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From the Pen of Chief Editor



Nutrition in Dairy: The Foundation of Productivity and Animal Health

In the dairy industry, nutrition is far more than a daily chore—it's the bedrock of both productivity and animal health. The relationship between what cows consume and how they perform is direct, undeniable, and critical to the long-term success of any dairy operation.

A well-balanced diet supports higher milk yields, better reproductive performance, and greater resistance to disease. Essential nutrients like carbohydrates, proteins, fats, vitamins, and minerals must be precisely formulated to meet the evolving needs of the herd, whether they're heifers, lactating cows, or dry cows. Poor nutrition, on the other hand, can result in reduced milk production, compromised immune systems, fertility challenges, and higher veterinary costs.

Modern dairy farming has embraced nutritional science to a greater extent than ever before. Customized rations, formulated through technologies like ration balancing software and forage analysis, are now common practice. These tools allow producers to fine-tune feed strategies, minimizing waste and maximizing efficiency. Importantly, nutrition also plays a key role in maintaining rumen health. A balanced ration that supports a healthy microbial population ensures proper digestion and nutrient absorption, which translates into better animal performance and welfare.

Another aspect gaining attention is the impact of nutrition on sustainability. Feed efficiency directly affects the carbon footprint of dairy operations. By optimizing the conversion of feed into milk, farmers can improve profitability while reducing environmental impacts—an increasingly important goal in today's agricultural landscape.

However, nutrition must be seen as a dynamic component, not a static one. Changes in weather, forage quality, lactation stages, and animal health status all demand continual adjustments to feeding programs. Close collaboration with veterinarians, nutritionists, and feed consultants ensures that a herd's diet remains aligned with its needs.

Ultimately, investing in proper nutrition is investing in the future of the herd and the farm. A cow that receives the right nutrients is not just healthier—she's more productive, more fertile, and more resilient. In dairy farming, nutrition isn't an option; it's the foundation of success.

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Nutrition: The Backbone of Sustainable Dairy Production

Siddhi Gupta
Co-Editor

In the dairy industry, nutrition forms the bedrock of animal health, productivity, and profitability. A balanced and strategic feeding program is not merely about meeting the basic requirements of cows and buffaloes; it is about optimizing their potential to produce high-quality milk consistently, maintain reproductive efficiency, and enjoy a longer productive lifespan. As global demand for dairy products rises, there is an increasing emphasis on how proper nutrition can drive sustainable growth in the sector.

Understanding Nutritional Needs

Dairy animals have complex nutritional requirements that vary based on factors such as age, breed, body condition, stage of lactation, and overall health status. The five fundamental categories of nutrients essential for dairy animals are:

- 1. Energy:** Required for maintenance, growth, lactation, and reproduction. Energy mainly comes from carbohydrates and fats.
- 2. Protein:** Essential for milk production, growth, repair of tissues, and metabolic functions.
- 3. Minerals:** Calcium, phosphorus, magnesium, and trace minerals like zinc, copper, and selenium play crucial roles in skeletal health, reproduction, and immunity.
- 4. Vitamins:** Vital for metabolic activities, reproduction, and

resistance to diseases.

- 5. Water:** Often the most overlooked, water is critical as milk itself contains around 87% water.

An imbalance or deficiency in any of these nutrients can severely impact an animal's productivity and health.

Feeding Strategies for Different Stages

Calves and Young Heifers

Nutrition in early life sets the stage for the future productivity of dairy animals. Calves require high-quality colostrum within the first two hours after birth to develop passive immunity. This is followed by milk feeding, introduction of calf starter feeds rich in protein and energy, and gradual weaning onto forages and concentrates.

Young heifers must be managed to achieve optimal growth rates without becoming overweight. Properly nourished heifers will reach reproductive maturity earlier and perform better in their first lactation.

Lactating Cows

Lactating cows have significantly higher nutritional demands. The diet must support both milk production and body maintenance. Total Mixed Rations (TMR) — a method where forages, grains, protein sources, minerals, and vitamins are mixed and fed together — are ideal for balancing nutrient intake.

Key points for feeding lactating cows include:

- High energy density to meet milk production demands.
- Adequate protein levels to support milk synthesis.
- Fiber to maintain rumen health and prevent disorders like acidosis.
- Sufficient mineral and vitamin supplementation to support reproductive health and immunity.

Failure to meet these needs can lead to metabolic diseases like ketosis and milk fever, reduced fertility, and poor milk yields.

Dry Cows

The dry period — usually 45 to 60 days before calving — is critical for the health of the cow and her next lactation. Nutrition during this phase focuses on:

- Restoring body condition.
- Preparing the cow for calving and the next lactation.
- Preventing metabolic diseases by managing calcium levels to avoid milk fever.

Dry cow diets should be lower in energy but rich in fiber, with careful mineral balancing.

Importance of Forages

Forages form the foundation of a dairy animal's diet. Good-quality forages such as green fodder, silage, and hay are vital sources of fiber, energy, and protein. A shortage of quality forages can compromise rumen health, lead to lower feed intake, and subsequently reduce milk production.

Silage, in particular, has gained popularity in India and other tropical regions as a way to preserve green fodder for year-round availability. Proper silage preparation ensures high nutrient

retention and better animal performance.

Role of Feed Additives

To boost productivity and health, many dairy farmers use feed additives like:

- **Probiotics and yeast cultures:** Improve rumen fermentation and nutrient absorption.
- **Bypass fats and proteins:** Provide high-energy and high-protein components that are not degraded in the rumen, reaching the intestine for better utilization.
- **Mineral mixtures:** Customized to balance dietary deficiencies.
- **Mycotoxin binders:** Protect against feed contamination by molds.

Use of these additives, when scientifically justified, can significantly enhance performance, especially in high-yielding animals.

Challenges in Dairy Nutrition

Despite awareness, many dairy farmers, especially in developing regions, face challenges such as:

- Lack of knowledge about nutrient balancing.
- High cost and limited availability of quality feeds and forages.
- Poor feeding practices like reliance on seasonal fodders.
- Inadequate mineral and vitamin supplementation.
- Mycotoxin contamination of feeds.

Addressing these issues requires a combination of farmer education, better access to quality inputs, and advisory services from veterinarians and animal nutritionists.

The Economic Impact of Good Nutrition

Investing in good nutrition has a direct economic return. Well-

nourished animals produce more milk, have fewer health problems, require fewer veterinary interventions, and have longer productive lives. According to studies, up to 50% of production inefficiencies in dairy farming can be attributed to poor feeding practices.

Moreover, proper nutrition supports better fertility, leading to shorter calving intervals and more lactations over a cow's lifetime, further boosting farm profitability.

Future Trends

As the dairy sector modernizes, some key trends in dairy nutrition are emerging:

- **Precision feeding:** Tailoring diets based on individual cow needs using data from sensors and herd management software.
- **Sustainability:** Reducing the environmental footprint of dairy farming through optimized feeding that lowers methane emissions.
- **Alternative feed resources:** Utilizing agricultural by-products, hydroponic fodder, and innovative ingredients to reduce dependence on traditional crops.

The role of nutritionists will become even more crucial, helping farmers balance productivity with sustainability.

Conclusion

Nutrition is not just a supporting factor but the very foundation of successful dairy farming. A well-fed cow is a healthy, fertile, and productive cow. As the dairy industry continues to evolve, placing nutrition at the center of herd management strategies will be key to meeting the challenges of tomorrow — ensuring profitability, animal welfare, and sustainability for generations to come.



Race to Century: ABS Global's Genetic Revolution in Indian Dairy

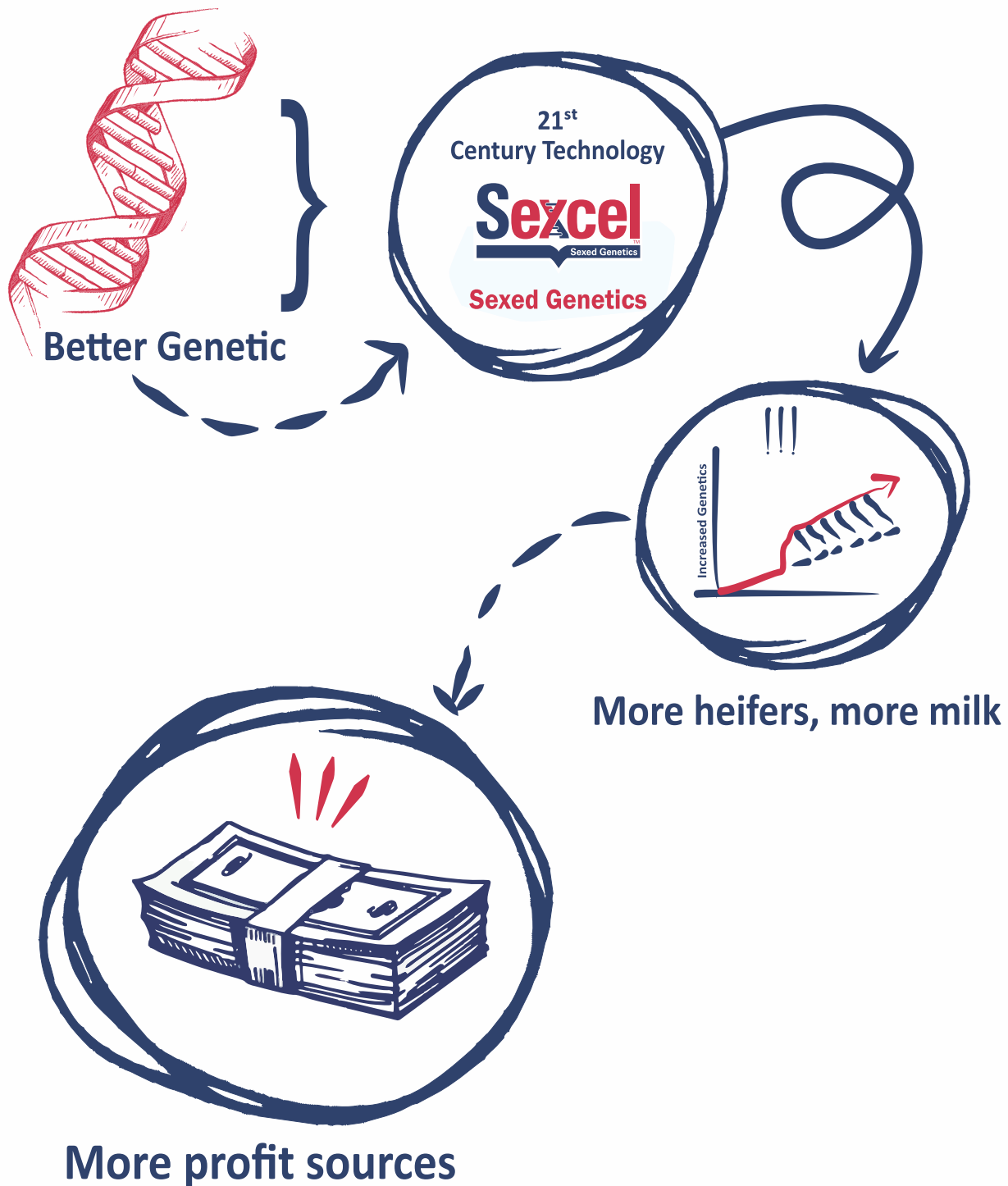
India's dairy industry is in the midst of a remarkable transformation and ABS Global is at the forefront, leading what can only be described as a genetic revolution. Through the power of world-class genomic bulls and advanced sexed semen technology, ABS Global is redefining dairy productivity, bringing the dream of producing **100 litres of milk per cow per day** closer to reality. Aptly titled the *"Race to Century,"* this movement is not just a tagline, it's a mission in motion.

Traditionally, many Indian dairy farmers have operated with low-

yield cows producing just **3–4 litres of milk per day**, often limiting income potential and economic growth in rural areas. But today, thanks to the efforts of ABS Global, these numbers are undergoing a massive shift. Exceptional results, including cows producing up to **82 litres/day**, have become tangible proof of the power of genetics and science in dairy.

With **over 7.5 million (75 lakh) sexed semen doses produced** and more than **3 million female calves born**, ABS Global is not just talking about change — it's delivering it. Each of these calves





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represents a step forward in the genetic upgrading of the national herd. By focusing on female calf births, farmers are now able to accelerate the development of high-yielding herds, minimizing the number of non-productive male calves and optimizing feed and farm resources.

The scale of impact is phenomenal. **Over 7 million Indian dairy farmers** have already been touched by ABS India's programs. In villages across the country, better genetics are translating into higher milk yields, improved income stability, and stronger rural economies.

At the heart of this movement lies ABS India's commitment to scientific innovation and farmer empowerment. The company provides a complete ecosystem — from training farmers on breeding and reproductive health to delivering cutting-edge breeding solutions tailored to Indian conditions. Their approach is holistic, farmer-centric, and deeply impactful.

Jim Low, COO of ABS Global, puts it succinctly:

"With every record-breaking

daughter and every female calf born, we're one step closer in the Race to Century."

It's not just about producing more milk — it's about transforming the lives of millions. The benefits ripple across families, communities, and regions. More milk means more income, better nutrition, increased employment, and a more resilient rural economy.

The *Race to Century* also aligns with broader national goals of **doubling farmer income,**

strengthening food security, and creating a **globally competitive dairy industry.** As India marches toward becoming a dairy superpower, ABS Global's vision and technology are key catalysts.

Looking ahead, with continued innovation, field support, and collaboration with stakeholders, ABS Global is confident that the 100-litre milestone isn't just a possibility — it's an imminent reality.





EGCG Fortified Dairy Products: Enhancing its health benefits and keeping quality.

Introduction

High amount of free radical generation in human body leads to problem of oxidative stress and related diseases in humans. Excess number of free radicals can metabolize nutrients available in body and adversely affect the metabolism inside human body. This can cause methylation in body which leads to early ageing and other metabolic disorders (Evstigneeva et al., 2016). India is the largest producer of milk with 239 million tons and per capita consumption of 444g/day (Keelery, 2025). Milk can be consumed directly in liquid form or it may convert into various products like Dahi, yogurt, sweets and ghee etc. which contains a large amount of nutrients. But the major limitation of dairy products is its perishability due to increased risk of oxidation which reduces the keeping quality of dairy products (Mahajan et al., 2017). An addition of antioxidant to dairy products is a safe and better option to enhance the keeping quality of dairy products. Antioxidant reduce the generation of free radicals in our body and also suppress the problem caused by free radicals by making it stable. Green tea is an example of such bioflavonoids which contains various catechins like

epigallocatechin gallate (EGCG), ECG, EG and many more, out of which EGCG covers 50% of total catechin present in green tea (Evstigneeva et al., 2016). In this article, the main focus is given on effect of EGCG incorporation on the health benefits as well as keeping quality of dairy products.

What is EGCG?

EGCG is one of main catechin found in green tea having a molecular weight of 457.4g/ml (NCBI, 2024). This catechin consist of eight hydroxyl group which helps in attracting more free radicles and convert these into stable form. Different sources are available for extraction of EGCG with a variable content such as green tea (7380mg/100g), white tea (4245mg/100g), Black tea (936mg/100g) and oolong tea with 3400mg/100g (Bhagwat et al., 2011). Beyond its various benefits, a safe intake is necessary to get optimized results. European food safety authority provides that less than 800mg/day is safe to consume which does not cause liver damage (EFSA, 2018).

EGCG extraction from Green tea

Solvent extraction method is simplest technique to extract EGCG from green tea and a detailed procedure is as follows:

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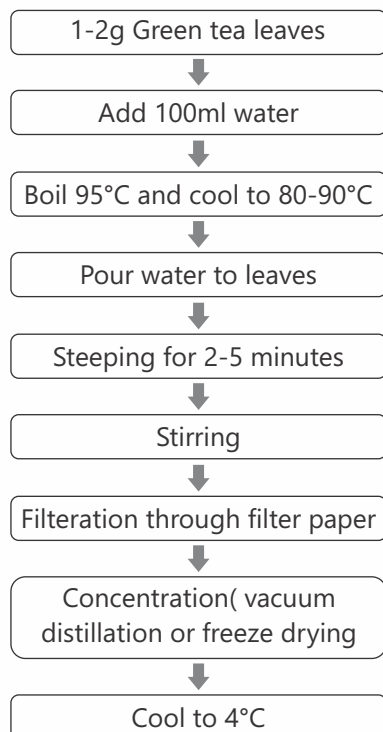


Fig.1. Process flow chart of EGCG extraction.

Procedure: Take green tea leaves in ratio of 1:20 of extraction solvent (typically water). Boil water and cool slightly to around 80-90°C (175-195°F). Pour the hot water over the green tea leaves in a container. Steep the leaves for about 2-5 minutes. Stir the mixture gently to ensure good extraction. Strain the tea leaves from the liquid using a fine mesh strainer or filter paper to obtain a clear extract. If a more concentrated extract is desired, the liquid can be evaporated under reduced pressure (vacuum distillation) or freeze-dried to obtain a powder. Store the extract in a cool, dark place or refrigerate to prevent degradation (Gadkari and Balaraman, 2015).

Effect of EGCG on keeping quality of Dairy and food products:

1. Antimicrobial Activity:

Tea compounds characterized by the highest antioxidant power are simultaneously the most effective as microbiological inhibitors. The antimicrobial activity of non-

fermented tea is higher than that of semi-fermented or fermented tea (Almajano et al. 2008).

Yogurt: EGCG incorporation has been shown to inhibit the growth of spoilage microorganisms, such as *Pseudomonas* spp. and *Lactobacillus* spp., thereby extending the shelf life of yogurt. The antioxidant properties of EGCG also help in maintaining the quality of yogurt by reducing lipid oxidation (Wajs et al., 2023).

Milk: EGCG can inhibit the growth of pathogenic bacteria like *Escherichia coli* and *Staphylococcus aureus* in milk, reducing the risk of spoilage and extending shelf life. EGCG addition to milk helps in preserving the quality of milk by delaying oxidative changes in milk but the major problem is its reduced bioavailability in milk and less stability with casein micelles. These problems can be resolved by using different methods such as modified EGCG structure, encapsulation etc (Chenet et al., 2020).

2. Antioxidant Activity:

Addition of antioxidant components of plant origin to the food products, including dairy, is one of the ways to prolong the products' shelf-life due to the inhibition of the oxidation processes (Evstigneeva et al., 2016). The antioxidant effectiveness depends on the tea variety and the content of EGCG is very important. Oolong and green tea has high levels of EGCG and epigallocatechin (EGC), but the content in black tea is much lower (Almajano et al. 2008).

Cheese: The addition of EGCG can help in reducing the oxidation of fats in cheese, which is a common cause of spoilage. This helps in maintaining the flavor and quality of cheese for a longer time (Mahajan et al., 2017).

Butter: EGCG can act as an antioxidant, reducing the rancidity of butter and thus extending its shelf life (Çakmakçı et al., 2023).

Oils and Fats: EGCG can help in preventing the oxidation of oils and fats, which is a major cause of spoilage. This is particularly useful in products like mayonnaise and salad dressings (Rashidinejad et al., 2016).

3. Sensory and Nutritional Aspects:

In food systems, the interactions between phenolic compounds and proteins cannot be excluded during storage and processing, and they may influence the color, aroma and taste of foods, which may cause desirable or undesirable effects (Wei et al., 2015). EGCG can have a bitter taste, which might affect the flavor profile of the product. Therefore, the concentration of EGCG needs to be optimized to balance between extending shelf life and maintaining sensory qualities. The role of Phenolic Compounds (PCs) in astringency has been established and is thought to entail the PC associated precipitation of salivary glycoproteins and mucopolysaccharides onto the tongue, resulting in the development of a feeling of constriction, roughness and dryness on the palate (O'connell & Fox, 2001).

Advantages of Incorporating EGCG in Dairy products:

1. Enhanced Antioxidant Content:

EGCG helps combat oxidative stress in the body, potentially reducing the risk of chronic diseases linked to free radical damage. Covalent protein-EGCG complexes exhibited much stronger antioxidant activity in milk products (Wei et al., 2015).

2. Synergistic Health Benefits:

EGCG has antioxidant, anti-



inflammatory, and potentially anti-cancer properties. When combined with the nutrients found in milk, such as calcium and vitamin D, it can create a synergistic effect that enhances overall health and wellness (Wróblewska et al., 2023).

3. Potential Functional Food

Application: EGCG-enriched milk products can be marketed as functional foods, offering consumers a convenient way to incorporate health-promoting

compounds into their daily diet (Wróblewska et al., 2023).

4. Improved Taste and Palatability:

Depending on the formulation, EGCG can be added to milk products without significantly altering taste or texture. This makes it easier for consumers to adopt and enjoy these fortified products (Wajs et al., 2023).

5. Consumer Demand for Healthier Options:

With increasing consumer awareness of health and wellness, there is a growing demand for products that offer additional health benefits beyond basic nutrition. EGCG-enriched milk products can meet this demand by providing a natural source of antioxidants in a familiar and widely consumed beverage (Wajs et al., 2023).

6. Reduced Methylation:

By inhibiting DNMTs, EGCG can potentially reduce harmful methylation, which has been associated with various diseases.

EGCG inhibit DNA methyltransferases (DNMTs), the enzymes responsible for adding methyl groups to DNA. By inhibiting these enzymes, EGCG can help reduce methylation. (Mereles & Hunstein, 2011)

Conclusion

This article focuses on the addition of antioxidants like EGCG in various dairy products which not only reduce the effect of free radical in human body but also impart a characteristic flavour to the products. But the limitation is bioavailability of catechins in human body which can be improved by employing new techniques of incorporation such as encapsulation of catechins and formulation of products with high fat, it may lead to enhanced bioavailability of EGCG in human body. Future development of functional food including EGCG as an ingredient is required to overcome the problems arising in dairy products as well as in food products.

References

- Almajano, M. P., Carbo, R., Jiménez, J. A. L., & Gordon, M. H. (2008). Antioxidant and antimicrobial activities of tea infusions. *Food chemistry*, 108(1), 55-63.
- Bhagwat, S., Haytowitz, D. B., & Holden, J. M. (2011). *USDA database for the flavonoid content of selected foods, release 3*. US Department of Agriculture: Beltsville, MD, USA, 159.
- Çakmakçı, S., Gülçin, İ., Gündoğdu, E., Ertem Öztekin, H., & Taslimi, P. (2023). The comparison with commercial antioxidants, effects on colour, and sensory properties of green tea powder in butter. *Antioxidants*, 12(8), 1522.
- Chen, Y., She, Y., Shi, X., Zhang, X., Wang, R., & Men, K. (2020, August). Green tea catechin: does it lower blood cholesterol?. In *IOP Conference Series: Earth and Environmental Science* (Vol. 559, No. 1, p. 012027). IOP Publishing.
- EFSA ANS Panel. Scientific Opinion on the safety of green tea catechins. *EFSA Journal* 2018;16(4):5239 <https://doi.org/10.2903/j.efsa.2018.5239>.
- Gadkari, P. V., & Balaraman, M. (2015). Catechins: Sources, extraction and encapsulation: A review. *Food and Bioproducts Processing*, 93, 122-138.
- Evstigneeva, T., Skvortsova, N., & Yakovleva, R. (2016). The application of green tea extract as a source of antioxidants in the processing of dairy products. 14, 1284-1298.
- Keelery, S. (2025). Volume of milk produced across India in financial year 2024, by leading state. Retrieved 25/03/2025 from <https://www.statista.com/statistics/622808/milk-production-by-state-india/>
- Mahajan, D., Bhat, Z. F., & Kumar, S. (2017). Epigallocatechin-3-gallate. *Nutrition & Food Science*, 47(2), 191-203. <https://doi.org/10.1108/NFS-06-2016-0074>
- Mereles, D., & Hunstein, W. (2011). Epigallocatechin-3-gallate (EGCG) for clinical trials: more pitfalls than promises?. *International journal of molecular sciences*, 12(9), 5592-5603.
- National Center for Biotechnology Information (2024). PubChem Compound Summary for CID 65064, Epigallocatechin Gallate. Retrieved July 25, 2024 from <https://pubchem.ncbi.nlm.nih.gov/compound/Epigallocatechin-Gallate>.
- O'connell, J. E., & Fox, P. F. (2001). Significance and applications of phenolic compounds in the production and quality of milk and dairy products: a review. *International Dairy Journal*, 11(3), 103-120.
- Rashidinejad, A., Birch, E. J., & Everett, D. W. (2016). The behaviour of green tea catechins in a full-fat milk system under conditions mimicking the cheesemaking process. *International Journal of Food Sciences and Nutrition*, 67(6), 624-631.
- Wajs, J., Brodziak, A., & Król, J. (2023). Shaping the physicochemical, functional, microbiological and sensory properties of yoghurts using plant additives. *Foods*, 12(6), 1275.
- Wei, Z., Yang, W., Fan, R., Yuan, F., & Gao, Y. (2015). Evaluation of structural and functional properties of protein-EGCG complexes and their ability of stabilizing a model β -carotene emulsion. *Food Hydrocolloids*, 45, 337-350.
- Wróblewska, B., Kuliga, A., & Wnorowska, K. (2023). Bioactive Dairy-Fermented Products and Phenolic Compounds: Together or Apart. *Molecules*, 28(24), 8081.



Heat Stress in Livestock and Its Management



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Introduction

Heat stress is a significant environmental challenge that affects livestock production worldwide. With increasing global temperatures and more frequent heat waves due to climate change, livestock are becoming more susceptible to thermal stress. This condition occurs when the animal's body fails to balance the heat it gains from metabolism and environment with the heat it loses, leading to physiological stress and impaired performance.

Understanding the Thermoregulation Challenge

Livestock animals, being homeothermic, strive to maintain a stable core body temperature despite fluctuations in their surroundings. They achieve this through a sophisticated process called thermoregulation. This involves a complex interplay of physiological mechanisms that regulate heat production and heat dissipation.

- **Heat Production (Thermogenesis):** Animals generate heat internally as a byproduct of metabolic processes, particularly digestion and muscular activity. The amount of heat produced is influenced by factors like the animal's size, breed, activity level, and the type and amount of feed consumed.
- **Heat Dissipation (Thermolysis):** To prevent overheating, animals employ various mechanisms to lose heat to their environment. These include:
 - **Radiation:** Transfer of heat

through electromagnetic waves. An animal loses heat to cooler surroundings and gains heat from warmer objects like the sun or hot surfaces.

- **Conduction:** Direct transfer of heat through physical contact with a cooler surface (e.g., lying on cool ground).
- **Convection:** Transfer of heat to the surrounding air or water. Wind or ventilation helps to remove the layer of heated air near the animal's body, enhancing convective heat loss.
- **Evaporation:** Loss of heat through the vaporization of water from body surfaces, primarily through sweating (in species that sweat) and panting. This is a highly effective cooling mechanism but relies on sufficient humidity.

The Onset of Heat Stress

Heat stress occurs when the environmental heat load exceeds the animal's capacity to dissipate heat effectively. This imbalance leads to a rise in the animal's core body temperature, triggering a cascade of physiological responses aimed at restoring thermal equilibrium. However, if the heat load persists or is too intense, these compensatory mechanisms can become overwhelmed, leading to detrimental consequences.

Factors Exacerbating Heat Stress

Several environmental and animal-related factors can exacerbate heat stress in livestock:

1. **Environmental factor:**
 - **High Ambient Temperature:**

This directly increases the heat load on the animal and reduces the temperature gradient for radiative and convective heat loss.

- **High Humidity:** Elevated humidity reduces the effectiveness of evaporative cooling (sweating and panting) as the air is already saturated with moisture. The combination of high temperature and high humidity, often expressed as the Temperature-Humidity Index (THI), is a critical indicator of heat stress risk.
- **Solar Radiation:** Direct sunlight adds significantly to the heat load, especially for dark-colored animals.
- **Wind Speed:** Low wind speeds hinder convective heat loss, trapping a layer of warm air around the animal.
- **Housing Conditions:** Poorly ventilated or overcrowded housing, lack of shade, and dark building materials can trap heat and elevate the microenvironment temperature.

2. Animal Factors:

- **Breed:** Some breeds are more susceptible to heat stress than others due to differences in metabolic rate, coat characteristics, and sweating ability. For instance, Bos indicus breeds (e.g., Brahman) tend to be more heat-tolerant than Bos taurus breeds (e.g., Holstein).
- **Age:** Young and very old animals often have less developed or less efficient thermoregulatory systems.
- **Physiological State:** Lactating animals, animals with high metabolic rates (e.g., during rapid growth), and animals with underlying health issues are more vulnerable to heat stress.
- **Acclimatization:** Animals gradually exposed to warmer

temperatures may develop some degree of tolerance to heat stress.

Physiological Responses to Heat Stress

When an animal experiences heat stress, its body initiates a range of physiological responses to try and dissipate excess heat:

- **Increased Respiration Rate (Panting):** This increases evaporative cooling from the respiratory tract. However, excessive panting can lead to alkalosis (an increase in blood pH) and energy expenditure.
- **Increased Heart Rate and Blood Flow to the Periphery:** This facilitates heat transfer from the core to the body surface, where it can be lost through radiation, convection, and conduction. Peripheral vasodilation can also lead to decreased blood flow to internal organs.
- **Sweating (in some species):** Evaporation of sweat from the skin surface provides significant cooling. However, not all livestock species sweat profusely (e.g., cattle have limited sweating capacity).
- **Reduced Feed Intake:** This is a behavioral and physiological response to decrease metabolic heat production associated with digestion. However, reduced feed intake can negatively impact growth, milk production, and overall performance.
- **Increased Water Intake:** This helps to compensate for water loss through sweating and panting and aids in evaporative cooling.
- **Hormonal Changes:** Heat stress can alter the levels of various hormones, including thyroid hormones (which regulate metabolism), cortisol (a stress hormone), and prolactin (important for lactation).

- **Behavioral Changes:** Animals may seek shade, increase water consumption, reduce activity, and increase surface area exposed to the air (e.g., by lying down and spreading out).

Effects of Heat Stress on Livestock

1. Dairy Cattle

- Decreased milk yield and quality (fat and protein content drop).
- Reduced feed efficiency.
- Impaired reproductive performance: lower conception rates, early embryonic death.

2. Beef Cattle

- Reduced weight gain and carcass quality.
- Increased mortality during transport or in feedlots.

3. Sheep and Goats

- Reduced wool, meat, and milk production
- Lower reproductive efficiency
- More prone to parasitic infections due to compromised immunity

Measurement and Monitoring of Heat Stress

1 Temperature-Humidity Index

(THI): A widely used index combining air temperature and humidity to assess the level of heat stress.

- THI < 72: Normal
- THI 72–78: Mild heat stress
- THI 79–88: Moderate stress
- THI > 88: Severe stress

2. Behavioral Indicators:

Observing panting, drooling, lethargy

3. Physiological Indicators:

Rectal temperature, heart rate, respiratory rate

4. Precision Livestock Tools:

Sensors and wearable tech to track temperature and activity

Consequences of Heat Stress on Livestock Production

The physiological strain imposed by heat stress has significant negative impacts on livestock productivity and well-being:

- **Reduced Growth Rate and Feed Efficiency:** Decreased feed intake and altered nutrient utilization lead to slower growth rates and reduced efficiency in converting feed to body weight.
- **Decreased Milk Production and Quality:** Heat stress significantly reduces milk yield in dairy animals. Milk composition, including fat and protein content, can also be negatively affected.
- **Impaired Reproductive Performance:** Heat stress can lead to reduced fertility in both males and females, including decreased conception rates, embryonic losses, and altered semen quality.
- **Increased Susceptibility to Diseases:** The physiological stress weakens the immune system, making animals more vulnerable to infections and diseases.
- **Increased Mortality:** In severe cases, particularly during extreme heat events, heat stress can lead to heatstroke and death.
- **Economic Losses:** The cumulative effects of reduced productivity, increased disease incidence, and mortality translate into significant economic losses for livestock producers.
- **Animal Welfare Concerns:** Heat stress compromises the welfare of animals, causing discomfort, suffering, and potentially death.

Management Strategies for Heat Stress

1. Environmental Management

- **Shade Structures:** Trees, artificial shelters, or shade cloths to reduce radiant heat.
- **Ventilation:** Use of fans, cross-ventilation, or tunnel ventilation systems in housing.

- **Cooling Systems:**
 - **Sprinklers and Misting Systems:** Applied periodically to cool body surface.
 - **Evaporative Cooling:** Fans and water misting combination for poultry and dairy barns.
- **Roofing Materials:** Use reflective or insulated materials to reduce heat absorption.

2. Nutritional Management

- **Energy-Dense Diets:** To compensate for reduced feed intake.
- **Bypass Proteins and Fats:** Reduce heat increment compared to fibrous feeds.
- **Feeding Schedule:** Feed during cooler parts of the day (early morning or late evening).
- **Electrolyte Supplementation:** Sodium, potassium, bicarbonates to maintain osmotic and acid-base balance.
- **Antioxidants:** Vitamin E, C, selenium to reduce oxidative stress.

3. Water Management

- **Ad libitum Water Supply:** Ensure constant access to clean, cool water.
- **Increased Trough Space:** To prevent competition and ensure easy access.
- **Frequent Cleaning:** Avoid bacterial growth in hot weather.

4. Genetic and Breeding Strategies

- **Breed Selection:** Indigenous breeds often possess better heat tolerance.
- **Crossbreeding Programs:** Combine productivity traits of exotic breeds with resilience of local breeds.
- **Genomic Selection:** Use of markers for heat tolerance traits.

5. Health and Welfare Management

- **Regular Health Checks:** Prevent and treat parasitic and infectious diseases.
- **Vaccination Programs:** Boost immunity before summer stress begins.
- **Minimize Handling:** Schedule movement, transportation, or medical procedures during cooler times of day.

Long-Term Strategies

- **Climate-Smart Livestock Housing:** Design buildings to maximize airflow and reduce heat load.
- **Agroforestry Systems:** Planting trees around livestock areas for natural shade.
- **Sustainable Farming Practices:** Crop-livestock integration, rotational grazing, etc.
- **Policy Interventions:** Government support for infrastructure, insurance, and training.
- **Farmer Education:** Extension services and training programs on heat stress mitigation.

Conclusion

Heat stress is a complex and escalating challenge for livestock production. Understanding the intricate physiological processes involved, the multitude of contributing factors, and the far-reaching consequences is crucial for developing and implementing effective mitigation strategies. As global temperatures continue to rise, proactive and integrated approaches are essential to safeguard animal welfare, maintain productivity, and ensure the sustainability of the livestock industry. By combining environmental modifications with strategic animal management practices, we can help livestock better cope with the increasing thermal burden and build more resilient production systems.



Impact of Climate Change on Dairy Animal Nutrition and Productivity in India

Climate Change: A Growing Threat to Global Agriculture and Food Security

Climate change refers to significant alterations in global weather patterns, particularly the rise in temperatures, changes in precipitation patterns, and an increase in extreme weather events like droughts, floods, and heatwaves. It is primarily driven by human activities such as deforestation, industrial emissions, and the burning of fossil fuels, which have led to the accumulation of greenhouse gases in the atmosphere. This results in a rise in global average temperatures, disrupting ecosystems and weather patterns.

According to the Intergovernmental Panel on Climate Change (IPCC), the Earth's average temperature has already risen by approximately 1°C above pre-industrial levels, and the temperature is projected to rise by an additional 1.5°C to 2°C by the middle of the 21st century if current emissions trends continue. This has profound implications for agriculture, as changes in temperature and rainfall patterns directly impact crop yields, the availability of water resources, and the overall health of livestock.

Agriculture is particularly vulnerable to climate change, especially in countries like India, where farming depends heavily on the timing and quantity of monsoons, temperature variations, and other climate factors. This climate variability threatens food production, farmer livelihoods, and national food security, potentially leading to increased food prices, malnutrition, and social instability.

India, being one of the world's largest producers of milk, relies heavily on its dairy sector for economic, social, and nutritional purposes. Dairy farming supports millions of livelihoods and contributes significantly to the national GDP. According to the Department of Animal Husbandry and Dairying (2020), the monetary value of milk produced far exceeds the combined worth of rice and wheat (the most important crops in the country). However, the importance of milk in the Indian economy stems not just from its monetary value. India has a large vegetarian population for whom milk is the only source of animal protein. So, if milk production is affected by rising global temperatures, it is likely to have implications for nutrition and health. However, climate change is increasingly posing a threat to the performance of dairy animals, their food security, and the productivity of dairy farms across the country. The effects of global warming, altered precipitation patterns, and extreme weather events are felt at multiple levels, from forage availability to animal health and reproductive efficiency. This article delves deeper into the factors contributing to these issues and explores possible solutions.

Food Security: Definition and Key Components

Food security is defined by the Food and Agriculture Organization (FAO) as a situation where all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences

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for an active and healthy life. Food security is multidimensional and involves four key components:

- **Availability:** Ensuring that there is a sufficient supply of food at the global, national, and local levels.
- **Access:** Ensuring that individuals and communities can access food through their economic means (income, social support, etc.).
- **Utilization:** Ensuring that food is of adequate quality and properly used, including nutritional absorption by the body.
- **Stability:** Ensuring that food availability, access, and utilization remain stable over time, unaffected by seasonal, economic, or political fluctuations.

Climate change threatens all four components of food security. For instance, extreme weather events like floods and droughts can disrupt food production and availability, while changes in income and access to food due to disruptions in agriculture can limit access to nutritious food. Additionally, climate-related shifts in

food production can compromise the stability of food systems, affecting vulnerable populations the most.

1. Climate Change and Its Direct Effects on Dairy Animals

• Heat Stress and Reduced Milk Production

One of the primary direct impacts of climate change on dairy animals is heat stress, which is caused by elevated temperatures and humidity. As temperatures rise beyond 25–30°C, cows and buffaloes experience physiological stress. Heat stress reduces the animal's ability to regulate body temperature, leading to a decrease in feed intake, reduced milk production, and lower reproductive efficiency. Mader et al. (2006) have shown that milk production can decline by 10–30% under heat stress conditions. In India, particularly in the northern and central regions, where temperatures often exceed 40°C during summer months, these effects are more pronounced.

High ambient temperatures also

lead to discomfort, which can affect the animal's behaviour. Singh et al. (2019) noted that cows in heat-stressed environments spend more time resting and less time grazing, reducing their overall food intake. Moreover, stress hormones like cortisol are elevated, which negatively impacts milk yield and reproductive cycles. Reproductive issues such as delayed estrus and an increased incidence of stillbirths are commonly observed in heat-stressed animals.

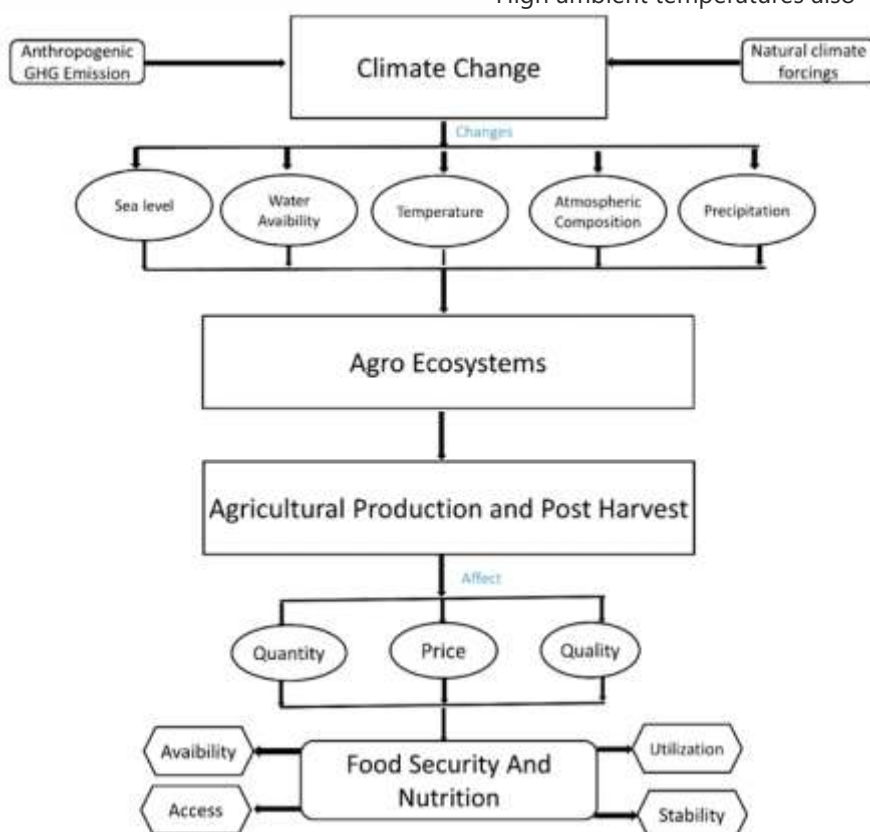
• Impact on Animal Health and Disease Susceptibility

Heat stress weakens the immune system of dairy animals, making them more susceptible to diseases and infections. Ghosh and Samui (2020) pointed out that animals under stress are more likely to contract diseases such as mastitis, foot rot, and respiratory infections, which further compromise their productivity. The increased frequency of such health issues in dairy animals due to climate change can increase veterinary costs, further burdening farmers.

Additionally, higher temperatures and altered rainfall patterns foster the proliferation of vector-borne diseases like foot-and-mouth disease (FMD) and bluetongue. These diseases can spread rapidly in warmer climates, creating significant health risks for dairy herds. Research from the Indian Council of Agricultural Research (ICAR) emphasizes that increased vector activity, like that of mosquitoes and ticks, is likely to cause a rise in the prevalence of diseases in regions experiencing hotter climates.

2. Impact of Climate Change on Forage and Feed Availability

India's dairy sector depends on a wide variety of forages, including grasses, legumes, and crop residues, as the primary source of feed for dairy animals. However,



climate change is altering precipitation patterns and causing droughts, which has a direct impact on the production of these forage crops.

- **Decreased Availability and Quality of Forage**

In regions like Rajasthan, Maharashtra, and Gujarat, where the monsoon is becoming increasingly erratic, the availability of green fodder has decreased significantly. Chakravarty et al. (2020) reported that the variation in seasonal rainfall patterns is leading to frequent droughts, reducing the availability of natural grazing lands. This has pushed many farmers to seek alternative feed sources, often at higher prices, which reduces profit margins.

Moreover, the quality of forage has also been compromised due to temperature stresses, affecting the nutritional value of grass and legume crops. High temperatures reduce the fibre content and degrade the nutrient composition of crops, making them less digestible and less nutritious. As a result, dairy animals may not receive the required nutrients, leading to malnutrition, lower milk yield, and increased vulnerability to diseases.

- **Dependency on Commercial Feeds**

To compensate for the lack of quality natural forage, many farmers are increasingly relying on commercial feed products. However, these feeds are often costly and may not be easily accessible, especially for smallholder farmers. The rising cost of commercial feeds due to supply chain disruptions, exacerbated by climate change, is pushing the cost of dairy farming higher.

Additionally, the shift to commercial feed-based systems

may not be sustainable in the long run, as it depends heavily on imported grains and oilseeds, which are also subject to global climate patterns. Kumar et al. (2018) observed that the price of these grains has been fluctuating due to changing weather patterns in key production regions, which may further impact dairy farm economics.

3. Economic Consequences for Smallholder Farmers

India's dairy industry is primarily composed of small-scale farmers who own fewer than 5 animals. These farmers are highly vulnerable to the effects of climate change, as they have limited access to financial resources or technology to cope with the challenges. Smallholder farmers often operate in subsistence systems, relying on milk sales for their daily livelihood.

- **Increased Costs and Lower Incomes**

With increasing costs of feed and veterinary care due to climate-related challenges, the profit margins for smallholder dairy farmers are shrinking. Singh et al. (2019) estimated that the increased feed costs and losses in milk production could reduce farm incomes by 15–25%. This financial strain makes it difficult for farmers to reinvest in their operations, purchase better-quality animals, or adopt climate-resilient practices.

In regions that rely on irrigation for fodder crops, water scarcity is becoming a significant issue. The availability of water for irrigation is declining due to changing precipitation patterns, which exacerbates the problems of forage shortages and increased feed prices. Additionally, the erratic availability of water can lead to conflicts over water resources, further affecting the stability of dairy farming.

- **Food Security Risks**

As the availability and affordability of milk fluctuate due to climate change, there is an increased risk to food security. Milk is an essential source of protein and nutrients in the Indian diet, particularly in rural areas where it forms the primary source of animal-derived nutrition. A reduction in milk production due to climate-related challenges can lead to price hikes, making milk and dairy products less accessible for low-income families. This is especially concerning for children, the elderly, and vulnerable populations, who rely on milk for their nutritional needs.

According to the National Dairy Development Board (NDDB), India's per capita milk consumption has steadily increased over the years, but any significant disruption in milk supply could have widespread impacts on national food security.

4. Adaptation and Mitigation Strategies

To protect the livelihoods of dairy farmers and ensure food security, it is essential to implement both adaptation and mitigation strategies to combat the effects of climate change on the dairy sector. Here are a few strategies that could be helpful:

- **Climate-Smart Agricultural Practices**

- a. **Diversification of Feed Sources:**

Farmers can be encouraged to adopt a more diversified approach to feeding their animals, including growing drought-tolerant fodder crops like Napier grass, sorghum, and other resilient varieties that require less water.

- b. **Water Harvesting and**

Management: Implementing rainwater harvesting systems and water-efficient irrigation technologies can help dairy

farmers cope with water scarcity, ensuring a steady supply of water for both their crops and animals.

- **Improved Animal Management**

- a. **Heat Stress Management:**

Providing shade structures, cooling systems, and access to clean drinking water can help alleviate heat stress. The use of cooling systems like fans and misters, although costly, can be adopted in larger dairy operations to improve animal comfort.

- b. **Breeding for Climate Resilience:**

Focusing on indigenous breeds that are naturally more tolerant of heat and disease, such as the Gir, Sahiwal, and Kankrej, can reduce the impacts of heat stress and improve the productivity of dairy herds. Chauhan et al. (2020) advocate for increased investment in breeding programs focused on climate resilience.

- **Policy Interventions**

- a. **Government Support:** Providing subsidies for climate-resilient farming practices, such as drought-resistant fodder crops and cooling systems, can reduce the burden on smallholder farmers.

- b. **Training and Education:**

Extension services that provide information on climate-smart practices, climate forecasting, and efficient resource use can equip farmers with the tools they need to adapt to changing climatic conditions.

Agro-Climatic Zones of Punjab and Fodder Scenario

Punjab, though a small state geographically, has diverse agro-climatic conditions that influence cropping patterns, soil types, and fodder availability. The state is divided into three major agro-climatic zones:

1. Sub-Mountain Undulating Zone

Districts Covered: Parts of Gurdaspur, Hoshiarpur, and Rupnagar

Topography: Undulating terrain with foothills of the Shivalik range

Soils: Light textured, prone to erosion

Rainfall: 1000–1200 mm (highest in the state)

Fodder Scenario: Natural grasses are available, but cultivated fodder is limited due to uneven terrain. Promoting silvipasture (tree + grass systems) and drought-tolerant fodder crops is beneficial here.

2. Central Plain Zone

Districts Covered: Ludhiana, Jalandhar, Kapurthala, Patiala, Sangrur, Barnala, and parts of Amritsar and Fatehgarh Sahib

Topography: Flat and fertile land, best suited for agriculture

Soils: Alluvial soils, very fertile

Rainfall: 700–1000 mm

Fodder Scenario: Most favorable zone for cultivated fodder. Crops like berseem, maize, bajra, jowar,

and oats are commonly grown.

Dairy farming is also concentrated here due to fodder availability and irrigation.

3. South-Western Dry Zone

Districts Covered: Bathinda, Mansa, Fazilka, Muktsar, and parts of Ferozepur and Faridkot

Topography: Arid to semi-arid, with issues of salinity and waterlogging

Soils: Sandy loam to loamy, often saline

Rainfall: 300–500 mm (lowest in the state)

Fodder Scenario: Fodder scarcity is a concern. Traditional grasses like sewan and dhaman are used. Introduction of drought-tolerant fodder species like guar, sorghum, and fodder bajra is necessary. Ensuring year-round supply is challenging.

Source: Chaudary and Singh (2019)

Fodder Scenario in Punjab

Punjab, as a leading state in dairy production, places a significant emphasis on fodder availability to sustain its livestock sector. Despite this, the state experiences a fodder deficit of approximately 20–25%, particularly during lean periods such as May–June and December–January. The major fodder crops cultivated in the state include Berseem (*Trifolium alexandrinum*) as the dominant winter fodder, while maize, bajra, and jowar serve as key summer fodder crops. Oats (*Avena sativa*) are also commonly grown during the rabi season. However, several issues hinder consistent fodder availability and productivity. An over-reliance on cereal crops like wheat and paddy reduces the area allocated for fodder cultivation. Furthermore, the declining water table and soil degradation in many regions adversely affect fodder yields. The situation is exacerbated by the limited adoption of fodder conservation methods such as silage- and hay-making, particularly among smallholder farmers. Inadequate



storage infrastructure also contributes to seasonal shortages, thereby impacting the profitability of dairy farming. Addressing these challenges requires a multi-pronged approach. Encouraging crop rotation involving fodder and cereals, training farmers in conservation techniques, and developing high-yielding, drought-resistant fodder varieties are essential steps forward. Additionally, establishing fodder banks and promoting community grasslands in deficit-prone areas can enhance fodder security and support sustainable dairy development in Punjab.



Fodder Availability and Deficit in Punjab

Punjab's livestock population is approximately 5.85 million Adult Cattle Units (ACUs), requiring about 14.94 million tonnes of feed and fodder

annually. The total annual availability is estimated at 24.24 million tonnes, indicating a surplus of around 62.18%. However, this surplus is not uniformly distributed across the state. Districts like Amritsar and SAS Nagar experience fodder deficits, highlighting regional disparities. Additionally, the state faces a green fodder deficiency of approximately 28.57%, equating to 22.99 million tonnes (Tanwar and Verma 2017).

Recommendations

To address these challenges and optimize fodder availability (Tanwar and Verma 2017):

- **Drought-Resistant Varieties:** Develop and promote high-yielding, drought-resistant fodder varieties suitable for arid regions.
- **Efficient Irrigation:** Implement efficient irrigation systems, especially in low-rainfall zones, to enhance fodder crop yields.
- **Fodder Banks:** Establish community fodder banks to store surplus fodder, ensuring availability during shortages.

Conclusion

The adverse effects of climate change on India's dairy sector are undeniable and require urgent attention. Rising temperatures, erratic rainfall, and the threat of reduced feed availability all contribute to declining milk production, reduced animal health, and economic hardship for farmers. As India is home to millions of smallholder dairy farmers, the resilience of this sector is crucial to ensuring food security and sustaining livelihoods. By embracing climate-smart agricultural practices, investing in breeding programs for heat-tolerant animals, and strengthening government support, India can ensure the sustainability of its dairy industry amidst a changing climate. It is essential to act now to safeguard the future of dairy farming and secure a stable food supply for the country's growing population.

References:

- Chakravarty, S., et al. (2020). "Climate Change and its Impact on Dairy Feed Availability in India." *Climate Change and Agriculture in India*.
- Chauhan, R., et al. (2020). "Breeding Strategies for Heat Tolerant Dairy Breeds in India." *Indian Journal of Dairy Science*.
- Choudhary, B. B., & Singh, P. (2019). How unequal is rural Punjab? Empirical evidence from spatial income distribution. *Current Science*, 117(11), 1855–1862.
- FAO. The Future of Food and Agriculture and Challenges. 2017. Available online: <https://www.fao.org/3/i6583e/i6583e.pdf> (accessed on 2 November 2022).
- Ghosh, S., and Samui, S. (2020). "Impact of Climate Change on Forage Crops and Dairy Productivity." *Agricultural Systems*.
- Kumar, A., et al. (2018). "Impact of Climate Change on Milk Yield in Indian Dairy Sector." *Indian Journal of Animal Sciences*.
- Mader, T. L., et al. (2006). "Environmental Stress and Dairy Production." *Journal of Dairy Science*.
- Sharma, R., et al. (2021). "Policy and Adaptive Strategies for Climate-Resilient Dairy Farming in India." *Agricultural Policy*.
- Singh, R., et al. (2019). "Economic Impacts of Climate Change on Smallholder Dairy Farms in India." *Agricultural Economics*.
- Tanwar, P. S., & Verma, H. K. (2017). Feed and fodder availability in Punjab state vis-a-vis livestock population: An estimate. *The Indian Journal of Animal Sciences*, 87(7), 879–884.



Integrated Management of Ectoparasitic Infestations in Dairy Animals

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Ectoparasites in cattle, such as ticks, lice, mites, and flies, have a range of detrimental effects on the animals' health, productivity, and overall well-being. These parasites cause direct harm through skin irritation, itching, hair loss, and lesions, which lead to discomfort and stress. As cattle scratch and rub themselves in response to the irritation, they often develop open wounds that can become infected. Blood-feeding ectoparasites, like ticks and certain flies, may also cause anemia, especially in young or heavily infested animals. This constant stress and physical damage can result in weight loss, reduced feed efficiency, and a noticeable decline in both growth rate and milk production. Diverse groups of ectoparasitic arthropods cause significant morbidity and mortality in most of the approximately 1.49 billion head of cattle worldwide. In addition to these direct effects, ectoparasites act as vectors for a number of serious diseases, including anaplasmosis, babesiosis, theileriosis, and trypanosomiasis, which further compromise cattle health and productivity. Despite advances regarding prophylaxis and treatment of parasitic diseases, parasites are still responsible for significant morbidity and mortality in companion animals. As ectoparasites are responsible for economic losses to livestock producers, control measures are necessary.

The integrated management of ectoparasitic infestations in dairy animals is a multifaceted approach that combines cultural, chemical, biological, immunological, and even genetic strategies to effectively control pests like ticks and flies. One of the primary methods is **Hygiene and management control**. This includes the systematic removal of dung and manure to eliminate fly breeding grounds. Manure can be consolidated into large heaps, where the heat generated during fermentation destroys fly larvae. Smaller manure heaps can be treated with insecticides to further reduce fly populations. Grazing practices also play an essential role by minimizing vegetation growth, while periodic ploughing and cultivation of grazing areas can create an inhospitable environment for ticks. In regions with limited pastureland, ticks may seek refuge in cracks and crevices within animal shelters, which necessitates measures such as the use of disinfectants and acaricides, as well as regular grooming of animals and installation of wire mesh or nets around enclosures to aid in tick control.

Chemical control is one of the most widely utilized methods globally for controlling insects and ticks, though it faces several challenges such as resistance development, public concerns regarding food residues, and environmental pollution. Chemicals such as carbamates

(e.g., aldicarb, propoxur), organophosphates (e.g., diazinon, malathion), and synthetic pyrethroids (e.g., cypermethrin, deltamethrin) are commonly used. These chemicals can be applied through various methods, including topical sprays, pour-ons, dips, and ear tags. However, the indiscriminate use of insecticides can lead to resistance in pests and harmful chemical residues in milk, which underscores the need for judicious application and careful monitoring. In addition to conventional insecticides, herbal alternatives like neem oil and tea tree oil have been explored as more natural options.

Biological control involves the use of natural predators, pathogens, or biopesticides to reduce pest populations. Fungi such as *Beauveria bassiana* and *Metarhizium anisopliae* can be used to target ticks and flies, while bacteria like *Bacillus thuringiensis* produce insecticidal proteins that are harmless to livestock but deadly to pests. Insect growth regulators (IGRs), derived from plants or chemicals, hinder insect growth, induce sterility, or cause deformities in pests. For example, *Bacillus thuringiensis* and other microbial agents have been shown to be effective against ticks like *Boophilus microplus*. In addition,

natural predators such as fire ants, birds, and certain fish species help control tick and fly populations, making biological control a sustainable and eco-friendly option.

Immunological control through vaccines offers a promising alternative to traditional chemical treatments. Vaccines like BM86 and Bm95, developed from recombinant antigens in *Boophilus microplus* ticks, help control tick infestations by stimulating an immune response in livestock. These vaccines are advantageous as they provide long-term protection, are residue-free, and help prevent the development of resistance. They offer a more sustainable and cost-effective method compared to repeated chemical treatments.

Pheromone-mediated control utilizes specific pheromones released by ticks to attract them to certain areas where they can be targeted with insecticides. By embedding these pheromones in plastic tags or traps, ticks can be drawn away from livestock, effectively reducing their numbers without direct exposure to chemicals. Similarly, the **sterile insect technique (SIT)** involves releasing sterile male insects to compete with wild males, leading to a reduction in the pest

population over time. This method has been successful for controlling pests like mosquitoes and flies and is increasingly explored for tick control.

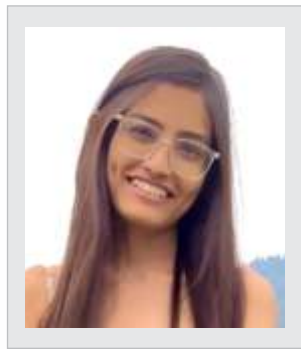
Finally, **genetic tick control** is being researched as an alternative to chemical methods. It is known that *Bos indicus* cattle exhibit natural resistance to ectoparasites compared to *Bos taurus*. Crossbreeding these two cattle groups is being studied to produce livestock that are more resistant to ticks and other ectoparasites, reducing the reliance on chemicals and offering a sustainable solution to tick control.

In conclusion, the integrated management of ectoparasites involves a variety of strategies that complement each other to ensure long-term success. By combining hygiene management, chemical treatments, biological control, immunological approaches, and even genetic methods, dairy farmers can better manage pest populations while minimizing chemical use and environmental impact. This holistic approach not only improves the health and productivity of livestock but also promotes more sustainable farming practices.





Nutrition for Ruminants: Enhancing productivity in Indian climate



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Introduction

During the peak of the Indian summer, livestock face harsh environmental conditions—elevated temperatures, increased humidity, and reduced appetite. These factors negatively affect feed intake, rumen function, and overall animal productivity. Heat stress impairs metabolic regulation and can lead to health complications such as reduced fertility, lower milk yields, and compromised immune response. To counter these effects, nutritional strategies must be specifically adapted to seasonal demands. This includes offering diets that are energy-rich, nutrient-balanced, and easy to digest. Additionally, ensuring hydration and creating a comfortable microenvironment are key to maintaining animal performance and welfare during this period.

Supporting Rumen Health: Fuelling Microbial and Animal Needs

Ruminants depend heavily on the efficiency of their rumen microbes to convert fibrous feed

into usable nutrients. In summer, when forage quality often declines and appetite drops, diet formulations must be adjusted to maintain microbial activity and overall health.

- Carbohydrates from cereal grains and molasses provide fermentable energy.
- Protein should include both degradable and bypass sources to support growth and production.
- Fibre from quality roughages stimulates chewing and saliva production, buffering rumen pH.
- Vitamins and minerals, often deficient in dry fodders, must be supplemented consistently.

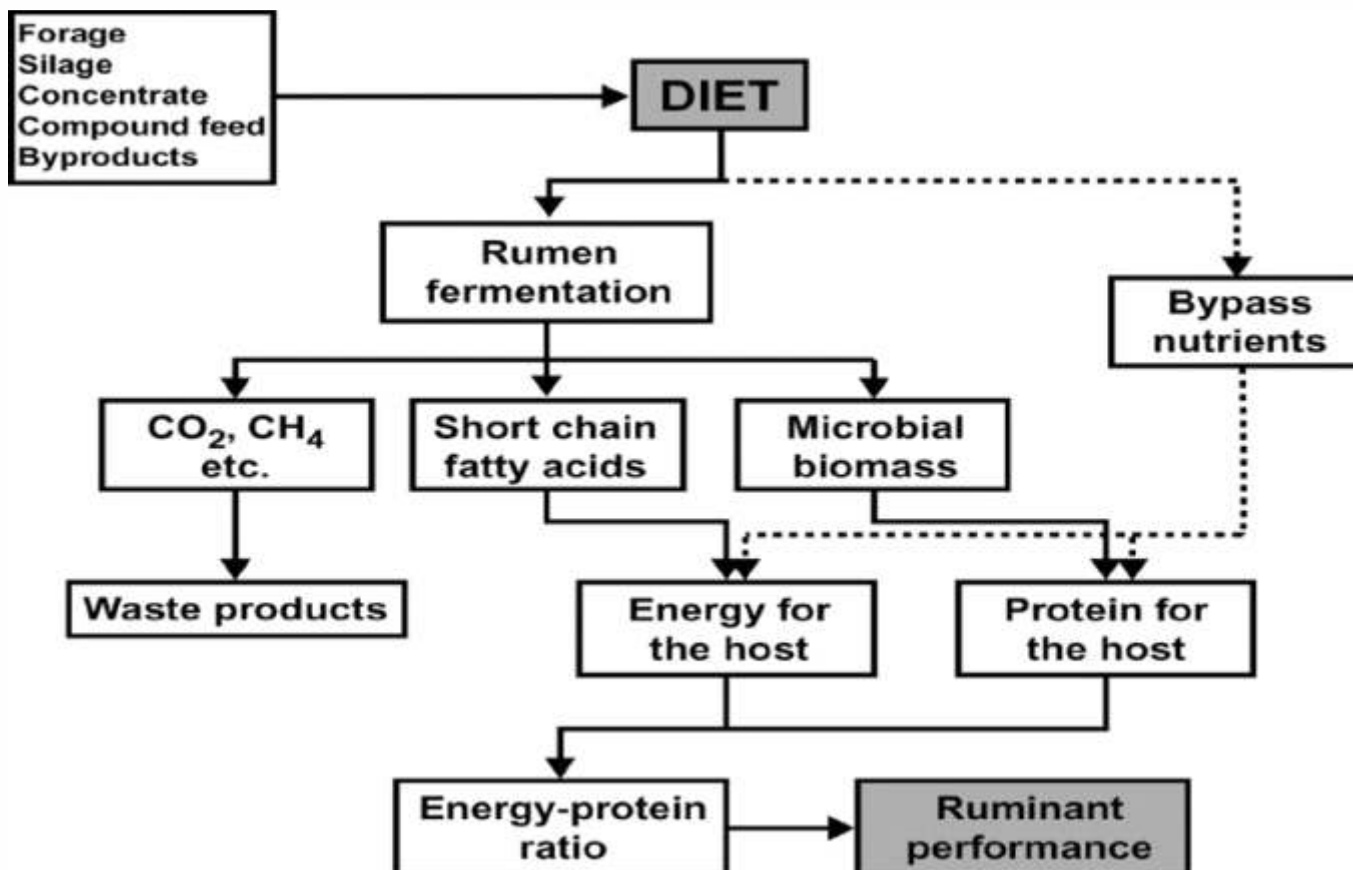
Energy-dense feed like bypass fats and pelleted concentrates can help bridge nutritional gaps when intake is limited.

Limiting Nutrients: The Smallest Piece Controls the Whole

As per Liebig's Law, animal performance is restricted by the most deficient nutrient—even when all others are adequate.

Nutrient pair	Limitation result	Clinical impact
Energy&protein	Poor microbial synthesis	Reduced milk, weight loss
Calcium & phosphorus	Weak skeletal & reproductive health	Milk fever, delayed estrus
Copper & selenium	Weak immunity, oxidative stress	Hair loss, poor fertility
Vitamin A & D	Impaired vision, bone issues	Night blindness, poor growth

Nutrient	Source	Role	Deficiency	Intervention
Energy	Maize, barley, molasses	Lactation, weight gain	Weight loss, negative energy balance	Use cereal grains, bypass fat
Protein	Mustard cake, soybean meal	Growth, milk protein synthesis	Poor growth, reduced yield	Add protected protein sources
Fibre	Green fodder, straw	Rumen motility, saliva flow	Acidosis, bloat	Feed good quality roughage
Fats	Bypass fat, oil seeds	Energy density	Fertility issues, low Body condition score	Use rumen protected fat supplements
Minerals	Rock salt, mineral bricks	Reproduction, bone strength	Weak bones, poor heat tolerance	Provide mineral mix based on soil data
Vitamins	Green fodder, synthetic premix	Immunity, metabolic health	Night blindness, ROP	Supplement fat-soluble vitamins



Identifying and correcting such limitations is critical to avoid production losses.

Including region-specific mineral mixtures and fat-soluble vitamins in the ration helps fill nutritional gaps that are common in crop-residue-based feeding systems.

Role of Protein

Protein in dairy cow nutrition is categorized based on its site of degradation and utilization:

- **Crude Protein (CP):**
Represents total nitrogenous content in feed, including true proteins and non-protein nitrogen (e.g., urea).

- **Rumen Degradable Protein (RDP):** Broken down in the rumen to ammonia. Rumen microbes use this, along with energy (e.g., from molasses or maize), to synthesize microbial protein.
Example sources: soybean meal, sunflower cake.
- **Soluble Protein:** A quickly fermentable part of RDP, often abundant in lush green forages like alfalfa or berseem.
- **Undegradable Dietary Protein (UDP):** Also called bypass protein, escapes rumen degradation and is

digested in the small intestine.

Example sources: heat-treated soybean meal, cottonseed meal, fish meal.

- **Undegradable Digestible Protein (UDPd):** The digestible portion of UDP that contributes to amino acid absorption.
- **Non-Protein Nitrogen (NPN):** Nitrogen-containing compounds that aren't true proteins but support microbial protein synthesis.
Example: urea.

Together, microbial protein (from RDP/NPN) and digestible UDP

supply most of the essential amino acids required for maintenance, growth, and milk production.

Hydration: More Than Water Access

Water plays a vital role in rumen fermentation, nutrient absorption, and cooling. In hot months, water needs may increase by over 50%. However, water quality, temperature, and accessibility are just as important as quantity.

- Ensure animals have access to clean, shaded water at all times
- Keep troughs disinfected and free of sludge or algae
- Supplement water with electrolytes and alkalizing agents (e.g., sodium bicarbonate) to counter acidosis
- Use oral drench or hydration boluses during extreme heat

spells to prevent dehydration in high-yielding dairy animals

- Provide multiple water points, especially for grazing herds, to minimize competition and encourage intake

Reducing Heat Load

Environmental stress directly affects digestion, feed conversion, and immune defense. By improving the microclimate, animals can better maintain their metabolic functions.

- Build housing with raised roofs and cross-ventilation for airflow
- Install foggers or misting systems in dry zones; use fans in humid areas to boost evaporative cooling
- Paint rooftops white or install shade nets to reflect sunlight
- Avoid overcrowding—space allows heat dissipation and improves comfort

- For buffaloes or goats, offer mud wallows or dust areas to help regulate body temperature
- Schedule feeding during early morning or late evening when temperatures are lower, and feed high-fiber roughages later in the day

Conclusion

Ruminants face serious nutritional challenges during summer, but strategic diet planning and environment control can mitigate these risks. A well-balanced ration, adequate mineral and vitamin support, consistent hydration, and thoughtful housing design work together to maintain productivity and health. With

References:

1. NRC (National Research Council). **Nutrient Requirements of Dairy Cattle**, 7th Revised Edition. Washington, DC: National Academies Press; 2001.
2. Kadzere CT, Murphy MR, Silanikove N, Maltz E. **Heat stress in lactating dairy cows: a review**. *Livestock Production Science*. 2002;77(1):59–91. [https://doi.org/10.1016/S0301-6226\(01\)00330-X](https://doi.org/10.1016/S0301-6226(01)00330-X)
3. West JW. **Effects of heat-stress on production in dairy cattle**. *Journal of Dairy Science*. 2003;86(6):2131–2144. [https://doi.org/10.3168/jds.S0022-0302\(03\)73803-X](https://doi.org/10.3168/jds.S0022-0302(03)73803-X)
4. Gaughan JB, Sejian V, Mader TL. **Drought and heat stress in ruminants: A review**. *Animals*. 2021;11(4):838. <https://doi.org/10.3390/ani11030838>
5. Sirohi SK, Walli TK, Mohanta RK. **Bypass protein and fat supplementation in high yielding dairy animals**. *Indian Dairyman*. 2010;62(9):58–63.
6. Sharma SC, Meur SK. **Electrolyte balance and summer stress in dairy cattle**. *Indian Journal of Animal Nutrition*. 2006;23(4):217–222.
7. Sejian V, Lal R, Lakritz J, Ezeji T. **Vital role of animal nutrition in combating heat stress in livestock**. *Scientifica*. 2018; Article ID 7120791. <https://doi.org/10.1155/2018/7120791>
8. ICAR. **Handbook of Animal Husbandry**, 4th Edition. New Delhi: Indian Council of Agricultural Research; 2013
9. *Comparative Gut Microflora, Metabolic Challenges, and Potential Opportunities – Scientific Figure on ResearchGate*. Available from: https://www.researchgate.net/figure/Flow-chart-illustrating-the-role-of-rumen-fermentation-in-ruminant-nutrition_fig4_228340752 [accessed 25 Apr 2025]



Adulteration of Milk and Milk Products – Detection of Common Adulterants (e.g., water, detergent, starch, urea, formalin) and Their Impact on Quality.

Introduction

Milk is complete food in diet of human, milk provides various nutrients like Ca, vitamins, proteins, fats. It plays an important role in the growth and development of human at various stages and is used daily in most houses. But milk adulteration has become an important issue across the country including rural as well as urban areas, posing serious risks to public health. Adulterants are used to increase quantity, improve texture, or prolong shelf life, but they sacrifice the nutritional value and safety of the milk. Most common adulterants include water, detergent, starch, urea, and formalin, many of which cause harmful health issues ranging from stomach problems to long-term organ damage. This study targeted to identify the presence of most common adulterants in milk through practical observations and simple home-based tests carried out in houses, among local peoples including farmers, and in the nearby market.

Methodology

Location: - town. Todabhim, distt. Karauli, state. Rajasthan

Observations were made over a two-week period in the household and nearby locality, including daily monitoring of milk supplied by local vendors and farms.

Discussion with homemakers regarding their experiences and detection techniques.

Normal detection tests carried out at

home using easily available materials, including Lactometer test for water detection.

Shaking test and phenolphthalein test for detergent detection.

Soybean powder and HCl test for urea detection.

Visual, taste, and texture checks were also part of routine observation.

Findings

Water Adulteration: -observed in 4 out of 5 milk samples from local milk seller

Lactometer readings were below normal (20–24 instead of 26–32).

Milk heated gradually seemed to have a lighter consistency and produced less leftover residue in the container.

Detergent Adulteration: - Two samples are suspected due to excessive foaming observed when shaken.

A pink color change with phenolphthalein suggested the presence of an alkaline detergent.

Urea Adulteration: - Detected in 1 sample based on a home test using soybean powder and HCl, where the solution turned pink.

Consumers reported mild stomach problems after drinking the suspected milk.

Household and Local Observations: - Homemakers feel changes in smell, consistency, and boiling.

Local farmers worried about milk seller those adding water to increase profits.

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No detection of starch or formalin was recorded in this round of testing.

Discussion

Urea and detergent: -While less frequently encountered, both detergent and urea are significantly more dangerous. Detergent affects the digestive system and mimics the normal frothiness of milk, making visual detection challenging. Urea, which is utilized to boost nitrogen levels and imitate protein content, presents a serious health threat and necessitates chemical analysis for verification.

The capacity of local farmers and homemakers to identify these adulterants through straightforward, cost-effective techniques emphasizes the significance of public education and awareness. Detection methods that can be performed at home enable consumers to safeguard themselves and others from potential health hazards.

Conclusion

The research indicates that milk adulteration continues to be a significant concern in both local markets and households. The most frequently encountered adulterant is water, while detergent and urea can also be found in certain instances.

Consumers and farmers can effectively identify these adulterants using simple household tools and traditional methods.

There is a pressing need to raise awareness about adulteration and provide affordable testing kits to rural communities. It is essential to implement government regulations and conduct regular quality inspections to guarantee the safety and nutritional quality of milk.

Suggestions

1. Herd Health Management

- Regular health checks by veterinary officer to detect any abnormalities.
- Vaccination and parasite control programs at regular interval.

2. Proper Milking Techniques

- Clean and sanitize udders before milking.
- Milking equipment should be clean and well maintained.
- Practice consistent milking routines to reduce stress and contamination.

3. Nutrition and Hydration

- Feed cows a balanced diet rich in vitamins, minerals, and fiber.
- Ensure clean, fresh water is always available.

4. Housing and Hygiene

- Keep barns clean and dry.
- Provide proper ventilation to reduce heat stress and disease spread.
- Use bedding that reduces bacterial load (like sand or treated sawdust).

5. Regular Milk Testing

- Monitor somatic cell count (SCC) and bacterial counts.
- Discard milk from cows treated with antibiotics until withdrawal periods are over.

During Processing

1. Pasteurization

- Proper pasteurization eliminates harmful pathogens without affecting taste or nutrition.

2. Filtration and Separation

- Use microfiltration or centrifugation to remove impurities and bacteria.

3. Fortification

- Add vitamins (e.g., A and D) as per nutritional standards.

4. Strict Hygiene in Processing Plants

- Clean-in-place (CIP) systems for pipes and tanks.
- Quality control protocols to monitor bacterial levels and product consistency.

References:

1. Food Safety and Standards Authority of India (FSSAI). "Milk Adulteration in India."
2. Sharma, V. et al. (2018). Use of Lactometer in Adulteration Detection. *International Journal of Dairy Technology*.
3. Singh, A. & Verma, R. (2017). Common Adulterants in Milk and Their Detection Methods. *Journal of Food Science*.
4. Kumar, R. et al. (2020). Rapid Detection Methods for Urea in Milk. *Food Chemistry*.
5. FSSAI Manual of Methods of Analysis of Foods – Milk and Milk Products, 2016.
6. WHO Report (2015). Health Risks of Detergents in Milk Adulteration.
7. ICAR-National Dairy Research Institute Guidelines on Herd Management.
8. FAO (2010). Milking Hygiene and Mastitis Control.
9. NRC (2001). Nutrient Requirements of Dairy Cattle.
10. Codex Alimentarius. Milk Pasteurization Standards.
11. FiltrationTech.com. Microfiltration in Dairy Industry.
12. Ministry of Health and Family Welfare. Guidelines for Fortification of Milk.
13. Dairy Processing Handbook. Tetra Pak.



Amul Dairy Hosts High-Level Delegation from Chhattisgarh, Showcases Innovation, Organic Initiatives, and Vision for Future Collaborations

Anand, Gujarat – In a significant step towards fostering collaborative efforts in the dairy and organic sectors, Amul Dairy had the distinguished honour of hosting a high-powered delegation from the Government of Chhattisgarh, led by Shri Vijay Sharma, Hon'ble Deputy Chief Minister. The delegation included Shri Kedar Kashyap, Hon'ble Minister of Cooperation, Shri Subrat Sahu (IAS), Additional Chief Secretary, and Shri Kuldeep Sharma (IAS), Registrar of Cooperative Societies. The visit, facilitated at the iconic Amul Dairy campus in



Anand, was a testament to the growing synergy between state governments and cooperative

institutions committed to agricultural and rural development.

Dr. Amit Vyas, Managing Director of Amul Dairy, extended a warm welcome to the visiting dignitaries. He expressed his pleasure in showcasing Amul's legacy, its cooperative success model, and the innovative practices that continue to drive its global reputation. The visit provided an opportunity for fruitful exchanges of ideas, especially around areas of mutual interest, such as the promotion of organic farming, innovation in dairy processing, rural empowerment, and creating sustainable value chains for farmers.

A Glimpse into Amul's Inspiring Legacy

The delegation was taken on a comprehensive tour of the Amul facilities, beginning with a detailed presentation on the dairy's historical journey, beginning from its roots in the milk revolution initiated by Dr. Verghese Kurien. Dr. Vyas highlighted how Amul's cooperative model has not only empowered millions of dairy farmers across Gujarat but has also become a beacon of inspiration for similar movements globally.

The dignitaries were deeply moved by the story of how Amul transformed from a small cooperative of marginal milk producers into India's largest dairy brand, touching the lives of over 3.6 million farmers. They appreciated Amul's unwavering commitment to its core values of quality, farmer empowerment, and ethical growth, even as it

scaled new technological and operational milestones.

Engaging Dialogues on Dairy Innovation and Organic Initiatives

One of the key highlights of the visit was an engaging roundtable discussion between the Chhattisgarh delegation and Amul's leadership. Dr. Vyas provided an insightful overview of the dairy's recent initiatives, particularly in the domain of organic products. He emphasized how Amul has been making strategic efforts to expand its portfolio of organic milk, ghee, honey, and other organic produce, aligning with rising consumer demand for healthier, chemical-free alternatives.

The Chhattisgarh leadership took keen interest in Amul's approach to ensuring traceability, farmer certification, and quality assurance in its organic supply chain. Shri Vijay Sharma, Hon'ble Deputy Chief Minister, praised Amul's proactive measures in supporting farmers' transition to organic farming and its role in enhancing income stability through value addition.

Recognizing Chhattisgarh's vast potential in the organic farming sector, the dignitaries expressed their interest in exploring collaborative opportunities with Amul. With the state having a rich tradition of naturally grown produce and tribal farming practices, partnerships with a brand like Amul could significantly enhance market access and price realization for

the region's farmers.

A Visit to the Tribhuvandas Food Complex, Mogar

Following the interactions at the Anand campus, the delegation proceeded to visit the state-of-the-art Tribhuvandas Food Complex located at Mogar. This facility, one of Amul's crown jewels, houses the world-class chocolate manufacturing unit, which has been a pivotal part of Amul's diversification into value-added dairy products.

The visiting dignitaries were given a guided tour of the plant, where they witnessed cutting-edge manufacturing technologies, robust quality control measures, and sustainable practices being followed meticulously. From bean to bar, every aspect of the chocolate-making process demonstrated Amul's commitment to excellence and innovation.

Hon'ble Minister Shri Kedar Kashyap was especially nostalgic during the visit, fondly recalling his visit to the same facility 25 years ago. He expressed his admiration at how, despite the immense technological advancements and infrastructural upgrades, Amul has preserved the same authentic taste and heartfelt hospitality that left an impression on him decades ago.

Towards a Shared Vision for the Future

The delegation lauded Amul's role not just as a dairy brand, but as a symbol of rural upliftment, nutritional security,

and national pride. They acknowledged Amul's potential to contribute significantly to Chhattisgarh's vision for rural development, especially through knowledge sharing, capacity building of cooperatives, and infrastructure support.

Dr. Vyas, in his closing remarks, reiterated Amul's openness to meaningful collaborations. He stated, "We are truly honoured to host this esteemed delegation from Chhattisgarh. Amul has always believed in the power of cooperatives to transform rural India, and we see a tremendous opportunity to work together in areas such as organic farming, dairy infrastructure development, and farmer education. Together, we can create models that benefit farmers and consumers alike."

Shri Vijay Sharma echoed similar sentiments and appreciated the insights gained during the visit. He emphasized the importance of such engagements in shaping informed policy-making and building bridges between progressive institutions and forward-looking governments.

The visit concluded on an optimistic note, with both parties expressing a strong desire to explore concrete avenues for partnership. Be it through joint ventures in organic farming, technical support for dairy cooperatives in Chhattisgarh, or knowledge exchange programs for rural development officers – the possibilities are manifold.

A Path Forward

As Amul continues its journey of

innovation and farmer-first practices, such collaborative interactions reinforce the importance of working in tandem with regional governments to scale impact. The visit of the Chhattisgarh delegation has laid a promising foundation for future cooperation, aligning perfectly with Amul's mission to bring prosperity to rural communities across India.

With a shared vision of sustainable development, nutritional security, and farmer empowerment, Amul and the Government of Chhattisgarh are poised to chart a new course of progress — one that will serve as a model of cooperative excellence and inclusive growth.



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

**POULTRY
PLANNER**

**DAIRY
PLANNER**



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.



IDFA Announces 'Healthy Dairy in Schools Commitment' to Eliminate Use of Certified Artificial Colors in Dairy Foods for Schools, Surpassing State and Federal Standards

Dairy food companies are stepping up to make America healthier by announcing a significant commitment that will reshape school meal menus across the nation for 30 million children. Today, the International Dairy Foods Association (IDFA) announced the IDFA Healthy Dairy in Schools Commitment, a voluntary, proactive pledge to eliminate the use of certified artificial colors in milk, cheese, and yogurt products sold to K-12 schools for the National School Lunch and Breakfast Programs by the start of the 2026-2027 school year, or July 2026.

The goal of the Commitment is to eliminate the use of Red 3, Red 40, Green 3, Blue 1, Blue 2, Yellow 5, and Yellow 6 in any milk, cheese, and/or yogurt products sold to K-12 schools for reimbursable school meals by July 2026. Today, the vast majority of dairy products sold to schools do not contain any certified artificial colors, as most dairy processors have chosen not to use or decided to remove or replace these ingredients in the past. Moving forward, all companies supporting the Healthy Dairy in Schools Commitment have pledged to discontinue products containing certified artificial colors or to reformulate products with natural ingredients, joining the majority of companies that will continue making products for schools without certified artificial colors. At the same time, dairy companies will continue to reduce added sugar and work with school

nutrition professionals, parents and students to educate them about the benefits of milk, cheese, and yogurt in healthy diets.

"The Healthy Dairy in Schools Commitment goes above and beyond state and federal regulations to help ensure children in grades K-12 continue to have access to the milk, cheese, and yogurt options they enjoy without any certified artificial colors," said Michael Dykes, D.V.M., IDFA president and CEO. "Dairy products in school meals including milk, cheese, and yogurt play a critical role in meeting child nutrition requirements by providing 13 essential nutrients students need for healthy growth and development. Milk is the top source of calcium, potassium, phosphorus, and vitamin D in kids ages 2-18. Cheese provides a high-quality source of protein, calcium, phosphorus, and vitamin A. Yogurt is a nutrient-dense food that is a good source of protein, calcium, riboflavin, vitamin B12, and phosphorus that may reduce the risk of type-2 diabetes. The Healthy Dairy in Schools Commitment further demonstrates our industry's longstanding promise to provide healthy, nutritious dairy options to school kids everywhere."

"America's dairy farmers and milk processors have always led the way in providing our families and schoolchildren with healthy, nutritious, and delicious milk products. While I look forward to getting whole milk back into our

schools, today's announcement shows how the dairy industry is voluntarily driving change and giving consumers what they want, without government mandates," said U.S. Secretary of Agriculture Brooke Rollins. "I thank IDFA and the dairy industry for leading the way and look forward to other industries thinking about how together, we can Make America Healthy Again."

While the U.S. Food and Drug Administration (FDA) has deemed certified artificial colors safe for use in foods when used in accordance with FDA regulations, the federal government is considering how to phase out the use of these ingredients in the U.S. food supply. At the same time, five states – Arizona, California, Utah, Virginia, and West Virginia – have already passed laws banning their use in foods sold to schools, and others are likely to follow suit, signifying a new attitude by states to go beyond federal regulators. In this evolving policy environment, the Healthy Dairy in Schools Commitment will ensure wholesome, nutrient-rich dairy options remain available to students across the country regardless of changing state regulations, reflecting the dairy industry's longstanding dedication to child nutrition. The Commitment does not apply to foods that fall outside of reimbursable school meals.

The most recent Dietary Guidelines for Americans is clear – children are not receiving enough essential

nutrients for growth, development, healthy immune function, and overall wellness. In fact, U.S. federal dietary guidelines stress that between 68% and 94% of school-age boys and girls are currently failing to meet recommended levels of dairy intake. Healthy dairy options in school meals offer the most important opportunity of the day for children to get the critical nutrients they need. For years, parents and nutrition professionals have agreed that milk and dairy products must remain key building blocks in school meals. The Healthy Dairy in Schools Commitment affirms that promise and demonstrates U.S. dairy's dedication to our nation's youth.

"Parents, school nutrition professionals, and pediatricians want to ensure children consume healthy, wholesome, nutritious foods and beverages in school, and that is why we are excited to make the Healthy Dairy in Schools Commitment today," said Dykes.

IDFA believes that good nutrition is the foundation of health and wellness for adults and children alike, and dairy is a crucial part of a healthy diet beginning at a very young age. In fact, no other type of food or beverage provides the unique combination of nutrients that dairy contributes to the American diet, including high-quality protein, calcium, vitamin D, and potassium, and health benefits including better bone health and lower risk for type 2 diabetes and cardiovascular disease.

IDFA will share graphics, video, and printed educational materials on the Healthy Dairy in Schools Commitment with partners and community members including USDA, state governments and agencies with authority for school nutrition programs, national and state nutritionist and dietician professional organizations, state dairy organizations, and organizations committed to public health and nutrition.

To read more about the Healthy Dairy in Schools Commitment, visit www.healthydairyinschools.org.

The International Dairy Foods Association (IDFA), Washington, D.C., represents the nation's dairy manufacturing and marketing industry, which supports more than 3.2 million jobs that generate \$49 billion in direct wages and \$794 billion in overall economic impact. IDFA's diverse membership ranges from multinational organizations to single-plant companies, from dairy companies and cooperatives to food retailers and suppliers, all on the cutting edge of innovation and sustainable business practices. Together, they represent most of the milk, cheese, ice cream, yogurt and cultured products, and dairy ingredients produced and marketed in the United States and sold throughout the world. Delicious, safe and nutritious, dairy foods offer unparalleled health and consumer benefits to people of all ages.



Milk Situation Review Meeting Highlights Strategic Focus on Strengthening Dairy Sector: Ms. Varsha Joshi Sets the Agenda with Forward-Looking Opening Address



In a significant step towards reinforcing India's dairy ecosystem, the Department of Animal Husbandry and Dairying (DAHD), Government of India, convened the Milk Situation Review Meeting at the Civil Services Officers Institute (CSOI), New Delhi. The meeting brought together key stakeholders from across the dairy value chain, including policymakers, representatives from dairy cooperatives, private sector players, researchers, and state-level officials, to deliberate on the current status

and emerging challenges in milk production, procurement, and distribution.

The event commenced with an insightful opening address by Ms. Varsha Joshi, Additional Secretary, DAHD, Government of India, who eloquently laid the groundwork for the day's deliberations. Her remarks underscored the urgency of adopting data-backed and collaborative strategies to address the evolving dynamics of India's dairy sector, while also reaffirming the government's commitment to

empowering rural dairy farmers and improving systemic efficiencies through cooperative development.

Assessing the Current Dairy Landscape

Ms. Joshi began her address by acknowledging India's unmatched leadership in global milk production. However, she emphasized that with great scale comes the responsibility to ensure quality, affordability, sustainability, and inclusivity. She highlighted a series of challenges that the sector is currently grappling with, such as inconsistent procurement patterns, regional imbalances in milk supply, rising input costs, lack of cold chain infrastructure in rural pockets, and gaps in real-time data collection and forecasting.

"While India continues to be the world's largest producer of milk, we must also acknowledge the growing complexities of the supply chain and the need for resilient systems that can respond to fluctuations in demand, climate stressors, and market disruptions," she noted.

Ms. Joshi pointed out that milk surpluses in certain regions often coexist with deficits in others, leading to logistical inefficiencies and missed opportunities for farmer income optimization. She called for more synchronized supply chain frameworks that bridge production with consumption hubs, particularly in underserved regions and emerging urban markets.

Emphasizing Data-Driven Solutions

A central theme of Ms. Joshi's address was the need for a more

robust, data-centric approach to dairy policy formulation and operations. She stated that real-time data analytics could dramatically improve procurement planning, market price stabilization, and early warning systems related to seasonal production dips or disease outbreaks.

"To manage what we measure better, we must strengthen our data ecosystems — from farmer-level milk yield records to national dashboards that integrate supply-demand scenarios. We envision a future where decision-making is guided by predictive insights and ground-level realities," she said.

She further called on all stakeholders, including cooperatives, private dairies, and state departments, to contribute actively to data-sharing platforms being developed under DAHD. These platforms, she said, would not only enhance transparency but also allow for targeted policy interventions, such as region-specific feed subsidies, breeding programs, and market support schemes.

A New Scheme to Catalyze Dairy Cooperatives

In a key announcement, Ms. Joshi unveiled a new scheme initiated by DAHD aimed at accelerating dairy development through cooperatives. The scheme seeks to build capacity at the grassroots by providing financial and technical support to cooperative societies, particularly in Tier 2 and Tier 3 towns and remote rural areas.

"The upcoming scheme will focus on upgrading milk chilling and testing infrastructure at village-level societies, supporting digital traceability tools, and enhancing training modules for cooperative leaders and members. We believe that cooperatives remain the backbone of our dairy industry, and

this scheme will help unlock their full potential," she explained.

She emphasized that the scheme also aligns with the government's broader vision of Atmanirbhar Bharat, where rural entrepreneurship and decentralized production systems play a central role in nation-building. By enabling cooperatives to operate with greater autonomy, efficiency, and accountability, the scheme aims to improve not just milk procurement rates but also the profitability of small and marginal farmers who rely heavily on dairy for their livelihoods.

Collaboration as the Cornerstone

Ms. Joshi underlined the importance of fostering greater collaboration among stakeholders. She urged public and private players to move beyond transactional partnerships towards co-creation models that focus on farmer welfare, sustainable practices, and technological adoption.

"Let us break silos and work as an integrated ecosystem — one where cooperatives, corporates, researchers, and policymakers co-develop solutions. Whether it's leveraging AI for cattle health monitoring or blockchain for milk traceability, innovation must serve the last-mile farmer," she said.

She also encouraged states to tap into centrally sponsored schemes more proactively and align them with state-specific dairy goals. The support available under the Animal Husbandry Infrastructure Development Fund (AHIDF), National Livestock Mission (NLM), and Rashtriya Gokul Mission (RGM) was highlighted as complementary pathways for strengthening infrastructure and breed improvement.

Ensuring Equity and Inclusion

Recognizing the critical role played

by women in the dairy sector, Ms. Joshi advocated for a gender-inclusive approach in all dairy development initiatives. "Women contribute immensely to dairy operations, yet their access to credit, training, and leadership roles remains limited. Any vision of a sustainable dairy future must be inclusive of women dairy farmers and cooperative members," she emphasized.

She proposed that cooperative reform frameworks must actively integrate gender equity indicators and incentivize the promotion of women-led dairy enterprises.

A Call to Action

In concluding her remarks, Ms. Joshi extended a call to action to all participants, urging them to look at the dairy sector not just as an industry, but as a powerful enabler of rural prosperity, nutritional security, and economic resilience. She emphasized that the sector's future lies in its ability to adapt, innovate, and deliver shared value for all stakeholders — from farmers and consumers to processors and policymakers.

"The road ahead is challenging, but also full of possibilities. If we come together with purpose and commitment, India's dairy sector can continue to be a global exemplar of inclusive growth. Let's make this decade one of transformation for our milk economy," she concluded.

The Milk Situation Review Meeting continued with technical sessions and panel discussions throughout the day, focusing on procurement practices, breed improvement programs, feed and fodder management, cold chain expansion, and export opportunities. The event served as a meaningful platform for collaboration, policy alignment, and strategic planning for the future of Indian dairying.

National Dialogue on Poultry and Goatery Clusters Concludes with Roadmap for Sustainable Livelihoods and Rural Entrepreneurship



Writershop on Cluster Development of Poultry & Goatery



Vigyan Bhawan, New Delhi.

As part of the comprehensive deliberations under the Department of Animal Husbandry and Dairying (DAHD), Government of India, two high-impact panel discussions were held to explore sustainable strategies for the development of poultry and goatery clusters. These discussions took place during the national consultative meeting aimed at advancing the livelihoods of smallholders, with a particular focus on rural women and marginalized

farming communities. The sessions, moderated by senior officials of DAHD, brought together policy experts, representatives from state governments, academia, non-governmental organizations, and producer collectives to co-create viable models for decentralized, inclusive, and resilient poultry and goatery development.

Concluding Panel: Building a Common Minimum Framework for Poultry and Goatery Cluster

Development

The final session of the day, titled the Concluding Panel, was skillfully moderated by **Dr. Abhijit Mitra**, Animal Husbandry Commissioner, DAHD. The focus of this session was to consolidate key takeaways from earlier technical discussions and formulate a Common Minimum Framework (CMF) for the integrated and scalable development of poultry and goatery clusters across India.

Dr. Mitra opened the panel by reiterating the government's vision of leveraging livestock clusters as engines of rural economic transformation. He emphasized the importance of an inclusive approach that aligns stakeholder efforts, supports the last-mile producer, and promotes environmental and economic sustainability. "We are at a critical juncture where our collective insights must translate into an actionable framework. This framework should not only define operational benchmarks but also reflect the aspirations of rural communities who depend on small ruminants and backyard poultry for their livelihoods," he stated.

During the discussion, participants shared a variety of perspectives and field-level insights. Emphasis was placed on the need to standardize support structures across regions—ranging from input supply systems and veterinary services to training modules and digital monitoring tools. The CMF aims to serve as a guiding blueprint for

states, encouraging customized yet consistent implementation strategies while avoiding duplication and inefficiencies.

Key pillars of the proposed framework included:

- **Cluster Mapping and Prioritization:** Identification of high-potential districts based on livestock census data, market linkages, and socio-economic indicators.
- **Capacity Building:** Structured training programs for farmers, especially women and youth, focusing on scientific rearing practices, disease management, and enterprise development.
- **Convergence of Schemes:** Alignment of the National Livestock Mission (NLM) with state rural livelihood missions, NABARD programs, and tribal development initiatives.
- **Access to Finance:** Facilitating access to credit through SHGs, cooperatives, and FPOs, supported by interest subvention and risk mitigation mechanisms.
- **Monitoring and Evaluation:** Establishment of key performance indicators (KPIs) and real-time data systems for impact tracking and adaptive planning.

The panel acknowledged the diversity of conditions across states and emphasized the importance of flexibility in operationalizing the framework to account for regional variations in species preference, climate, resource availability, and socio-cultural practices.

Panel Discussion III: Strengthening Market Linkages for Poultry and Goatery Clusters

Earlier in the day, Panel Discussion III was held under the moderation of Dr. Sujit Kumar Dutta, Joint Commissioner (National Livestock

Mission), DAHD. The session focused on the urgent need to strengthen both demand-side and supply-side linkages for poultry and goatery clusters, which are often fragmented and under-resourced, despite being critical sources of income and nutrition in rural India.

Dr. Dutta set the tone by highlighting that while production interventions have shown positive outcomes in recent years, the absence of robust marketing infrastructure and cohesive value chains continues to limit the profitability and scalability of small livestock enterprises. “To truly empower our farmers, we must view value chains not just as economic linkages, but as livelihood lifelines. From farm to market, we must reduce leakages, increase transparency, and create systems that reward quality and efficiency,” he asserted.

Panelists and participants engaged in a dynamic exchange of ideas, examining bottlenecks and opportunities across the poultry and goat value chains. The discussion highlighted several critical areas for intervention:

- **Market Access and Aggregation:** The need for rural collection centers, mobile aggregation units, and cooperative market yards to enable bulk sales, reduce transaction costs, and strengthen bargaining power.
- **Cold Chain and Logistics:** Establishing cold storage facilities and decentralized slaughter units to reduce post-harvest losses and ensure product quality.
- **Branding and Certification:** Encouraging regional branding of indigenous breeds and local products, especially in organic

and antibiotic-free categories, to tap into premium markets.

- **Women-Led Enterprises:** Promoting gender-focused business models and leadership development among women farmers and entrepreneurs through tailored incubation support and cooperative membership.
- **Public-Private Partnerships (PPPs):** Leveraging private sector expertise in logistics, marketing, and technology to co-develop scalable, inclusive business models.

The session also featured presentations from successful grassroots organizations and self-help groups (SHGs) that have managed to create sustainable poultry and goat farming enterprises through community-based approaches. These case studies served as evidence of the immense potential that lies in collectivized, locally adapted systems.

A Shared Vision for Inclusive Growth

Both sessions converged on the common theme of creating holistic, ecosystem-based interventions that integrate production, infrastructure, market access, and capacity-building. The collaborative spirit of the discussions was evident, with participants from across sectors committing to contribute actively towards refining and implementing the Common Minimum Framework once finalized.

A key takeaway from the day was the recognition that poultry and goatery clusters are not mere economic units—they are platforms for rural transformation. They empower women, diversify incomes, ensure protein security, and build climate resilience when properly supported.

In his concluding remarks, Dr. Mitra emphasized, "The future of rural India lies in smallholder-driven models of growth. Poultry and goatery clusters hold the promise of inclusive, equitable development if backed by sound policies, integrated efforts, and persistent innovation. Let today's discussions not end in reports, but evolve into results on the ground."

Dr. Dutta added, "Our goal must be

to create models that are not only economically viable but also socially empowering. If we design with empathy and execute with excellence, these clusters can become the pride of India's rural economy."

Next Steps

Following the day's proceedings, DAHD will initiate consultations with state governments and

stakeholders to finalize the draft Common Minimum Framework. A national task force may also be constituted to guide implementation and ensure cross-sectoral coordination. The finalized strategy is expected to inform upcoming interventions under the National Livestock Mission and shape budgetary priorities for the upcoming fiscal year.



Writeshop on Cluster Development of Poultry & Goatery



 **Vigyan Bhawan, New Delhi.**

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

**POULTRY
PLANNER**

**DAIRY
PLANNER**



**ILDEX INDONESIA
JAKARTA, INDONESIA**

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.



ILDEX INDONESIA
JAKARTA, INDONESIA



Promotion of the Dairying Industry

To complement and supplement efforts made by the States and Union territories to improve milk production, the livelihoods of dairy farmers and ensuring self-sufficiency in the dairy sector, Government of India is implementing Rashtriya Gokul Mission and other schemes across the country including Odisha.

The implementation of the Rashtriya Gokul Mission and other initiatives by the Government of India has resulted in a significant 63.5% increase in milk production in the country over the past decade, rising from 146.31 million tonnes in 2014-15 to 239.3 million tonnes in 2023-24. Similarly, the milk production in Odisha has increased by 39% from 18.98 lakh tonnes in 2014-15 to 26.30 lakh tonnes in 2023-24.

1. Rashtriya Gokul Mission: This scheme aims at the development and conservation of indigenous breeds, genetic upgradation of bovine population, enhancement of milk production and productivity of bovines thereby making dairying more remunerative to farmers. The following steps have been undertaken under the scheme:

i. Nationwide Artificial Insemination Programme: The programme aims to enhance AI coverage and deliver quality Artificial Insemination (AI) services free of cost at farmers doorsteps using semen from high-genetic-merit bulls. In Odisha, till date 46.53 lakh animals have been covered, 61.10 lakh Artificial

insemination performed, and 29.48 lakh farmers have benefitted under this programme.

Accelerated Breed Improvement Programme using Sex-Sorted Semen: This program aims to produce female calves with up to 90% accuracy, thereby enhancing breed improvement and increasing farmers' income. Incentive upto 50% of the cost of sex sorted semen is available to farmers including small and marginal farmers engaged in dairying. Recently indigenously developed sex sorted semen production technology has been launched and with this technology cost of sex sorted semen will be reduced from Rs 800 to Rs 250/ dose. In Odisha, under this project so far 1,24,690 doses have been procured, and 38,398 farmers have been benefitted as per Bharat Pashudhan.

Multi-purpose Artificial Insemination Technicians in Rural India (MAITRI): MAITRIs are trained and equipped to deliver quality artificial insemination services at farmers' doorsteps and so far, 1500 MAITRIs trained and equipped in Odisha State.

ii. Accelerated Breed Improvement Programme using IVF Technology: For the first time in India, bovine IVF technology has been promoted for the development and conservation of indigenous breeds. An

incentive of ₹5,000 per assured pregnancy out of the total cost of ₹ 21,000 per assured pregnancy is provided to farmers under this program to encourage the development of indigenous breeds.

Launch of Indigenous Culture Media: An indigenous media for in-vitro fertilization (IVF) has been launched to further promote IVF technology in the country. This indigenous culture media is available at cheaper rates than the expensive imported media, making IVF technology available at reasonable rates.

iii. Strengthening of semen stations: In order to attain quantitative and qualitative improvement in semen production funds have been released to Odisha state for strengthening and modernization of one semen station located at Cuttack.

iv. Awareness Programme and farmer training programme: Funds have been released to Odisha for organization of fertility camps, milk yield competition, calf rallies and farmers training programme. So far, State has organised 1500 camps and trained 75,000 farmers for improving animal management, milk quality and productivity.

2. National Programme for Dairy Development (NPDD): The scheme 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. During last three years an amount of Rs. 1591.08 Lakh has been released to Odisha.

3. Livestock Health and Disease

Control Programme: The scheme is implemented for providing assistance for control of animal diseases like Foot and Mouth Disease, Brucellosis and also to provide assistance to State Governments for Control of other infectious diseases of livestock including dairy animals. Mobile Veterinary Units are also established under the scheme to deliver quality livestock health services at the farmers' doorsteps. The scheme is an initiative of the Department towards creating

disease-free zones in the country including Odisha thereby creating market opportunities of livestock products.

4. National Digital Livestock

Mission (NDLM): The Department of Animal Husbandry and Dairying (DAHD) along with NDDB has developed database named as "Bharat Pashudhan" under NDLM of Rashtriya Gokul Mission. This database has been developed utilizing a unique 12-digit Tag ID allocated to each livestock animal. In Odisha a total of 1.65 crore animals have been registered on the database. All the stakeholders are connected to the same database through an open-source API based architecture. NDLM is an initiative towards maintaining traceability of livestock thereby making value-added dairy products more competitive in

both national and international markets.

5. Export promotion and certification of livestock products

including value added dairy products is mandated to the Agricultural and Processed Food Products Export Development Authority (APEDA) and Export Inspection Council (EIC) under Ministry of Commerce and Industry. The Department has also taken up the issues related to export and market access of Indian Dairy products with various countries bilaterally through various platform such as Joint Working Group (JWG), Technical Working Group etc.

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 1st April, 2025.



ANIIDCO Announces Hike in Milk Procurement and Retail Prices to Support Dairy Farmers in Andaman & Nicobar Islands



In a strategic move aimed at bolstering the livelihoods of dairy farmers and ensuring the long-term sustainability of the dairy sector in the Andaman and Nicobar Islands, the Andaman & Nicobar Islands Integrated Development Corporation (ANIIDCO) has officially announced a revision in the procurement price of raw milk. Effective from May 1, 2025, the procurement rate for raw milk will be increased from ₹52 to ₹56 per litre.

This decision comes as a result of continued engagement with and appeals from dairy farmers, particularly from the South Andaman and North & Middle Andaman regions, where ANIIDCO operates the primary milk collection and distribution infrastructure. The upward revision marks a significant step toward improving the economic well-being of the Islands' dairy producers and promoting a

more sustainable and self-reliant dairy ecosystem.

Responding to Farmers' Demands: A Step Toward Equity

Over the past several months, dairy farmers across the Islands have voiced concerns regarding rising input costs, including cattle feed, veterinary care, and maintenance, which have adversely impacted their profit margins. In response to these demands and after careful deliberation, ANIIDCO has

undertaken this increase as a measure to directly support the farming community.

"This increase is not merely a revision of rates; it is a reaffirmation of our commitment to our local farmers," an ANIIDCO spokesperson stated. "We understand the pressures they face and are dedicated to ensuring that milk production remains a viable and sustainable livelihood."

The decision is also expected to stabilize milk supply, prevent migration from dairy to alternative occupations, and incentivize more rural households to participate in dairy farming as a source of income.

Retail Price Adjustments: Ensuring Continuity Without Compromise

To accommodate the increased procurement rate, ANIIDCO has simultaneously revised the retail

prices of milk and dairy products. The retail pricing adjustment ensures that the supply chain remains economically viable while continuing to deliver high-quality dairy products to consumers across the Islands.

The revised retail prices, effective May 1, 2025, are as follows:

- **Cow Milk (1-litre pack):** Increased from ₹86 to ₹90
- **Toned Milk (500 ml pouch):** Increased from ₹35 to ₹37
- **Double Toned Milk (1-litre pack):** Increased from ₹66 to ₹70
- **Curd (200 gm cup):** Increased from ₹32 to ₹33
- **Curd (200 gm pouch):** Increased from ₹21 to ₹25

These new rates reflect a carefully balanced strategy aimed at protecting consumer interest while ensuring that farmers are paid fairly. ANIIDCO emphasized that the revisions are minimal and essential to maintain the operational sustainability of the dairy sector.

Supporting Local Dairy Economies and Ensuring Self-Reliance

The dairy sector in the Andaman and Nicobar Islands plays a vital role in ensuring nutritional security and providing regular income to hundreds of rural households. By revising the procurement price, ANIIDCO is signaling its long-term vision of a self-sufficient dairy economy where farmers are recognized as critical contributors to the Islands' development.

ANIIDCO has also reiterated that every effort will be made to maintain the quality of its dairy products. "As we raise procurement and retail prices, our commitment to quality remains non-negotiable," the corporation stated. "We will

continue to invest in robust cold chains, quality testing, hygienic packaging, and timely delivery mechanisms.”

In recent years, ANIIDCO has undertaken several initiatives to modernize the dairy infrastructure, including the upgrading of chilling centers, deployment of automated testing units, and regular training programs for dairy farmers. The latest pricing reforms are a continuation of this broader vision of strengthening local agriculture and allied sectors.

Transparency, Accountability, and Stakeholder Engagement

The pricing revision was finalized after comprehensive consultations with multiple stakeholders, including dairy cooperatives, local farmer associations, veterinary experts, and supply chain managers. By fostering an open dialogue and transparent review process, ANIIDCO ensured that the decision aligns with the ground realities faced by producers and the expectations of consumers.

Dairy farmers across the Islands have welcomed the move. Many have expressed relief that their voices have been heard and translated into policy action. “This price revision will help us recover rising feed and healthcare costs for our animals,” said Ramesh Kumar, a dairy farmer from South Andaman. “It encourages us to stay committed to dairy farming.”

Consumer advocacy groups have also responded positively, appreciating the minimal impact on retail prices. “We understand that good quality milk at a sustainable price is a shared responsibility,” noted one local resident. “Supporting farmers means supporting the future of our food systems.”

Forward Outlook: Toward a Resilient and Inclusive Dairy Sector

The current rate hike is part of a broader roadmap for the dairy sector in the Islands. ANIIDCO is also exploring complementary strategies such as breed improvement programs, fodder cultivation initiatives, and digital milk collection systems. Plans are underway to further strengthen market linkages and expand the reach of dairy products to remote islands and tourism hubs.

The corporation also plans to launch awareness campaigns to inform consumers about the reasons behind the price adjustments and highlight the importance of supporting local producers.

“As we look ahead, our goal is to make the Andaman and Nicobar Islands a model for decentralized, inclusive dairy development,” the ANIIDCO spokesperson added. “We are committed to working hand-in-hand with farmers, consumers, and institutions to create a dairy system that is fair, efficient, and future-ready.”

Conclusion

ANIIDCO's decision to revise the procurement and retail prices of milk and dairy products is a milestone in the Islands' agricultural policy landscape. By addressing farmer concerns and ensuring equitable price distribution across the supply chain, the move aims to fortify the region's dairy economy and safeguard its food sovereignty.

With effective implementation and continued stakeholder engagement, this initiative is expected to benefit not only the farmers and consumers of today but also future generations seeking sustainable livelihoods through dairy farming.

MAITRIs: Taking Artificial Insemination Services to the Doorsteps of Farmers – A New Era in Rural Dairy Empowerment

In a transformative push toward improving livestock productivity and rural livelihoods, Multi-purpose Artificial Insemination Technicians in Rural India (MAITRIs) are revolutionizing the way dairy farmers access critical breeding services. These skilled technicians, trained under various national livestock development schemes, are now at the forefront of providing doorstep artificial insemination (AI) services, making scientific cattle breeding a reality for farmers in even the remotest corners of the country.

The initiative, supported by the Department of Animal Husbandry and Dairying (DAHD), Government of India, aims to bridge the gap between traditional animal husbandry practices and modern, scientific breeding techniques. By equipping youth, women, and rural entrepreneurs with hands-on training in AI and basic veterinary care, the MAITRI program is transforming them into change agents for genetic improvement and rural prosperity.

Empowering Rural India Through Technology

Artificial insemination, as a technology, has been globally recognized for its role in enhancing livestock quality, increasing milk productivity, and introducing

superior genetic traits into local breeds. However, in India, accessibility and awareness have been key barriers—until now.

MAITRIs have emerged as a game-changing grassroots intervention, bringing AI services directly to farmers' homes, reducing dependency on government veterinary infrastructure, and eliminating delays in service delivery.

Armed with training, AI kits, mobility solutions (like scooters or bicycles), and basic veterinary tools, these technicians are enabling farmers to make timely breeding decisions, manage heat cycles better, and improve calving intervals. In addition, they also create awareness around animal health, nutrition, vaccination, and reproductive management.

Training the Technicians: A Holistic Curriculum

The MAITRIs undergo an intensive training module that spans both theoretical and practical aspects of artificial insemination. The curriculum, designed in collaboration with leading veterinary institutions and livestock development boards, covers:

- Reproductive physiology and anatomy
- Estrus detection and heat synchronization
- Semen handling and insemination techniques
- Calving management and pregnancy diagnosis
- First-aid treatment for minor animal ailments
- Animal nutrition and hygiene
- Record keeping and mobile app usage for reporting

Trainees are selected based on their local knowledge, interest in animal care, and willingness to serve their



communities. Women candidates are especially encouraged to apply, aligning with national goals of promoting gender inclusion in livestock extension services.

Bringing AI to the Last Mile

One of the most impactful aspects of the MAITRI program is its last-mile service delivery. Unlike conventional veterinary services that require farmers to travel long distances to government veterinary hospitals or breeding centers, MAITRIs operate within their own villages or neighboring panchayats. This proximity enables rapid response times, reduced travel stress on animals, and timely inseminations, which are crucial for the success of AI.

Moreover, by using mobile apps and cloud-based reporting systems, MAITRIs also contribute valuable data for livestock monitoring, helping state and national authorities track AI coverage, conception rates, and animal health parameters in real-time.

Economic Upliftment and Livelihood Generation

Beyond their technical contribution, MAITRIs are creating sustainable livelihood opportunities for themselves and their families. By charging nominal fees for their services, many have become self-sufficient micro-entrepreneurs in rural dairy value chains.

Some have even diversified their service offerings to include fodder advisory, sale of mineral mixtures, pregnancy testing, and animal insurance facilitation, thereby boosting their income and relevance in the community.

In tribal and underserved regions, MAITRIs have become trusted allies of farmers, earning respect for their role in reducing animal infertility, increasing milk yields, and promoting breed upgradation through planned crossbreeding programs.

Testimonials from the Field

In villages across states like Uttar Pradesh, Odisha, Madhya Pradesh, Chhattisgarh, Bihar, and Rajasthan, MAITRIs have become familiar figures—often seen cycling to farms with liquid nitrogen containers or explaining the estrus cycle to first-time dairy farmers.

Sunita Devi, a MAITRI from Gaya, Bihar, shares, “Earlier, farmers had no idea about when to inseminate or what breed would improve their cattle. Now, they call me at the first sign of heat. Their cows are healthier, and they are happier. I feel proud to be part of this change.”

Ravi Kumar from Chhindwara, Madhya Pradesh, notes, “My AI success rate is nearly 65%. Farmers trust me now, and I’m also helping my family financially. I’ve even

trained two more people in my village.”

These stories are a testament to the socio-economic ripple effect of the program—empowering rural youth while also enhancing India's dairy productivity landscape.

Contributing to National Livestock Missions

The MAITRI initiative is a key enabler of national programs such as the Rashtriya Gokul Mission, National Artificial Insemination Programme (NAIP), and National Livestock Mission (NLM). These programs envision a robust animal husbandry sector that leverages genetic potential, reduces unproductive animals, and ensures better income for farmers.

By focusing on decentralized service delivery, MAITRIs help increase the AI coverage across states, reduce open days (the time between calving and conception), and accelerate genetic progress in bovines—both indigenous and crossbred.

The initiative also aligns with the Government of India's Atmanirbhar Bharat (Self-Reliant India) vision, emphasizing skill development, rural entrepreneurship, and inclusive development.

Challenges and the Road Ahead

While the MAITRI model has seen considerable success, there are areas that need continuous improvement, including:

- Expanding training facilities and seats to accommodate more aspiring technicians
- Ensuring regular supply of AI consumables and semen doses
- Providing refresher courses and advanced modules in reproductive technology
- Strengthening linkages with veterinary infrastructure and

animal health camps

- Facilitating soft loans or subsidies for MAITRIs to upgrade equipment or expand services

Policy-makers and program managers are working to refine these areas, with proposals to institutionalize MAITRIs within state animal husbandry departments, integrate them with Farmer Producer Organizations (FPOs), and promote digital payment options for seamless transactions.

Conclusion: A Model for Scalable Success

As India continues to move toward scientific, sustainable, and farmer-centric dairy development, the MAITRI program is emerging as a scalable and replicable model. It not only addresses the technical bottlenecks of artificial insemination but also uplifts human capital in rural landscapes.

MAITRIs are not just technicians—they are educators, entrepreneurs, and enablers of a new agricultural revolution powered by science and empathy. With continued support, training, and integration, they hold the potential to reshape India's rural dairy ecosystem from the grassroots upward.

Revised Prices for Nandini Milk and Dairy Products Implemented in Dakshina Kannada and Udupi Districts

In accordance with the directives issued by the Government of Karnataka and the Karnataka Milk Federation (KMF), the revised retail prices of Nandini brand milk and

various dairy products have officially come into effect across the Dakshina Kannada (DK) and Udupi districts. This pricing revision, which commenced on April 1, 2025, marks an important update in the region's dairy market and reflects broader state-level efforts to adjust product rates in alignment with increased production and distribution costs.

The Karnataka Milk Federation, one of the largest cooperative dairy federations in India, took this decision to ensure fair pricing for both consumers and milk producers, while continuing to maintain the high quality and availability of its well-regarded products under the 'Nandini' brand.

Revised Milk and Dairy Product Prices

As per the revised pricing structure, which is now applicable across retail outlets and authorized Nandini dealerships in the DK and Udupi regions:

- Toned Milk is priced at ₹24 for a 500 ml pouch and ₹46 for a 1000 ml (1-litre) pack.
- Homogenized Cow Milk is now available at ₹26 for 500 ml and ₹312 for a jumbo 6-litre pack.
- Shubham Milk, known for its rich taste and higher fat content, is priced at ₹27 per 500 ml.

In the curd category, which continues to be a staple in South Indian households:

- 200 g of curd is priced at ₹15.
- 415 g of curd is priced at ₹27.
- 6 kg jumbo pack of curd is priced at ₹336.

A range of value-added dairy beverages have also undergone price revision to reflect the updated input and logistics costs:

- Sweet Lassi (200 ml) – ₹15
- Mango Lassi (200 ml) – ₹19



- Masala Buttermilk (200 ml) – ₹12
- Spicy Buttermilk (180 ml) – ₹8
- Jeera Buttermilk (250 ml) – ₹14
- Plain Buttermilk (500 ml) – ₹26
- Plain Buttermilk (1000 ml) – ₹51

These pricing adjustments are part of KMF's continued efforts to maintain a sustainable value chain that benefits both milk producers and end consumers, especially amid the backdrop of rising operational expenses in the dairy sector.

Transitional Measures and Consumer Guidance

According to an official release issued by Mr. Vivek D, Managing Director of the Federation, milk and dairy products carrying the previously printed MRP labels will still be available in the market temporarily. This is a transitional arrangement to exhaust the existing inventory of packaging materials already printed with older prices.

Consumers are advised that although packaging might temporarily show older rates, the revised prices are legally applicable and binding at all points of sale. The federation has instructed all retailers, distributors, and authorized dealers to ensure that the updated prices are followed strictly in line with government notification.

"We appeal to all consumers to cooperate with this change, as the price adjustments are essential for sustaining our operations and ensuring consistent supply and quality," said Mr. Vivek. "We also request our channel partners to

prominently display the new prices and communicate them clearly to all customers."

Justification Behind the Price Revision

The decision to revise prices is based on several important considerations:

- Increased cost of cattle feed, transportation, energy, and packaging materials
- Inflationary trends in input costs
- The need to ensure fair and improved remuneration to dairy farmers, especially in the wake of higher feed and fodder costs and post-pandemic recovery challenges
- Commitment to maintaining quality assurance standards, including regular lab testing, cold chain logistics, and product innovation

These revised prices are meant to strike a balance between consumer affordability and producer sustainability, ensuring that Nandini continues to serve as a bridge between rural livelihoods and urban nutritional needs.

KMF's Continued Commitment to Quality and Supply

With a strong presence across Karnataka and neighboring states, the Nandini brand under KMF has consistently enjoyed the trust of millions of households. It remains synonymous with purity, quality, and affordability. The organization operates with the dual aim of ensuring fair returns to farmers while offering hygienic and nutritious dairy products to the public.

The federation sources milk from thousands of cooperative dairy societies across the state, many of which are located in remote and rural areas. By adjusting pricing fairly, KMF reinforces its commitment to empowering dairy

farmers and supporting their economic stability.

Even with the revised pricing, Nandini products remain competitively priced compared to similar brands in the market, offering better value for money, particularly when factoring in quality, taste, and trust.

Consumer and Market Reactions

Initial reactions from consumers in DK and Udupi have been mixed. While some expressed concerns about price hikes amidst other rising living costs, many welcomed the transparency and supported the rationale behind the adjustments.

Dairy vendors across both districts have begun updating point-of-sale materials and communicating the new prices through in-store displays and social media. Larger supermarkets and online grocery platforms have also been notified to reflect the new rates.

Several milk cooperative societies and farmer groups have expressed gratitude toward the federation, stating that the revision will help them better manage input costs and sustain their dairy businesses.

Looking Forward: Expansion and Innovation

KMF has hinted at future expansions in its value-added product range, including new flavors of lassi, fortified milk options, and organic variants of curd and buttermilk. The federation is also exploring digital innovations, such as a mobile app for doorstep delivery and subscription-based milk services in urban areas.

The price revision is seen not as a burden, but as an opportunity for KMF to strengthen its infrastructure, support systems, and innovation pipelines, while continuing to serve Karnataka's nutritional needs with integrity.

Editorial Calendar 2025

Publishing Month: January Article Deadline : 28th, Dec. 2024 Advertising Deadline : 30th, Dec. 2024 Focus : 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: May Article Deadline : 28th, April 2025 Advertising Deadline : 30th, April 2025 Focus : Nutrition	Publishing Month: June Article Deadline : 28th, May 2025 Advertising Deadline : 30th, May 2025 Focus : Milk - Production & Preservation	Publishing Month: July Article Deadline : 28th, June 2025 Advertising Deadline : 30th, June 2025 Focus : Monsoon Management	Publishing Month: August Article Deadline : 28th, July 2025 Advertising Deadline : 30th, July 2025 Focus : Sustainability
Publishing Month: September Article Deadline : 28th, August 2025 Advertising Deadline : 30th, August 2025 Focus : Processing & Packaging	Publishing Month: October Article Deadline : 28th, September 2025 Advertising Deadline : 30th, September 2025 Focus : Disease Prevention	Publishing Month: November Article Deadline : 28th, October 2025 Advertising Deadline : 30th, October 2025 Focus : Biosecurity	Publishing Month: December Article Deadline : 28th, November 2025 Advertising Deadline : 30th, November 2025 Focus : Winter Stress

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