Veterinary Intervention: Timely veterinary assistance is crucial when an animal experiences retained placenta. A veterinarian can assess the situation, administer appropriate medications, and, in severe cases, manually remove the retained placenta.

Hormonal Therapies: Hormonal treatments may be recommended to regulate hormonal imbalances and stimulate uterine contractions,



**Rajvinder Grover and
Prabhleen Singh**



facilitating the expulsion of the placenta.

Proper Nutrition and Management: Maintaining optimal nutrition and ensuring a stress-free environment for pregnant animals can contribute to reducing the risk of retained placenta. Adequate calcium supplementation and a well-balanced diet are essential.

Regular Monitoring: Regular monitoring during pregnancy and birthing is essential for early detection of potential complications. This allows for timely intervention and reduces the likelihood of retained placenta.

Treatment:

Manual removal of placenta: A variety of methods have been used in the treatment of bovine RFM, although the efficacy of many of these treatments is questionable. Manual removal of the placenta remains a common practice despite numerous studies that fail to demonstrate a beneficial effect on reproductive performance or milk yield. Manual removal can result in more frequent and severe uterine

infections, when compared with more conservative treatment.

Antimicrobial therapy: The use of antimicrobial therapy in the treatment of RFM has demonstrated conflicting results. Postpartum metritis is a common sequelae of RFM, and the rationale behind antibiotics for RFM is to prevent or treat metritis and its subsequent negative effects on fertility. Local antimicrobials, typically given as uterine infusions or boluses, have not been shown to reduce the incidence of metritis or improve fertility.

Hormonal therapy: The most commonly used hormone products in treating RFM are prostaglandins and oxytocin. These hormones play a role in uterine contraction, and could be effective in treating RFM because of uterine atony. However, it is thought that uterine atony accounts for a very small percentage of retained placenta cases and numerous studies have not supported their use as a general treatment for RFM.

Collagenase role: The breakdown of

collagen plays a role in placental detachment, and infusion of collagenase can be helpful in breaking the caruncle-cotyledon bond in RFM. Injection of 1 L of saline containing 200,000 IU of bacterial collagenase into the umbilical arteries of retained placentas caused earlier placental release than untreated contemporaries. This treatment is targeted specifically at correcting the lack of cotyledon proteolysis and might be more effective than traditional therapies.

Conclusion:

Animals with retained placentas have a difficult condition that has to be treated right away. For the sake of her children and herself, it is imperative to identify the reasons, examine the consequences, and put workable remedies in place. We may reduce the risks of retained placenta by effective veterinarian treatment, hormone control, and careful husbandry techniques, resulting in a better and safer birthing experience for animals in our care.



Veterinary Nsaids and The Environmental Safety

Reduction and prevention of pain is an important factor in animal welfare. Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the main therapies used to reduce the inflammation and pain in animals. Due to their analgesic, antipyretic, and anti-inflammatory properties, NSAIDs have many benefits for animals and can lead to improved quality of life. NSAIDs, however, may

A wide number of NSAIDs are available in large animal practice. Extensive use of these drugs presents the potential risk for the consumers if food containing drug residues enters the food chain. There is a need for the control of residues and to strictly adhere to the compliance of withholding period of animal produce as specified in the label of the drug.

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exerts some adverse effects, can affect the gastro-intestinal, haematopoietic, and renal systems. Gastro-intestinal ulcerations are the most common and serious side effect of NSAIDs, especially in cases of overdose or chronic use.

Drug residues in animal tissues also poses a threat for the environment. Certain NSAIDs are found be the cause of reduction of Vulture population in Indian sub-continent.

Vulture & NSAIDs– Background

Indian vultures are scavenging birds

and mostly fed on carcass of animals. It plays an important role in the ecosystem by controlling spread of disease from the dead animal carcass. They fly hundreds of miles in search of carcass and cover wide range of area. Over a period of 10-15 years the vulture population decreased by 97%. There are only 5000 to 15000 birds are present in the whole world therefor the species is classified as critically endangered. Diclofenac was linked with serious reduction in the population of vultures in the Indian sub-continent. Scavenger birds are very susceptible to renal toxicity from certain NSAIDs. Scavenger bird like vultures that fed on the dead carcasses contaminated with such drug residues considered fatal.

Govt of India imposed ban on veterinary use of diclofenac in 2006. Bangladesh, Cambodia, Iran, Nepal, Oman, and Pakistan have fully gazetted restrictions on the production, sale, and use of veterinary Diclofenac. Recently, Union Ministry of Health and Family Welfare, India has imposed a ban on the use, sale, and manufacture of veterinary drugs

Ketoprofen and Aceclofenac as they proved toxic for the vultures. Safety

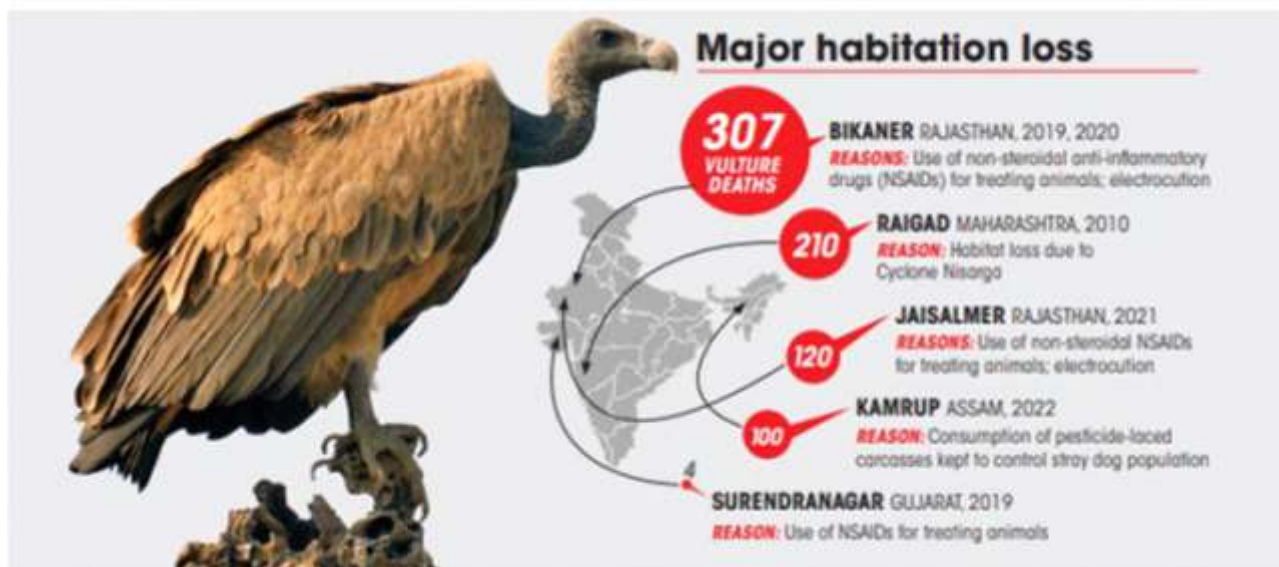
review of alternative NSAIDs found meloxicam to be safe for vultures.

Safe NSAIDs for Vultures (Birds):		
DRUG NAME	THREAT/SAFETY	KNOWN EFFECT /RESTRICTIONS
Meloxicam	Safe	Tested and shown to be safe for vultures (Swarup D. et.al. 2007)
Tolfenamic Acid	Safe	A systematic safety study conducted by the IVRI, BNHS and RSBP has confirmed Tolfenamic acid as the safe NSAID for vultures (Chandramohan et. al. 2022)
Caprofen	Toxic at high doses (Above MLE- Maximum Level of exposure)	High doses of carprofen (above MLE) based on the concentrations found at the injection site in cattle shown to be toxic level for vulture (Fourie et al. 2012)
Aceclofenac	Toxic	Metabolises into diclofenac in cattle to equivalent effect to diclofenac (Galligan et al. 2015, Sharma 2012). Govt of India imposed ban in August 2023
Ketoprofen	Toxic	Trials carried out on Gyps vultures showed toxicity at concentrations found in treated cattle in India (naidoo et al. 2004). Govt of India imposed ban in August 2023, banned in Bangladesh 2021
Diclofenac	Toxic	Confirmed highly toxic in 2003 (Oaks et al. 2003), and banned in India, Bangladesh, Nepal, Combodia, Iran, Oman, Pakistan and Socotra

VANISHING VULTURES

High mortality hinders India's plans of stabilising its vulture population

53% drop in India's vulture population since 2003



Recently, another systematic safety study in vultures has confirmed Tolfenamic acid as the safe, after meloxicam. Fortunately, Tolfenamic acid possess more powerful analgesic effect than other conventional NSAIDs.

Tolfenamic Acid - A Vulture Safe NSAID

Tolfenamic Acid, an anthranilic acid derivative is a non-steroid anti-inflammatory drug that belongs to fenamate group. Tolfenamic acid possesses anti-inflammatory, analgesic and antipyretic properties. Research data shows that Tolfenamic acid has higher safety and a wide range of applications in veterinary practice. It is approved in EU and other countries for use in dairy cattle as a NSAID in different disease condition like mastitis and respiratory tract disease. Compared to other drugs of the same kind, Tolfenamic acid exhibits a better effect without any side effects.

Mechanism of Action

Tolfenamic acid inhibits prostaglandin biosynthesis and also exhibits an inhibitory effect on prostaglandin receptors. Tolfenamic acid is based on the primary mechanism of NSAIDs which is inhibition of the COX-1 and COX-2 pathways to inhibit prostaglandin secretion and activity and thus exert anti-inflammatory and analgesic effects. It has a direct antagonistic action on the prostaglandin and thromboxans receptors, causing reduction in synthesis of both substances, the major mediators of the inflammatory processes. Also, several reports indicate that Tolfenamic Acid inhibits the leukotriene B4 (LOX) chemotaxis of polymorphonuclear leukocytes, resulting in even 25% inhibition of chemotaxis. These additional activities of non-specific anti-inflammatory mechanism makes it more potent.

Pharmacokinetics

Tolfenamic acid is distributed in all organs with high concentrations in plasma, gastrointestinal tract, liver,

lungs, and kidneys. Tolfenamic acid and its metabolites cross the placenta poorly. Distribution of Tolfenamic acid occurs via the extracellular fluid, achieving plasma-like concentrations in both healthy and inflamed peripheral tissues. It is also found in milk in its active form, mainly associated with curd. Tolfenamic acid undergoes extensive enterohepatic circulation and is found in plasma concentrations for extended periods of time. The elimination half-life is 8 to 15 hours in cattle.

Advantages of Tolfenamic acid in Veterinary Medicine

- Tolfenamic acid is one of the safest & effective NSAID. It is approved for use in food producing animals in the EU and other countries.
- Tolfenamic acid possess stronger efficacy which is comparable to the historically favoured veterinary NSAID – Diclofenac.
- Tolfenamic acid is used in veterinary medicine for its anti-inflammatory, antipyretic and analgesic properties. It is also effective when combined with antibiotics to treat respiratory diseases and mastitis in cattle.
- Analgesic activity of Tolfenamic acid is more powerful than other NSAIDs like meloxicam.
- The mean plasma life of Tolfenamic acid is longer than other commonly used NSAIDs which makes it more prolonged effect. A single intramuscular administration makes it effective for at least 48 hours and can be recommended as single shot therapy.
- Tolfenamic acid has good general tolerability when administered intravenously in cattle. It is well tolerated when administered in pigs and cattle at doses corresponding to 4 times the therapeutic dose.
- Tolfenamic acid can be used in pregnancy and during lactation. However, 24 hours milk withholding period is required.

- Tolfenamic acid has been found to be completely safe in vultures.

Tolfenamic acid in Vultures

For years animals have been treated with NSAIDs to minimize pain and inflammation. But Certain NSAIDs like Diclofenac, Ketoprofen & Aceclofenac are found to cause renal toxicity in birds. Few cases have reported for the death of Gyps vulture in south Asia because of feeding on animal carcass treated with such drugs. A systematic safety review vultures has confirmed Tolfenamic acid as the safe NSAID for vultures, after meloxicam. The study was conducted by the Indian Veterinary Research Institute (IVRI), the Bombay Natural History Society (BNHS) and the Royal Society for the Protection of Birds (RSPB), in total of 38 wild & captive vultures.

Conclusion:

NSAIDs are most widely used therapeutics in veterinary practice due to their multiple benefits. Though wide range of drugs are available in this category, careful selection to be made while using in food producing animals considering their safety, efficacy, and residual effects. Tolfenamic acid has been proven to be effective against several diseases: mastitis, respiratory disorders, arthritis, Musculo-skeletal disorders, among others in cattle, sheep, goat, equine & pigs. Apart from cyclooxygenase inhibition, Tolfenamic acid exerts direct antagonistic action on the prostaglandin, thromboxans receptors and leukotriene B4 (LOX) chemotaxis which makes it more powerful NSAID. The mean plasma life of Tolfenamic acid is longer than other commonly used NSAIDs which makes it more prolonged effect. Tolfenamic acid is the only authorised NSAID with an action of 48 hours and can be recommended as single shot therapy. Clinical investigations of the drug in vultures found to be completely safe. There are no reports of adverse effects on body physiology and no residual hazards in edible soft tissues when used as per recommended dose.

References: Data on File*



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Success Story: Victory on Haemoprotozoan Diseases in Livestock in The Era of Covid- 19 in Ganga Bairaj Region, Kanpur

This is the story of Ganga Bairaj region, Kanpur, U.P. in the era of COVID-19 where haemoprotozoan diseases had become the bottleneck in the cattle and buffalo. I can remember, those were the days when the progressive farmers from Ganga bairaj region were facing great loss not only due to COVID 19 but also due to Haemoprotozoan diseases like Trypanosomiasis and Theileriosis in cattle and buffalo. Other day, some clients from Ganga Bairaj region approached me and then with the guidance of my other seniors and colleagues, I managed myself to visit their livestock after taking all the COVID 19 precautions as much as possible. After reaching there, I started my diagnosis and I got to know that almost whole region of Ganga Bairaj was suffering with this problem of haemoprotozoan diseases in their livestock. Therefore, I started my treatment in almost 20 progressive farmers' house who were in great loss. Because, Haemoprotozoan diseases are one of the major problems in cattle transmitted by arthropod vectors or through blood transfusion, which the farmers face mainly with arrival of the monsoon. It leads to drastic decline in health condition of the cattle, reduced milk production and draught

performance, and even mortality, which in turns results in huge economic losses to the farmer. These haemoprotozoan diseases are seasonal; commonly affect the animals in warm and humid weather when there is lot of tick population.

Common clinical signs which were present in the livestock present in Ganga bairaj region, Kanpur

- High fever
- Anaemia
- History of ticks on animal body.

Theileriosis in dairy animals: It is a tick born disease of cattle characterised by high fever and anaemia. Theileria anulata was main organism causing this disease.

Typical Clinical signs were:

Inflammation of parotid lymph node in calves along with lacrimation and in some livestock it led to corneal opacity and Haemorrhagic diarrhea due to negligence of the farmers. Inflammation of pre scapular and pre femoral lymph node along with diarrhoea having blood in adult animals was very typical clinical sign of subclinical Theileriosis. There was difficult respiration in animals. In clinical Theileriosis there was fever and anaemia,



recumbency followed by death. There was cerebral form of Theileriasis in which animals exhibited circular movements, head pressing and salivation.

Trypanosomiasis: It is also a vector born disease of dairy animals caused by *Trypanosoma evansi* protozoa. Incidence of trypanosomiasis was high in rainy season due to large number of biting flies. *Trypanosoma evansi* was being transmitted by biting *Tabanus* flies in Ganga bairaj area.

Typical clinical signs were: In per acute form of disease, animal was dying after showing convulsions, high fever, head pressing, intermittent fever, gazing of eyes and frequent micturition

Treatment:

In Subclinical Theileriasis, I gave the injections of oxytetracycline –LA @ 20 mg /kg body weight i/m. In Clinical Theileriasis, when there was high fever with anaemia I jabbed buparvaquone (butalex) @ 2.5 mg/kg body weight i/m repeat after 48 hours. I also provided Supportive therapy in the form of antipyretic and haematinics.

For treating Trypanosomiasis I used Quinapyramine sulfate @ 5 mg/kg body weight s/c for treatment.

For controlling the haemoprotozoan diseases, I emphasized on using the Butox drug for controlling the ticks both on animals and in sheds. Although,

I preferred injection Ivermectin @ dose of 1 ml /50 kg body weight s/c to Butox.

Conclusion

Based on correct diagnosis and timely treatment, I got success to rule out haemoprotozoan diseases in Ganga bairaj region, Kanpur, U.P. in COVID- 19 era. The farmers were very happy by my efforts regarding repeat breeding problems in their livestock and they started their livelihood in a better way. Some basic precautions I suggested to them like proper and timely deworming and vaccination. Now they are very vigilant and make themselves learn about the betterment of livestock.

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



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

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

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

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

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

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

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

Other members of Managing Committee

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

Mr Vijay Teng (Intas), Past President

Mr. Gautam Chatterjee (Vetoquinol)

Mrs Ashwini Deshpande (Zoetis)

Dr Vijay Makhija (MSD), Past President

Dr Vinayak Surve (Virbac)

Mr. Sushanta Dey (Kemin)

Contact:

Dr Shirish Nigam - President INFAH

Dr Ram Prakash - General Secretary INFAH

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



President
Dr Shirish Nigam
(EW Nutrition)



Vice President
Dr. Sayed Aman
(Alltech)



General Secretary
Dr Ram Prakash
(Hester)



Joint Secretary
Dr. Anup Kalra
(Ayurvet)



Treasurer
Dr. Manoj Sood
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Athian and Elanco Animal Health Team Up to Transform Food Production through Methane Reduction

CEOs speaking at Reuters Transform Food Today Announce the First-of-its-Kind Livestock Carbon Inset Market has First Carbon Credits Verified for Sale

GREENFIELD AND INDIANAPOLIS, Ind.

[November 2, 2023] – Athian (athian.ai) announced today the establishment of the first-of-its-kind voluntary livestock carbon insetting marketplace, with the first accepted protocol aimed at reducing enteric methane emissions and improving feed utilization by using innovative feed management products from Elanco Animal Health (NYSE: ELAN). This new carbon marketplace creates an opportunity for farmers to monetize their greenhouse gas emission reductions.

Athian is verifying its first farms and creating, certifying and selling carbon credits within the dairy value chain. This means:

- Dairy farmers of all sizes now have the opportunity to implement on-farm sustainability interventions, measure the impact and

participate in third-party verification for their greenhouse gas emissions reductions. The resulting carbon credits can be offered for sale in Athian's livestock carbon insetting marketplace.

- Companies in the dairy value chain (such as consumer-packaged goods companies and food retailers) can then purchase those carbon credits as contributions towards achieving their Scope 3 emissions reduction goals.
- With the purchase of these credits, economic value is returned to the farmer via the sale while supporting the U.S. dairy industry progress towards their own environmental commitments of greenhouse gas neutrality by 2050.ⁱ
- Over the long term, this marketplace will expand to

other livestock & poultry.

"Athian's first carbon credits for dairy are an exciting and crucial step as they demonstrate the ability to tangibly quantify and verify greenhouse gas emissions reductions and create monetary value for farmers for their efforts," said Paul Myer, CEO of Athian. "This marketplace, specifically designed for the animal protein industry, is different than traditional offsetting carbon marketplaces because it keeps the value—economic value as well as positive environmental value—in the animal protein value chain."

Empowering Farmers with Economic Opportunities

Despite widespread awareness of carbon markets by farmers, only 3% of farmers are participating in these markets today, according to a recent survey cited by the U.S. Department of Agriculture

(USDA).ii Creating an inset market model that works with recognized supply chain partners makes it easier for farmers to measure and implement rigorous verifications, will help break these barriers to entry and accelerate progress.

“As a co-creator and seed investor in Athian, we’re excited to see the company reach the milestones that will bring new value to farmers and help them advance toward climate-neutral farming,” said Jeff Simmons, President and CEO of Elanco Animal Health. “As a leader in animal health, we’ve focused first on delivering enteric methane reduction solutions to producers. If the entire U.S. dairy industry leveraged this intervention, it would avoid 4.7 million metric tons of CO₂e emissions annually from enteric, feed and manure emissions. This is a game changer for value creation throughout the food chain, and it’s just the start. Environmental sustainability needs to be grounded in farmer profitability.”

Elanco also developed UpLook™, an insights-based engine designed to measure and monitor greenhouse gas emissions. The tool utilizes on-farm data and peer-reviewed science to identify key drivers of an operation’s carbon footprint and track the

progress of their sustainability efforts. UpLook connects seamlessly to Athian’s cloud-based verification system to help farmers quantify their reduction efforts and certify carbon credits for sale.

Enabling The Value Chain to Achieve Sustainability Goals

Food companies and retailers have made public commitments to collectively reduce more than 100 million metric tons of greenhouse gas emissions by 2030. Despite the progress in corporate target-setting, the reduction of Scope 3 emissions, which typically come from the production of raw materials like milk, has been a significant challenge. The creation of Athian’s insetting livestock carbon credit marketplace provides companies in the animal protein value chain the opportunity to make meaningful progress toward their Scope 3 greenhouse gas reduction goals.

Athian and Elanco are participating in the Reuters Transform Food USA 2023 event on Thursday, November 2, 2023, to speak more about this transformation.

Enteric methane reduction carbon credits are now available for purchase through Athian’s insetting carbon marketplace. Visit www.athian.ai to learn more and connect directly with Athian.

Additional Resources:

<https://www.athian.ai/knowledge-hub>

ABOUT ELANCO

Elanco Animal Health Incorporated (NYSE: ELAN) is a global leader in animal health dedicated to innovating and delivering products and services to prevent and treat disease in farm animals and pets, creating value for farmers, pet owners, veterinarians, stakeholders and society as a whole. With nearly 70 years of animal health heritage, we are committed to helping our customers improve the health of animals in their care, while also making a meaningful impact on our local and global communities. At Elanco, we are driven by our vision of Food and Companionship Enriching Life and our Elanco Healthy Purpose— all to advance the health of animals, people, the planet and our enterprise.

About Athian

Athian’s key mission is to help the beef and dairy value chains capture and claim carbon credits generated through on-farm sustainability efforts by aggregating, verifying, and certifying greenhouse gas (GHG) reductions, and monetizing those reductions for the producer through the sale of carbon insetting credits.

¹ <https://www.usdairy.com/sustainability/environmental-sustainability>

ⁱⁱ USDA Releases Assessment on Agriculture and Forestry in Carbon Markets | USDA

Tetra Pak and Lactogal cut carbon footprint of aseptic cartons for milk by a third, increasing renewable content with a paper-based barrier

Following successful commercial consumer testing in 2022, Tetra Pak and Lactogal have now launched an aseptic beverage carton featuring a paper-based barrier. This is part of a large-scale technology validation, involving around 25 million packages and currently ongoing in Portugal. Made of approximately 80% paperboard, the package increases the renewable content to 90%, reduces its carbon footprint by one third (33%)¹ and has been certified as Carbon Neutral by the Carbon Trust™.²

Greenhouse gas emissions, food waste and plastic littering are cited as the top three environmental sustainability concerns facing food and beverage (F&B) businesses today, and this is expected to remain the case over the next five years.³ Packaging solutions like these, that expand the amount of paper and lower the carbon footprint, while ensuring food safety, can help the industry overcome these challenges.

In 2015, Tetra Pak was the first in the industry to introduce a package made fully from plant-based renewable materials - paperboard and sugarcane-based plastic. The Tetra Rex® Plant-based package, suitable for cold chain distribution, is fully renewable, and the company has

delivered approximately 6.5 billion of these packages to customers around the world to date.

Now, the launch of the Tetra Brik® Aseptic 200 Slim Leaf carton with paper-based barrier, together with Lactogal, provides a package that can be distributed under ambient conditions, while hitting the 90% renewable content mark. This brings Tetra Pak one step closer to its ambition of a beverage carton made solely from responsibly sourced renewable or recycled materials, fully recyclable and carbon neutral. The company is aiming for industrial scale production of the solution by 2025.

José Capela, President of Lactogal, comments: “Our collaboration with Tetra Pak centres on a shared belief that a more sustainable future is possible. Innovating together is a big part of that. We are both focused on an ambitious sustainability transformation, and this new carton's 33% reduction in greenhouse gas emissions⁴, together with its Carbon Neutral certification by the Carbon Trust™, is a significant achievement towards this goal.”

Ola Elmqvist, Executive Vice President Packaging Solutions, Tetra Pak adds: “The

development represents a critical marker in our longstanding work to design beverage cartons for recycling – something that is continuing to set the pace for the paperisation of packaging. By joining forces with Lactogal, we're now demonstrating that it's possible to progress the sustainability of aseptic beverage cartons while securing food safety and enhancing food access.”

In 2022, together with its industry partners in the Alliance for Beverage Cartons and the Environment (ACE), Tetra Pak jointly adopted Design for Recyclability guidelines for beverage cartons, which provide technical guidance for optimised recycling of this type of packaging. More recently, the 4evergreen alliance added beverage packaging design guidance to its fibre-based circularity toolset. 4evergreen is a cross-industry platform that aims to boost the contribution of fibre-based packaging in a circular and sustainable economy, with Tetra Pak amongst its founding members. Their updated Circularity by Design Guideline covers fibre-based composite packaging types (including beverage cartons) and informs designers on their compatibility with specialised recycling processes.



Women in Ag Award 2023: Announcement of Winners

Joint DLG and Women in Ag Magazine award - 132 women from 38 countries took part in the four-category award scheme – International jury – Award ceremony at Agritechnica 2023 on 15 November in Hanover, Germany

(DLG). The DLG (German Agricultural Society) and Women in Ag Magazine have today announced the winners of this year's "Women in Ag Awards". Conferred by an international jury in four categories: "Agriculture", "Agribusiness", "Education" and "Technology and Research", the award recognizes the contribution of women in agriculture, agribusiness, academia and other organizations in the agricultural industry. The award ceremony will take place at Agritechnica 2023, the world's leading trade fair for agricultural machinery, on 15 November in Hanover, Germany.

Women from the international agricultural industry were able to apply or be nominated for the award, which this year is being presented for the second time by the DLG and Women in Ag Magazine. The winners were selected by an international jury of representatives from farming, the wider agricultural industry, science, organizations and the media. The focus of the award is on special achievements for the development of local, national and international agriculture.

Winners by category

AGRICULTURE - First place: Kate Hoare, UK



Kate runs a dairy farm in southeast Cornwall with her husband. She introduced a new model for sustainable agriculture by installing a slurry lagoon to capture biomethane, which allows her to reduce the environmental impact of her farm. The gas that is produced is reused, fueling the tractor and generator, potentially allowing independent operation.

Second place: Onyaole Patience Koku, Nigeria



Onyaole Patience is a seasoned entrepreneur with more than 20 years of agricultural experience in Nigeria. Working with her husband, she runs a business producing 12,000 broiler chickens per production cycle, as well as trading raw materials locally and internationally. Patience

promotes access to scientific and innovative knowledge to increase efficiency and leads by example as a practitioner and farmer.

Third place: Judith de Vor, Netherlands



Judith runs a regenerative and sustainable dairy and teaching farm with her husband. She pays special attention to nature, biodiversity and the environment around her and organizes numerous activities to create understanding and awareness of agriculture in society. She is a facilitator, speaker, advocate and influencer for the industry.

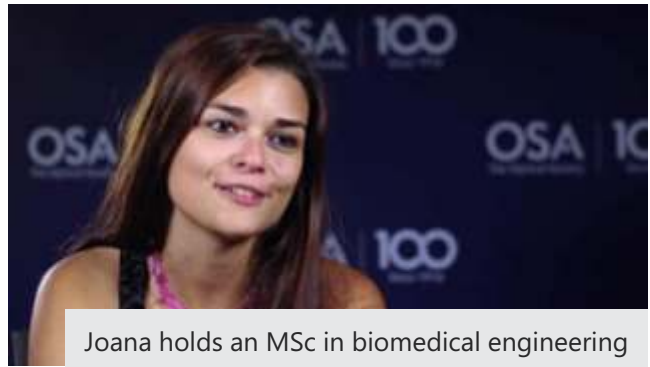
Category: AGRIBUSINESS

First place: Anna Maria Nunez Vega, India



Anna is a process engineer and food quality expert at Bühler. She founded and led the International Rice Milling Academy in Bangalore and works tirelessly to improve global food and feed safety. Her goal is to minimize losses during grain processing by improving storage techniques and educating customers, especially in tropical regions where storage losses are highest.

Second place: Joana Paiva, Portugal



Joana holds an MSc in biomedical engineering and a PhD in physics. She is an inventor and the founder of iLoF - intelligent Lab on Fiber Ltd, an Oxford-based photonics and artificial intelligence start-up that is helping to accelerate and scale clinical trials through the development of novel patient stratification tools.

Third place: Forget Shareka, Zimbabwe



Forget's contribution to sustainable agriculture and food systems has opened doors for her both locally and internationally, where she has led high-level discussions and advocated for women and smallholder farmers in Zimbabwe and across Africa.

Currently, Forget lives in Wales, UK, where she works as a sustainability consultant as part of her graduate program, helping small and medium-sized businesses in the agriculture, manufacturing, retail and energy sectors develop their sustainability goals and ambitions toward net zero.

Category: EDUCATION

First place: Amina Ali, Somalia



Amina advocates for women's rights in agriculture at national and international level. Through her expertise, together with the voices of the strong-willed women whose lives have been transformed by her school's programs, she has become an influential voice in bringing about policy change to prioritize gender equality in agriculture.

Second place: Salatu Abubakar, Ghana



Salatu Abubakar combines her expertise in empowering women smallholder farmers, processors and farming families through the building of capacity and agribusiness, with a genuine passion for empowering women in agriculture. As the Regional Representative for Women in Agricultural Development in

the Northern Region, she has made a lasting impact on the lives of countless women by mentoring them and providing them with growth opportunities through linkages to the marketplace that have positively impacted their businesses and livelihoods.

Third place (joint): Funmilayo Ogunleke, Nigeria



Funmilayo is the deputy vice-chancellor of the Federal College of Animal Health and Production Technology, Ibadan. She has made it her mission to promote dairy farming and milk production in Nigeria. For example, she hosted the 2022 World School Milk Day in the country and coordinated the 2023 World Milk Day program. As a lecturer with broad access to young people, Funmilayo encourages her students to go into agriculture or study agriculture.

Third place (joint): Nirit Bernstein, Israel



Nirit is an international scientist and lecturer in agricultural research. She has made exceptional, internationally recognized contributions to all areas of agricultural science (research, teaching, engagement, service and leadership). She is a global leader in cannabis research, focused on strengthening the medicinal value of cannabis.

Category: TECHNOLOGY AND RESEARCH

First place: Alfiya Kayumova, Latvia



Alfiya is an entrepreneur and agricultural technology expert with over 10 years of experience in business development, investment banking and agriculture. As co-founder and CEO of Green Growth, she provides farmers with critical information on field performance and yield data, helping

them solve the problem of inefficient use of inputs such as fertilizer and seed, thereby increasing profitability.

Second place: Stefanie Hartje, Germany



Stefanie combines several functions of the company in one person: she is manager, chief scientist and mentor, as well as being responsible for the integration of several departments. She plays a key role in promoting state-of-the-art scientific techniques in the field of potato breeding. With her commitment and innovative ideas, she plays a decisive role in making the potato fit for the future, strengthening it for the coming challenges in agriculture, such as climate change, drought and foregoing pesticides, among others.

Third place: Solvejg Kristensen, Denmark



Solvejg is the managing director at Eye-Grain, a company that continually introduces new technologies to the industry and was the first to monitor moisture and CO2 levels in containers in order to detect hotspots and insect or fungi spoilage at an early stage. She conducts research for Aalborg University, has been cited in numerous academic papers, and promotes measures for her employees to improve mental health and reduce stress.

Award promotes women's engagement in agriculture worldwide

"More and more women are shaping the future of agriculture as managers on their own farms or in companies, research or academia. More and more women are initiators and drivers of sustainable food production worldwide," says Freya von Czettritz, CEO DLG Holding. "The Women in Ag Award recognizes this commitment and tells the stories behind these inspiring women. At Agritechnica, we want to give this topic the attention it deserves," she adds.

"After the successful premiere at last year's EuroTier exhibition, we are delighted to be presenting the award for the second time together with the DLG," says Kim Schoukens, Editor-in-Chief of the digital Women in Ag Magazine. "The international response to the competition was overwhelming. 132 women from 38 countries applied this year. The field of entrants was of exceptionally high quality, which underscores the growing importance of women in agriculture," she says.

Information on the competition and portraits of the award winners: Women in Ag Award - AGRITECHNICA



Cargill and Global Water Challenge (GWC) Partner to Promote Environmental Sustainability in Gujarat



To foster environmental preservation and sustainability, Cargill and the Global Water Challenge (GWC), a non-profit organization, today announced a 'Holistic Rural Development' project in Bhimsar village in Kandla, Gujarat. Together they have embarked on a transformative afforestation project covering 7.5 acres of land over three years in Bhimsar that will protect the biodiversity of plants, allowing sustenance of ecosystems. This project will be instrumental in improving soil quality, improved water table besides air quality improvement in Bhimsar and surrounding

areas. Anarde Foundation, an NGO in Gujarat, as the implementation partner, will be planting and maintaining 3000 saplings throughout the project duration of three years.

The initiative was marked with a tree plantation ceremony today in the presence of representatives from the local gram panchayat and Cargill leadership including Simon George, president of Cargill in India.

Talking about the collaboration, Simon George, president of Cargill in India said, "Our commitment to environmental

sustainability continues to drive us forward. Through collaboration with GWC, we are actively restoring and safeguarding critical water resources in India, aligning seamlessly with our vision. Cargill is proactively reducing greenhouse gas emissions (Scope 1 & 2) by transitioning from coal to biomass fuel and harnessing solar and wind energy across our operations in India. With well-defined targets and a diverse range of initiatives, we are advancing toward our sustainability goals. Through these efforts, we're committed towards making a

substantial contribution to preserving natural resources and advancing Sustainable Development Goals by 2030."

The aim of this partnership between Cargill and GWC is to enhance water security, improving water availability, quality, and access to create substantial positive impact. This endeavor will yield several key outcomes in the Bhimsar region including (1) improved groundwater levels facilitated by recharge shafts and trenches, (2) increased capacity for surface water storage through the desilting of existing water bodies and (3) advancement of local community livelihoods alongside bolstered overall water security for the region.

"Anarde Foundation's need based sustainable social sector interventions will uplift quality of life in these villages. We believe in committing what we can deliver, and delivering what we commit. We look forward to being the implementation partner for Cargill India", said a spokesperson from Anarde Foundation.

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media@cargill.com

About Cargill

Cargill helps the world's food system work for you. We connect farmers with markets, customers with ingredients and families with daily essentials—from the foods they eat to the floors they walk on. Our 160,000-plus team members around the world innovate with purpose, empowering our partners and communities as we work to nourish the world in a safe, responsible, sustainable way.

From feed that reduces methane emissions to waste-based renewable fuels, the possibilities are boundless. But our values remain the same. We put people first. We reach higher. We do the right thing. It's how we've met the needs of the people we call neighbors and the planet we call home for 158 years—and how we'll do so for generations to come. For more information, visit Cargill.com and our News Center.

About GWC

Global Water Challenge (GWC) is a coalition of leading organizations deploying expertise and networks to

advance global water security and achieve universal access to safe and affordable drinking water, sanitation, and hygiene (WASH) in communities around the world.

About Anarde Foundation

The Anarde Foundation has been working in the social sector space in rural India for over 44 years, empowering communities through sustainable solutions to local needs. In terms of statutory compliance, we are a 100% compliant NGO. Our focus areas include interventions in Water, Low-cost village infrastructure, Environment and Skill Development, Livelihood Training through SHGs, Micro-credit for Women, Youth. We have over 15+ centers in Gujarat and Maharashtra. The District Rural Development Agency (DRDA) of India has recognised Anarde Foundation as an Implementing Agency. We are empanelled with the Ministry of Drinking Water and Sanitation, Govt. of India to undertake CSR projects in the field of Rural Drinking Water and Sanitation. We are committed to improving living standards in rural areas.



Dr Meenesh Shah, Chairman & Managing Director, NDDDB elected to Board of International Dairy Federation

At the IDF General Assembly on October 15, 2023, Dr. Meenesh Shah, Chairman and Managing Director of the National Dairy Development Board (NDDDB), was elected to the Board of the International Dairy Federation (IDF).

Dr. Shah accepted this responsibility and thanked the IDF delegates for their confidence in him. He also mentioned that India, which produces more than 23% of the world's milk, has a representative on the IDF Board, which will guarantee a better and more inclusive global dairying ecosystem. This will also assist in designing appropriate policies, frameworks, systems, and procedures as well as representing the views of millions of dairy farmers from the smallholder-based dairying system in the international forum.

He went on to say that working together with other nations will help the global dairy industry achieve its full potential. India's dairy industry is growing globally, but it will also be able to take advantage of other countries' expertise in cutting-edge scientific measures and technologies to improve the effectiveness, efficiency, and sustainability of Indian dairying.

Dr. Shah has long been involved with IDF in a variety of roles, and in numerous international forums, he

has played a key role in educating people about the distinctive smallholder-based dairying system in India. In addition to being a member of the Standing Committee on Dairy Policy and Economics, he serves as the Member Secretary of the Indian National Committee. The World's Largest Dairy Conference, or IDF WDS 2022, was successfully organised under his direction and opened in September 2022 in India with the presence of Hon. Yogi Adityanath, the Chief Minister of Uttar Pradesh, and Hon. Narendra Modi ji, the Prime Minister of India. On the first day, the concluding session on the importance of cooperative institutions for the dairy sector was chaired by the Honourable Minister of Home Affairs and Cooperation of the Government of India, Shri Amit Shah Ji. Many ministers, decision-makers, specialists, scientists, and farmers from both India and overseas attended the event.

IDF is the leading source for all dairy chain participants seeking scientific and technical know-how. The IDF's network of dairy experts has given the dairy industry a way to come to an international agreement on how to contribute to the world's food supply by producing safe and sustainable dairy products. India is represented by the National Committee (INC) of the IDF. IDF members are National Committees, which are typically made up of dairy organisations in each nation.

Banas Dairy to invest Rs 2,100 crore in Gujarat

The largest dairy in Gujarat, Banas Dairy, announced in an official release on Saturday that it intended

to invest Rs 2,100 crore in the state. Banas will sign a Memorandum of Understanding (MoU) in this regard during the Vibrant Gujarat summit, which takes place from January 10–12, 2019. The release also stated that 1,094 new jobs are anticipated as a result of these investments.

Pre-Vibrant Gujarat summit announcements in this regard were made in Banaskantha, in the presence of Gujarat Assembly Speaker Shankar Chaudhary and chairman of Banas Dairy.

21 industrial units signed Memorandums of Understanding (MoUs) with the state government at the pre-Vibrant Gujarat summit, pledging investments totaling Rs 383 crore.

Tirupati-based Shreeja Triumphs at World Dairy Summit, Bags Women's Innovation Award

At the World Dairy Summit in Chicago, the women's dairy farmer organisation Shreeja Mahila Milk Producer Company (SMMPCL), with its headquarters in Tirupati, won an award for "innovation in women empowerment in the dairy sector."

Along with Asha Mahila Milk Producer Company Limited from Udaipur, Rajasthan, and Gujarat Milk and Marketing Cooperative Federation, two other all-women milk producer companies supported by NDS, Shreeja was one of three Indian entities nominated for the award.

With an average milk procurement of 5.5 lakh litres per day (LLPD), the SMMPCL is currently spread across 11 districts in Andhra Pradesh,

Telangana, and Tamil Nadu. This fiscal year, the organisation hopes to reach a turnover of Rs 1,000 crore.

SMPCL Chief Executive Officer Jayatheertha Chary accepted the award on Tuesday night, saying, "It is the proudest movement for women dairy farmers of the country and the organisation to get the honour on a global platform for empowerment of women dairy farmers."

In attendance on the occasion, Union Animal Husbandry and Dairying Secretary Alka Upadhyaya congratulated Shreeja Milk, NDDB Dairy Services, and the National Dairy Development Board (NDDB) on their accomplishment.

"Women have played an integral part in the success of dairying in India and it was only a matter of time before their contributions get acknowledged in the global stage," stated Meenesh Shah, chairman of the NDDB.

He stated that NDDB Dairy Services (NDS) enabled the establishment of 22 Milk Producers' Organisations, including Shreeja, with an emphasis on empowering women in the dairy industry through the use of cutting-edge technology, online payment methods, and increasing the productivity of native breeds of milch animals.

According to Chary, the SMPCL hopes to acquire 1.5 lakh women members, procure 6.5 LLPD of milk, and soon join the "Unicorn" club.

IDF Prize of Excellence Award 2023 presented to Dr Meenesh Shah, Chairman & MD, NDDB

At the IDF World Dairy Summit in Chicago, USA, on October 18, 2023, Dr. Meenesh Shah, Chairman & MD of the National Dairy Development Board (NDDB), was presented with the IDF Prize of Excellence Award 2023. This award recognises his outstanding contribution to the International Dairy Federation's (IDF) Work Programme. The five fundamental ideas of SWIFT—Speed, Worldwide Visibility, Impact, Focus, and Transparency—which act as catalysts for progress, form the foundation of this esteemed award.

Dr Meenesh Shah was presented with the award by Mr Piercristiano Brazzale, President, International Dairy Federation (IDF) in the presence of Ms Alka Upadhyaya, Secretary, Department of Animal Husbandry & Dairying (AHD), Govt of India & President, Indian National Committee of International Dairy Federation (INC-IDF) and Ms Caroline Emond, Director General, IDF.

After being presented with the prestigious award, Dr Shah said, "It is my privilege to represent the world's largest milk producing nation. This is a proud moment and a befitting tribute to the dairy farmers of India. The world now truly recognises our contributions and looks up to us to lead the dairy sector forward."

He went on to say that the dairy industry in India has grown remarkably and become self-sufficient thanks to the combined efforts of milk producers, the Indian government, the NDDB, and numerous other stakeholders. India will keep supporting the global dairy industry in order to help achieve important SDGs like eradicating hunger and poverty and safeguarding the environment. Ms. Upadhyaya congratulated Dr.

Shah on this outstanding accomplishment of bringing the world's attention to the Indian dairy industry.

Dr. Shah has made it easier for the Indian dairy industry to interact with the outside world.

Additionally, he oversaw the IDF World Dairy Summit 2022, which was successfully organised in India last year. Interestingly, this summit made history by becoming the first World Dairy Summit to be certified carbon neutral.

Dr. Shah is a member of the Standing Committee on Dairy Policies and Economics of the International Dairy Federation (IDF) as well as the Indian National Committee of the IDF.

NDDB and GCMMF Spearhead Landmark Joint Venture to Revolutionize Sri Lanka's Dairy Sector

In an effort to assist Sri Lanka in increasing milk production, NDDB and GCMMF plan to purchase the majority of shares in a brand-new joint venture company. During the Indian External Affairs Minister's visit to Sri Lanka, the Joint Venture agreement was signed.

It is important to remember that Sri Lanka would like to immediately restructure its dairy industry due to its poor state. It will be assisted by NDDB and Amul in updating its dairy facilities and increasing milk output.

Leading figures attended the JV signing ceremony, including the NDDB Chairman and the Managing Director of GCMMF.

"Truly a privilege with a greater sense of responsibility- a landmark agreement signed between shareholders committed to ensuring transformation of the Sri Lankan dairy sector with scientific measures & efficient operations," NDDB Chairman Meenesh Shah tweeted about the JV on X.

Mr. Jaishankar, the minister of external affairs, met with the president during his visit to Sri Lanka and had lengthy discussions with him about a variety of topics. Three new bilateral agreements were signed at the meeting with the aim of strengthening bilateral ties and promoting increased cooperation between the two nations.

According to reports in the local media, President Ranil Wickremesinghe of Sri Lanka is considering combining the dairy farms that are currently run by the government-owned company MILCO with its brand, Highland, into this new joint venture.

GCMMF's Vice Chairman Valamji Humbal has stated that NDDB and GCMMF will jointly own a 51% stake in the new business. According to some reports, the JV will boost milk production in Sri Lanka by 53% in 5 years and double it in 10 years. There will be an empowerment of over two lakh farmers.

Both NDDB and GCMMF aim to increase the productivity of the dairy industry in Sri Lanka by facilitating the use of cutting-edge machinery, technology, and best practises in the dairy and related sectors; accomplishing digitalization in the dairy industry; raising the standard of animal health through easily accessible veterinary care; and enhancing the productivity of pasture and fodder cultivation as well as the cattle feed industry.

It is important to remember that NDDB attempted to revitalise Sri Lanka's dairy cooperatives in the 1990s. Between 1996 and 2000, the NDDB made significant efforts to raise Sri Lanka's dairy output.

Unfortunately, the nation's private players have persuaded Sri Lankans that milk powder is healthy while fresh milk is not. With the global dairy revolution, the game has changed this time around, but Indian players still need to be wary of local players' cunning and greed.

Landmark Success: Collaboration Births High-Yield Frieswal Calf Through Cutting- Edge IVF Method



Using the state-of-the-art method of Ovum Pick-Up In Vitro Fertilization-Embryo Transfer (OPU-IVF-ET) from a recipient Sahiwal cow, the ICAR-Central Institute for Research on Cattle, Meerut, in partnership with the Uttarakhand Livestock Development Board (ULDB), Kalsi, Dehradun, has successfully produced a healthy Frieswal female calf.

Together with the team of experts from Animal Breeding Farm in Kalsi, Dehradun, under the direction of Dr. A.P.S. Aswal, Project Coordinator of ET NDP I, and his team, Dr. Suresh Kumar, Head,

Cattle Physiology and Reproduction, and his team made this historic achievement possible.

OPU-IVF-ET, which involves removing ova from a female donor, fertilising them in vitro, and then transferring the resulting embryos into surrogate mothers, is a highly advanced reproductive technology, as Dr. Suresh Kumar emphasised. This success was largely due to the cooperation between ICAR-CIRC and the ULDB in Kalsi, Dehradun. This collaboration demonstrated the benefits of cooperation between state agencies and research institutions and made the project run more smoothly.

The entire project team received congratulations and recognition from Dr. A.K. Mohanty, Director of ICAR-CIRC, for their unwavering dedication to furthering livestock development and agricultural research.

A valuable asset to the Indian dairy industry, the Frieswal breed is renowned for producing large amounts of milk and adapting to differing climates. It not only improves the genetic quality of cattle but also creates opportunities for better breeds of cattle, more milk production, and ultimately better living conditions for farmers.

Mother Dairy's ₹500 Crore Investment: Unveiling New Plant in Maharashtra for Dairy Expansion

Mother Dairy plans to invest approximately ₹500 crore to establish a new plant in Maharashtra that will produce milk

and value-added dairy products. The business claimed that this is a component of a larger investment plan that will total roughly ₹700 crore in the coming years.

One of the biggest dairy companies in the nation, Mother Dairy is a fully owned subsidiary of the National Dairy Development Board. In addition to milk and products derived from milk, it is well-known for its edible oil brand, Dhara. Under the Safal brand, it offers a variety of products such as frozen vegetables and snacks, fresh fruits and vegetables, pulses, and concentrates.

"We have recently got a nod from our board for investments of about ₹700 crore which will be made over the next few years," stated Manish Bandlish, Managing Director of Mother Dairy.

The business intends to make significant investments to expand its manufacturing base. We are currently in the advanced stages of acquiring land in Nagpur, Maharashtra, in order to establish a new plant. Dairy and value-added dairy products will be produced at this facility. Approximately ₹500 crore will be invested in the establishment of this plant. We'll use this as a hub to service the Western and Southern regions," he continued.

The dairy and value-added dairy product segments saw a 20–25% increase in the company's manufacturing capacity last year. The company's capacity space is anticipated to rise by an additional 15-20% in this segment thanks to the new plant. "We are considering establishing a new plant in Karnataka within the food processing segment," continued Bandlish.

Mother Dairy's revenue increased to ₹14,500 crore in FY 23 by roughly

17%. In terms of revenue, the increase was noteworthy the previous year. We observed a 16–17% increase in volume. Unseasonal rains hampered the summer months this fiscal year. But since August, our growth rates have been impressive," he said.

According to Bandlish, the company has witnessed a surge in sales since August, even for seasonal products like ice cream. He continued, "One is witnessing strong consumption trends in the current festival season as well."

According to the company, there is a robust pipeline of innovations in various categories, including bakery goods, ice creams, paneer, and other products with added value. "We are on track to achieve this goal, as we have announced plans to launch 100 new products over the next three years," he continued.

NCOL Unveiled: Amit Shah, Hon'ble Union Minister of Home Affairs & Cooperation Propels India's Organic Produce onto Global Stage

Shri Amit Shah, Hon'ble Union Minister of Home Affairs & Cooperation addressed the National Symposium on Promotion of Organic Produce organised by the National Cooperative Organics Limited (NCOL) at the ICAR Convention Centre, PUSA, New Delhi on 8th November 2023.

In his inaugural address Shri Amit Shah's said that NCOL will assist India in realising its potential to become a global leader in organic

products. He declared that the Hon'ble PM Shri Narendra Modi Ji's vision of cooperative prosperity and sustainable livelihood for farmers will be realised with the aid of this ground-breaking initiative.

"Creating a national cooperative to market organic goods is a big step in the right direction for the rural economy. There is a growing trend of people choosing organic produce. However, a lot of farmers are ignorant of the marketing and certification procedures for their organic produce. According to Shri Amit Shah, NCOL will support farmers in all these endeavours and increase their revenue.

The Multi State Cooperative Societies Act of 2002 created NCOL, which will aid in the production, marketing, and distribution of certified organic goods. It will also serve as a landmark in the agricultural and cooperative sectors, benefiting coming generations. Reputable organisations like NDDDB, GCMMF, NAFED, NCDC, and NCCF are among the five promoters of NCOL.

On this occasion, Shri Shah unveiled the NCOL logo, website, brochure, and Bharat Organic Brand. Shri Shah noted that although the costs of organic products are higher, Bharat Organics will sell them for less than the prices of currently available organic products while introducing six new organic products under the "Bharat Organics" brand. Farmers will gain from this because NCOL will directly deposit 50% of the excess realisation into their bank accounts, boosting their income. He expressed optimism that NCOL would surpass all other organisations in the world in the organic product sector within the next five years, saying, "20 organic products will be launched soon and I am sure, NCOL will soon become

the largest organic producer in the country."

He also unveiled the website of NDDDB Mrida Ltd, a wholly owned subsidiary of NDDDB, and gobar gas slurry-based PROM (phosphate-rich organic manure), which is produced at the Varanasi Biogas Plant and is marketed under the name Sardar Sudhan. The PROM was developed in collaboration between NDDDB and Gujarat State Fertilisers & Chemicals Limited (GSFC).

As evidence of NCOL's diversity, its member organisations are from a number of states in the nation, including Telangana, Gujarat, Uttarakhand, West Bengal, and Chhattisgarh. He wished all of the NCOL advocates the very best and expressed his confidence that farmers around the country will profit from this initiative.

Shri Shah urged farmers to increase the use of organic manure while concurrently reducing their use of fertilisers on a targeted basis. Additionally, he gave examples of how using organic manure has improved soil health and increased production.

Citing the significance of product testing in the biological value chain, Shri Shah announced that by 2024, 300 mobile vans will be set up for nationwide rapid testing and sampling, and 150 laboratories will be prepared for biological testing. Farmers and producer groups across the nation will gain from this, as it will enable them to test their produce. However, a lack of trust, inconsistent availability, and high prices prevent many consumers from making the switch to organic food. All of these problems will be resolved with the creation of a national organisation similar to NCOL.

A number of notable figures attended the event, including Dr

Meenesh Shah, Chairman of the NDDDB and NCOL, Shri Mukesh Puri, Additional Chief Secretary, Home, Govt. of Gujarat & MD, GSFC, and Shri G Kamala Vardhana Rao, CEO, FSSAI. Hon. BL Verma, Hon. Union Minister of State for Cooperation, Shri Gyanesh Kumar, Secretary, Ministry of Cooperation, and Sunil Barthwal, Secretary, Ministry of Commerce, and Shri Rohit Kumar Singh, Secretary, Ministry of Consumer Affairs, Food & Public Distribution.

QL AG Announces Partnership with Ginkgo Bioworks to Develop Dairy Proteins



The cutting-edge food technology solutions provider QL AG and Ginkgo Bioworks, which is creating the industry-leading platform for cell programming and biosecurity, have announced a new partnership to develop dairy proteins. To help achieve its objective of giving the market premium, nutritionally equivalent dairy proteins, QL AG will make use of Ginkgo's vast expertise in strain engineering across various chassis organisms.

As more arable land and water become scarce due to climate change, the dairy industry is under tremendous pressure. Disruptions in supply chains are driving up input costs globally, and consumers are looking for more palatable, affordable, sustainable, and healthful food options—as well as alternatives to animal agriculture. The result has been tens of billions of dollars' worth of growth in the



alternative dairy market in recent years. However, consumers still find that today's dairy substitutes don't meet their expectations in important areas like flavour and texture.

"Dairy proteins derived using fermentation have advantages across many key dimensions, including taste and texture, as well as the fact that they have no arable land requirement and a lower water requirement," Roger Föhn, CEO and co-founder of QL AG, said "QL AG can contribute to lower dairy protein production costs through the use of Ginkgo's platform. We are enthusiastic to use Ginkgo's special capacity for strain production at high titers and fermentation process scaling to further our aim of achieving a quantum leap in alternative agriculture."

"Dairy proteins have historically presented product developers with significant challenges regarding protein productivity, economics, and functionality for efficacy across different applications. This presents an exciting opportunity to leverage our platform." Kalpesh Parekh, Vice President of Business Development at Ginkgo Bioworks, stated, "We aim to solve such challenges with our deep expertise in protein engineering, novel bioactivity and biochemistry identification, high-throughput expression, functional studies, and scale-up capabilities." "We are so excited about QL AG's mission, and can't wait to further grow our capabilities in the

precision fermentation space by working with such an innovative partner.”

About Ginkgo Bioworks

Ginkgo Bioworks is the leading horizontal platform for cell programming, providing flexible, end-to-end services that solve challenges for organizations across diverse markets, from food and agriculture to pharmaceuticals to industrial and specialty chemicals. For more information, visit ginkgobioworks.com and concentricbyginkgo.com

About QL AG

QL AG was founded in 2022 in Switzerland by a team with extensive experience in food innovation, biotechnology, and the financial industry. QL develops and commercializes products and solutions for the food industry to ensure provision of healthy, tasty, and sustainable food. For more information visit www.ql-ag.com or contact info@ql-ag.com.

Bon Vivant Raises €15 Million to brew up animal-free dairy proteins with Precision Fermentation

Bon Vivant, a precision fermentation startup based in Lyon, France, has



Bon Vivant co-founders: Hélène Briand and Stéphane MacMillan. Image Credits: Bon Vivant

raised €15 million (~\$15.9 million) from investors in its April 2022 pre-seed. The round is co-led by Sofinnova Partners and Sparkfood, with Captech Santé also participating. Other investors include Alliance for Impact, High Flyers Capital, Kima Ventures, Founders Future, and Picus Capital.

Bon Vivant's focus on a b2b business model, aiming to be a supplier for the food industry, has been appreciated by investors. The dairy industry and other clients are interested in its ingredients to answer various functionality needs, such as creating gelling effects, foaming, and texturizing. To ensure broad versatility, Bon Vivant is developing microbial yeast strains that can produce whey and casein.

The team's focus is on executing its plan to scale production and obtain necessary regulatory clearances so its precision fermented proteins can find their way into all sorts of food products intended for human consumption. The company's milk proteins are indistinguishable from cow's milk proteins, so they could technically be used to produce 'vegan' cow's milk products since no cows were harmed in the production process. However, as a b2b supplier, Bon Vivant is not going to be a producer of vegan milk or any other specific foodstuff.

Bon Vivant is anticipating the U.S. market will be where it obtained its first regulatory clearance, and it hopes to be able to commercialize its milk proteins there as soon as 2025. The new funding is being poured into scaling its production capacity towards the commercial scale production needed

to be a supplier to food giants.

Bon Vivant will use the seed funding to open a new lab in Lyon to produce more samples for its target clients in the food industry. The lab will be able to produce 40 litres of product, still way below commercial scale, and enable the startup to dial up testing and product development.

Food startups like Bon Vivant are gaining traction as alternatives to meat are being challenged by the traditional dairy industry. However, the founder of Bon Vivant, Stéphane MacMillan, sees a more collaborative relationship between alternative dairy producers and the traditional dairy industry. He believes that precision fermented milk proteins could be a boon to the supply-constrained dairy industry by helping it tackle the rising demand for milk-based products while reducing its carbon footprint and aligning with a global sustainability agenda.

Bon Vivant recently published an early Lifecycle Assessment Report (LCA) comparing the production of its fermented, animal-free whey protein against cow's milk. The study found that Bon Vivant's precision fermentation process could reduce greenhouse gas emissions by 97%, drinking water consumption by 99%, and energy usage by 50%.

MacMillan's goal was to start a business that could have an impact, and with precision fermented milk proteins, he seems to have found the sweet spot. Michael Krel, partner at Sofinnova Partners, commented on Bon Vivant's seed raise, stating that it aligns perfectly with Sofinnova's mission to promote sustainable solutions for a healthier planet.

Editorial Calendar 2023

Publishing Month: January Article Deadline : 28th, Dec. 2022 Advertising Deadline : 30th, Dec. 2023 Focus : Climate Management	Publishing Month: February Article Deadline : 28th, Jan. 2023 Advertising Deadline : 30th, Jan. 2023 Focus : Nutritional Deficiency Effects	Publishing Month: March Article Deadline : 26th, Feb. 2023 Advertising Deadline : 28th, Feb. 2023 Focus : Herd / Breed Management - Fertility, Breeding & Reproduction	Publishing Month: April Article Deadline : 28th, March 2023 Advertising Deadline : 30th, March 2023 Focus : Disease Prevention/ Risk Assessment
Publishing Month: May Article Deadline : 28th, April 2023 Advertising Deadline : 30th, April 2023 Focus : Small Ruminants Management (Sheep, Goat etc)	Publishing Month: June Article Deadline : 28th, May 2023 Advertising Deadline : 30th, May 2023 Focus : Calf & Heifer Management	Publishing Month: July Article Deadline : 28th, June 2023 Advertising Deadline : 30th, June 2023 Focus : Milk Production Management/ Milking Practices	Publishing Month: August Article Deadline : 28th, July 2023 Advertising Deadline : 30th, July 2023 Focus : Feed & Fodder
Publishing Month: September Article Deadline : 28th, August 2023 Advertising Deadline : 30th, August 2023 Focus : Vaccination Protocols/ Cattle Herd Immunization	Publishing Month: October Article Deadline : 28th, September 2023 Advertising Deadline : 30th, September 2023 Focus : Dairy By-products	Publishing Month: November Article Deadline : 28th, October 2023 Advertising Deadline : 30th, October 2023 Focus : Potential of Dairy Farming	Publishing Month: December Article Deadline : 28th, November 2023 Advertising Deadline : 30th, November 2023 Focus : Calf Management

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