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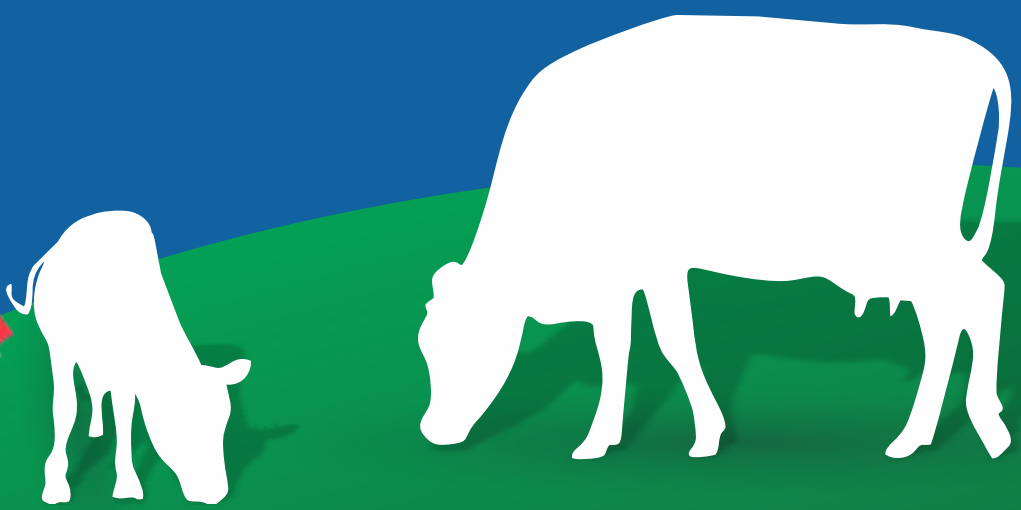

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From the Pen of Chief Editor

Revolutionizing Cold Chain Logistics: The Role of Emerging Technologies

The cold chain plays a crucial role in preserving the integrity of temperature-sensitive products such as dairy, poultry, seafood, and pharmaceuticals. Traditionally, cold chain logistics relied on manual monitoring and conventional refrigeration methods, often leading to inefficiencies, spoilage, and financial losses. However, technological advancements are transforming this sector, making it more efficient, transparent, and reliable.

Among the most significant breakthroughs are Artificial Intelligence (AI) and the Internet of Things (IoT), which enable real-time temperature monitoring. IoT sensors installed in refrigerated storage units and transport vehicles continuously track and relay temperature data, ensuring optimal conditions. AI-powered predictive analytics further enhance efficiency by identifying potential equipment failures before they occur, preventing costly spoilage. Additionally, automated alerts provide immediate notifications in case of temperature deviations, allowing quick corrective actions to maintain product quality.

Smart refrigeration systems and automated warehouses are also revolutionizing cold chain management. Traditional refrigeration units often consume excessive energy and fail to maintain uniform temperatures. In contrast, AI-driven refrigeration systems adjust cooling settings dynamically, reducing energy consumption while ensuring optimal storage conditions. Automated warehouses equipped with robotic handling and AI-powered inventory management further streamline operations, minimizing human error, reducing contamination risks, and improving product movement efficiency.

Another game-changing technology is blockchain, which brings unprecedented transparency to the cold chain. With multiple stakeholders involved in storage and transportation, ensuring product integrity at every stage has always been challenging. Blockchain provides a secure, tamper-proof ledger that records every transaction and temperature update in real time. This end-to-end traceability allows businesses to track a product's journey from origin to destination, ensuring compliance with safety regulations. Smart contracts can also automate payments and quality checks, further enhancing reliability and trust in the supply chain.

As the demand for perishable goods continues to grow, companies must embrace these emerging technologies to remain competitive. By leveraging AI, IoT, smart refrigeration, and blockchain, businesses can reduce spoilage, lower operational costs, and build greater consumer trust. The future of cold chain logistics lies in digital transformation, and those who adopt these innovations will lead the way in delivering safer, fresher, and higher-quality products to consumers worldwide.

The integration of advanced technologies is no longer an option but a necessity for companies seeking to optimize their cold chain operations. Embracing innovation today will shape the future of efficient, sustainable, and transparent cold chain logistics.

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PRESS RELEASE

ARTICLE

Animal Husbandry: Sustainable Practices for Healthy and Productive Livestock

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Introduction

Animal husbandry is the branch of agriculture focused on breeding, raising, and caring for livestock, including cattle, sheep, goats, poultry, and other domesticated animals. It plays a crucial role in food production, providing milk, meat, eggs, wool, and labor for human use. Effective animal husbandry involves scientific management techniques that ensure livestock health, productivity, and sustainability.

1. Selection and Breeding

Breeding is fundamental in animal husbandry as it determines the quality, productivity, and resilience of livestock. There are two primary types of breeding:

- **Selective Breeding:** Farmers choose animals with desirable traits such as high milk yield, rapid growth, disease resistance, and strong physique. Over generations, selective breeding enhances genetic quality.
- **Crossbreeding:** This involves mating animals from different breeds to combine their best traits. For example, crossbreeding indigenous cows with exotic breeds can improve milk production while maintaining resistance to local diseases.
- **Artificial Insemination (AI):** A modern technique where semen from high-quality males is collected and artificially introduced into females, ensuring superior offspring. AI increases genetic diversity and prevents the spread of hereditary diseases.

Breeding programs are essential for maintaining livestock populations and improving their economic value.

2. Housing and Shelter

Providing proper housing ensures the well-being and productivity of animals. Some key aspects of animal housing include:

- **Ventilation and Space:** Animals require well-

ventilated shelters with enough space to move freely. Overcrowding can lead to stress and disease.

- **Protection from Weather:** Animals should be shielded from extreme temperatures, rain, and strong winds. Proper insulation and shade are necessary.
- **Drainage and Waste Disposal:** Floors should be slightly sloped for easy drainage. Regular cleaning of sheds prevents disease outbreaks.
- **Specialized Housing:** Dairy cows require milking parlors, poultry need coops with nesting areas, and sheep or goats benefit from raised platforms to stay dry.

Good housing reduces stress, enhances productivity, and prevents illness.

3. Feeding and Nutrition

A balanced diet is crucial for animal growth, reproduction, and productivity. Proper feeding involves:

- **Types of Feed:**
  - **Green Fodder** (grass, leaves, silage) – Provides fiber and essential nutrients.
  - **Dry Fodder** (hay, straw) – Ensures proper digestion and energy supply.
  - **Concentrates** (grains, oilseeds) – Rich in proteins and fats to enhance growth.
  - **Mineral Supplements –** Prevents deficiencies leading to disorders like weak bones or reduced fertility.
- **Adequate Water Supply:** Fresh, clean water is essential for digestion, milk production, and thermoregulation.
- **Feeding Schedule:** Animals should be fed at regular intervals to maintain metabolism and prevent overfeeding-related diseases.

Proper nutrition directly influences the quality and quantity of livestock products.

4. Healthcare and Disease Management

Livestock health management is essential to prevent economic losses and ensure animal welfare. Key aspects include:

- **Vaccination Programs:** Regular vaccinations prevent deadly diseases such as Foot and Mouth Disease (FMD), Brucellosis, Anthrax, and Newcastle Disease.
- **Deworming:** Parasites like worms can weaken animals, leading to malnutrition and reduced productivity. Deworming should be done periodically.
- **Regular Veterinary Check-ups:** Routine health examinations help detect illnesses early and provide timely treatment.
- **Quarantine for New Animals:** New livestock should be kept separate for a few weeks before integrating them into the herd to prevent disease transmission.
- **Hygiene and Sanitation:** Clean living conditions reduce the risk of bacterial infections and infestations.

A well-implemented healthcare plan improves livestock longevity and performance.

5. Reproduction and Calving Management

Reproduction management ensures a steady supply of livestock and prevents complications during birth. Important practices include:

- **Monitoring Estrus**

Cycles: Knowing the best time for mating or artificial insemination increases pregnancy success rates.

- **Pregnancy Care:** Proper nutrition and reduced stress during gestation help ensure healthy offspring.
- **Calving/Birthing Assistance:** Farmers should be prepared to assist in difficult births and seek veterinary help if needed.
- **Postnatal Care:** Newborn animals require immediate feeding (colostrum) to build immunity and protection from harsh weather.

Efficient reproductive management leads to a sustainable and profitable livestock business.

6. Waste Management and Sustainability

Proper disposal and utilization of animal waste can prevent environmental pollution and enhance farm productivity. Sustainable waste management practices include:

- **Manure Utilization:** Animal manure is an excellent organic fertilizer that enriches soil fertility.
- **Biogas Production:** Livestock waste can be processed in biogas plants to produce clean energy for cooking and lighting.
- **Composting:** Solid waste can be composted to create nutrient-rich soil amendments.
- **Wastewater Management:** Proper drainage and treatment of wastewater prevent contamination of water sources.

Integrating waste management into farming operations promotes environmental conservation and efficiency.

7. Ethical and Sustainable Practices

Ethical animal husbandry focuses on humane treatment, sustainability, and long-term benefits. Key principles include:

- **Preventing Animal Cruelty:** Avoiding overexploitation and ensuring stress-free handling.
- **Sustainable Farming Methods:** Reducing the use of antibiotics, hormones, and harmful chemicals.
- **Preserving Indigenous Breeds:** Protecting native breeds to maintain biodiversity and adaptability to local environments.
- **Rotational Grazing:** Allowing pastures to recover by rotating grazing areas, preventing overgrazing and land degradation.

Adopting sustainable and ethical practices ensures a balanced approach to livestock management and environmental conservation.

Conclusion

Animal husbandry is a vital component of agriculture, influencing food security, rural livelihoods, and economic growth. Proper livestock management through selective breeding, adequate housing, balanced nutrition, healthcare, reproduction monitoring, and waste management enhances productivity and sustainability. Ethical and eco-friendly practices further promote long-term success.

With advancements in science and technology, modern animal husbandry continues to evolve, offering improved efficiency and better welfare for animals. By implementing best practices, farmers can ensure profitable and responsible livestock management for future generations.

Cold Chain Management in Dairy Industry: Ensuring Quality, Safety and Advancements.

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Introduction

India is the largest milk producer country with total milk production of 239 million tons. In India, Dairy industry is a fast-growing industry with a value of USD 135.30 billion as per 2024 statistic which is expected to grow at a CAGR of 9.33% equivalent to USD 274.09 billion by 2032. Dairy industry provides a livelihood to about 8 crore farmers and also contribute to Indian economy (Indian market size, 2025). Indian government also initiates various schemes for the development of dairy industry such as Dairy federations, Rashtriya Gokul mission, and Dairy Entrepreneurship Development scheme. But the dairy industry faces several challenges including lack of facilities, perishability of dairy products and modernization. Initiatives like government schemes, cold chain management, and development of functional dairy products can overcome these challenges. Cold chain can be defined as a temperature-controlled supply chain ensuring the desired quality and safety of perishable dairy products such as milk, dahi, etc, and shelf life throughout the transportation and storage process (Shukla and Sinha, 2021). This article explores the significance of cold chain management in dairy industry, related techniques, and challenges faced by entrepreneurs.

Importance of Cold Chain in Dairy Industry

Dairy products are highly perishable and susceptible to spoilage caused by bacterial contamination. To overcome these problems, strict temperature controls are required to inhibit the growth of spoilage causing organisms in various dairy products such as milk, butter, and yogurt etc. which leads to increase in shelf life of dairy products. A continuous cold chain is required to keep the product safe, as a small breakdown in supply chain can cause the deterioration of the products. It may lead to financial losses, health risks, and consumer dissatisfaction. According to the study of Mordor Intelligence, India's market in cold chain logistics is estimated at USD 12.77 billion (2025) which can be projected to USD 20.31 billion by 2030 with a CAGR of

9.72% as forecasted for the period 2025-2030 (Mordor Intelligence report, 2025).

Fig.1 Importance of Cold Chain Technology in Dairy Industry.

Components of Cold Chain Management in the Dairy Industry

Cold chain management in dairy involves multiple stages which requires a high level of control and attention to detail. The key components include (Shukla and Sinha, 2021):

Milk Collection and Initial Processing

The first step in the dairy cold chain starts at the farm with the cooling of milk to a temperature of 4°C (40°F) or lower after production at the earliest to avoid the microbial growth. At the farm, the milk is typically collected in refrigerated bulk tanks, which maintain the correct temperature until the milk is transported to the processing facility.

Transportation to Processing Plants

Milk is transported to dairy processing plants. During transportation, maintaining the proper temperature is critical. Refrigerated trucks or tankers are used to keep the milk cool during transit. The cold chain must be monitored continuously, and temperature-controlled logistics must be employed to ensure a continuous cold chain management through the way.

Processing and Packaging

At the processing facility, milk undergoes pasteurization or other processing methods to ensure its safety and extend shelf life. Once processed, dairy products are packaged in temperature-controlled environments to prevent contamination. The packaging must also be designed to keep the products cool during transportation and storage.

Distribution to market or Retailers

After packaging, dairy products are distributed to retailers through the same temperature-controlled transport systems. The products are stored in cold storage warehouses and refrigerators until they are sold. During this phase, proper temperature management ensures that the products maintain their freshness and shelf life. At retail outlets, dairy products must be kept in refrigerated displays, and consumers rely on this consistent cold chain to ensure product safety.

Consumer Handling

Finally, it is essential for consumers to store them at the appropriate temperature at home. Dairy products should be refrigerated immediately after purchase and consumed before their expiration date to maintain their quality and safety.

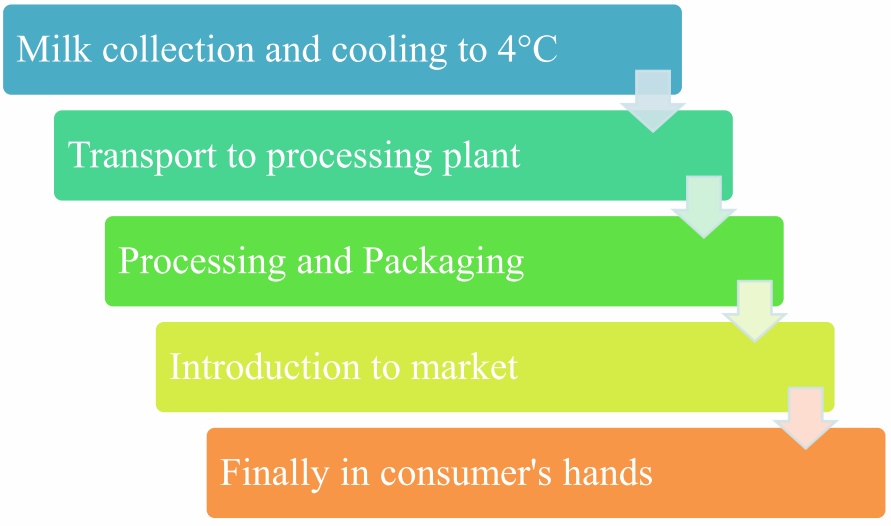

Fig.2. Components of cold chain management.

Challenges in Cold Chain Management

Despite its critical importance, cold chain management in the dairy industry is not without its challenges. The following are some of the most significant problems in dairy businesses (Subin, 2011; Petare, 2013) :

Temperature Fluctuations

Maintaining consistent temperatures throughout the entire supply chain is one of the most significant challenges in cold chain management. Small fluctuations in temperature during transportation or storage can lead to spoilage and bacterial growth.

High Investment Cost

Cold chain facilities require significant investment in specialized infrastructure, such as refrigerated trucks, warehouses, and processing equipment. These systems must be regularly maintained to ensure they function correctly. In developing countries, the lack of reliable cold chain infrastructure further complicates dairy transportation and storage.

Supply Chain Complexity

Dairy products often have a complex and global supply chain. Milk may be collected from multiple farms, processed in one location, and distributed across various regions or countries. Managing the cold chain across different environments, from farms to retail outlets, adds a layer of complexity and increases the risk of cold chain failure.

Regulatory Compliance

Dairy companies must comply with various regulations regarding temperature control. These regulations can differ from one region to another, and companies must stay up-to-date with the latest rules to avoid penalties or product recalls. Keeping track of compliance across multiple markets can be a logistical challenge.

Lack of knowledge and facilities

Traditionally, cold chain management in dairy has been reliant on manual checks and simple temperature recording. However, the lack of real-time data and visibility into the supply chain makes it challenging to detect and address problems proactively. Without proper data, businesses may not be able to identify potential issues until it's too late.

Technological Innovations in Cold Chain technology

Technological advancements have significantly enhanced cold chain management in the dairy industry. Innovations in refrigeration, sensors, and tracking systems are helping to improve efficiency, reduce waste, and enhance product quality. Some notable advancements include:

Internet of Things (IoT) and Smart Sensors

The Internet of Things (IoT) has revolutionized cold chain logistics in the dairy industry. Smart sensors, connected via the internet, can continuously monitor temperature, humidity, and other conditions in real-time. These sensors send alerts when temperatures deviate from the desired range, allowing for immediate corrective actions. Additionally, data collected from IoT-enabled devices can be used to optimize the cold chain, forecast demand, and improve inventory management.

Blockchain for Transparency

Blockchain technology offers a way to enhance transparency and traceability in the dairy supply chain. By recording every step of the process in an immutable digital ledger, blockchain allows stakeholders to verify the origin and journey of dairy products. This technology improves accountability, helps with regulatory compliance, and reduces the risk of fraud or contamination.

Automated Cold Storage and Distribution Systems

Automation is increasingly being integrated into cold storage and distribution systems. Automated temperature-controlled warehouses use robotics and AI to handle and store products efficiently. In addition, automated cold storage solutions reduce human error, ensuring a consistent cold chain environment.

Advanced Refrigeration Technologies

New refrigeration technologies,

such as variable refrigerant flow (VRF) systems and natural refrigerants, provide more energy-efficient and sustainable options for managing cold chains. These systems can help reduce the environmental impact of cold chain logistics and ensure that dairy products are stored at optimal temperatures without waste.

Sustainability and Energy Efficiency

As consumers demand more sustainable practices, dairy companies are investing in greener cold chain solutions. For instance, energy-efficient refrigerated vehicles, solar-powered cooling systems, and eco-friendly packaging are being incorporated into the dairy cold chain to reduce energy consumption and carbon emissions.

Future of Cold Chain Management

The future of cold chain management in the dairy industry is poised for continued innovation. Emerging technologies, such as artificial intelligence (AI), machine learning (ML), and advanced data analytics, are expected to play an increasingly significant role in optimizing cold chain processes. These technologies will improve the accuracy of demand forecasting, enhance supply chain visibility, and enable predictive maintenance for refrigeration equipment. Along with these advancements in technology, few government schemes are also available to meet the investment cost for these latest techniques which include National Programme for Dairy Development (NPDD), National Dairy Plan, Dairy Entrepreneurship Development skills (DEDS), Supporting dairy cooperatives and farmer producer organizations (SDCFPO) and Dairy Infrastructure and Development Fund (DIDF) etc (Naganboyina and Kaple, 2023). As consumer preferences shift toward more sustainable products, the dairy industry will need to prioritize energy-efficient and environmentally friendly cold chain solutions.

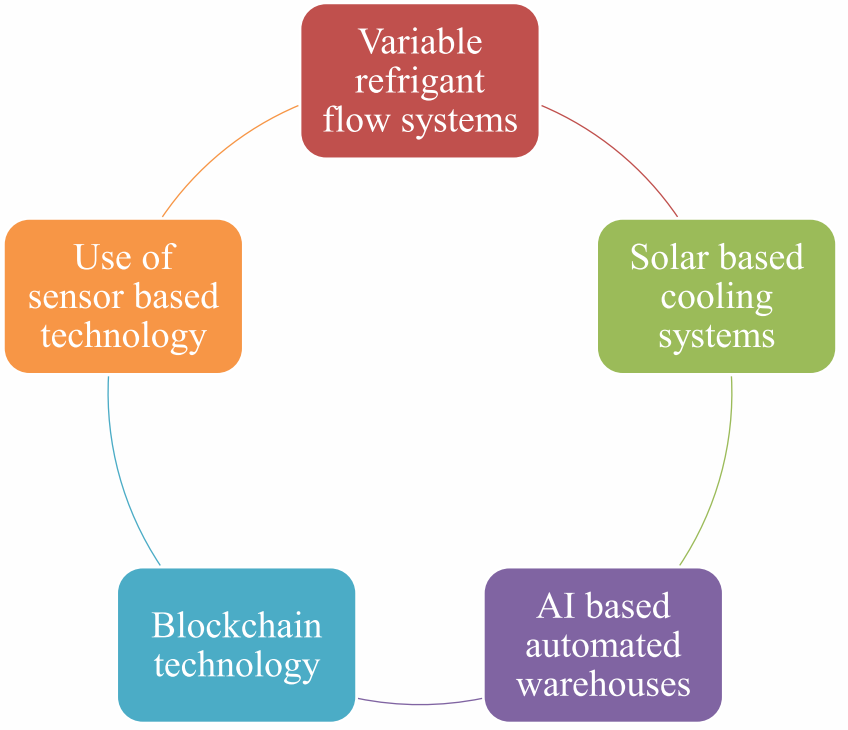

Fig.3. Advancements in Cold Chain Management.

Conclusion:

Cold chain management is a critical aspect of the dairy industry, ensuring that dairy products remain safe, fresh, and of high quality. As the dairy industry continues to grow and globalize, effective cold chain logistics will become even more important. By embracing technological innovations and overcoming the challenges of temperature fluctuations, infrastructure limitations, and regulatory compliance, dairy businesses can protect their products, reduce waste, and meet consumer demands for safe and fresh dairy. This article offers a comprehensive analysis of the significance of cold chain management in the dairy industry, the challenges involved, and the future direction of logistics in dairy. By ensuring that cold chain processes are rigorously followed, the dairy industry can continue to meet the demands of an increasingly globalized and health-conscious consumer base.

Colostrum and its Importance in Calves

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Cow colostrum is the "first milk" secreted by female cows during the first 1–7 days after giving birth. It is a vital source of nutrition for newborn calves, providing essential immunity and growth-supporting components. Acting as a form of passive immunization, colostrum contains a unique combination of specific (immunoglobulins, Ig) and non-specific (humoral and cellular) immune factors. These antimicrobial elements play a crucial role in protecting calves from diseases during their early days of life.

The fundamental components of ruminant colostrum can be categorized into three key factors: nutrition, immunity, and growth. High-quality colostrum significantly enhances calf survival, strengthens immune defenses, and promotes optimal health and development. Conversely, delaying colostrum intake reduces the transfer of passive immunoglobulins and deprives the calf of essential nutrients, increasing the risk of illness and mortality. Ensuring timely colostrum feeding is critical for the well-being and long-term viability of livestock.

Colostrum

Colostrum is a white, milky fluid that contains a high concentration of immunoglobulins (antibodies), vitamins, and nutrients. It is produced by cows during the first few days after calving and is significantly different from regular milk in terms of composition. Unlike regular milk, colostrum has almost 100 times more antibodies, which are essential for protecting newborn calves from infections and diseases.

Importance of Colostrum for Dairy Calves

1. **Immune System Development:** Dairy calves are born with an underdeveloped immune system because immunoglobulins cannot pass through the placenta. Colostrum provides these essential antibodies, offering protection against pathogens until the calf's immune system matures.
2. **Nutritional Benefits:** Colostrum is rich in energy, proteins, and vitamins A, D, E, and K, which are crucial for growth and development. It contains about 50% more fat and nearly five times as much protein as regular milk, supporting overall health.
3. **Gastrointestinal Health:** Colostrum aids in the maturation of the calf's gastrointestinal tract, enhancing nutrient absorption and supporting the development of beneficial gut flora.
4. **Thermoregulation:** The fat in colostrum helps with thermoregulation, providing energy and warmth to newborn calves.

Nutritional Composition of Colostrum

Colostrum is a nutrient-dense fluid designed to support the early development and immune protection of newborn mammals, differing significantly from regular milk in both composition and

function. Colostrum differs significantly from regular milk in terms of nutrient content, composition, and function.

Nutrient Content

1. **Protein:** Colostrum contains a higher concentration of proteins (14%-16%) compared to regular milk (3.5%). In bovine colostrum, this includes immunoglobulins (antibodies) and growth factors like insulin-like growth factors (IGF-1 and IGF-2) that support growth and immune development.
2. **Fat:** Bovine colostrum typically has a higher fat content than regular cow's milk, which helps provide energy to newborn calves.
3. **Carbohydrates:** Colostrum generally contains lower levels of carbohydrates (lactose) than mature milk. This is because its primary function is immunological rather than nutritional.
4. **Vitamins and Minerals:** Colostrum is rich in vitamins A, C, E, and minerals like magnesium and zinc, which support immune function and overall health.

Function

1. **Antibodies:** Colostrum is rich in antibodies (immunoglobulins), which provide newborns with passive immunity against infections until their own immune systems mature.
2. **Growth Factors:** Bovine colostrum contains growth factors that can stimulate growth and muscle development, making it popular among athletes.
3. **Duration of Production:** Colostrum is produced only during the first few days after birth, transitioning to transitional milk and eventually mature milk.

Feeding Guidelines

- **Timing:** The first feeding of colostrum should occur within the first hour of birth, with subsequent feedings within 12 and 24 hours.
- **Quantity:** Calves should receive 10% to 12% of their body weight in colostrum at the first feeding.
- **Quality:** High-quality colostrum should have a Brix measurement of 22 or higher and contain 100 to 200 grams of immunoglobulins per liter.

Preparation of Artificial Colostrum for Bovines

Artificial colostrum is an essential alternative for calves whose mothers are unable to produce sufficient natural colostrum or have died. The preparation of artificial colostrum involves combining various ingredients to mimic the nutritional and immunological benefits of natural colostrum.

Basic Ingredients:

- **Cow Milk:** Provides essential nutrients like proteins, fats, and carbohydrates.
- **Egg:** Adds proteins and antibodies.
- **Castor Oil:** Acts as a laxative to help with digestion.
- **Vitamins and Minerals:** Enhance nutritional value.
- **Immunoglobulins (IgG):** Essential for providing passive immunity.

Preparation Techniques:

- **Simple Recipe:** Mix one raw egg with with half a liter of whole milk and add some castor oil as a laxative.
- **Advanced Formulations:** Include cow milk, auxiliary materials, IgG, vitamins, and mineral substances to closely replicate natural colostrum.

Artificial colostrum is a vital tool in calf care, especially in situations where natural colostrum is unavailable. While it cannot fully replicate the benefits of natural colostrum, it provides essential nutrients and immune protection, helping to ensure the health and survival of newborn calves.

Conclusion

Colostrum is indispensable for the health and survival of dairy calves, providing essential antibodies and nutrients that support immune system development and overall growth. Proper management of colostrum quality, quantity, timing, and cleanliness is crucial to ensure that calves receive the full benefits of this vital first feed. By implementing effective colostrum management strategies, dairy farmers can significantly improve calf health, reduce mortality rates, and enhance long-term productivity.

Emerging Technologies in Cold Chain Logistics: Transforming Efficiency and Transparency

Siddhi Gupta
Co-Editor

The cold chain is a critical aspect of supply chain management, ensuring that temperature-sensitive products such as dairy, poultry, seafood, and pharmaceuticals remain fresh and safe for consumption. Traditionally, cold chain logistics relied on manual monitoring and conventional refrigeration systems. However, advancements in technology, particularly **Artificial Intelligence (AI), the Internet of Things (IoT), Smart Refrigeration Systems, and Blockchain**, are revolutionizing the way temperature-sensitive products are stored and transported. These innovations are not only enhancing efficiency but also ensuring greater transparency and reducing losses due to spoilage or mishandling.

AI and IoT in Real-Time Temperature Monitoring

One of the biggest challenges in cold chain logistics is maintaining optimal temperature levels throughout the supply chain. Even a slight deviation in temperature can lead to spoilage, reducing the shelf life of perishable products and causing significant financial losses. This is where **AI and IoT-powered real-time temperature monitoring** come into play.

How AI and IoT Improve Cold Chain Logistics

1. **Real-Time Data Collection:** IoT sensors installed in refrigerated trucks, warehouses, and cold storage facilities continuously collect temperature data. These smart sensors provide real-time updates, allowing logistics managers to monitor conditions at all times.
2. **Predictive Maintenance:** AI-powered predictive analytics help detect potential failures in refrigeration units before they happen. By analyzing data trends, AI can predict if a refrigeration system is likely to malfunction and alert technicians to take preventive action, minimizing the risk of product spoilage.
3. **Automated Alerts:** If temperature fluctuations occur, AI-based monitoring systems instantly trigger alerts. These alerts notify logistics teams via mobile applications, allowing them to take immediate corrective actions such as rerouting shipments or adjusting storage conditions.
4. **Improved Decision-Making:** AI-driven analytics help optimize cold chain routes, identifying the most efficient transportation paths to reduce transit time and ensure timely deliveries.

By leveraging AI and IoT, businesses can achieve **better product quality, lower wastage, and enhanced compliance with regulatory standards.**

Smart Refrigeration Systems and Automated Warehouses

Traditional refrigeration systems are often inefficient, consuming high amounts of energy and leading to uneven temperature distribution. However, with **smart refrigeration systems and automated warehouses,** cold chain logistics is undergoing a major transformation.

The Rise of Smart Refrigeration Systems

1. **Energy Efficiency:** Advanced refrigeration units now use AI-based algorithms to adjust cooling levels based on product load and external conditions. This reduces energy consumption and operating costs while maintaining the required temperature levels.
2. **Automated Temperature Control:** Smart refrigeration units continuously analyze environmental factors and adjust cooling settings in real-time. This ensures uniform temperature distribution, preventing hotspots that could lead to product damage.
3. **Remote Monitoring and Control:** Logistics managers can control refrigeration settings remotely via cloud-based platforms. This is particularly useful for multi-location cold chain operations, where managers can monitor and adjust temperatures without being physically present.

Automated Warehouses for Cold Chain Logistics

1. **Robotic Handling of Goods:** Automated warehouses use robotic arms and autonomous vehicles to move products within cold storage facilities. This minimizes human intervention, reducing contamination risks and ensuring faster order fulfillment.
2. **AI-Powered Inventory Management:** AI-driven systems track inventory levels in real-time, ensuring that perishable goods are moved efficiently to avoid overstocking or expiration.
3. **Temperature-Zoned Storage:** Modern warehouses have multiple temperature zones, allowing businesses to store different types of perishable goods (such as dairy, meat, and frozen items) at their optimal temperatures.

With the implementation of **smart refrigeration and automation,** businesses can ensure **greater product integrity, lower operational costs, and improved customer satisfaction.**

Blockchain for Transparency in Supply Chain Tracking

Transparency has always been a challenge in cold chain logistics. With multiple stakeholders involved – from producers and suppliers to transporters and retailers – ensuring product integrity at every stage is complex. **Blockchain technology** is addressing this issue by providing a **tamper-proof and transparent digital record** of cold chain transactions.

How Blockchain Enhances Cold Chain Transparency

1. **Immutable Record-Keeping:** Every step of the supply chain is recorded on a blockchain ledger, creating a **permanent and unalterable record.** This ensures that all temperature readings, transit details, and handling data are securely stored and easily accessible.
2. **End-to-End Traceability:** Blockchain allows stakeholders to track a product's journey from its origin to the final destination. If an issue arises, such as a temperature breach, companies can quickly identify where the problem occurred and take corrective action.
3. **Automated Smart Contracts:** Blockchain uses **smart contracts** to automate transactions. For instance, if a shipment maintains the correct temperature throughout its journey, payments to suppliers and transporters can be automatically released. If there is a temperature violation, compensation claims or refunds can be processed seamlessly.
4. **Building Consumer Trust:** Consumers today demand greater transparency about the products they purchase. With blockchain-enabled supply chains, consumers can **scan QR codes** on packaging to access detailed information about the product's sourcing, transportation, and storage conditions.

By integrating blockchain into cold chain logistics, businesses can achieve **higher accountability, stronger compliance with food safety regulations, and increased trust among customers.**

Conclusion: The Future of Cold Chain Logistics

The adoption of **AI, IoT, smart refrigeration systems, and blockchain technology** is transforming cold chain logistics into a highly efficient, transparent, and sustainable industry. These innovations are helping companies **reduce spoilage, optimize energy consumption, and enhance compliance with food safety regulations.**

As the demand for perishable goods continues to rise, businesses that invest in these emerging technologies will **gain a competitive edge, minimize losses, and improve customer satisfaction.** The future of cold chain logistics lies in digital transformation, and companies that embrace these advancements will lead the way in delivering safer and fresher products to consumers worldwide.

Body Condition Score: A Tool for Health Assessment in Goat

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Abstract

Body Condition Score (BCS) is a simple method used to check the health and well-being of dairy goats. It shows how much fat and muscle the goat has, helping farmers know if their goats are being fed properly. By looking at the BCS, farmers can tell if the goats are getting enough nutrition and if there might be any health concerns. The score goes from 1 to 5.

- A score of 1 means the goat is very thin and may not be getting enough food.
- A score of 5 means the goat is overweight, which can also cause health problems.

By checking BCS regularly, farmers can adjust their feeding practices and catch any health problems early.

Introduction

The Body Condition Score (BCS) is a way to estimate how much muscle and fat a goat has. It's a better way to assess a goat's health than just looking at its weight. BCS is based on how the goat looks, so it doesn't require special equipment or tests. Anyone who knows the method can quickly check a goat's condition. BCS helps goat owners evaluate their goats' nutrition and can improve how efficiently their herd produces milk and offspring. It's important to check the body condition of goats before breeding, during pregnancy, after giving birth, at weaning, and before selling. Goats in poor condition may have trouble getting pregnant, producing enough milk, or giving birth to healthy kids. This can lower both milk production and profits. Goats in good condition have enough energy and fat to perform well, but not too much fat, which can also cause problems. For example, goats that are too fat when they give birth might have health issues, and thin goats in early lactation may not have enough energy to produce enough milk. Thin goats at breeding might also struggle to get pregnant.

How to perform

The Body Condition Score is determined on a scale of 1.0 to 5.0 with increments of 0.5. A score of 2.0 to 3.5 is

considered healthy for sheep and goats. It is important that goats are neither too fat nor too thin. An animal with a BCS lower than 2.0 may be facing a health or management problem while a score of 4.5 and higher are rarely seen in a normal management situation. Assigning a BCS requires one to physically feel the animal. With practice, it is possible to accurately evaluate a goat's BCS in about 10-15 seconds. To determine the BCS, the handler uses his/her hands to feel for the fullness of muscle and fat cover in the loin, sternum and rib cage regions.

Regions for evaluation of body condition in goats

1. **Lumbar region:** The lumbar region is formed by lumbar vertebrae which is located immediately behind the last rib and before the hip bones and covered by loin muscle. Amount of fat and muscle present over and around the vertebrae is used as a criterion for determination of BCS. Lumbar vertebrae have two protrusions, the vertical protrusion called the dorsal spinous process and the two horizontal protrusions called the transverse process. One should run their hand over this area and try to grasp these processes with your fingertips and hand. The degree of sharpness or roundness of the lumbar vertebrae is assessed and used to assign BCS.
2. **Rib cage:** The area formed by thirteen pairs of ribs and intercostals muscles. The fat cover on the ribs and intercostal (between ribs) spaces is used for identification of BCS. Touch this area and determine if one can feel each of the ribs.
3. **Sternum:** The sternum is the third part to assess. In goats it is an important area to assess. The fat cover over the sternum (breast bone) can be pinched and is used for BCS determination in goats.

Scoring of Goat

BCS-1

The goat looks emaciated (very thin) and weak. The spinous process and transverse processes of lumbar region are prominent and sharp and clearly visible. The fingers pass easily under the ends of transverse process which can be easily felt. The backbone is highly visible, hollow flank and clearly visible ribs. The ribs are not covered with fat and intercostals spaces can be felt easily by fingers. Sternal fat easily grasped between thumb and fingers and moved from side to side.

BCS-2

Slightly better than BCS-1 but the goat looks thin. The spinous processes of lumbar vertebrae feel prominent but smooth and individual process can be felt. The transverse processes are smooth and rounded and with a little pressure one can pass the fingers under the ends. Backbone is visible with a continuous ridge and ribs can be seen and felt. Only a small amount of fat cover present over inert costal spaces of ribs. Sternal fat wider and thicker than BCS 1, but can still be grasped and lifted.

BCS- 3

The goat looks moderate or normal. In lumbar region the spinous processes are detached only as small elevations, the processes are rounded and smooth and individual process can be felt only by giving pressure. The transverse processes are smooth and well covered. Firm pressure is required to feel over the ends of transverse processes. Backbone is not prominent. Ribs are covered with even layer of fat. Vertebrae are cover by thick tissue layer. Sternal fat is wide and thick. It can be grasped, but has very little movement.

BCS- 4

The goat appears fatty. The spinous processes of lumbar vertebrae can be detected by pressure as a hard line between the fat covered back. The ends of the transverse processes of lumbar vertebrae cannot be felt. The backbone and ribs cannot be seen. Sternal fat difficult to grip and cannot be moved from side to side.

BCS- 5

The goat gives very fatty appearance. The spinous processes cannot be detected even after firm pressure and there is a depression between the layers of fat in the position where the spinopus processes would normally be felt. The transverse processes cannot be detected. There may be heavy deposition of fat around rump and tail areas. Backbone is buried in fat. Ribs are covered with excessive fat and not visible. Sternal fat extends and covers sternum, and cannot be grasped.

Ideal ranges of BCS for various physiological states:

I. In healthy physiological stage the BCS ranges between 2.5 to 3.5 but if it ranges 1.0 or 1.5 to 2.0 it has management of health problem.

ii. In breeding buck, ideal BCS is ranges between 3.0-3.5. The bucks having BCS score less than 2 to 2.5 will not have sufficient stamina and vigor to breed. They should have 3.0 score before star the breeding season. The bucks with BCS> 4 lack sexual desire.

iii. At the time of mating does should have a score of 3 for optimum result with a range of 2 to 3 being acceptable (Koyuncu and Altınçekiç, 2013).

iv. In Pregnant doe, ideal BCS ranges between 3.0-3.5. BCS more than 3.5 leads to pregnancy toxaemia/ ketosis, retention of placenta, fatty liver, abnormal displacement and dystokia. BCS < 2 to 2.5 leads to poor kid survivability and milk production.

v. During kidding ideal BCS ranges between 3.0-3.5 to ensure the adequate production of colostrum and reservoir to support high milk production especially in early lactation.

vi. In lactating doe BCS should be 2.5-3.0. it should not come below 2 .0 to 2.5. Quick drop of BCS during lactation leads to anoestrus, anovulatory oestrous, shorter oestrous, repeat breeding and infertility. During flushing there is no need of flushing if BCS is 3.5 or more. The goats will response to flushing treatment if BCS is 2.0 or less.

Conclusion

Goat Body Condition Score (BCS) is a method used to measure the amount of body fat and nutritional status of goats. Through a comprehensive score, it accurately reflects the body condition of dairy goats, which is an important indicator for evaluating herd productivity. It is simple to use and can help producers make management decisions about feeding to ensure reproductive performance and reduce costs. Moreover, it is also useful in goat marketing.

Protecting Your Herd: A Comprehensive Guide to Disease Prevention in Cattle Farms

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As a cattle farmer, you understand the importance of maintaining a healthy and productive herd. Disease outbreaks can have devastating consequences, including reduced milk production, decreased fertility, and even death. In this article, we will delve into the world of disease prevention in cattle farms, exploring the most effective strategies and best practices to keep your herd thriving.

Understanding the Risks

Cattle are susceptible to a wide range of diseases, including viral, bacterial, and parasitic infections. Some of the most common diseases affecting cattle include:

1. **Bovine Viral Diarrhea (BVD):** A highly contagious viral disease that can cause diarrhea, fever, and even death.
2. **Infectious Bovine Keratoconjunctivitis (IBK):** A bacterial disease that causes eye infections and can lead to blindness.
3. **Parasitic Infestations:** Internal parasites such as ticks, lice, and worms can weaken the immune system and reduce productivity.
4. **Respiratory Diseases:** Diseases such as pneumonia and pleuritis can cause significant morbidity and mortality in cattle.
5. **Reproductive Diseases:** Diseases such as brucellosis and leptospirosis can cause reproductive problems and reduce fertility.

Vaccination: The First Line of Defense

Vaccination is one of the most effective ways to prevent disease in cattle. By stimulating the immune system, vaccines help to build resistance against specific diseases. Some of the most important vaccines for cattle include:

1. **Clostridial Vaccines:** Protect against diseases such as tetanus and blackleg.
2. **Viral Vaccines:** Protect against diseases such as BVD and IBR.
3. **Risk-Based Vaccines:** Protect against diseases such as brucellosis and leptospirosis.
4. **Core Vaccines:** Protect against diseases such as rabies and anthrax.

Types of Vaccines

There are several types of vaccines available for cattle, including:

1. **Modified Live Vaccines (MLV):** These vaccines

contain a weakened form of the virus or bacteria.

2. **Killed Vaccines:** These vaccines contain inactivated virus or bacteria.
3. **Subunit Vaccines:** These vaccines contain only specific components of the virus or bacteria.

Vaccination Schedules

Vaccination schedules will vary depending on factors such as the age and health status of the animal, as well as the specific disease risks in the area. Some general guidelines include:

1. **Calves:** Vaccinate against diseases such as BVD and IBR at 2-3 months of age.
2. **Heifers:** Vaccinate against diseases such as brucellosis and leptospirosis at 6-12 months of age.
3. **Adult Cattle:** Vaccinate against diseases such as rabies and anthrax annually.

Biosecurity: Keeping Disease at Bay

Biosecurity measures are essential to preventing disease outbreaks in cattle farms. Some of the most effective biosecurity measures include:

1. **Isolation and Quarantine:** Isolate new animals for at least 30 days before introducing them to the herd.
2. **Cleanliness and Sanitation:** Regularly clean and disinfect equipment, facilities, and vehicles.
3. **Manure Management:** Implement proper manure management practices to prevent the spread of diseases.
4. **Pest Control:** Control pests such as rodents, flies, and ticks, which can transmit diseases.
5. **Visitor Control:** Restrict visitor access to the farm and ensure they follow biosecurity protocols.

Nutrition and Feeding: Building a Strong Immune System

A well-balanced diet is essential to maintaining a strong immune system in cattle. Some of the most important nutritional considerations include:

1. **High-Quality Feed:** Ensure feed is free from contaminants and toxins.
2. **Adequate Water Supply:** Provide clean and fresh water to the animals.
3. **Minimize Stress:** Avoid sudden changes in feed or environment, which can stress the animals and make them more susceptible to disease.
4. **Provide Essential Nutrients:** Ensure the diet includes essential nutrients such as vitamins, minerals, and protein.

Health Monitoring: Catching Disease Early

Regular health checks are essential to detecting disease early and preventing outbreaks. Some of the most important health monitoring considerations include:

1. **Regular Health Checks:** Conduct regular health checks on the animals to detect any signs of illness or disease.
2. **Monitor for Disease Symptoms:** Train farm staff to recognize and report any disease symptoms.
3. **Use Diagnostic Tests:** Use diagnostic tests such as blood tests and fecal exams to identify diseases.
4. **Maintain Accurate Records:** Keep accurate records of animal health, vaccinations, and treatments.

Parasite Control: Managing Internal and External Parasites

Parasites can weaken the immune system and reduce productivity in cattle. Some of the most effective parasite control measures include:

1. **Regular Deworming:** Regularly deworm animals to control internal parasites.
2. **Pour-On Products:** Use pour-on products to control external parasites such as ticks and lice.
3. **Integrated Pest Management:** Implement an integrated pest management (IPM) program to control parasites.
4. **Monitor for Parasite Infestations:** Regularly monitor for parasite infestations and take prompt action to control them.

Conclusion

Disease prevention in cattle farms requires a multi-faceted approach that includes vaccination, biosecurity, nutrition, health monitoring, and parasite control. By implementing these strategies and best practices, you can help to protect your herd from disease and maintain a healthy and productive farm.

"The Future of Dairy: Innovations Driving Functional Nutrition"

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Introduction

The global dairy industry has evolved significantly in recent years, driven by increasing consumer demand for healthier food options. Functional dairy products, which provide additional health benefits beyond basic nutrition, have gained popularity due to their role in promoting overall well-being. These advancements result from ongoing research in food science, biotechnology, and nutrition, leading to innovative dairy products that address various health concerns such as gut health, immunity, bone strength, and cardiovascular health.

The incorporation of probiotics, prebiotics, bioactive peptides, and fortified nutrients in dairy products has paved the way for a new era of functional dairy foods. Consumers are now more conscious about their dietary choices, seeking products that not only provide essential nutrients but also contribute to preventive healthcare. Functional dairy products are being developed to cater to different segments of the population, including athletes, elderly individuals, lactose-intolerant consumers, and those seeking weight management solutions.

This article explores the latest advancements in functional dairy products, their benefits, production techniques, and market trends. With rapid technological

developments and growing scientific evidence supporting the health advantages of functional dairy, the sector is expected to experience continuous innovation and expansion.

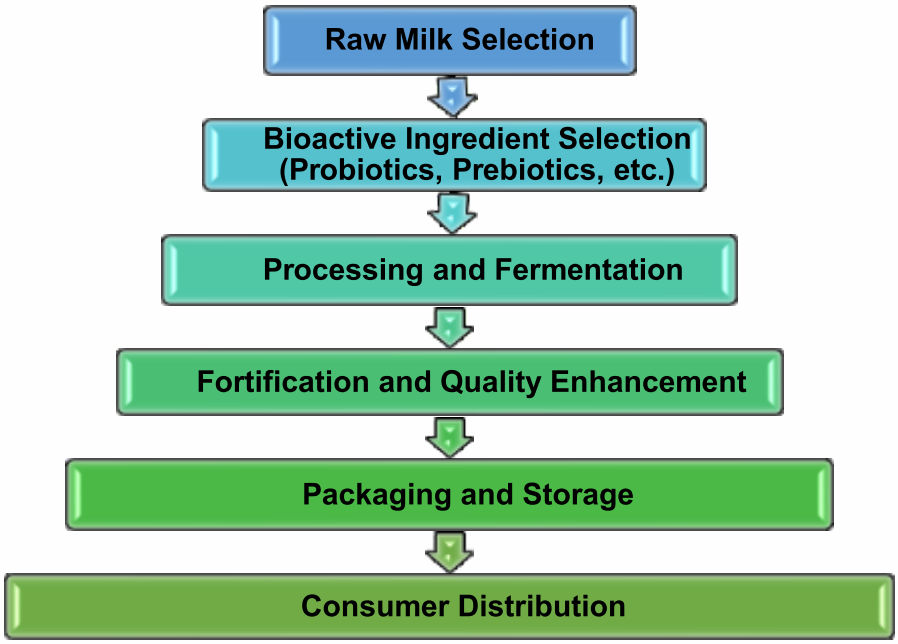
Types of Functional Dairy Products

Functional dairy products are classified based on their health benefits and added bioactive compounds. The key categories include:

1. **Probiotic Dairy Products –** Contain live beneficial bacteria that improve gut health (e.g., yogurt, kefir, buttermilk).
2. **Prebiotic Dairy Products –** Include indigestible fibers that promote beneficial gut bacteria (e.g., fiber-enriched milk and yogurt).
3. **Synbiotic Dairy Products –** Combine probiotics and prebiotics for enhanced gut health benefits.
4. **Fortified Dairy Products –** Enriched with essential vitamins, minerals, or omega-3 fatty acids (e.g., vitamin D-fortified milk).
5. **Bioactive Peptide-Enriched Dairy Products –** Contain peptides with antihypertensive, antioxidant, and antimicrobial properties.
6. **Low-Lactose and Lactose-Free Dairy Products –** Designed for lactose-intolerant individuals.
7. **Dairy-Based Nutraceuticals –** Incorporate functional ingredients such as phytosterols, antioxidants, and polyphenols for additional health benefits.
8. **Protein-Enriched Dairy Products –** High-protein dairy options aimed at fitness enthusiasts and individuals with higher protein requirements.

- **Flowchart: Functional Dairy Product Development**

Below is a simplified flowchart illustrating the development process of functional dairy products:



Key Advancements in Functional Dairy Products

1. **Probiotics and Gut Health**

   Probiotics have emerged as a fundamental component of functional dairy products due to their well-documented benefits on gut health and digestion. These live microorganisms, primarily from the Lactobacillus and Bifidobacterium genera, help balance intestinal microflora, enhance nutrient absorption, and support immune function. Recent advancements include strain-specific probiotic development tailored to different health conditions, such as irritable bowel syndrome (IBS) and lactose intolerance. Moreover, encapsulation technologies have significantly improved the stability and viability of probiotics during processing and storage, ensuring their efficacy when consumed. Personalized probiotics, based on an individual's microbiome profile, are also gaining traction, enabling more precise and targeted gut health solutions.

2. **Prebiotics and Synbiotics**

   Prebiotics are indigestible food components that selectively promote the growth of beneficial gut bacteria, thereby complementing the effects of probiotics. Some commonly used prebiotics include inulin, fructooligosaccharides (FOS), and galactooligosaccharides (GOS). The integration of prebiotics into dairy products enhances gut microbiota diversity and improves digestion. Synbiotic dairy products, which combine probiotics and prebiotics, offer synergistic benefits by ensuring probiotic survival and maximizing their positive effects on gut health. Additionally, novel resistant starches are being developed to function as prebiotic agents, further expanding the scope of functional dairy offerings.

3. **Nutritional Fortification**

   The fortification of dairy products with essential vitamins, minerals, and bioactive compounds has been a game-changer in addressing nutritional deficiencies. Dairy products are now enriched with omega-3 fatty acids to support cardiovascular health, vitamin D and calcium to strengthen bones, and iron and folic acid to combat anemia. The addition of plant-derived polyphenols and flavonoids enhances antioxidant activity,

helping reduce oxidative stress and inflammation. Fortified dairy products cater to various consumer groups, including children, pregnant women, and the elderly, making them a key contributor to overall public health improvement.

4. **Lactose-Free Innovations**

With an increasing number of lactose-intolerant individuals worldwide, lactose-free dairy products have become a crucial advancement in the industry. Modern enzymatic hydrolysis techniques use lactase enzymes to break down lactose into easily digestible sugars, making dairy products more accessible to sensitive consumers. Additionally, A2 milk, which contains only the A2 beta-casein protein, is gaining popularity as an alternative to conventional milk due to its perceived digestive benefits. Fermentation techniques are also being utilized to naturally reduce lactose content in dairy products, providing consumers with more choices without compromising taste or nutritional value.

5. **Functional Dairy-Based Beverages**

Functional dairy beverages have witnessed rapid innovation, driven by consumer demand for convenient and health-focused options. High-protein and low-fat dairy drinks are being formulated for fitness enthusiasts to support muscle recovery and satiety. Fermented dairy beverages, such as probiotic-rich lassi and kefir, have gained recognition for their digestive benefits. Additionally, functional buttermilk infused with Ayurvedic and herbal extracts, such as turmeric and ashwagandha, is being developed to appeal to consumers seeking natural health-boosting beverages.

6. **Biotechnology and Dairy Processing Innovations**

Advancements in biotechnology have paved the way for enhanced functional dairy products by improving the bioavailability of key nutrients and optimizing dairy processing techniques. Genetic engineering is being explored to develop dairy products with improved bioactive compound production. Nanotechnology-based nutrient delivery systems are being utilized to enhance the absorption of fortified vitamins and minerals. Furthermore, high-pressure processing (HPP) has emerged as an effective method to extend shelf life while maintaining the nutritional integrity of dairy products. These innovations ensure that functional dairy products remain effective, safe, and of high quality, catering to evolving consumer demands.

Market Trends and Future Prospects

- Increasing consumer awareness about gut microbiota and immunity boosts functional dairy sales.
- Technological advancements in microencapsulation improve probiotic viability.
- The shift towards plant-based and hybrid dairy formulations to cater to vegan and flexitarian consumers.
- Regulatory advancements ensuring safety and efficacy of functional dairy claims.
- Expansion of functional dairy into sports nutrition and personalized health products.
- Adoption of AI and big data for consumer preference analysis and product development.

Conclusion

Advancements in functional dairy products have revolutionized the dairy industry by offering tailored health benefits. With continuous research and innovation, functional dairy will continue to play a crucial role in preventive health strategies. The integration of new bioactive compounds, improved probiotic delivery, and consumer-driven formulations are set to shape the future of functional dairy products. Additionally, the intersection of biotechnology, nanotechnology, and personalized nutrition will pave the way for next-generation functional dairy solutions, ensuring enhanced health benefits for consumers worldwide.

› **Table: Comparison of Functional Dairy Products**

Product Type	Key Bioactive Component	Health Benefit
Probiotic Yogurt	Probiotics	Gut health
Prebiotic Milk	Inulin, GOS	Digestive wellness
Fortified Cheese	Vitamin D, Calcium	Bone health
Omega-3 Enriched Butter	Omega-3 Fatty Acids	Heart health
Lactose-Free Milk	Lactase enzyme	Lactose digestion
High-Protein Dairy Drinks	Whey Protein	Muscle growth
Bioactive Dairy Peptides	Antioxidants, Peptides	Metabolic support

The Silent Threat: The Drastic Effect of Mastitis on Indian Milk Production and Economy

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Mastitis, an inflammatory disease affecting the mammary glands of dairy animals, is one of the most severe health challenges in the Indian dairy industry. As India stands as the world's largest milk producer, contributing over 25% of global milk production, the impact of mastitis on this sector is both alarming and economically significant. The disease leads to reduced milk yield, poor quality milk, and significant financial losses for farmers. Addressing mastitis through effective prevention strategies is essential to sustaining India's dairy economy and ensuring food security.

Understanding Mastitis and Its Prevalence in India

Mastitis is primarily caused by bacterial infections, often exacerbated by poor hygiene, inadequate milking practices, and environmental factors. The disease manifests in two forms: clinical mastitis, which is visibly detectable, and subclinical mastitis, which remains unnoticed but causes considerable production losses. Studies estimate that nearly 40% of dairy cattle in India suffer from some form of mastitis, leading to significant economic damage.

The high prevalence of mastitis is attributed to unorganized dairy farming, lack of awareness among farmers, and insufficient veterinary care. Small and marginal farmers, who make up a large portion of India's dairy sector, often struggle with proper animal management practices, increasing the risk of mastitis outbreaks.

The Economic Impact of Mastitis on Indian Dairy Farming

The economic repercussions of mastitis in India are staggering. The disease reduces milk yield by 20-30%, translating into millions of liters of milk lost

annually. Additionally, mastitis leads to lower milk quality due to increased somatic cell counts (SCC) and bacterial contamination, making it unsuitable for consumption and processing.

Financial losses due to mastitis can be categorized into direct and indirect costs:

- **Direct Costs:** Loss of milk production, treatment expenses, veterinary costs, and culling of severely affected animals.
- **Indirect Costs:** Reduced reproductive efficiency, increased labor requirements, and long-term decline in milk quality.

A study by the National Dairy Research Institute (NDRI) estimated that India loses nearly ₹13,000 crore annually due to mastitis. This loss not only affects individual farmers but also hampers India's dairy export potential and overall economic growth in the livestock sector.

Mastitis and Its Effect on India's Milk Supply Chain

India's dairy industry is a key contributor to rural livelihoods, with millions of small-scale farmers dependent on milk production. Mastitis disrupts the milk supply chain, affecting dairy cooperatives and processing units. Contaminated milk often needs to be discarded, leading to shortages and price fluctuations.

Additionally, the presence of antibiotics in milk due to mastitis treatment raises public health concerns and affects the credibility of Indian dairy products in international markets. Countries with strict food safety regulations impose bans on contaminated dairy imports, limiting India's export capabilities and reducing profitability in the sector.

Impact on Farmer Livelihoods and Rural Economy

Mastitis has a direct effect on small and marginal farmers, who rely heavily on dairy farming as their primary source of income. Since a large portion of India's dairy industry is unorganized, most farmers lack access to proper veterinary care and preventive measures. The financial burden

of treating mastitis, combined with reduced milk yield, often forces small farmers into debt.

Furthermore, as milk production declines, rural dairy cooperatives and milk processing industries suffer losses, leading to job insecurities for labourers involved in the dairy value chain. Since the dairy sector significantly contributes to rural employment, mastitis indirectly affects millions of workers, from milk collectors to processing plant employees, thereby slowing down rural economic growth.

Public Health Concerns Linked to Mastitis

Mastitis not only affects dairy animals but also poses serious risks to human health. The presence of antibiotic residues in milk due to mastitis treatment can lead to antibiotic resistance in consumers, which is a growing global concern. Additionally, contaminated milk with high somatic cell counts is unfit for consumption and can cause foodborne illnesses.

Addressing mastitis is crucial to ensuring the production of high-quality milk and maintaining consumer trust in dairy products. Strengthening milk quality regulations and enforcing strict hygiene standards in dairy farms can help mitigate these public health risks.

The Need for Mastitis Prevention in India

Preventing mastitis is not just a necessity for dairy farmers but a crucial step toward securing India's dairy economy. Effective prevention strategies include:

1. **Improved Hygiene Practices:** Regular cleaning of milking equipment, maintaining proper barn sanitation, and ensuring hygienic milking procedures.
2. **Proper Milking Techniques:** Use of pre-milking and post-milking teat disinfection to reduce bacterial entry.
3. **Regular Health Monitoring:** Conducting somatic cell count tests and screening for early detection of subclinical mastitis.
4. **Adequate Nutrition and Animal Welfare:** Providing balanced diets and minimizing stress on animals to enhance immunity.
5. **Farmer Education and Training:** Conducting awareness programs to educate farmers on best practices in dairy management and mastitis control.
6. **Vaccination and Veterinary Support:** Developing and administering mastitis vaccines, along with timely veterinary interventions, to curb infection rates.
7. **Policy Interventions and Financial Assistance:** Government initiatives to provide subsidies for disease prevention programs, veterinary healthcare support, and modern dairy farming equipment can help farmers implement better mastitis control measures.

Conclusion

Mastitis remains a major hurdle in India's dairy sector, causing significant milk production losses and economic strain. If left unchecked, it could undermine India's status as a global dairy leader. Prevention and control measures must be prioritized at both individual and policy levels to mitigate the disease's impact. By investing in better hygiene, veterinary support, and farmer education, India can safeguard its dairy economy and ensure sustainable milk production for the future.

The fight against mastitis is not just about protecting livestock—it is about securing livelihoods, food security, and economic prosperity for millions of Indians. Strengthening India's dairy infrastructure, ensuring widespread farmer awareness, and implementing scientific advancements in disease prevention will be key to overcoming this challenge. By taking proactive steps today, India can preserve its position as a global dairy powerhouse and continue to provide safe, high-quality milk to millions of consumers.

3rd Session of India-Uganda Joint Trade Committee held in New Delhi

India and Uganda to explore MoUs in key sectors including Public Works, Agriculture, Traditional Medicine, and Tele-medicine

Both sides identify key areas to boost bilateral trade, including minerals, coffee, pulses, spices, and dairy products

The Third Session of the India-Uganda Joint Trade Committee (JTC) was held in New Delhi on 25th-26th March 2025. The session marked a significant step in strengthening India-Uganda trade relations after a gap of 23 years. Both sides reviewed the bilateral trade and agreed that the current trade volume does not reflect the full potential of economic collaboration. They resolved to take concerted efforts to enhance, deepen, and diversify bilateral trade. Discussions were also held on the formation of an India-Uganda Joint Business Forum to facilitate increased engagement between industry leaders from both nations.

Key areas identified for enhancing cooperation included minerals, coffee, cocoa products, pulses, residual chemical and allied products, spices, dairy products, essential oils, plastic raw materials, fruits, and vegetables, as well as mining, banking, digital infrastructure, agriculture, MSME growth, health, pharmaceuticals, electric vehicles, and critical minerals, including Rare Earth Elements (REE) and petrochemicals. Both sides also agreed to strengthen collaboration between their respective investment promotion agencies. Additionally, both sides agreed to explore Memorandums of Understanding (MoUs) for the recognition of Indian Pharmacopoeia and cooperation in Public Works and Infrastructure Development, Agriculture and Allied sectors, Traditional Medicine, Tele-medicine, and strengthening collaboration in Standardization.

Additional Secretary, Department of Commerce, Shri Ajay Bhadoo addressed the inaugural session and emphasized the strong bilateral ties between India and Uganda. He highlighted the growing trade and investment partnership and underscored the importance of collaboration in key sectors such as e-commerce, pharmaceuticals, MSME cluster development, solar energy, and rural electrification.

The JTC was co-chaired by Economic Adviser, Department of Commerce of Ms. Priya P. Nair, from the Indian side, Head of International Political Cooperation Department, Ministry of Foreign Affairs, Republic of Uganda, Amb. Elly Kamahungye Kafeero, He was accompanied by Amb. Prof. Joyce Kikafunda Kakuramatsi, Head of Mission, Uganda High Commission, New Delhi, along with a 28-member Ugandan delegation comprising officials from various ministries and Uganda's Mission in India. The discussions were held in a cordial and cooperative atmosphere, with both sides expressing enthusiasm for expanding trade and investment.

On the sidelines of the JTC, the Ugandan delegation visited the Noida SEZ to gain insights into India's industrial and export ecosystem. The deliberations at the 3rd Session of the India-Uganda JTC were forward-looking and indicative of the strong and amicable relations between the two nations.

Poultry Planner and Dairy Planner Announce Official Media Partnership with IPAAF Expo 2025

Haryana, India – Poultry Planner and Dairy Planner, two of the most influential publications in the poultry and dairy industries, are pleased to announce their official media partnership with IPAAF Expo 2025. This strategic alliance will enhance the global reach of these leading publications while fostering innovation and development within the poultry, dairy, and allied industries.

IPAAF Expo 2025, one of the most anticipated international trade exhibitions dedicated to the poultry, dairy, and animal feed industries, will take place from May 9 to 11, 2025, at Kochi, Kerala. The event serves as a key platform for industry leaders, suppliers, and professionals to explore the latest advancements, engage in meaningful networking, and drive business opportunities.

As an official media partner, Poultry Planner and Dairy Planner will have an exclusive stall at the event, providing a dedicated space for industry stakeholders to interact, exchange ideas, and discover emerging trends in the poultry and dairy sectors. This collaboration represents a significant step in broadening the influence of these magazines while delivering valuable insights and opportunities to professionals in the region.

A Strategic Partnership for Industry Advancement

The partnership between Poultry Planner, Dairy Planner, and IPAAF Expo 2025 underscores a shared vision for innovation, knowledge dissemination, and business growth in the poultry and dairy sectors. Through this collaboration, Poultry Planner and Dairy Planner will:

- **Deliver Comprehensive Coverage:** Offering in-depth coverage of IPAAF Expo 2025, featuring exclusive interviews, industry insights, and expert analysis.
- **Promote Networking:** Connecting exhibitors, attendees, and industry leaders to facilitate valuable business interactions.
- **Showcase Cutting-Edge Innovations:** Highlighting the latest technological advancements and market trends in the poultry and dairy sectors.
- **Host Interactive Sessions:** Conducting live discussions, presentations, and networking forums to encourage industry engagement.

About IPAAF Expo 2025

IPAAF Expo 2025 is a premier international trade exhibition focusing on the poultry, dairy, and animal feed industries. The event brings together industry experts, policymakers, investors, and suppliers, offering a unique opportunity to explore market trends, innovative solutions, and emerging technologies shaping the future of these sectors.

With a strong emphasis on sustainability, technology-driven advancements, and best

practices, IPAAF Expo 2025 serves as a vital hub for professionals looking to expand their knowledge and business footprint.

Commitment to Industry Excellence

Speaking about the collaboration, **Mayank Arya, Project Manager and Team of Poultry Planner and Dairy Planner,** said, "We are delighted to partner with IPAAF Expo 2025 as an official media partner. This partnership aligns perfectly with our mission to deliver valuable industry insights and foster meaningful collaborations. Our presence at the event will enable us to connect with global leaders, showcase cutting-edge developments, and contribute to the growth of the poultry and dairy industries."

As part of this collaboration, Poultry Planner and Dairy Planner will also publish exclusive editions centered around IPAAF Expo 2025, featuring industry analysis, expert opinions, and market trends that will shape the future of poultry and dairy sectors.

Join Us at IPAAF Expo 2025

Poultry Planner and Dairy Planner invite all industry stakeholders, business leaders, and professionals to visit their stall at IPAAF Expo 2025 to explore opportunities, discuss industry trends, and engage in insightful discussions.

About Poultry Planner and Dairy Planner

Poultry Planner and Dairy Planner are leading publications offering in-depth market analysis, industry trends, and expert insights in the poultry and dairy sectors. With a strong readership across India and global markets, these magazines serve as essential resources for professionals seeking to stay updated on industry advancements.

For more information, visit IPAAF Expo 2025 in Kochi, Kerala, from May 9 to 11, 2025, and stay tuned for exclusive coverage in Poultry Planner and Dairy Planner.

Global Dairy Industry

India is ranked 1st in milk production since 1998, nowcontributing 25 percent of global milk production. Milk production has increased by 63.56% over the past 10 years from 146.3 million tonnes during 2014-15 to 239.2 million tonnes during 2023-24, with an annual growth rate of 5.7 % during the past 10 years and whereas, world milk production is growing at 2% per annum. Per capita availability of milk in the country has increased by 48% in the last decade with more than 471 gm/person/day during the year 2023-24 as against the per capita availability of 322 gram/ person/ day in the world.

Department of Animal Husbandry and Dairying is implementing the following schemes across the country to complement and supplement the efforts for milk production and milk processing infrastructure made by the State Government;

i. National Programme for Dairy Development (NPDD): NPDD is implemented with following 2 components:

ii. 1. Component ''A'' of NPDD focuses on creating/strengthening of infrastructure for quality milk testing equipment as well as primary chilling facilities for State Cooperative Dairy Federations/ District Cooperative Milk Producers' Union/ Self Help Groups (SHGs)/ Milk Producer Companies/ Farmer Producer Organizations.

2. Component 'B' of the NPDD scheme "Dairying through Cooperatives" aims to increase sale of milk and dairy products by increasing farmer's access to organized market, upgrading dairy processing facilities and marketing infrastructure and enhancing the capacity of producer owned institutions.

iii. Supporting Dairy Cooperatives & Farmer Producer Organisations engaged in dairy activities (SDCFPO): To assist the State Dairy Cooperative Federations by providing interest subvention with respect to working capital loan to tide over the crisis on account severely adverse market conditions or natural calamities.

iv. Animal Husbandry Infrastructure Development Fund (AHIDF): AHIDF is being implemented for funding of eligible projects set up by individual entrepreneurs, Dairy Cooperatives, Farmers Producer Organizations, Private Companies, MSMEs and Section 8 companies for their investment for processing and value addition in animal husbandry sector by scheduled banks. Under the scheme, credit facilities are to be made available for establishment of Dairy processing & value addition infrastructure, Animal feed manufacturing plant, Breed Improvement Technology and Breed Multiplication farm, Animal waste to wealth management (Agri Waste management) and Veterinary vaccine and drugs production facilities.

v. Rashtriya Gokul Mission (RGM): To enhance milk production and productivity of bovines Government is implementing Rashtriya Gokul Mission for development and conservation of indigenous breeds and genetic upgradation of bovine population.

vi. National Livestock Mission (NLM): to bring sharp focus on entrepreneurship development and breed improvement in poultry, sheep, goat and piggery by providing the incentivization to the individual, FPOs, SHGs, Section 8 companies for entrepreneurship development and also to the State Government for breed improvement infrastructure.

vii. Livestock Health and Disease Control Programme (LHDCP): to provide for prophylactic vaccination against animal diseases, capacity building of veterinary services, disease surveillance, and strengthening veterinary infrastructure.

Department of Animal Husbandry and Dairying is continuously organizing social media campaigns through the official channels to make people aware about the nutritional benefits of milk. These campaigns include awareness posts, infographics, reels and engagement through hashtags and digital outreach.

This information was given by Union Minister of State, Ministry of Fisheries, Animal Husbandry and Dairying, Prof. S.P. Singh Baghel, in a written reply in Lok Sabha on 25th March, 2025.

Poultry Planner and Dairy Planner Announce Official Media Partnership with ILDEX Indonesia 2025

Haryana, India – Poultry Planner and Dairy Planner, two of the leading industry-specific publications catering to the poultry and dairy sectors, are proud to announce their official media partnership with ILDEX Indonesia 2025. This strategic collaboration will further strengthen the global presence of these premier publications while supporting the growth and innovation of the livestock, dairy, meat processing, and aquaculture industries in Indonesia and beyond.

ILDEX Indonesia 2025, one of the most anticipated international livestock, dairy, meat processing, and aquaculture exhibitions, will take place from September 17 to 19, 2025, at Jakarta International Expo, Indonesia. With a focus on industry advancements, cutting-edge technology, and networking opportunities, ILDEX Indonesia serves as a key platform for professionals, suppliers, and decision-makers from across the globe.

As an official media partner, Poultry Planner and Dairy Planner will have an exclusive stall at the event, providing a hub for industry professionals to engage, exchange insights, and explore the latest trends in the poultry and dairy sectors. This partnership marks a significant milestone in expanding the reach of these magazines, bringing valuable knowledge and business opportunities to stakeholders in the region.

A Strategic Collaboration for Industry Growth

The partnership between Poultry Planner, Dairy Planner, and ILDEX Indonesia 2025 reflects a shared commitment to fostering innovation, knowledge-sharing, and business development in the livestock and dairy industries. Through this collaboration, Poultry Planner and Dairy Planner will:

- **Offer In-Depth Coverage:** Providing comprehensive coverage of ILDEX Indonesia 2025, including exclusive interviews, panel discussions, and insights from industry leaders.
- **Facilitate Networking:** Engaging with exhibitors, attendees, and key stakeholders to foster meaningful business connections and knowledge exchange.
- **Showcase Innovations:** Highlighting the latest technological advancements and trends in the poultry and dairy sectors, offering a platform for businesses to showcase their products and solutions.
- **Host Interactive Sessions:** Organizing live discussions, presentations, and networking sessions at the event stall to encourage industry engagement.

About ILDEX Indonesia 2025

ILDEX Indonesia is recognized as one of the premier international trade exhibitions for the livestock

and dairy industry. The event brings together global industry leaders, investors, suppliers, and policymakers, providing a unique opportunity to explore market trends, business prospects, and innovative solutions shaping the future of the sector.

With a strong emphasis on emerging technologies, sustainability, and best practices, ILDEX Indonesia serves as a crucial meeting point for industry professionals seeking to expand their knowledge and business reach.

Commitment to Industry Excellence

Speaking about the partnership, Mayank Arya, Project Manager with Team of Poultry Planner and Dairy Planner, stated, "We are thrilled to join hands with ILDEX Indonesia 2025 as an official media partner. This collaboration aligns with our mission to provide industry professionals with valuable insights and updates, while also creating opportunities for knowledge exchange and business growth. With our presence at the event, we look forward to engaging with global leaders and driving impactful discussions on the future of poultry and dairy industries."

As part of the collaboration, Poultry Planner and Dairy Planner will also release special editions focused on ILDEX Indonesia 2025, featuring expert opinions, market trends, and exclusive insights into the evolving landscape of the poultry and dairy sectors.

Join Us at ILDEX Indonesia 2025

Poultry Planner and Dairy Planner invite industry stakeholders, business leaders, and professionals to visit their stall at ILDEX Indonesia 2025 to explore opportunities, discuss industry trends, and engage with thought leaders.

About Poultry Planner and Dairy Planner

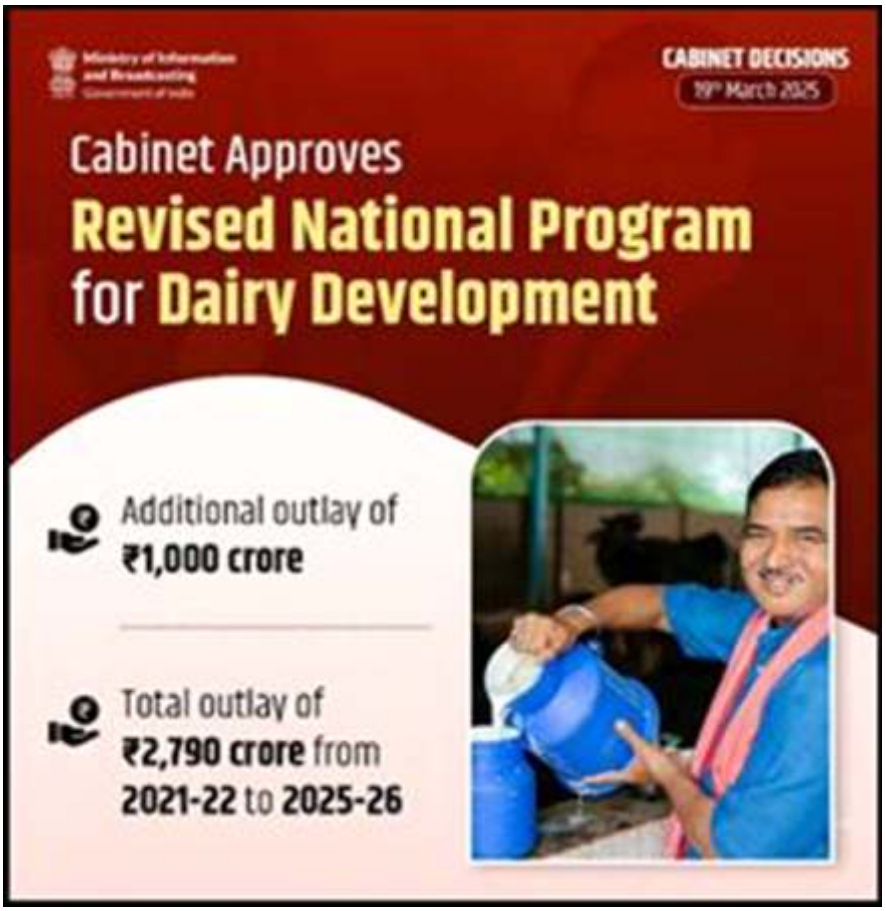
Poultry Planner and Dairy Planner are leading publications dedicated to delivering in-depth analysis, market trends, and industry news in the poultry and dairy sectors. With a strong readership across India and international markets, these magazines serve as a vital resource for professionals looking to stay informed and ahead of industry developments.

Transforming India's Agricultural and Dairy Sectors

Recent Policy Decisions and Budgetary Provisions

Introduction

On March 19, 2025, the Union Cabinet took two key decisions to further the development of agriculture, dairying and animal husbandry in India. Agriculture, animal husbandry, and dairying are the cornerstone of India's economy. These sectors play a crucial role in ensuring rural employment and economic stability.



The Union Cabinet approved the Revised National Program for Dairy Development (NPDD), a Central Sector Scheme, with an additional budget of ₹1,000 crore, bringing the total to ₹2,790 crore for the 15th Finance Commission period (2021-22 to 2025-26).

Key Objectives of the Revised NPDD:

- Improved milk procurement, processing capacity, and quality control.
- Enhanced market access for farmers and better pricing through value addition.
- Strengthening of the dairy supply chain to increase rural income and development.

Components of the Revised NPDD:

1. **Component A:** Focuses on improving dairy infrastructure.
2. **Component B:** Dairying through Cooperatives (DTC) in partnership with Japan International Cooperation Agency (JICA).

Expected Outcomes of Revised NPDD:

- Establishment of 10,000 new Dairy Cooperative Societies.
- Additional 3.2 lakh employment opportunities, 70% benefiting women.

The Union Cabinet has also approved the Revised Rashtriya Gokul Mission (RGM) to boost the livestock sector, with an additional outlay of ₹1,000 crore, bringing the total budget to ₹3,400 crore for the 15th Finance Commission period (2021-22 to 2025-26).

Key Additions to the Revised RGM:

1. **Heifer Rearing Centres:** One-time assistance of 35% of capital cost for setting up 30 housing facilities for 15,000 heifers.
2. **Support for High Genetic Merit (HGM) Heifers: 3% interest subvention** on loans taken by farmers to purchase HGM IVF heifers from milk unions/financial institutions.

Ongoing Activities under RGM:

- Strengthening of semen stations and Artificial Insemination (AI) network.
- Bull production and breed improvement using sex-sorted semen.
- Skill development and farmer awareness programs.
- Establishment of Centres of Excellence and strengthening of Central Cattle Breeding Farms.

Expected Outcomes of Revised RGM:

- Increased incomes for 8.5 crore farmers engaged in dairying.
- Scientific conservation of

indigenous bovine breeds.

India is the world's largest producer of milk and the second-largest producer of fruits and vegetables. With a rising global demand for organic produce, value-added dairy products, and sustainable farming practices, the government has placed renewed emphasis on enhancing productivity, infrastructure, and market access for farmers. In the past six months, the Union Government has introduced key policy decisions aimed at modernizing these sectors. Through targeted investments, regulatory support, and infrastructure development, the government seeks to improve farmer incomes, ensure disease control in livestock, and bolster cooperative movements to benefit small and marginal farmers. A crucial component of this vision is the Union Budget 2024-25, which has made substantial allocations to agriculture, animal health, and rural development.

Agriculture, Animal Husbandry, and Dairying Provisions in Union Budget 2024-25

The Union Budget 2025-26 has emphasized agriculture as the foremost engine of India's development, focusing on improving productivity, farmer incomes, rural infrastructure, and self-sufficiency in key commodities. The provisions also extend to animal husbandry, dairying, and fisheries, ensuring holistic growth in the primary sector.

1. Agriculture Sector Provisions

1.1 Prime Minister Dhan-Dhaanya Krishi Yojana

- A new scheme targeting 100 low-productivity districts.
- Focus on enhancing agricultural productivity, crop diversification, sustainable practices, irrigation, and post-harvest storage.
- Likely to benefit 1.7 crore farmers.

1.2 Rural Prosperity and Resilience Programme

- A multi-sectoral initiative to address underemployment in agriculture.
- Focus on skilling, investment, and technology-driven transformation.
- Phase-1 to cover 100 agricultural districts.

1.3 Mission for Aatmanirbharta in Pulses

- A six-year mission with a focus on Tur, Urad, and Masoor.
- Development of climate-resilient seeds and protein enhancement.
- Assurance of remunerative prices through procurement by NAFED and NCCF for four years.

1.4 Comprehensive Programme for Vegetables and Fruits

- Promotion of vegetable and fruit production with efficient supply chains.
- Focus on value addition, processing, and ensuring better market prices.
- Implementation in partnership with states and farmer producer organizations.

1.5 National Mission on High Yielding Seeds

- Strengthening research for high-yield, pest-resistant, and climate-resilient seeds.
- Commercial availability of over 100 seed varieties released since July 2024.

1.6 Cotton Productivity Mission

- A five-year mission to improve cotton yield and sustainability.
- Promotion of extra-long staple cotton to benefit cotton-growing farmers.
- Alignment with the 5F vision for textile sector growth.

1.7 Kisan Credit Card (KCC) Loan Limit Enhancement

- The loan limit under the Modified Interest Subvention Scheme raised from ₹3 lakh to ₹5 lakh.
- Expected to benefit 7.7 crore farmers, fishermen, and dairy farmers.

1.8 Urea Plant in Assam

- A new urea plant with an annual capacity of 12.7 lakh metric tons at Namrup, Assam.
- Expected to enhance self-sufficiency in urea production.

2. Animal Husbandry and Dairying

2.1 Makhana Board in Bihar

- Establishment of a dedicated board to support makhana production, processing, and marketing.
- Organization of makhana farmers into Farmer Producer Organizations (FPOs).

2.2 Fisheries Development Framework

- Special focus on Andaman & Nicobar and Lakshadweep Islands.
- Sustainable harnessing of fisheries from the Exclusive Economic Zone and High Seas.
- Expected to boost marine sector potential and increase exports.

3. Credit and Financial Inclusion

3.1 Grameen Credit Score

- Public Sector Banks to develop a framework for SHG members and rural credit needs.

3.2 Expansion of Credit for Micro Enterprises

- Introduction of customized credit cards with a ₹5 lakh limit for micro-enterprises registered on the Udyam portal.
- 10 lakh cards to be issued in the first year.

4. Research and Infrastructure Development

4.1 Gene Bank for Crops Germplasm

- A second gene bank with 10 lakh germplasm lines for future food security.

4.2 Research and Development in Agriculture

- Enhanced support for private-sector-driven R&D.

The Union Budget 2025-26 provisions for agriculture, animal husbandry, and dairying reflect the government's commitment to boosting agricultural productivity, ensuring financial stability for farmers, and strengthening allied sectors.

Overview of Cabinet Decisions Since October 2024

1. Continuation of Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS)

On January 1, 2025, the Union Cabinet approved continuation of the Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme till 2025-26 with an overall outlay of Rs.69,515.71 crore from 2021-22 to

2025-26. The decision will help in risk coverage of crops from non-preventable natural calamities for farmers across the country.

In addition to the same, for large scale technology infusion in implementation of the scheme leading to increasing transparency and claim calculation and settlement, the Union Cabinet has also approved creation of Fund for Innovation and Technology (FIAT) with a corpus of Rs.824.77 crore.

2. Extension of One-time Special Package on Di-Ammonium Phosphate (DAP)

On January 1, 2025, the Union Cabinet approved the proposal of the Department of Fertilizers for extension of One-time Special Package on Di-Ammonium Phosphate (DAP) beyond the NBS subsidy @ Rs 3,500 per MT for the period from 01.01.2025 till further orders to ensure sustainable availability of DAP at affordable prices to the farmers. The tentative budgetary requirement for above would be approximately up to Rs. 3,850 crore.

3. Increase in Minimum Support Price (MSP) for Copra for 2025 season

The Cabinet Committee on Economic Affairs, on December 20, 2024, has given its approval for the Minimum Support Price (MSP) for copra for 2025 season. The government has increased MSP for milling copra and ball copra from Rs. 5250 per quintal and Rs. 5500 per quintal for the marketing season 2014 to Rs. 11582 per quintal and Rs. 12100 per quintal for the marketing season 2025, registering a growth of 121% and 120%, respectively. A higher MSP will not only ensure better remunerative returns to the coconut growers but also incentivize farmers to expand copra production to meet the growing demand for coconut products both domestically and internationally.

4. Launch of National Mission on Natural Farming

The Union Cabinet, on November 25, 2024, approved the launching of the National Mission on Natural Farming (NMNF) as a standalone Centrally Sponsored Scheme under the Ministry of Agriculture & Farmers' Welfare. The scheme has a total outlay of Rs.2481 crore (Government of India share – Rs.1584 crore; State share – Rs.897 crore) till the 15th Finance Commission (2025-26).

- National Mission on Natural Farming (NMNF) promotes NF to ensure safe, nutritious food and reduce farmers' dependency on external inputs. It aims to enhance soil health, biodiversity, climate resilience, and sustainable agriculture.
- Natural Farming (NF) is a chemical-free farming method based on traditional knowledge, local agro-ecological principles, and diversified cropping systems.
- NF reduces input costs, soil degradation, and health risks from fertilizers and pesticides, ensuring nutritious food and climate resilience.

5. Launch of PM Rashtriya Krishi Vikas Yojana (PM-RKVY) and Krishonnati Yojana (KY)

On October 3, 2024, the Union Cabinet approved the proposal of the Department of Agriculture & Farmers Welfare (DA&FW) for rationalization of all Centrally Sponsored Schemes (CSS) operating under Ministry of Agriculture and Farmer's into two-umbrella Schemes viz. Pradhan Mantri Rashtriya Krishi Vikas Yojana (PM-RKVY), and Krishonnati Yojana (KY).

PM-RKVY will promote

sustainable agriculture, while KY will address food security & agricultural self-sufficiency. The PM-RKVY and KY are being implemented with total proposed expenditure of Rs.1,01,321.61 crore. These Schemes are implemented through the State Governments. Out of the total proposed expenditure of Rs.1,01,321.61 crore the projected expenditure towards central share of DA&FW is Rs.69,088.98 crore and states share is Rs.32,232.63 crore. This includes Rs.57,074.72 crore for RKVY and Rs.44,246.89 crore for KY.

6. **Approval of National Mission on Edible Oils – Oilseeds**

   On October 3, 2024, the Union Cabinet approved the National Mission on Edible Oils – Oilseeds (NMEO-Oilseeds), a landmark initiative aimed at boosting domestic oilseed production and achieving self-reliance in edible oils. The Mission will be implemented over a seven-year period, from 2024-25 to 2030-31, with a financial outlay of Rs 10,103 crore.

   The mission aims to increase primary oilseed production from 39 million tonnes (2022-23) to 69.7 million tonnes by 2030-31. Together with NMEO-OP (Oil Palm), the Mission targets to increase domestic edible oil production to 25.45 million tonnes by 2030-31 meeting around 72% of our projected domestic requirement.

Welfare Schemes for Agriculture, Dairying and Animal Husbandry by the Indian Government

- **Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):** Launch of PM-KISAN in 2019 an income support scheme providing Rs. 6000 per year in 3 equal instalments. So far, more than Rs. 3.46 lakh crore has been disbursed to over 11 crore farmers through 18 instalments. On February 24, 2025, the government released the 19th instalment of the PM-KISAN scheme. Over 9.8 crore farmers including 2.41 crore female farmers across the country will be benefitted through the 19th instalment release, receiving direct financial assistance exceeding ₹22,000 crore through Direct Benefit Transfer (DBT) without involvement of any middlemen.

- **Pradhan Mantri Kisan Maandhan Yojana:** PMKMY is a central sector scheme, is a voluntary and contributory pension scheme for the entry age group of 18 to 40 years with a provision of Rs. 3000/- monthly pension on attaining the age of 60 years, subject to exclusion criteria. Since the inception of the scheme, over 24.67 lacs small and marginal farmers have joined the PMKMY scheme.
- **Pradhan Mantri Fasal Bima Yojana:** PMFBY was launched in 2016 addressing problems of high premium rates for farmers and reduction in sum insured due to capping. In past 8 Years of implementation. In past 8 Years of PMFBY implementation, 63.11 crore farmer applications have been enrolled and over 18.52 crore (Provisional) farmer applicants have received claims of over Rs. 1,65,149 crore. During this period nearly Rs. 32,482 crore were paid by farmers as their share of premium against which claims over Rs. 1,65,149 crore (Provisional) have been paid to them. Thus, for every Rs. 100 of premium paid by farmers, they have received about Rs. 508 as claims.
- **National Livestock Mission (NLM):** The focus of the scheme is towards employment

generation, entrepreneurship development; increase in per animal productivity and thus targeting increased production of meat, goat milk, egg and wool. An outlay of Rs. 324 crores have been allocated during the year 2024-25 for this mission.

- **Animal Husbandry Infrastructure Development Fund (AHIDF):** The scheme envisaged for incentivizing investments by individual entrepreneurs, private companies, MSME, Farmers Producers Organizations (FPOs), and Section 8 companies to establish dairy processing and value addition infrastructure, meat processing and value addition infrastructure, animal feed plant, breed improvement technology and breed multiplications farms, veterinary drugs and vaccine infrastructure and waste to wealth management. Further, the Dairy Infrastructure Development Fund (DIDF) has been subsumed in the AHIDF and revised outlay is now Rs. 29610 crore.
- **National Animal Disease Control Programme (NADCP):** Launched in 2019, the program is the largest of its kind globally, targeting the eradication of FMD and Brucellosis by 2030. Over 99.71 crore vaccinations against Foot and Mouth Disease (FMD) in cattle and buffaloes, benefitting 7.18 crore farmers have been made so far.

Conclusion

The government's recent decisions and budgetary provisions reflect a strong push towards modernization, infrastructure development, and sustainability in agriculture, animal husbandry, and dairying. The focus on disease control, cooperative strengthening, and technological innovation will contribute to improving productivity and farmers' incomes, ensuring the long-term growth of these vital sectors.

Summary

- *The Union Cabinet approved the Revised National Program for Dairy Development (NPDD) with an additional budget of ₹1,000 crore.*
- *The Union Cabinet has also approved the Revised Rashtriya Gokul Mission (RGM) to boost the livestock sector, with an additional outlay of ₹1,000 crore.*
- *The Union Budget 2025-26 has emphasized agriculture as the foremost engine of India's development.*
- *On January 1, 2025, the Union Cabinet approved continuation of the Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme till 2025-26.*
- *On January 1, 2025, the Union Cabinet approved the extension of One-time Special Package on Di-Ammonium Phosphate (DAP) for the period from 01.01.2025 till further orders.*
- *The Union Cabinet, on November 25, 2024, approved the launching of the National Mission on Natural Farming (NMNF) with a total outlay of Rs.2481 crore.*
- *On October 3, 2024, the Union Cabinet approved the rationalization of all Centrally Sponsored Schemes (CSS) operating under Ministry of Agriculture and Farmer's into two-umbrella Schemes viz. Pradhan Mantri Rashtriya Krishi Vikas Yojana (PM-RKVY), and Krishonnati Yojana (KY).*
- *On October 3, 2024, the Union Cabinet approved the National Mission on Edible Oils – Oilseeds with a financial outlay of Rs 10,103 crore.*

Godrej Agrovet to acquire balance 48.06% stake in Creamline Dairy for ₹930 crore.

Godrej Agrovet Ltd. (GAVL) is set to acquire the remaining 48.06% equity stake in Creamline Dairy Products Limited (CDPL) for a total transaction value of ₹930 crore. With this acquisition, CDPL will become a wholly owned subsidiary of Godrej Agrovet, strengthening its position in the dairy sector. The transaction, which has received board approval, is expected to be completed by September 30, 2025, subject to regulatory clearances and other customary closing conditions.

This acquisition marks a significant milestone in Godrej Agrovet's long-standing relationship with CDPL. The two companies first entered into a strategic partnership in 2005, with Godrej Agrovet gradually increasing its stake in the dairy business over the years. In 2015, the company acquired a majority stake in CDPL, further cementing its influence over the operations and growth trajectory of the business. Now, with the acquisition of the remaining shares, Godrej Agrovet is poised to take full control of Creamline Dairy's business, enabling it to drive future growth, enhance efficiencies, and expand its footprint in the dairy sector.

Creamline Dairy Products: A Key Player in South India's Dairy Market

Creamline Dairy Products, headquartered in Hyderabad, is one of the leading private dairy companies in southern India. The company has a strong presence across Telangana, Andhra Pradesh, Tamil Nadu, Karnataka, and parts of Maharashtra. Its product portfolio includes milk and a variety of value-added dairy products such as curd, butter, ghee, paneer, buttermilk, lassi, flavored milk, and ice creams, all sold under the well-known 'Godrej Jersey' brand.

CDPL operates multiple state-of-the-art processing facilities strategically located across South India to ensure high-quality dairy products reach consumers efficiently. The company has built a robust procurement network, sourcing milk from thousands of farmers through its extensive supply chain infrastructure. By integrating its operations with Godrej Agrovet, CDPL stands to benefit from enhanced financial backing, technological advancements, and supply chain efficiencies that can propel its growth in the competitive dairy market.

Rationale Behind the Acquisition

The full acquisition of Creamline Dairy aligns with Godrej Agrovet's broader vision of expanding its footprint in the fast-growing dairy segment. Several factors have contributed to the decision to acquire complete ownership of CDPL:

1. **Strengthening Market Position:** By fully integrating CDPL into its business, Godrej Agrovet can exercise greater control over strategic decisions, streamline operations, and optimize efficiencies across procurement, production, and distribution.
2. **Expanding Product Portfolio:** With full ownership, GAVL can introduce new product lines and expand the distribution of existing dairy products under the 'Godrej Jersey' brand. The dairy market is evolving rapidly, and there is significant demand for high-value dairy products, including premium milk, organic dairy items, and functional dairy products enriched with probiotics and added nutrients.
3. **Synergies with Existing Businesses:** Godrej Agrovet has a diversified portfolio spanning animal feed, crop protection, oil palm plantations, and food processing. The dairy business complements its existing operations, particularly the animal feed segment, where it already engages with a vast network of dairy farmers. This integration allows for cross-selling opportunities and a more holistic approach to the agribusiness ecosystem.
4. **Leveraging Brand Power:** The Godrej brand enjoys strong consumer trust across various industries. By fully integrating CDPL under the Godrej umbrella, the company can leverage its brand strength to expand market share and enhance customer loyalty.
5. **Growth Potential in the Dairy Sector:** India's dairy industry is one of the largest and fastest-growing in the world. Rising disposable incomes, changing dietary habits, and increasing demand for nutritious food products make the sector an attractive investment avenue. With this acquisition, Godrej Agrovet is well-positioned to capitalize on the growing demand for dairy products in India.

Future Plans and Industry Outlook

Following the acquisition, Godrej Agrovet is expected to ramp up investments in product innovation,

brand building, and distribution expansion. Some of the key focus areas for the company may include:

- **Innovation in Value-Added Dairy Products:** The dairy industry is witnessing an increased demand for value-added products such as flavored milk, probiotic drinks, cheese, yogurt, and plant-based dairy alternatives. Godrej Agrovet is likely to focus on expanding its portfolio in these categories.
- **Strengthening Distribution and Retail Presence:** Enhancing market penetration through modern retail formats, e-commerce platforms, and direct-to-consumer (D2C) channels will be a priority. The company may also explore strategic tie-ups with online grocery platforms to increase product accessibility.
- **Sustainability Initiatives:** With growing consumer preference for sustainable and ethical sourcing, Godrej Agrovet may implement initiatives to promote responsible dairy farming practices, improve supply chain sustainability, and reduce environmental impact.
- **Export Opportunities:** India has immense potential in dairy exports. With the right product strategies and quality assurance measures, Godrej Agrovet could explore international markets, particularly in the Middle East, Southeast Asia, and Africa, where demand for Indian dairy products is increasing.

Impact on Stakeholders

The acquisition will have several implications for different stakeholders involved:

- **Farmers:** With stronger financial backing and enhanced operational efficiencies, dairy farmers associated with CDPL may benefit from better pricing, improved logistics, and access to advanced technology for milk production.
- **Employees:** The transition to a wholly owned subsidiary may lead to improved career growth opportunities and a more integrated corporate culture within the Godrej Group.
- **Consumers:** With greater investment in product development and quality control, consumers can expect a wider range of innovative dairy products with superior quality.
- **Investors:** The acquisition signals Godrej Agrovet's commitment to strengthening its dairy business, which could enhance long-term value for shareholders.

Conclusion

Godrej Agrovet's decision to acquire the remaining stake in Creamline Dairy Products represents a strategic move to consolidate its presence in India's burgeoning dairy industry. The acquisition aligns with the company's long-term growth objectives, enabling it to expand its product offerings, optimize operations, and leverage synergies across its agribusiness portfolio. As the dairy market continues to evolve, the full integration of CDPL under the Godrej umbrella positions the company for sustained growth and leadership in the sector.

With a strong brand, extensive distribution network, and commitment to innovation, Godrej Agrovet is well-equipped to navigate the challenges and opportunities in the dairy industry. As the acquisition unfolds, stakeholders will be closely watching how the company capitalizes on this investment to drive long-term profitability and growth in one of India's most dynamic and essential sectors.

Government Strengthens Dairy Sector with Rs 6,190 Crore Schemes to Boost Milk Production

New Delhi, March 19 (PTI) – In a significant move to bolster India's dairy industry, the government has approved a substantial enhancement in the financial outlays for two key schemes aimed at increasing milk production and improving farmer incomes. The Union Cabinet, chaired by Prime Minister Narendra Modi, has sanctioned a revised budget of Rs 6,190 crore for the Rashtriya Gokul Mission (RGM) and the National Programme for Dairy Development (NPDD), ensuring a robust infrastructure to support the dairy sector's continued growth and modernization.

Information and Broadcasting Minister Ashwini Vaishnaw confirmed that the Cabinet has allocated additional funds to these schemes, reinforcing the government's commitment to strengthening the dairy and livestock sectors, which form a crucial part of India's agricultural economy.

Revised Rashtriya Gokul Mission (RGM)

The Rashtriya Gokul Mission (RGM), a flagship initiative focused on the conservation and genetic enhancement of indigenous bovine breeds, has received an additional outlay of Rs 1,000 crore. This brings the total budget allocation to Rs

3,400 crore under the 15th Finance Commission cycle, covering the period from 2021-22 to 2025-26.

This revision aims to improve the productivity of indigenous cattle and buffalo breeds, promote artificial insemination, and encourage scientific breeding techniques that enhance milk yield. The initiative also seeks to strengthen in-vitro fertilization (IVF) and embryo transfer technology (ETT), thus contributing to higher milk production while maintaining the genetic diversity of India's rich bovine heritage.

National Programme for Dairy Development (NPDD) Enhancement

Similarly, the National Programme for Dairy Development (NPDD), a central sector scheme focused on modernizing and expanding dairy infrastructure, has received an additional Rs 1,000 crore, raising its total budget to Rs 2,790 crore for the 15th Finance Commission period (2021-22 to 2025-26).

The NPDD aims to strengthen milk production and processing capabilities, provide better storage and distribution networks, and enhance milk quality testing infrastructure. It seeks to establish milk chilling facilities at the village level and improve cold chain logistics to prevent spoilage and ensure seamless milk distribution. This investment will help small and marginal dairy farmers integrate into the organized dairy market, increasing their profitability and long-term sustainability.

Massive Growth in India's Dairy Industry

With these new measures, the government hopes to sustain and accelerate the impressive growth in India's dairy sector. Over the past decade, milk production in the country has surged by 63.55%, with an increase from 146.3 million tonnes in 2014-15 to 239.2 million tonnes in 2023-24. This expansion, averaging a remarkable 5.7% annual growth rate, significantly outpaces the global dairy production growth rate of approximately 2% per year.

Additionally, per capita milk availability in India has risen substantially. In 2013-14, the average daily availability of milk per person stood at 307 grams. As a direct result of various government interventions and improved dairy farming practices, this figure has risen to 471 grams per day in 2023-24.

Productivity enhancements have also been a key focus, with the efficiency of dairy animals improving by 26.34% over the past decade. These achievements reflect the success of the government's sustained efforts to modernize dairy farming and improve cattle breeds.

Infrastructure Development and Technological Interventions

A significant part of these schemes involves investing in modern dairy infrastructure, including new milk processing plants, chilling centers, and mechanized dairy farms. These advancements are expected to increase efficiency, reduce waste, and enhance the quality of dairy products available to consumers.

The use of technology in dairy farming is another area receiving major attention. The government is actively promoting digital tracking systems for livestock health, automated milking machines, and AI-based monitoring systems to enhance productivity and streamline dairy operations. This technological revolution is anticipated to make dairy farming more sustainable and profitable for millions of farmers across the country.

Empowering Farmers and Rural Livelihoods

India's dairy sector is primarily driven by small and marginal farmers, many of whom rely on dairy farming as their primary source of income. The revised RGM and NPDD schemes are expected to directly benefit these farmers by providing financial aid, training programs, and better market linkages.

The Supporting Dairy Cooperatives & Farmer Producer Organizations (SDCFPO) scheme, which provides financial assistance to state dairy cooperatives, plays a vital role in this transformation. By offering interest subvention on working capital loans, the government aims to help these cooperatives navigate market fluctuations and ensure stability in milk prices.

Moreover, the introduction of financial incentives for adopting modern dairy practices will enable farmers to invest in high-yield cattle breeds, high-quality feed, and advanced milking techniques. This will ultimately lead to improved milk production, higher incomes, and better livelihoods for rural communities.

Promotion of Indigenous Breeds and Animal Health Programs

The government has been actively working on conserving and promoting indigenous cattle breeds through the Rashtriya Gokul Mission. Indigenous breeds such as Gir, Sahiwal, and Rathi are known for their resilience, high milk yield, and superior nutritional quality. The scheme aims to enhance their productivity through genetic improvement programs, including artificial insemination and selective breeding.

Additionally, livestock health remains a crucial area of focus. The

Livestock Health and Disease Control Programme (LHDCP) has been strengthened to provide essential vaccinations, veterinary services, and disease surveillance. Ensuring the health and well-being of dairy animals is fundamental to sustaining high milk production and preventing disease outbreaks that could negatively impact the industry.

Market Expansion and Export Potential

With India being the world's largest producer of milk, there is a growing emphasis on expanding the dairy industry's export potential. The government is actively promoting Indian dairy products in international markets, particularly value-added dairy items such as cheese, ghee, and flavored milk. Strengthening quality control measures and adhering to international food safety standards will help Indian dairy brands gain greater acceptance globally.

India's dairy sector is poised for remarkable growth, and these enhanced budget allocations for RGM and NPDD will further accelerate the country's journey toward becoming a global dairy powerhouse. The investment in infrastructure, technology, and farmer support systems will ensure long-term sustainability and profitability for all stakeholders involved.

Conclusion

The Union Cabinet's decision to enhance the financial outlay for the Rashtriya Gokul Mission and the National Programme for Dairy Development underscores the government's commitment to revolutionizing India's dairy sector. With a total allocation of Rs 6,190 crore, these initiatives will drive efficiency, boost milk production, modernize dairy infrastructure, and uplift millions of farmers dependent on dairy farming for their livelihood.

As India continues to set new benchmarks in milk production, these efforts will not only strengthen domestic dairy supply chains but also position the country as a global leader in the dairy industry. The integration of technology, scientific breeding methods, and financial support mechanisms will ensure a bright future for India's dairy sector, fostering economic growth and nutritional security for the nation.

The government's proactive approach in promoting sustainable dairy farming practices, improving market access, and investing in modern infrastructure will pave the way for a resilient and self-sufficient dairy industry, benefiting farmers, consumers, and the economy alike.

India's Milk Production Reaches New Milestones: A Testament to Agricultural Growth and Innovation

India continues to solidify its position as the world's largest milk producer, contributing a staggering 25% of global milk supply. The country's dairy sector has witnessed unprecedented growth over the past decade, with total milk production increasing by an impressive 63.56%. In 2014-15, India's milk output stood at 146.3 million tonnes, and by 2023-24, this figure soared to 239.2 million tonnes. This sustained expansion, averaging 5.7% annually, far surpasses the global average growth rate of 2% per year. Additionally, per capita milk availability in India has seen a 48% rise, reflecting the nation's commitment to dairy development and nutritional security.

The Driving Force Behind India's Dairy Success

India's remarkable growth in milk production can be attributed to multiple factors, including government-led initiatives, advancements in dairy farming techniques, genetic improvements in cattle breeds, and enhanced dairy processing infrastructure. The collaborative efforts between the government, farmers, cooperatives, and private sector enterprises have transformed India's dairy industry into a powerhouse of productivity and innovation.

Government Initiatives Fueling the Dairy Industry

The Department of Animal Husbandry and Dairying (DAHD) plays a crucial role in supporting and expanding India's dairy sector through various schemes. These initiatives focus on boosting production, improving dairy infrastructure, strengthening disease control measures, and increasing farmer participation in organized markets. Some of the key programs include:

1. National Programme for Dairy Development (NPDD)

The NPDD is one of the flagship schemes designed to enhance milk production, quality assurance, and market accessibility. It comprises two core components:

- **Infrastructure Development for Quality Milk Testing and Chilling Facilities:** This initiative aims to strengthen milk testing laboratories at both primary and cooperative levels, ensuring

high-quality dairy products. Additionally, bulk milk coolers and chilling plants are being set up across various regions to improve milk preservation and reduce spoilage.

- **Market Access and Processing Facility Enhancement:** The second component of NPDD is dedicated to expanding the sales of milk and dairy products by connecting farmers to organized supply chains and upgrading existing milk processing facilities to handle larger volumes efficiently.

2. Supporting Dairy Cooperatives & Farmer Producer Organisations (SDCFPO)

Small-scale farmers and cooperatives often face financial constraints, making it difficult to compete in the market. The SDCFPO scheme provides financial support to dairy cooperatives, enabling them to sustain operations even during economic downturns. The scheme also offers interest subvention on working capital loans, assisting cooperatives in stabilizing their finances and expanding their business operations.

3. Animal Husbandry Infrastructure Development Fund (AHIDF)

The AHIDF is a game-changing initiative that facilitates funding for dairy processing and value addition projects. Through this program, financial assistance is provided to individual entrepreneurs, cooperatives, and private investors seeking to establish or upgrade dairy processing plants, cold storage units, and value-added dairy product manufacturing facilities. This fund is crucial for promoting technological advancements in the dairy industry, ensuring higher efficiency, and enhancing the overall value chain.

Indigenous Breeds: A Focus on Sustainable Dairy Development

To maintain long-term dairy sustainability, the Indian government has emphasized the conservation and development of indigenous bovine breeds.

1. Rashtriya Gokul Mission (RGM)

The RGM was introduced to improve the genetic potential of Indian cattle breeds, ensuring that they produce more milk while retaining their adaptability to local climatic conditions. Under this mission, scientific breeding programs and artificial insemination techniques are being implemented to enhance productivity. The scheme also promotes the establishment of Gokul Grams, which serve as dedicated centers for indigenous cattle breeding and conservation.

2. National Livestock Mission (NLM)

The NLM goes beyond dairy farming and focuses on holistic livestock development, including poultry, sheep, goats, and pigs. This initiative aims to boost entrepreneurship in animal husbandry, support farmers with financial incentives, and encourage breed improvement programs to ensure better productivity across multiple livestock categories.

Ensuring Livestock Health for a Thriving Dairy Industry

Healthy cattle are the backbone of a productive dairy sector. The government has launched several programs to prevent diseases, enhance veterinary services, and improve overall animal health management.

1. Livestock Health and Disease Control Programme (LHDCP)

The LHDCP is instrumental in protecting livestock against infectious diseases through systematic vaccination campaigns. This initiative includes:

- **FMD (Foot and Mouth Disease) Control Program:** Aims to eradicate FMD, which significantly affects dairy cattle productivity.
- **Brucellosis Control Program:** Focuses on preventing this bacterial infection, which poses health risks to both animals and humans.
- **Strengthening Veterinary Services:** The program ensures regular health check-ups, disease surveillance, and better access to veterinary care, reducing mortality rates and enhancing overall livestock well-being.

Digital Campaigns to Promote Dairy Awareness

With increasing internet penetration, the Department of Animal Husbandry and Dairying has leveraged digital platforms and social media campaigns to promote the nutritional benefits of milk. These efforts include:

- Educational Posts & Infographics: Simplified, engaging content that highlights the importance of dairy consumption in a balanced diet.
- Consumer Awareness Initiatives: Programs that dispel myths about milk and encourage dairy consumption as part of a healthy lifestyle.
- Interactive Content: Videos, Q&A sessions with dairy experts, and informative webinars designed to increase engagement and knowledge among consumers.

Challenges and Future Roadmap

Despite its impressive

achievements, India's dairy industry faces certain challenges that need to be addressed for sustained growth:

1. Climate Change and Its Impact on Dairy Farming

- Rising temperatures and erratic rainfall patterns can affect fodder availability, milk yield, and cattle health.
- To combat this, the government is focusing on climate-resilient dairy farming techniques, including heat-resistant cattle breeds and better water management systems.

2. Need for Increased Milk Processing and Cold Chain Infrastructure

- India currently loses a significant portion of milk production due to inadequate storage and transportation facilities.
- Expansion of cold storage units, refrigerated transport systems, and efficient supply chain management will play a crucial role in reducing wastage and increasing profitability.

3. Rising Demand for Value-Added Dairy Products

- Consumer preferences are shifting towards flavored milk, cheese, yogurt, and other dairy-based snacks.
- Encouraging entrepreneurs and small-scale dairy businesses to innovate and introduce new products will further boost the industry.

Conclusion: India's Dairy Sector Poised for a Strong Future

India's dairy industry has emerged as a cornerstone of the nation's economy, providing employment to millions and ensuring nutritional security for its population. The government's continued investment in dairy infrastructure, breed improvement programs, livestock health management, and digital awareness campaigns has propelled the country to new heights in milk production and dairy innovation.

As the country looks ahead, the focus will remain on:

- **Enhancing milk productivity through genetic improvements and better animal nutrition.**
- **Expanding market access for small-scale farmers and cooperatives.**
- **Developing climate-resilient and sustainable dairy farming practices.**
- **Strengthening cold storage, processing, and transportation facilities to minimize losses.**

With these initiatives in place, India is set to further revolutionize its dairy industry, solidifying its status as the global leader in milk production while ensuring the sector remains resilient, profitable, and sustainable for future generations.

Mother Dairy Expands into High-Protein Dairy Market with the Launch of 'Promilk'

Mother Dairy, a leading dairy brand in India, has officially ventured into the protein-rich dairy segment with the introduction of its new 'Pro' product line. The first product in this innovative range is Promilk, a high-protein milk variant designed for everyday consumption. This strategic move aligns with the company's vision of meeting the evolving dietary preferences and nutritional needs of Indian consumers, ensuring they have access to essential nutrients in their daily diets.

Addressing India's Protein Deficiency

In modern fast-paced lifestyles, maintaining a well-balanced diet is becoming increasingly crucial, and protein is an integral part of this nutritional balance. However, research indicates that nearly 70-80% of Indians fail to meet their daily protein requirements, despite the availability of protein-rich foods in various forms. Recognizing this significant gap, Mother Dairy has proactively introduced the Pro range, which is specifically crafted to provide practical solutions for consumers without necessitating any drastic changes in their dietary habits.

Manish Bandlish, Managing Director of Mother Dairy, expressed the company's commitment to tackling this nutritional challenge. He stated, “In today's fast-paced world, maintaining a well-balanced diet is more vital than ever, with protein serving as a cornerstone of overall health. However, studies indicate that a large portion of the Indian population does not meet their daily protein needs. At Mother Dairy, we took this challenge head-on by designing a 'Pro' range of products, ensuring that people can integrate essential protein into their diets effortlessly.”

Features and Benefits of Promilk

The flagship product of the Pro range, Promilk, offers 30% more protein than regular milk, delivering 40 grams of protein per liter. It is formulated with natural milk protein and further fortified with essential nutrients such as calcium, vitamins A, and D, ensuring a wholesome nutritional profile. Mother Dairy emphasizes that Promilk is not only easy to digest but also offers a superior taste,

making it a versatile choice for various daily applications such as preparing curd, buttermilk (chaach), tea, coffee, and other traditional dairy-based dishes.

Expansion of the 'Pro' Portfolio

Mother Dairy has ambitious plans to expand its 'Pro' portfolio with additional high-protein dairy products. In the coming months, the company aims to introduce protein-rich paneer and curd, both in pouch and set curd formats. These additions will cater to a growing consumer base seeking nutritious, protein-enhanced alternatives in their diet.

Manish Bandlish reaffirmed this vision, stating, "As we strive to strengthen our protein-based portfolio, we will soon be launching an array of protein-enriched dairy products, including paneer, curd, and more, ensuring our consumers have access to high-quality, nutritious dairy options."

Meeting Consumer Demands and Trends

In recent years, there has been an increasing awareness regarding protein consumption and its benefits for overall health, muscle growth, and weight management. Urban consumers, in particular, are actively seeking convenient and reliable protein sources that seamlessly integrate into their daily routines.

Key reasons behind the growing demand for protein-rich dairy products include:

- **Busy Lifestyles:** With work schedules becoming more demanding, many individuals find it difficult to maintain a well-balanced diet. Fortified dairy products like Promilk provide an easy way to meet daily protein requirements without additional meal planning.
- **Fitness and Wellness Trends:** With an increasing emphasis on health, fitness, and muscle-building, many consumers are shifting towards protein-enhanced products to support their dietary goals.
- **Aging Population:** Elderly consumers often struggle to meet their protein needs, leading to muscle loss and weakened immunity. Products like Promilk cater to their nutritional requirements in an accessible manner.
- **Lactose-Friendly Formulation:** Some consumers experience digestive discomfort with regular milk, making an easily digestible high-protein alternative a much-needed addition to the market.

Distribution and Market Strategy

Mother Dairy plans to introduce Promilk in a phased rollout across its vast distribution network in the National Capital Region (NCR). The product will be made available through a combination of offline retail outlets and online platforms, ensuring easy accessibility for consumers. Additionally, the company aims to gradually expand its distribution footprint to other major cities based on consumer response and demand.

To maximize awareness and encourage trial, Mother Dairy is also gearing up for a comprehensive marketing campaign focused on educating consumers about the benefits of protein-rich dairy consumption. The campaign will involve digital promotions, in-store activations, influencer collaborations, and social media engagements to create buzz around the launch of Promilk and the broader 'Pro' portfolio.

The Growing Demand for Functional Dairy Products

The introduction of Promilk aligns with the broader global trend of functional dairy products, which are fortified with additional nutrients to provide enhanced health benefits. As consumers become more health-conscious, they are looking for dairy products that offer added value beyond basic nutrition. Mother Dairy's Pro range fits perfectly into this emerging category by offering dairy staples enriched with higher protein content, making them a compelling choice for consumers seeking better dietary options.

Competitive Landscape

The launch of Promilk places Mother Dairy in direct competition with other brands that have already introduced high-protein milk and dairy products. However, Mother Dairy enjoys a strong market reputation and consumer trust, which provides a significant competitive edge. The company's vast distribution network, brand credibility, and commitment to quality assurance make Promilk a formidable entrant in the protein-enriched dairy segment.

Future Outlook

Mother Dairy's strategic expansion into protein-rich dairy products is just the beginning of a larger movement towards nutritionally enhanced dairy solutions. With evolving consumer preferences and an increasing focus on health and wellness, the company is well-positioned to introduce more innovative dairy offerings in the future.

Looking ahead, we can expect:

- Further product innovations within the Pro range, including flavored high-protein dairy beverages.
- Expansion into additional urban and semi-urban markets to reach a wider audience.
- Collaborations with nutritionists, dietitians, and fitness experts to promote awareness around protein-rich diets.
- Sustainable packaging solutions to align with the growing demand for eco-friendly and health-conscious products.

Conclusion

With the launch of Promilk, Mother Dairy has taken a significant step forward in addressing India's protein deficiency while reinforcing its position as a leader in the dairy industry. By expanding its Pro portfolio with upcoming high-protein dairy staples like paneer and curd, the company is not only enhancing its product range but also catering to the growing needs of health-conscious consumers.

As the demand for nutrient-enriched dairy products continues to rise, Mother Dairy's commitment to quality, innovation, and consumer well-being will be instrumental in shaping the future of India's dairy sector. With its deep-rooted presence and customer trust, the company is poised to redefine how dairy products contribute to a healthier and more balanced lifestyle for millions of Indians.

New Zealand PM Luxon hasn't given up on dairy in trade deal with India

New Zealand Prime Minister Christopher Luxon has reiterated his commitment to including dairy in a potential free-trade agreement (FTA) with India, despite India's traditional resistance to such imports. As New Zealand and India embark on negotiations to establish a trade deal, Luxon remains firm in his stance that dairy should be a key component of any agreement between the two nations.

During his official visit to India this week, Luxon met with Indian Prime Minister Narendra Modi to discuss the framework for an FTA. This meeting signified a renewed effort by New Zealand to gain access to India's vast and growing consumer market. While India has historically been reluctant to open its dairy sector to foreign competition, Luxon emphasized the need for persistence and innovative solutions to overcome the challenges.

"I just don't want us to give up on dairy," Luxon stated during an interview with Radio New Zealand. "We are going to try and find a way to make dairy work. Having done a lot of business in India in my past life, I can tell you it's pretty brutal negotiations, but we are up for that."

The Importance of Dairy to New Zealand's Economy

New Zealand's economy heavily depends on its dairy industry, which accounts for a significant share of the country's exports. The dairy sector contributes approximately 5% to the nation's GDP and employs thousands of people across the supply chain. Companies such as Fonterra, a global dairy giant based in New Zealand, have long sought better access to high-demand markets such as India, where dairy consumption is steadily rising.

Currently, India is the world's largest producer and consumer of dairy products. The nation's dairy industry, predominantly run by small-scale farmers and cooperative organizations like Amul, has been a cornerstone of its agricultural economy. The government has historically protected this sector through high tariffs and strict import regulations, fearing that an influx of foreign dairy products could destabilize domestic producers.

India's Stance on Dairy Imports

India has always maintained a protectionist stance when it comes to its dairy sector. With nearly 80 million rural households engaged in dairy farming, the industry serves

as a crucial livelihood for millions of small farmers. Indian policymakers argue that allowing large-scale dairy imports would undercut domestic producers, many of whom lack the financial and technological resources to compete with multinational dairy giants.

Furthermore, the cultural significance of dairy in India cannot be overstated. Dairy products such as milk, paneer (cottage cheese), ghee (clarified butter), and curd are deeply embedded in Indian cuisine and religious practices. The Indian government has strategically supported dairy self-sufficiency since the White Revolution in the 1970s, which transformed India from a milk-deficient country into the largest global producer.

Given these sensitivities, India has been reluctant to include dairy in its trade deals, including the Regional Comprehensive Economic Partnership (RCEP), from which it withdrew in 2019 partly due to concerns over dairy imports from countries like New Zealand and Australia.

Challenges in Negotiating a Dairy-Inclusive FTA

For New Zealand, gaining access to India's dairy market will require overcoming multiple economic and political hurdles. The two countries have attempted trade discussions in the past, but India's resistance to including dairy has been a major sticking point. Luxon, however, believes that open and constructive dialogue can lead to solutions that satisfy both nations.

"There's very good chemistry between our respective trade ministers and prime ministers," Luxon said. "We are very determined, and both Prime Minister Modi and I said to our trade teams today that we expect them to work hard and fast together and work their way through the issues and sensitivities that are there."

New Zealand's government and dairy industry leaders are exploring alternative approaches to address India's concerns, including:

1. **Collaborative Investment:** Instead of direct dairy imports, New Zealand could partner with Indian firms to develop local dairy processing units, providing technological expertise and infrastructure support.
2. **Value-Added Dairy Products:** Focusing on niche, high-value dairy products like whey protein, infant formula, and specialty cheeses, which have growing demand among urban Indian consumers.
3. **Gradual Tariff Reductions:** Proposing a phased reduction of dairy import duties over several years to allow India's domestic industry to adapt.
4. **Sustainability and Quality Assurance:** Highlighting New Zealand's world-class dairy farming practices, including sustainability and animal welfare, to differentiate its products from domestic offerings.

The Road Ahead: Opportunities for Collaboration

Despite the obstacles, Luxon remains optimistic that New Zealand can negotiate a trade deal with India before the end of his first term in office in 2026. He noted that securing a trade agreement with India was previously considered highly challenging, but the progress made during this visit has set a positive precedent.

"We've built a relationship that was non-existent at the beginning," he said. "We are here now on a state visit, which people thought would be very difficult. We are here having kicked off FTA negotiations, and we're working really hard to make sure we get it done."

India's rapidly expanding middle class and increasing demand for premium dairy products present an opportunity for New Zealand to find a mutually beneficial solution. The two countries can explore areas of cooperation in dairy research, innovation, and technology-sharing to enhance productivity and efficiency within India's dairy sector while allowing New Zealand companies to establish a foothold in the market.

Moreover, India and New Zealand already have strong trade and cultural ties in other sectors, including education, tourism, and technology. Strengthening this relationship through a well-structured FTA could benefit both economies by fostering greater economic exchange and cooperation.

Conclusion

While the road to a free-trade agreement between New Zealand and India remains complex, Christopher Luxon's firm stance on including dairy in the negotiations marks a significant step in the process. Recognizing India's concerns while advocating for New Zealand's economic interests will require diplomatic skill, patience, and innovative trade strategies. If successful, this agreement could open doors for greater economic collaboration between the two nations, benefitting both New Zealand's dairy industry and India's evolving consumer market. As negotiations progress, the world will be watching closely to see whether Luxon's ambitious vision for a dairy-inclusive FTA with India can be realized.

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Opportunities and Challenges

Publishing Month:
February
Article Deadline :
28th, Jan. 2025
Advertising Deadline :
30th, Jan. 2025
Focus :
Budget

Publishing Month:
March
Article Deadline :
26th, Feb. 2025
Advertising Deadline :
28th, Feb. 2025
Focus :
Summer Stress Management

Publishing Month:
April
Article Deadline :
28th, March 2025
Advertising Deadline :
30th, March 2025
Focus :
Cold Chain

Publishing Month:
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28th, April 2025
Advertising Deadline :
30th, April 2025
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Nutrition

Publishing Month:
June
Article Deadline :
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