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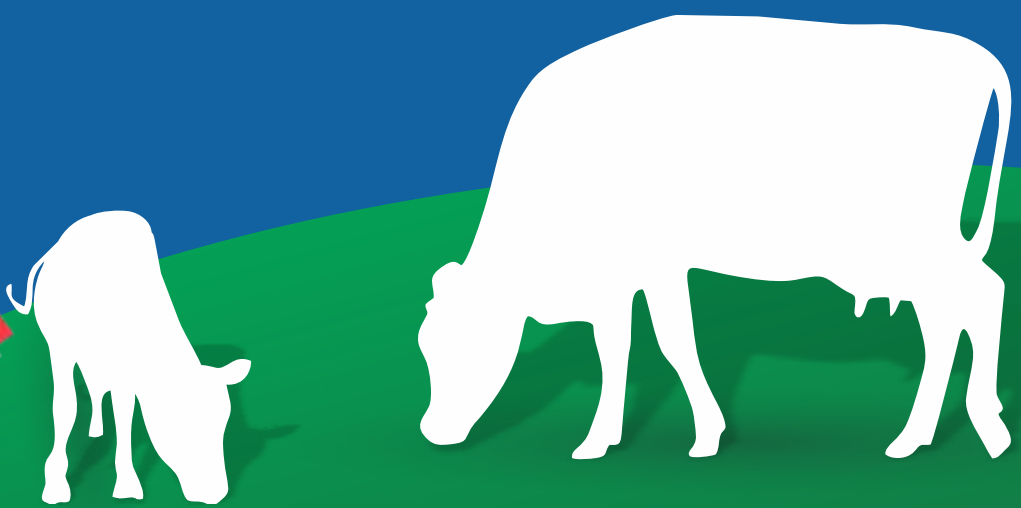

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Benefits of A2 Milk

Strong Teeth
Milk is the best source for calcium and that's exactly what your teeth need. In addition, milk helps prevent cavities and tooth decay.

Healthy Bones
It's true that kids need to drink milk to increase bone health, in order to improve proper growth.

Weight Loss
Studies have proven that women who drink milk daily are more likely to lose weight than women who do not drink milk.

Reduce Stress
Sit down and drink a warm glass of milk. This helps to relieve muscle tension and soothe your nerves.

Energy Booster
When you're struggling to get through the day and you need a little pick-me-up, reach for an ice cold glass of milk. You will feel revitalized in no time.

From the Pen of Chief Editor

Dairy's Future: Trends Shaping the Global Market in 2025

The global dairy market is a dynamic landscape, constantly evolving in response to consumer preferences, technological advancements, and environmental concerns. As we look ahead to 2025, several key trends are poised to shape the industry's future.

Sustainability is no longer just a buzzword; it's a critical factor for consumers and businesses alike. Consumers are increasingly demanding dairy products that are produced with minimal environmental impact. This has driven a surge in demand for organic, pasture-raised, and ethically sourced dairy. Dairy producers are responding by implementing sustainable practices, such as reducing their carbon footprint, minimizing water usage, and improving animal welfare.

Also consumer health and wellness are driving significant shifts in the market. Consumers are seeking dairy products that are not only nutritious but also align with their health goals. This has led to an increased demand for low-fat, low-sugar, and high-protein dairy options, as well as dairy products fortified with vitamins and minerals.

Moreover, innovation is playing a crucial role in shaping the future of the dairy market. From the development of new and improved dairy products to the adoption of cutting-edge technologies, innovation is driving growth and efficiency across the entire dairy value chain. This includes the use of precision agriculture techniques to optimize milk production, the development of novel processing technologies to enhance product quality and shelf life, and the application of data analytics to improve farm management and supply chain efficiency.

Furthermore, globalization continues to impact the dairy market, with increasing trade flows and interconnectedness between countries. This presents both opportunities and challenges for dairy producers and processors. While globalization can provide access to new markets and a wider range of raw materials, it also increases competition and exposes the industry to global economic and political fluctuations.

In conclusion, the global dairy market in 2025 is poised for continued evolution, driven by a complex interplay of factors, including sustainability, consumer health and wellness, innovation and globalization. Dairy producers and processors that embrace these trends, adapt to changing market conditions, and prioritize sustainability and consumer satisfaction will be best positioned for success in the years to come.

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PRESS RELEASE

ARTICLE

Calcium Dynamics in Post-parturient Dairy Cow

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Calcium dynamics in dairy cow describes the changes in blood calcium level and effect of these changes on their health and milk yield.

Blood calcium dynamics during early post-partum: Post-parturient inflammation leads to reduced blood calcium level in dairy cows. Blood calcium concentration classically decreases around the parturition, however, recover rapidly. Cows with milk fever have a more profound decrease in blood calcium concentration characteristically below 5.5 mg/dL due to sudden increase in calcium release from 10 to 30g per day.

Calcium homeostasis is challenged after calving in cows. Improving blood calcium after calving may be a useful strategy to reduce incidence of post calving disorders in order to improve performance of cows throughout the production. Milk calcium measurement is claimed to be effective to assess blood calcium level after calving in multiparous dairy cows as higher correlation was observed between plasma and milk calcium especially on 3rd and 4th day of calving (Aubineau et al., 2021). Serum calcium concentration in multiparous cows increases from day 1 to 3 after parturition, while it decreases in primiparous cows.

Voluntary oral aqueous calcium suspension or drink resulted in a relatively stable calcemia in cow after parturition as compared to solid calcium or bolus (Wilms et al., 2022).

Calcium dynamics during transition phase: When dairy cow transition from pregnanacy to lactation, she need more calcium to support milk production. This may some time lead to drop in blood calcium level, which can put the cow at risk of hypo-calcaemia. At start of lactation excretion of calcium increases from about 10g to 30g on daily basis.

Four types of calcium dynamics in post parturient cows (Seminara et al., 2023):

1) **Normocalcemic:** Sub clinical hypo-calcemia at no days in milk

2) **Transient hypocalcaemia:** Sub clinical hypo-calcemia at one day in milk

3) **Delayed hypocalcaemia:** Delayed sub clinical hypo-calcemia at four days in milk

4) **Persistent hypocalcaemia:** Sub clinical hypo-calcemia at both one and four days in milk

Plasma calcium concentration at calving vis-a-vis fertility: Management approach which minimize the reduction in blood ionized calcium concentration in the periparturient dairy cow are likely to improve reproductive outcomes like time of first service, time to conception and should be considered as a part of multifactorial protocol to optimising dairy cow fertility (Mahen et al., 2018).

Concept of negative energy balance (NEB): After parturition energy released in form of milk (energy output from cow unit) is more as compared to energy intake inform of food (energy input to cow unit) thus newly calved cow reaches a state of negative energy balance. In severity fatty acid released from adipose tissues leading to elevated level of NEFA (non-esterified fatty acids) and BHBA (beta hydroxy butyric acid) and finally it may cause metabolic disorder such as fatty liver and ketosis. Further inflammation and immune activation are additional cause of negative energy balance in fresh cows.

Immunity status: Hypocalcaemia decreases response of immune cells. It impaired neutrophil function and changed metabolism. Moreover, hypocalcaemia could be alleviated using calcium administration in cows challenged by lipopolysaccharide. While formulating on farm nutritional strategies, calcium metabolism and its critical role in fresh cow's immune function should be considered.

Normal healthy cows: In normal healthy cow blood calcium concentration is typically between 2.1 – 2.5 millimoles per liter. Calcium deficiency in cow leads to muscle tremors, weakness depression, moreover, cow more likely to get metabolic and infectious diseases. Calcium deficiency in cow supported by signs low appetite, cold ears, muscle tremors, weakness and depression. Common health issues caused by calcium deficiency include metritis, mastitis and left displaced abomasum (LDA). Other effect on health include stunted growth, delayed maturity, reduced fertility, lowered milk yield, fragile bones and paralytic warning sign.

Mastitis: Mastitis can cause a reduction in calcium in cow milk (Venjakob et al., 2021). The CACNA2D1 is voltage dependent calcium channel gene considered a candidate gene which influence mastitis.

Lameness: Calcium deficiency due to high production can cause a number of problems including lameness, especially in young animals. Serum calcium level was lower in lame cows as compared to healthy cows. Typical lame cows showed concentration of calcium as subclinical hypocalcaemia.

Factors affecting calcium dynamics in cow:

1) **Age:** Older cows are less able to mobilize calcium from the skeleton system to blood.

2) **Breed:** Incidence higher in Jersey and Guernsey breeds

3) **Estrogen:** High level of Estrogen around calving inhibits calcium mobilization.

4) **Calving:** Feed intake decreases around calving which ultimately reduces calcium intake.

5) **Lactation:** During lactation release of calcium through milk increases from 10-30 gm per day. A litre of cow milk with 4% fat contains about 1.22 grams of calcium. Cows entering in third or later lactation are more susceptible to milk fever.

6) **Hypocalcaemia:** It is also described as milk fever. If calcium intake is severely deficient cattle may develop rickets, weak skeleton or bone fracture due to fragile weak bones.

7) **Parturient paresis:** Disease of adult dairy cows with

flaccid paralysis, condition occurs when blood calcium fall below 5.5 mg/dL.

8) **Serum calcium concentration:** Normal serum calcium concentration for normal healthy cow is between 2.1-2.5 millimoles per liter. Serum concentration below 2.0 mmol/L considered as hypocalcaemia. Serum calcium concentration can be affected by time, parity, metritis etc. including other factors like dietary, physiological and environmental conditions.

Essentiality of Calcium in cow:

1) **Bone health:** Calcium is important component of bones therefore young animals require adequate calcium for proper growth.
2) **Milk production:** Calcium is essential for milk production.
3) **Muscle activity:** Calcium is essential for muscle activity.

Clinical vs. Subclinical hypocalcaemia: Symptoms of clinical hypocalcaemia include weakness, depression, muscle tremors or sternal recumbency. Moreover, subclinical hypocalcaemia diagnosed with blood test but the cow did not show clinical signs.

Signs and symptoms of calcium deficiency in cow: Sign and symptoms of calcium deficiency in cow include-

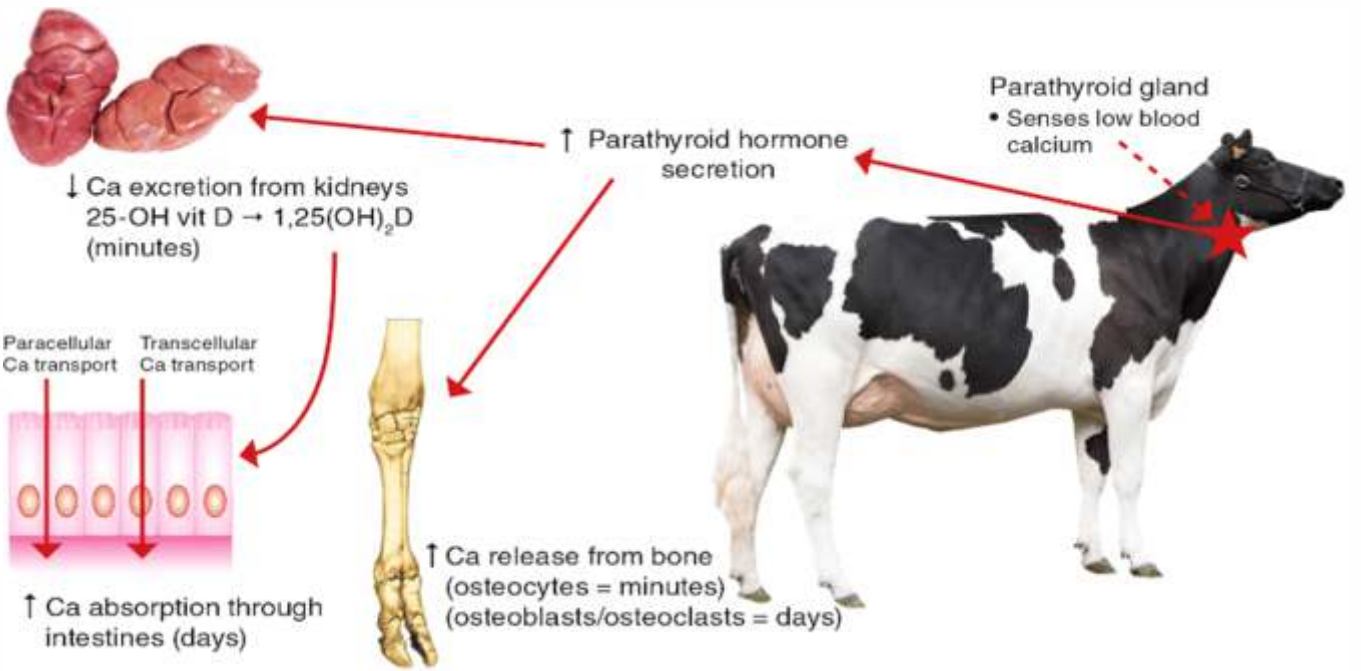
1) **Anorexia:**
2) **Confusion:**
3) **Dry-muzzle:**
4) **Subnormal body temperature:**
5) **Cold extremities:**
6) **Low heart rate:**
7) **Decreased intensity of heart sound:**
8) **Weak peripheral pulse:**
9) **Inability to urinate:**

Calcium channels: In cow calcium channels are found in the plasma membrane of cells. It is protein complexes which regulates the flow of calcium ions into cells.

Inflammation vs. calcium concentration: Systemic inflammation led to reduced blood calcium concentration in dairy animals (Neves, 2023).

Milk and blood calcium association: Milk calcium measurement is effective technique to assess blood calcium levels after calving in cows especially multiparous (Aubineau et al., 2021).

Role of parathyroid in calcium balance: When parathyroid gland senses low blood calcium, it increases parathyroid hormone (parathormone) secretion which ultimately increases calcium release from bone and calcium absorption through



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intestine and decreases calcium excretion from kidney.

Improving calcium in cow: Cattle may be offered legume fodders, maize fodders, tree leaves in food items. Mineral mixture may be included in drinking water to improve calcium status in body of animals. Access to sun is provided during cool hours in order to produce Vitamin D. Feeding green grass adlib after milking is common practice to overcome calcium deficiency in cow. Feeding acidogenic diet before parturition is most common practice to avoid calcium deficiency in blood.

Calcium supplementation bolus vs. liquid: Cow can be given supplements as oral liquid are more stable as compared to bolus.

Injectable calcium therapy: Cows in stage 2 or 3 of milk fever can be injected with calcium intravenous, however, too much of calcium given too quickly may results in heat attack. In order to avoid heart attack due to calcium drip Avil injection may be given intramuscular prior to intravenous calcium drip.

Calcium carbonate in feed and serotonin in blood: Calcium carbonate can be added to the feed in order to improve bone mineral density, prevent bone disorders and promote skeletal integrity. Moreover, elevation of circulating serotonin improves calcium dynamics in peripartum dairy cows (Weaver et al., 2016).

Reducing dietary cation-anion difference (DCAD) and using calcium binders: Reducing DCAD include reducing potassium and sodium and increasing chloride and sulphur in diet and adding anionic salts or increasing dietary acidity.

Urine & blood pH of cow: Urine pH should be (reduced from 8.0) checked and maintained between 6.0-6.8. moreover, blood pH should also be reduced slightly from 7.46 to 7.38.

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The Wonders of Goat Milk: Composition and Its Impact on Human Health

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Goat milk, often overshadowed by its more popular counterpart, cow milk, is gaining recognition as a nutrient-rich alternative with remarkable health benefits. With its unique composition and digestibility, goat milk has carved a niche in the world of nutrition and health. Let's delve into what makes this "white gold" so special.

Nutritional Composition of Goat Milk

Goat milk is a powerhouse of nutrients, boasting a composition that is distinct from cow milk. Here's a breakdown of its key components:

- **Proteins:** Goat milk contains high-quality proteins, including all essential amino acids required by the human body. The protein molecules in goat milk are smaller, making them easier to digest and less likely to cause allergic reactions.
- **Fats:** The fat globules in goat milk are smaller compared to those in cow milk, which enhances digestibility. It is also rich in medium-chain triglycerides (MCTs), a type of fat that provides quick energy and supports metabolic health.
- **Carbohydrates:** Goat milk contains slightly less lactose than cow milk, making it a viable option for individuals with mild lactose intolerance.
- **Vitamins:** It is a rich source of vitamin A, which supports vision and immune function, and vitamin D, crucial for bone health. Goat milk also contains significant amounts of niacin, riboflavin, and B6, which contribute to energy metabolism.
- **Minerals:** Goat milk excels in its mineral content, particularly calcium, magnesium, and potassium. These are vital for maintaining strong

bones, regulating muscle contractions, and supporting cardiovascular health.

Health Benefits of Goat Milk

1. **Improved Digestibility:** Due to its smaller fat globules and softer curd formation in the stomach, goat milk is gentler on the digestive system. This makes it ideal for infants, the elderly, and individuals with sensitive stomachs.
2. **Lactose Intolerance Relief:** Although not completely lactose-free, the lower lactose content in goat milk can make it more tolerable for those with mild lactose intolerance compared to cow milk.
3. **Boosts Immunity:** The high levels of selenium in goat milk play a pivotal role in enhancing immune function and protecting the body against oxidative stress.
4. **Supports Bone Health:** With its abundant calcium and vitamin D content, goat milk contributes significantly to maintaining bone density and preventing conditions like osteoporosis.
5. **Anti-inflammatory Properties:** Goat milk contains oligosaccharides, which act as prebiotics to promote gut health and reduce inflammation. This can be particularly beneficial for individuals with irritable bowel syndrome (IBS) or inflammatory bowel diseases.
6. **Skin Health:** Goat milk is rich in alpha-hydroxy acids, such as lactic acid, which help exfoliate dead skin cells and promote smooth, youthful skin. This is why goat milk is a popular ingredient in skincare products.

Goat Milk vs. Cow Milk

While both cow and goat milk have their merits, goat milk offers unique advantages for those seeking better digestibility and a nutrient-dense alternative. It's also less likely to cause allergic reactions due to the absence of a protein called alpha-S1 casein, which is more prevalent in cow milk.

Incorporating Goat Milk into Your Diet

Goat milk can be consumed as is or used to prepare a variety of products, such as cheese, yogurt, and kefir. Its naturally creamy texture and slightly sweet flavor make it a versatile ingredient in cooking and baking. For those who are new to goat milk, start by adding small amounts to your diet to allow your taste buds and digestive system to adjust.

Conclusion

Goat milk is not just a nutritious beverage; it's a boon for human health with its myriad benefits. Whether you're looking to improve digestion, support bone health, or boost your immunity, this nutrient-packed alternative deserves a spot in your diet. As awareness grows, goat milk is poised to become a staple in households worldwide, offering a wholesome and natural solution for better health.

Digital Transformation: The Role of Tech in Dairy Distribution

Siddhi Gupta
Co-Editor

Internet of Things (IoT) and Real-Time Monitoring

One of the cornerstones of digital transformation in dairy distribution is the Internet of Things (IoT). IoT devices, such as sensors, track and monitor the conditions of dairy products at every stage of the supply chain, from production to transportation to storage. These sensors can collect data on temperature, humidity, and location in real time, which is especially important for perishable goods like dairy.

For instance, milk and other dairy products are highly sensitive to temperature changes. IoT sensors ensure that dairy products are transported under the right conditions, preventing spoilage and loss. Real-time monitoring also provides distributors with valuable insights into the location and status of shipments, improving route planning and reducing delays.

Blockchain for Transparency and Traceability

- Blockchain technology is increasingly being applied to dairy distribution to enhance transparency and traceability. Blockchain allows stakeholders across the dairy supply chain to securely share data in a decentralized manner. For example, a consumer can scan a product's barcode to learn about its entire journey—from the farm to the processor to the retailer.

This level of transparency is crucial for building consumer trust, especially as demand for sustainable and ethically produced products grows.

- Beyond improving transparency, blockchain can also streamline administrative processes by providing an immutable record of transactions. This is particularly valuable in international trade, where complex regulations and documentation often slow down the distribution process. Blockchain simplifies record-keeping, reduces errors, and minimizes the potential for fraud.

Artificial Intelligence (AI) and Predictive Analytics

Artificial intelligence (AI) and machine learning (ML) are being used across the dairy supply chain to analyze vast amounts of data and make more informed decisions. By processing historical data, market trends, and weather patterns, AI tools can help dairy distributors predict demand fluctuations, optimize inventory levels, and forecast production schedules.

For example, predictive analytics can provide insights into which regions will experience higher demand for certain dairy products, helping distributors adjust logistics and ensure timely deliveries. AI-powered systems can also identify inefficiencies in supply chain operations, such as underused transportation routes or excessive product waste, enabling companies to optimize their processes.

E-Commerce and Digital Platforms

The rise of e-commerce has fundamentally changed the way consumers purchase dairy products. With more people opting for online grocery shopping, dairy distributors are increasingly relying on digital platforms to sell products directly to consumers. This shift has opened up new channels for dairy companies to reach customers and has also led to the growth of direct-to-consumer (D2C) models.

Digital platforms, mobile apps, and online marketplaces provide consumers with greater convenience and access to a wider range of dairy products. Additionally, these platforms enable dairy companies to engage directly with consumers, gather feedback, and offer personalized recommendations based on buying history.

For dairy distributors, adopting e-commerce solutions provides the opportunity to tap into new market segments and extend their reach. This can be especially beneficial in regions where traditional retail infrastructure is limited or where consumers are increasingly relying on digital means for shopping.

Challenges and Considerations

While digital transformation offers numerous benefits, it also presents challenges. One of the key hurdles is the integration of new technologies into existing systems. Many dairy distributors still rely on traditional methods of managing supply chains, and transitioning to digital solutions requires substantial investment and training.

Data security and privacy are also concerns. The use of technologies like IoT and blockchain involves the collection and sharing of sensitive data, which requires robust cybersecurity measures to prevent breaches.

Finally, there is the challenge of ensuring that smaller dairy producers and distributors can access and adopt these technologies. While large companies may have the resources to invest in advanced digital tools, smaller players may struggle to keep up. Industry-wide collaboration and support for digital adoption at all levels will be crucial for the success of digital transformation in dairy distribution.

The Future of Dairy Distribution

The digital transformation of dairy distribution is reshaping the industry in profound ways. From real-time monitoring and blockchain transparency to predictive analytics and e-commerce, technology is driving greater efficiency, sustainability, and customer satisfaction across the entire supply chain. As the global dairy market continues to evolve, embracing digital technologies will be essential for companies to meet growing demand, reduce environmental impact, and stay competitive.

However, for the digital revolution to be truly successful, the entire dairy ecosystem from producers to distributors to consumers must be equipped with the right tools and knowledge to navigate this transformation. As the industry continues to innovate, the potential for a more efficient, transparent, and sustainable dairy distribution system is within reach.

Effect of Winter Stress on Small Ruminants in North Eastern part of India

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Goat farming has a huge potential to generate income, employment and upliftment of socio-economic status of rural poor. It is a multifunctional animal supplying meat, milk, fiber, and also manure for agriculture.

The goat population contributes 27.80 percent of the total population livestock in India (536.76 million). During 2023, India produced over 1413.62 tons of goat meat which is 14.47 percent of total meat production in India. India stands as 2nd largest goat meat producing country in the world. Substantial quantity of chevon 17.47 tons is produced in Assam. India ranks first in goat milk production in the world and in 2023 goat milk production in India was 7599.60 tons, which is 3.3 percent of the total milk production of India. However, in Assam only 13.81 tons of milk was produced (BAHS-2023). In Assam, the goat population is approximately 4.32 million and it constitutes 24 percent of the total livestock population in Assam (20th Livestock Census, DAHD, GoI). Goat farming for meat (chevon) production holds significant potential in Assam, where a predominantly non-vegetarian population drives high demand for chevon and its related products. Goats in the region are raised under different systems as reflected according to location, intended use, and economic circumstances. In Assam, goat farming is predominantly practiced by economically weaker farmers and rural women, who often lack the resources for substantial capital investments. Therefore, optimizing housing costs is critical to maximizing profitability in goat farming ventures.

In the Northeast, where high humidity, heavy rainfall, and cold winters prevail, slatted houses with raised floors are ideal as they help maintain a dry, parasite-free environment and provide better protection during winter month. Effective housing management is essential for newborn kids to reduce their mortality during winter season. The comfort and welfare of animal depend significantly on the quality of housing and flooring. The primary purpose of animal shelter is to mitigate climatic stress and create favourable microclimatic conditions, minimizing discomfort and enhancing productivity. Properly ventilated sheds with dry surroundings improve air quality and reduce disease incidence. Cold environments can be especially challenging for young kids, with potential losses of up to 30 percent during severe winter period. New born kids are highly susceptible to cold due to their underdeveloped

thermoregulatory system, and thus, a warm, controlled environment is crucial for the initial few days and till weaning age to support their survivability and health. Kid mortality in the pre-weaning period is often attributed to poor growth rates influenced by inadequate housing, insufficient ventilation and winter stress. These factors not only impact growth but also increase susceptibility to diseases and parasitic infestations. Parasitic infestations, are a major concern in goat health management. It adversely affects growth and productivity leading to significant economic losses. Addressing parasitic diseases through improved housing and management practices can, therefore, could enhance productivity. Given that crossbred kids experience higher mortality rates than indigenous breeds due to genetic incompatibility and adaptability issues, ensuring appropriate environmental conditions becomes crucial for optimizing their health and growth.

Environmental conditions, particularly temperature and humidity, significantly influence livestock productivity. During stress periods, animals often spend energy to maintain homeostasis, diverting resources away from growth and production. In Assam, for instance, winters are marked by temperatures dropping below 10°C from November to February. Fog is also common in winter, creating additional environmental stress. The ideal ambient temperature for adult goats is between 15-25°C. Above 80°F (26.6°C) and below 10°C, goats may experience severe heat and cold stress respectively. For optimal health, barn humidity should not exceed 70 percent and airflow at the animal's level should be below 1.6 feet per second (0.5 meters/second) for adults and 0.65 feet per second (0.2 meters/second) for kids. (Corcy et al.,2002).

The goat population in Assam has declined by about 30 percent since the previous 19th livestock census. Given the widening gap between the demand for goats and chevon in Assam, maintaining a healthy goat population is of utmost essential. Bedding materials like sawdust, straw, or rice husks are essential to keep the floor dry and warm, while protective covering of pen by gunny bags and blankets. In some cases, heat lamps may also be necessary. Hypothermia poses a significant risk to newborn kids, highlighting the importance of proper housing, nutrition, and hydration to mitigate cold stress. Climatic factors directly and indirectly affect livestock. These impacts are observable through the neuroendocrine system's response to conserve or dissipate heat. Animals respond to environmental stress by modifying their metabolic rates to maintain thermal balance. Physiological responses such as respiration, pulse, and body temperature can provide insights into animals' adaptability to specific climates. During winter, bedding materials with low thermal conductivity are crucial for conserving body heat, as they enhance lying comfort and prevent productivity losses due to cold stress. Without appropriate bedding, animals may experience discomfort, reduced productivity, and increased susceptibility to diseases and parasitic infestations. Proper bedding is essential to maintain a favourable microclimate within the thermo-neutral zone, thus allowing animals to devote more energy toward growth and productivity.

Winter stress significantly impacts the productivity and welfare of small ruminants, as cold stress affects biological functions, alter antioxidant and hormone levels, and ultimately compromise health, production, and reproduction It is obvious that extremely cold weather conditions have a detrimental impact on the growth performance of goats, particularly affecting younger animals. It is generally recommended that the temperature inside the shelter for kids aged three months or younger remains above 10°C. In climatic regions where temperatures regularly drop below this threshold, additional measures are required to ensure their well-being.

Forecasting and Forewarning Techniques of Animal Diseases

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Introduction

Forewarning and forecasting of animal diseases are essential for maintaining livestock health and preventing outbreaks that may have significant implications for the economy and public health. Technologies like data analysis and modeling has revolutionized the way for epidemiologists and veterinarians predict and diagnose animal diseases.

Forecasting and Forewarning

Forecasting and Forewarning is the process of making future predictions using past and present trends. Animal disease forecasting is a management system used to predict occurrence or spread of disease and suitable methods to study disease using the epidemiological triangle i.e. Pathogen, environment and host.

Principles

Three fundamental ideas form the basis of this forecasting process:

- Data collection from sources such as district veterinary dispensaries and the NADRS portal.
- Analytics, which transforms data into geographic models using machine learning algorithms.
- Communication, which focuses on implementing disease surveillance into practice based on the analytical insights across different regions.

Objectives of Forecasting

1. To investigate the routes of transmission and to learn how to prevent the spread of epidemic diseases
2. To monitor the effectiveness of disease control campaigns
3. Emergency preparedness & disease management strategies
4. To demonstrate knowledge about the epidemiology of diseases

Various Mobile Apps Created for Forecasting and Reporting Diseases

- Livestock Disease Forewarning App: NIVEDI created this app, which gives disease forewarnings in

रापजासूविसं
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advance of two months.

- IVRI Zoonoses App: Basic information regarding important zoonotic illnesses and national disease control programs are provided by this app.
- IVRI Disease Control App: This software, which covers symptoms, diagnosis, treatment, prevention, and control strategies, was created to educate users about significant diseases that impact dogs, poultry, and livestock.

National Animal Disease Referral Expert System (NADRES)

National Animal Disease Referral database is a weather-based forewarning system enabled with an artificial intelligence system developed by ICAR-National Institute of Veterinary Epidemiology & Disease Informatics Bengaluru, Karnataka state, India that forecast potential threats from pathogens two months in advance to provide the stakeholders with sufficient timeline for awareness and preparedness to act.

In order to predict output (infectious risk prediction) values that lie within a reasonable range, artificial intelligence (AI) and machine learning (ML) models utilises preprogrammed algorithms that receive and analyse input data.

Machine Learning-Based Disease Diagnosis and Forecasting

- Identification of Subclinical Mastitis in Cows: Subclinical mastitis in cows has been identified with the use of machine learning. To forecast somatic cell count, a decision tree system uses multiple input datasets, including electrical conductivity, volume, lactose, milking duration, fat, protein, and peak flow.
- Lumpy Skin Disease (LSD) Prediction: Artificial Neural Networks (ANN), a type of machine learning model, are used to predict the occurrence of LSD based on information about land cover, elevation, population density, and weather.

Geographic Information System & Remote Sensing

Geographic Information Systems (GIS) provide abilities for geographical analysis and visualization to monitor the spread of epidemic diseases. Because of its ability to acquire and analyse spatial data and its extensive spatial analytic features, it is appropriate for the development of a disease tracking and prevention system. The Institute has mapped the prevalence of ovine herpes virus-2 and bluetongue (BT) using this method. Finding regions with high bluetongue prevalence aids in the planning, execution, and distribution of resources for appropriate control measures.

Global early warning and response system (GLEWS)

GLEWS is a collaborative system that enhances the value of integrating and coordinating the alarm and response mechanisms created by WHO, FAO, and OIE. The GLEWS uses epidemiological analysis, information sharing, and cooperative field missions to evaluate and control outbreaks to predict, prevent, and manage the risks of animal diseases, including zoonoses.

Conclusion

The integration of modern forecasting techniques such as GIS, AI, and statistical modeling is revolutionizing how we predict and manage animal diseases. By leveraging these technologies effectively, stakeholders can mitigate risks associated with livestock diseases, ultimately protecting public health and ensuring food security.

Future Directions

The future of animal disease forecasting lies in enhancing the accuracy of predictive models through improved data collection methods and advanced analytical techniques. Collaboration among veterinarians, epidemiologists, and data scientists will be crucial in developing robust systems that can adapt to changing environmental conditions and emerging pathogens.

Opportunities and Challenges for Smart Livestock Production in India

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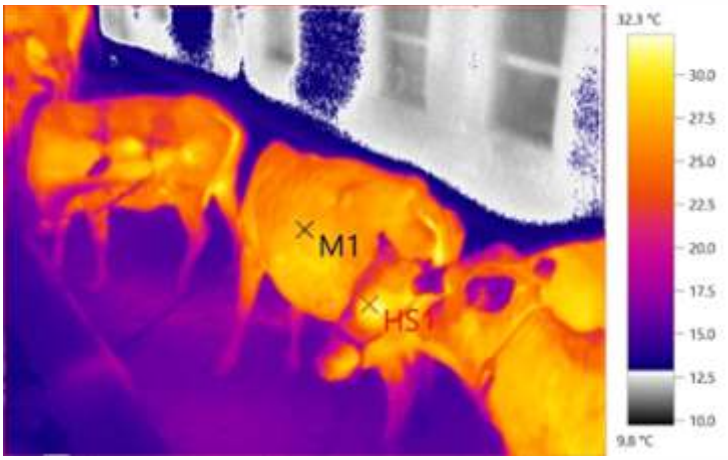
Introduction

Livestock sector has an important role in nutritional and food security for expanding global population, along with nutritional and food security livestock sector plays multifaceted role in socio-economic development of rural households.Livestock sector is likely to emerge as a big agriculture based business in the coming decades. This sector is also considered as a potential sector for export earnings. Beyond food production, livestock sector also contributes in draught power, organic manure, hides, skin, bones, blood and fibers to the industrial sector. There are several challenges to this sector which hurdles in achieving any target in the future.According to changing scenario livestock production should be smart for maximum benefit and minimum production losses. Smart livestock farming is a key step to achieve the sustainable development of smart farms, but it is still in the initial stage and has broad prospects. In order to realize precise livestock production, it is necessary to speed up the popularization of intelligent technologies such as environmental control, disease early warning, precise feeding, Geofencing and remote diagnosis.

Smart Livestock Production

One of the fundamental subfields of agriculture is animal husbandry which deals with the administration, breeding, and care of the animals. But the animal husbandry practices are labour oriented and time consuming. With the help oftechnology, we can make these labour oriented process into simpler process. There are various types of wearable and implantable sensors which can detect behaviour, physiological parameters, location, reproductive cycle and bacterial

(a) Real time image



(b) Infra red camera image to detect abnormal body temperature of animal

concentration in milk. These tools make animal husbandry practices less labour intensive and more economical. Other sensors which detect ambient temperature and relative humidity are available which indicate animal house temperature, excessive THI sends a warning to farmer which makes them aware to take necessary action.

Working of Wearable sensors

1. **Monitoring of Animals**

   The monitoring system has many different goals, such as observing the migration patterns of wild animals and studying the grazing animals' behaviour. It can be difficult and labor-intensive to locate grazing animals in pastureland. This method of animal husbandry is used in nations where pasture grazing is favoured to stall feeding. Sensors can be placed with animals and information can be gathered from these sensors.

2. **Detection of behaviour**

   The analysis of the health and nutritional status of the animal is made possible by the behaviour that sensors can detect. The information gathered by sensors can be used by farmers to make decisions, such as the number of fence violations, preferred grazing locations and times, and the animal activity hours and transit times.

3. **Geofencing**

   By using GPS or RFID technology to create a virtual geographic boundary, a technique known as geofencing allows software to be triggered when an animal enters or exits a specific area. Farmer attaches animals with includes sensors and a GPS tracking unit as part of an animal husbandry method based on a pasture system. These sensors are used to track the whereabouts of the animals. In order to create a geofence around the grazing area, geofencing uses the GPS network as well as additional tools like Wi-Fi nodes and Bluetooth beacons.

4. **Estrus detection**

   An application one of the most significant obstacles to stable and effective management is the improvement of the cow conception rate.Cows show signs of sensitivity, increased activity, restlessness, growling frequently, sniffing other cows, and refusing to be mounted by other cows during the proestrus phase, however during the estrus phase, cows are regularly moving around and ready to be mounted by other cows.

5. **Vaginal sensors**

   A wireless insertion sensor can be used to measure vaginal temperature, and the results indicated a strong association with rectal temperature. These sensors not only measure temperature but also assist in determining the precise time of calving. Traditional calving requires farmers' attention and frequent verification of whether parturition has begun or not, therefore calving time prediction is virtually impossible.

6. **Measurement of Physiological variables**

   To count the movements, the animal monitoring device can be put into the leg of the cow. During heat stress (HS), the cow produces less milk with the same nutritional input, increasing the farmer's production expenses. With increasing stress, an animal's body temperature and respiration rate also increase. A variety of sensors are used to identify changes in body temperature, pulse, and heart rate in animals that indicate stress.

7. **Disease Detection**

   Animals might become ill for a number of causes. It is impossible to check on every animal in a herd every day. The animal's illness is contagious, making it potential for other animals to contract it and die if it is not discovered in time.In order to solve this problem and find an automotive technique of animal health monitoring, we move towards automatic sickness detection.

Challenges for smart livestock production

Economic Efficiency

In livestock economics, one of the most important characteristics is a low rate of profit of an investment project, which presents many risks from natural conditions. The benefit–cost of a new technology seeking deployment in livestock should be carefully calculated to ensure a trade-off between the cost of technology implementation and the profit potential. The system initializing cost include purchasing of wearables and hardware.The system operating cost includes service registration cost and the cost of labour to manage smart devices.

Technical Problem

Large-scale IoT device deployments for smart agriculture might conflict with various network architectures, particularly with IoT networks using low spectrum bands like ZigBee, Wi-Fi, Sigfox, and LoRa.Interference can degrade system performance as well as reduce the reliability of IoT ecosystems. IoT networks that use cognitive technology to reuse unlicensed spectra increase the cost of the device.

Conclusion

Smart livestock production is a fascinating term which requires mixture of technology and economic input, mostly livestock rearers of India are small scale, marginal and landless so they cannot afford such expensive technologies, however government subsidy can promote smart livestock production for small and marginal farmers.

Sustainability and Innovation: Driving the Global Dairy Market:

Parth Rai Gupta
Co-Editor

The global dairy industry has been undergoing a transformative shift in recent years, with sustainability and innovation at the forefront of this change. These two factors are driving the sector's growth, addressing environmental concerns, and shaping consumer preferences. As the world faces increasing pressure to mitigate climate change and meet growing food demands, dairy producers are leveraging new technologies, production methods, and sustainable practices to stay competitive in a rapidly evolving market.

The Rising Demand for Sustainable Dairy

The global dairy market is vast, with products like milk, cheese, yogurt, and butter being staples in many diets. According to the Food and Agriculture Organization (FAO), the global demand for dairy products is expected to increase significantly by 2050 due to rising population levels, urbanization, and a growing middle class in developing countries. While demand for dairy products continues to surge, consumers are becoming more conscious of the environmental and ethical implications of their food choices.

This has led to an increased demand for sustainable dairy products, which are produced with minimal environmental impact and adhere to ethical animal welfare standards. According to a 2020 Nielsen report, 73% of global consumers say they are willing to pay more for products that are sustainable and eco-friendly. Dairy brands have responded to this demand by adopting sustainable farming practices, reducing carbon emissions, and increasing the transparency of their supply chains.

Innovation in Dairy Farming

- **Reduction of Methane Emissions:**
- Methane is a potent greenhouse gas emitted by cows, contributing to climate change.
- Strategies are being developed to reduce methane production, including altering cows' diets.
- Adding supplements like seaweed to cow feed has been shown to reduce methane emissions by up to 30%.
- Advances in breeding techniques have led to the development of

cows that naturally produce less methane.

- **Precision Agriculture:**
- Technology such as sensors, drones, and AI-driven analytics are used to monitor individual cow health and optimize feeding routines.
- These tools help track environmental factors with precision, reducing resource waste like feed and water.
- Precision agriculture ensures cows are healthy and productive while minimizing environmental impact.
- **Robotic Milking Systems:**
- Robotic milking systems are increasingly being used in modern dairy farms.
- These systems automate the milking process, improving efficiency and animal welfare.
- Robotic systems reduce labor costs and energy usage, helping to minimize the environmental footprint of dairy operations.

Sustainable Dairy Processing and Packaging

Innovation also plays a significant role in dairy processing and packaging, areas where sustainability can have a major impact. Traditionally, dairy products have been packaged in single-use plastics, which contribute significantly to environmental pollution. In response, dairy companies are working to reduce packaging waste through innovations in recyclable materials, biodegradable packaging, and reusable containers. For instance, several brands have started using plant-based packaging materials made from renewable resources such as corn starch or sugarcane, which are biodegradable and compostable.

In addition to packaging innovations, dairy producers are focusing on energy-efficient processing techniques. The dairy industry requires substantial amounts of energy to pasteurize, cool, and process milk and other dairy products. New technologies, including energy recovery systems, heat exchangers, and renewable energy sources like solar and wind, are helping dairy plants reduce their carbon footprints. For example, some dairy companies are investing in solar farms to power their production facilities, while others are exploring waste-to-energy solutions by converting by-products from the dairy process into biogas that can be used for energy.

Plant-Based Alternatives and Diversification

Another significant development in the dairy market is the rise of plant-based alternatives. As consumers become more health-conscious and environmentally aware, there is an increasing preference for non-dairy products such as plant-based milks (e.g., almond, oat, and soy milk), plant-based cheeses, and yogurts. These alternatives are typically seen as more sustainable, as they require fewer resources like water and land and produce fewer greenhouse gases compared to traditional dairy farming.

Dairy companies have recognized this trend and are adapting by expanding their product lines to include plant-based options. This has led to a diversification of the dairy sector, with both traditional dairy and plant-based products now coexisting in the marketplace. Some established dairy brands, such as Danone and Nestlé, have already entered the plant-based segment, developing plant-based yogurt and milk alternatives. This shift not only caters to the growing consumer demand for dairy-free options but also supports sustainability goals by reducing the environmental impact of dairy production.

The Role of Technology and Data in Shaping the Future

In an increasingly interconnected world, data-driven insights are helping dairy producers make more informed decisions about sustainability. From supply chain transparency to resource optimization, digital technology is enabling dairy companies to track and manage their environmental impact more effectively. Through the use of block chain, for instance, dairy brands can offer consumers transparency about the source of their products, ensuring that sustainable practices are being followed throughout the entire supply chain.

Additionally, big data and AI are revolutionizing the way dairy companies predict consumer demand, manage inventories, and forecast market trends. By analyzing vast amounts of data, dairy businesses can optimize production levels, minimize food waste, and improve product quality. This kind of technological innovation can lead to more sustainable practices and greater efficiency, which is essential as the dairy sector grapples with both the environmental challenges of climate change and the demands of an ever-growing global population.

A Sustainable and Innovative Future

Sustainability and innovation are no longer just buzzwords in the global dairy industry—they are the driving forces behind its evolution. As consumers demand more sustainable products and environmental concerns continue to grow, dairy producers are embracing new technologies, production methods, and sustainable practices to stay competitive. From reducing methane emissions and improving farming efficiency to revolutionizing packaging and diversifying product offerings, the dairy sector is making significant strides in creating a more sustainable future.

Innovation in dairy farming, processing, and packaging, along with the growing prominence of plant-based alternatives, is setting the stage for a more resilient and environmentally conscious industry. As technology continues to advance and sustainability practices are further embedded into the sector, the global dairy market will continue to evolve, meeting the demands of both consumers and the planet.

Unlocking Nutritional Stratergies For Smooth Transition In Dairy Cow

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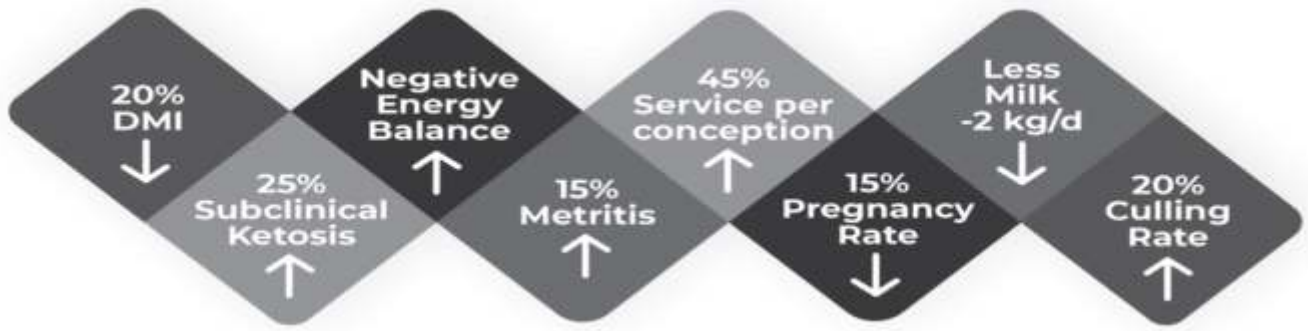
Introduction

The nutritional and disease management of dairy animals is very crucial to get maximum production and thus to get income from selling of milk, meat, manure, hide, etc. During its production life, a dairy animal pass through various physiological stages like onset of heat, early pregnancy, late lactation, drying off, late gestation & transition to lactation, early and mid- lactation, etc. Better nutritional and health management during transition period helps to improve cow health, milk production and reproductive performance. Now it's well established that the dairy animals with better nutrition and health management before calving show dramatic reductions in post-calving complications including milk fever, retention of fetal membranes and also show improvements in milk production and fertility.

Implications of Unsuccessful Transition

The management of transition dairy cattle should be done with objectives to reduce ruminal disruption, avoid micromineral deficiencies, minimise lipid mobilisation disorders, avoid immune suppression, there is great risk, if the dairy cattle fail to transit successfully to lactation and this can result in several complications like-

1. **Reduced dry matter (DM) intake:** The several rapid metabolic & hormonal changes during this high stress period, often lead to reduced DM intake.
2. **Reduced or no milk production:** Reduced intake of DM and thus nutrients hamper milk production
3. **Delayed oestrus, failure to conceive:** Compromised nutrition especially important trace minerals, during critical period of transition to lactation and contrarily high demands of nutrients for lactation, mostly disturb the follicular developments, cyclical rhythm and thus affect reproduction



4. **Increased incidence of diseases** like Hypocalcaemia and downer cow syndrome; Hypomagnesaemia, ketosis and fatty liver, Oedema of udder, Abomasal displacement, Retention of placenta and fetal membranes. Difficulties in calving invite uterine infections, often leading to metritis, pyometra, etc.
5. **Poor fertility and poor milk production:** The ultimate result of poor transition cow management can be poor fertility and severe effect on milk production.

During transition to lactation several hormonal adaptive changes occur

1. Increased fat breakdown and decreased synthesis
2. Increased gluconeogenesis, glycogenolysis to provide energy.
3. Increased mobilisation of protein and mineral reserves.
4. Increased feed intake and nutrient absorption.

Health: Supplementation of Micro-minerals, vitamins, enzymes, fibres and other nutrients can significantly support the transition adaptations to optimize rumen functions, energy and protein metabolism and immune function. Important micro-minerals as co-factors and certain vitamins, amino acids can facilitate optimum hormonal levels and also subsequent key hormonal adaptations during transition to lactation.

b. Calcium Homeostasis with DCAD: Periparturient hypocalcaemia (milk fever) is associated with the onset of lactation and mammary gland function. Nutritional strategies aim to minimize periparturient hypocalcaemia by manipulating these hormonal control points to enhance the cow's ability to manage the negative mineral balance associated with the onset of lactation onset. One such strategy involves adjusting the dietary cation-anion difference (DCAD) to prevent metabolic alkalosis and potentially induce compensated metabolic acidosis. Correcting metabolic alkalosis through a negative DCAD diet could prevent alterations in the parathyroid hormone receptor conformation on bone, facilitating calcium mobilization from bone reserves. Diets with a negative DCAD administered prepartum have consistently shown efficacy in reducing both subclinical and clinical hypocalcaemia in cows prone to milk fever.

c. Energy booster Supplements: During the onset of lactation, dairy cows have massive energy requirements to support milk production and to maintain their health status and welfare. Glucose plays a pivotal role; to produce 1 kg of milk, 72 g of glucose is required, and the mammary gland is responsible for about 50 to 85% of total glucose consumption. After calving, glucose requirements dramatically increase by up to 2.5-fold compared with those of the dry period and even more if an immune response occurs during this period. The main challenge faced by transition dairy cows is the acute and marked increase in nutrient requirements that occurs at a time when the dry matter intake of the cow remains far lower than requirements. Cows cannot cope with this increase in energy intake, which leads to an energy imbalance after which body reserves are mobilized. Feeding glucogenic

Thus, the integrated approach in transition feeding is very essential and any perturbations in nutrition during this period affect lactation, health and reproductive performance of dairy animals.

Essential Components of Transition feed supplement:

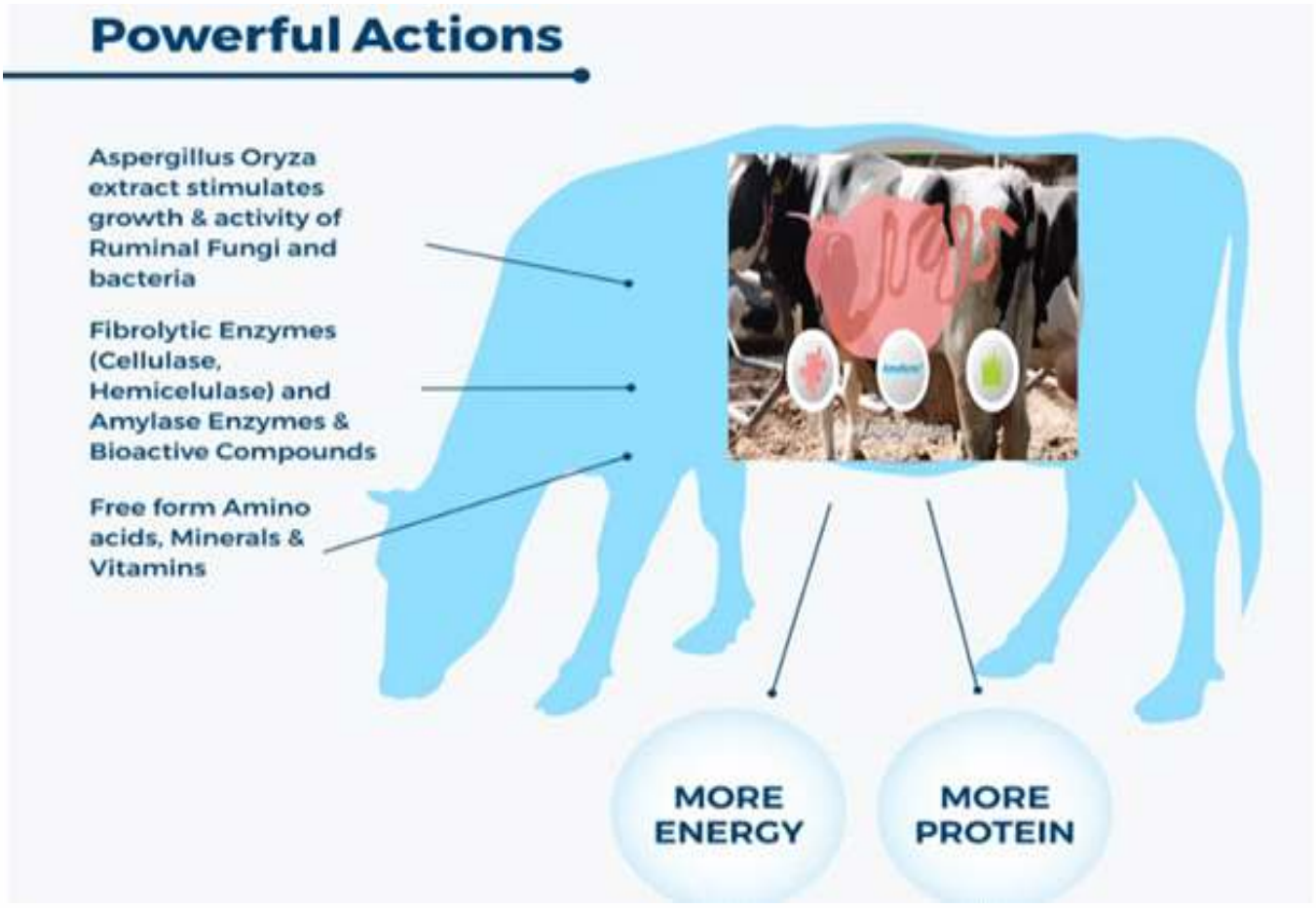
a. Micronutrients for Homeostasis, hormonal adaptations and Optimal

precursors during the first week of lactation have shown positive effect in feed intake, reduction in negative energy balance and decreasing incidence and severity of ketosis.

d. **Amino acids:** Methionine and lysine are widely recognized as the two most crucial amino acids for milk and milk protein synthesis. These amino acids also play potential roles in mitochondrial beta-oxidation of fatty acids and contribute to carnitine biosynthesis in the liver. Additionally, they are involved in the export of triglycerides. Milk yield and fat can be positively affected by methionine supplementation. The effects on milk yield and fat could be related to the enhanced availability of nutrients because of the positive effect on dry matter intake (DMI). Methionine supply helps in maintaining constant rates of DMI prepartum and in increasing DMI in early lactation, which may be due to improved inflammatory status, reduced oxidative stress, and enhanced liver function. The improvement in these functions suggests that high-producing dairy cows adapt successfully to the new lactation following methionine & lysine supplementation.

e. **Proteins are key to Health and productivity:** The requirement of transition cow is mostly estimated with focus on energy nutrition and importance of protein nutrition is largely underestimated. The feed supplement containing high number of proteins and free form amino acids, which can support high protein requirements for synthesis of colostrum- the first lacteal secretion, rich in nutrients and immunoglobulins, which prevent newborn calf from early infections. It will provide more and better-quality milk, for good healthy start of the newborn calf. It also helps to prevent calving difficulties and avoid chances of dystocia. Average cows in mid-gestation need approx. 600-650 grams of protein per day. In late gestation 8-9 months cow require closer to 700-900 grams per day. Lactating cows require even higher, which depends on level of milk production. Approx. 95-100 gram/day/kg milk production.

f. **Benefits of Prebiotic in diet:** Managing the rumen microbes through prebiotic or probiotic supplementation favours positive nutritional balance.



Strains of the eukaryotic microbe like yeast product or fungal extract help to stabilize ruminal pH and to activate fiber-degrading bacteria in the rumen, leading to improved fiber digestibility. Dietary fungal or yeast products can enhance rumen fermentation and alter ruminal digestive processes, thus they may improve animal health and energy status in early lactation. Evidence suggests that supplementation of suitable prebiotic provide a substantial benefit to transition cow during immune challenge through improving availability of energy.

- **Aspergillus oryzae:** Aspergillus oryzae (AO) extract is considered as a precision prebiotic that enhances digestibility by amplifying the nutrient supply for maximum performance. Aspergillus oryzae extract contains wide variety of polysaccharide and amylase enzymes, which increases rumen function by enhancing fibre digestion and reducing the transient post-prandial drop in ruminal pH. The combined effect of such additive help cows to adapt from high roughage diets to higher concentrate diets especially in the transition cows. An increase in feed digestibility due to the prebiotic would lead to an increase in nutrient absorption. The increase in rumen fermentation and VFA production improve overall energy supply and metabolic profiles. It helps in reduction in rumen lactic acid concentration. by stimulating lactic acid utilizing bacteria and thus minimize nutritional stress due to subacute acidosis. The extra energy made available to the cow support for a healthy transition. Besides, the prebiotic AO supplement decreases the number of cytokines and other inflammatory metabolites and thereby reduce levels of stress and boost immune function.

In recent years, it has gained popularity as a feed supplement for livestock, including dairy cows. Here are some of the potential benefits of Aspergillus oryzae supplementation in dairy cows:

Enhanced Feed Efficiency and Nutrient Utilization: AO fermentation extract is high in alpha-amylase and cellulase enzyme activities. It also contains significant hemi-celluase, pectinase activities. It will help for degradation of structural and non-structural polysaccharides and thus for maximum utilization of fiber in case of high forage diet and can optimize feed efficiency.

Increased Dry Matter Intake: Improved feed digestibility can encourage cows to eat more, leading to higher dry matter intake and potentially increased milk production.

Increased Milk Production and Quality: Supplementation of AO culture in early lactation cows increased milk yield & efficiency of milk production, nutrient digestibility and feed efficiency. By improving nutrient absorption, Aspergillus oryzae can lead to increased energy availability, potentially boosting milk production.

Modulated Rumen Microbiome: Supplementation of AO fermentation extract in cattle increases the rumen microbiome like ruminal anaerobes, especially cellulolytic bacteria like Ruminococcus albus and thus can improve efficiency of fibre degradation, promoting the growth of beneficial bacteria and reducing the population of harmful microbes. This creates a healthier environment for digestion.

Reduced Risk of Subacute Ruminal Acidosis (SARA): A healthier rumen environment can help prevent SARA, a metabolic disorder that can negatively impact milk production and cow health.

Improved Heat Stress Tolerance: Supplementation can reduce overall heat stress, which is very beneficial especially during hot weather.

Conclusion

The prime objectives of transition cow management include increase dry matter intake and energy supply, Prevention or control of ruminal disruption, Prevention of macro & micro mineral deficiencies, minimizing lipid mobilisation disorders and to optimize immune functions. An integrated transition diet should comprise of energy and protein supplement, macro-minerals and DCAD, micro-minerals, and supplementation of suitable prebiotics immunity enhancement. Aspergillus oryzae fermentation extract that is rich in non-animal source protein, free-form amino acids, minerals, vitamins, enzymes, fibres and other nutrients offer a promising approach to enhancing dairy cow health and productivity. By improving feed utilization, optimizing rumen function, and boosting immunity, these supplements can contribute to a more sustainable and efficient dairy industry.

Winter Stress in Dairy Cattle

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Abstract

The productivity and health of dairy cattle are heavily influenced by environmental conditions, particularly during the winter months when temperatures fall outside their thermoneutral zone. Cold stress increases metabolic demands, alters feed intake, and can lead to hormonal changes, increased energy expenditure, and other physiological adjustments. This article outlines effective strategies to reduce the impact of cold stress on dairy cattle, ensuring their health and productivity are optimized during the winter. Key measures include improving barn conditions, providing suitable bedding, offering energy-rich diets, and utilizing warming devices such as heat lamps and calf jackets.

Introduction

Cold winter weather, characterized by freezing temperatures, snow, and strong winds, presents significant challenges for managing dairy cattle. When temperatures fall below the lower critical temperature (LCT), the metabolic demands on cows increase, potentially leading to reduced milk production, health issues, and reproductive challenges. Dairy cows, being warm-blooded, must maintain a core body temperature of around 38°C, and exposure to cold stress disrupts their normal metabolic processes. This article explores practical methods to reduce the negative effects of cold stress and maintain optimal performance and well-being in dairy cattle.

Impacts of Cold Stress on Dairy Cattle

Direct Effects

- **Milk Production:** Cold stress can decrease blood flow to the udder, reducing milk production. Cows may lose up to 2 kg of milk per day when exposed to cold conditions.
- **Reproduction:** Cold weather can delay calving, disrupt follicle development, and reduce fertility, leading to longer calving intervals. Inadequate nutrition during winter exacerbates these reproductive problems.
- **Body Condition:** Cows with better body condition are better insulated against cold stress. However, the increased energy demands during winter can deplete body reserves, resulting in weight loss and reduced reproductive performance.
- **Health Problems:** Cold stress can lead to respiratory infections, frostbite, and a weakened immune system. It may also cause metabolic stress and increase the risk of postnatal mortality.

Indirect Effects

- **Feed Availability and Quality:** Winter reduces the availability and quality of forage, and the crude protein content of feed typically declines during cold months.
- **Shelter Conditions:** Poorly maintained or overcrowded barns expose cows to drafts, increasing the risk of respiratory illnesses. Muddy conditions increase the risk of foot rot and other diseases.
- **Water Scarcity:** Freezing temperatures can reduce access to water, limiting intake and negatively impacting milk production and overall health.

Responses of Cattle to Cold Stress

Physiological Adaptations

Heat Conservation: Cattle conserve body heat through vasoconstriction, which reduces heat loss from the skin.

Hair Coat: Cold temperatures trigger increased hair density and piloerection (hair standing on end), which enhances insulation by trapping air close to the body.

Heat Production: Cattle increase their feed intake and use mechanisms like shivering and non-shivering thermogenesis to generate heat.

Hormonal Adjustments

Non-Shivering Thermogenesis: Hormones like thyroid hormones stimulate brown fat metabolism, increasing metabolic rates to generate heat without producing movement-related energy (ATP).

Strategies for Mitigating Cold Stress

Nutritional Management

Energy-Rich Diets: To meet the increased energy demands of winter, provide feeds that are high in energy (77% TDN) and protein (17.5% CP).

Supplementary Feeding: Add concentrates, silage, and other supplements like feed blocks to ensure adequate nutrition, especially when forage is scarce.

Improved Forage Utilization: Enhance straw digestibility using techniques like chaffing and urea treatment to improve the nutritional quality of available forage.

Shelter Management

Well-ventilated, Draft-free Barns: Ensure barns are free from drafts while maintaining adequate ventilation to prevent respiratory issues.

Additional Warmth: Utilize heat lamps, calf jackets, and curtains to provide extra warmth to young or vulnerable animals.

Snow Removal and Calving Season Adjustments: Regularly clear snow and consider delaying calving to reduce the stress on cows during extreme winter conditions.

Water Management

Water Temperature: Keep water temperature above 8°C using heaters to encourage drinking. Adequate water intake is critical for maintaining productivity.

Mud and Hygiene Management

Clean and Dry Shelters: Prevent the accumulation of mud and water in barns to reduce the risk of foot rot and other infections. Keep bedding dry and comfortable to help maintain body heat.

Health Management

Vaccination and Deworming: Ensure cows receive proper vaccinations and deworming treatments to reduce the risk of infections.

Exercise and Weight Management: Provide exercise by moving feed and water locations to prevent obesity and maintain overall health.

Frostbite Prevention: Use teat dips and other protective measures to prevent frostbite on sensitive areas like teats and ears.

Conclusion

To ensure the health, productivity, and overall well-being of dairy cattle during winter, it is essential to keep them within their thermoneutral zone. By adopting effective strategies such as providing energy-rich diets, improving shelter conditions, maintaining hydration, and ensuring proper health management, dairy farmers can mitigate the adverse effects of cold stress. Proactive management and careful resource allocation are crucial to ensure the welfare of dairy herds during the harsh winter months.

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Union Minister C R Patil Drives for Gujarat's Transition by Championing Dairy Cooperatives based CBG plants

Union Minister for Jal Shakti, Shri C R Patil, convened a crucial meeting with Chairpersons and MD's of milk cooperatives and dairies from Gujarat. The meeting aimed at accelerating the establishment of Compressed Biogas (CBG) plants that will transform cattle dung and other organic waste into sustainable energy and organic manure, in line with the government's vision to convert waste to wealth.

During the meeting, Shri Patil emphasized the critical role of the dairy sector in advancing energy efficiency and sustainability. He highlighted that by converting organic waste from dairy operations into CBG, Gujarat could benefit both environmentally and economically, with the initiative offering a significant reduction in carbon emissions while fostering self-sustaining energy models in rural areas.

The Minister underscored the economic and environmental advantages of such initiatives, stating, "India's dairy sector has been a cornerstone of rural livelihoods. By embracing green technologies like CBG production, we not only reduce our carbon footprint but also create new revenue streams for farmers and cooperative including availing carbon credits."

Gujarat's Potential for CBG Production:

With a bovine population of 2.01 crore (as per the 2019

Livestock Census), Gujarat produces an estimated 2 lakh tons of cattle dung daily. This presents the state with a tremendous untapped potential to generate an estimated 4,000 tonnes of CBG per day, offering a substantial opportunity to boost the green energy sector in the region.

Key Highlights of the Meeting:

- Detailed discussions on leveraging cattle waste and other organic materials for bio-CBG production.
- Exploration of partnerships between cooperatives, private entities, and government agencies to facilitate funding and technology transfers.
- Commitment to provide technical and financial support under existing government schemes for bio-energy projects.
- Focus on establishing Gujarat as a model state for integrating clean energy practices in the dairy sector.
- Commitment was secured to establish over 20 CBG plants in the state, over 30,000 individual biogas units at an estimated investment of over 1000 crores.

The meeting witnessed enthusiastic participation from cooperative leaders who expressed their willingness to support and adopt eco-friendly initiatives. Shri Patil encouraged all stakeholders to actively collaborate to meet India's energy and sustainability goals, by availing benefits of different government schemes enabling the dairy industry as a key player in the green revolution.

This initiative resonates with India's broader commitment to achieving energy self-reliance while contributing to global climate change mitigation efforts. The government remains steadfast in its commitment to promoting renewable energy and supporting innovative models for sustainable development.

Senior officials from Department of Fertilizers, Department of Animal Husbandry, Ministry of New & Renewable Energy, Ministry of Petroleum and Natural Gas along with senior members of DDWS, including the Secretary and Joint Secretary & Mission Director, under the GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan) initiative also attended.

ICAR RC NEH celebrates Golden Jubilee & Farmers' Expo 2025

ICAR-Research Complex for NEH Region, Umiam, celebrated its Golden Jubilee and Farmer's Expo 2025 today.

The Hon'ble President of India, Smt. Droupadi Murmu, delivered a recorded speech during the celebration, extending her congratulations to the Institute on completing 50 years of exceptional service and commitment. She highlighted that ICAR has developed numerous crop varieties, livestock breeds, and climate-resilient technologies tailored to the region's agroclimatic conditions, significantly contributing to the enhancement of food and livelihood security. Over the past decade, food grain production has risen by 30%, while horticultural crop production has grown by 40%. Agri-based enterprises and allied sectors have played a key role in generating livelihoods and attracting youth to agriculture, leading to a 25% increase in agri-entrepreneurs among young people over the past five years, she added. Smt. Murmu emphasized the importance of documenting and validating indigenous resources, conserving germplasm, and integrating local knowledge with modern technologies.

Chief Guest, Shri C.H. Vijayashankar, Hon'ble Governor of Meghalaya, in his inaugural speech, highlighted that agriculture is at the core of both the people and economy of India. He stressed that ICAR plays a leading role in agricultural research and development in the country, with its significant contributions to the development of crop varieties, livestock breeds, and integrated farming systems (IFS), all of which have greatly benefited the farming community. He also noted that the region is abundant in specialty crops like ginger and turmeric and serves as a hub for medicinal plants, Ayurveda, and other agricultural products.

Shri Shivraj Singh Chouhan, Union Minister of Agriculture & Farmers Welfare, emphasized that the biodiversity of Meghalaya is a valuable asset to the region and called for a dedicated effort to develop a comprehensive roadmap. He stressed the need for improved coordination among ICAR institutes, agricultural universities, KVKs, and state departments. Given the region's diverse agroclimatic zones, he highlighted the importance of a collaborative approach involving multiple departments, especially for developing a logistics hub, processing, value addition, and product pricing. Shri Chouhan also underscored the importance of reducing the time taken for the transfer of technology from the laboratory to the field.

Shri Conrad K. Sangma, Chief Minister, Meghalaya, commended ICAR's contributions in high-yielding varieties, organic farming, and promoting agri-entrepreneurship among youth. Shri Sangma highlighted the region's potential to become a hub for crops like horticulture, honey, bamboo, and organic farming. He emphasized the need for large-scale technology transfer, better coordination, development of logistics hubs, improved shelf life of horticultural products, food processing, cluster development, a bamboo mission, and

dedication in the next 50 years. He urged upon the need to work to be a part of the Vikshit Bharat 2047.

Dr M. Amapareen Lyngdoh, Minister of Agriculture & Farmers Welfare, Govt of Meghalaya; Shri D.P. Wahlang, Chief Secretary, Govt of Meghalaya; and Dr V.K. Mishra, Director, ICAR-Research Complex for NEH Region, Umiam, Meghalaya, also graced the occasion.

The event was live-streamed, reaching approximately 20,000 farmers across 90 KVKs in the region, along with 6 Regional Centres of the Institute.

Dr Suresh Kumar Chaudhari, Deputy Director General (Natural Resource Management), ICAR, proposed the Vote of Thanks.

strengthening grassroots institutions like KVKs.

Dr Himanshu Pathak, Director General (ICAR) & Secretary (DARE), spoke about the region's rich agro-biodiversity and organic farming. Considering the region's fragile ecosystem, he emphasised the need to develop climate-resilient agriculture, and agriculture should be nature-, market-, culture-, and technology-friendly. Dr Pathak, while highlighting the tremendous achievement of the Institute in the past five decades, added that there are challenges that need to be focused on with more enthusiasm and

Union Home Minister and Minister of Cooperation Shri Amit Shah laid the foundation stone of the headquarters of National Cooperative Dairy Federation of India (NCDFI) Limited in Gandhinagar, Gujarat today and addressed the e-Market Awards 2023 ceremony

Under the leadership of Prime Minister Shri Narendra Modi, milk production in India has increased by about 51% in the last 8 years, which is the fastest increase in the world

Today, most of the milk production in the country is being done through cooperative dairies, that is why today India has reached the first place in the world milk production with 24% share

If milk is traded through the cooperative sector, it has multidimensional benefits for the society, agriculture, villages, milk producers and ultimately the country

When the cooperative sector does dairy business, the first to benefit are the milk producers, because they are not exploited

Many dairies are concerned about the nutrition of pregnant women and their children by giving them laddus, the entire cooperative sector has joined the fight against malnutrition

Shri Narendra Modi has ushered many types of revolutions in the country, which also includes digital revolution

India is also among the fastest growing economies in the field of digital transactions in the world, we will reach the top in the next 4-5 years

We have envisioned such an economic system in which the cooperative plays a role in promoting the cooperative, all milk union officials should study this model

NCDFI should take steps towards natural farming

Union Home Minister and Minister of Cooperation Shri Amit Shah laid the foundation stone of the headquarters of National Cooperative Dairy Federation of India (NCDFI) Limited in Gandhinagar, Gujarat today and addressed the e-Market Awards 2023 ceremony. Many dignitaries including Gujarat Chief Minister Shri Bhupendra Patel, Gujarat Legislative Assembly Speaker Shri Shankar Choudhary, IFFCO Chairman Shri Dilip Sanghani, NDDB Chairman Dr Meenesh Shah and NCDFI Chairman Dr Mangal Rai were present on the occasion.

In his address, Shri Amit Shah said that the dairy and especially the cooperative dairy sector in our country has achieved multi-dimensional goals. He said that if milk trading is not done by the cooperative sector, then milk production remains limited to a middleman and the milk user. But if the cooperative sector trades milk in a cooperative manner, then many dimensions are integrated into it, because the aim is not to make profit only and it has multidimensional

benefits to the society, agriculture, villages, milk producers and ultimately the country. He said that India has experienced this success story in the last 50 years.

The Minister of Cooperation said that today India has reached the first place in the world's milk production with 24% share and under the leadership of Prime Minister Shri Narendra Modi, milk production in India has increased by about 51% in the last 8 years, which is the highest in the world. This is the fastest increase. Shri Shah said that this has been possible only because most of these productions have been done through cooperative dairies. He said that if cooperative dairy is to be run, then many institutions will have to be formed to nurture it and NCDFI will do this work. In a way, NCDFI is doing the work of providing guidance to all dairies. Shri Shah said that White Revolution started from the village 'Vasi' and now headquarters of NCDFI is going to be built in the same Anand district in an area of about 7000 square meters. It will be built at an expense of about Rs 32 crore and will be operated through a solar power plant. He said that the new headquarters building will be a 100 percent green building.

The Union Home Minister and Minister of Cooperation said that when the cooperative sector does dairy business, the first to benefit is the milk producers, because they are not exploited. He said that if someone produces milk alone, he/she does not have the capacity to store the milk and cannot explore the market. But if the cooperative sector does milk business, then milk unions are formed at the village and district level and they have the capacity for cold storage, processing, converting

the milk into a product as per the market demand and then share the profits with the sisters who are involved in milk production on cooperative basis. In this way the exploitation of milk producing sisters ends. He said that a person involved in production of milk alone cannot worry about the health of his/her animals, but if milk is produced in a cooperative manner, then the District Milk Producers Association will also make arrangements for breed improvement, health improvement and good diet of the animals. The third advantage is that if the milk business is done through the cooperative sector then it automatically gets linked to the nutrition movement.

Shri Amit Shah said that he knows about many such dairies including Banaskantha Dairy, which take care of the health of malnourished children by providing them nutritious milk. Many dairies like Ahmedabad Dairy take care of the nutrition of pregnant women and their children by giving them laddus. He said that the entire cooperative sector has joined the fight against malnutrition. The Union Minister of Cooperation said that at one time it was difficult for India to even imagine dairy and dairy technology, but we made such efforts that symmetric milk production started all over India. There are many areas which were not connected with cooperative dairy, even there, through NDDB, the capable diaries of Gujarat are expanding their work in North Indian states like Uttar Pradesh and Haryana and increasing their work in a cooperative manner. He said that if milk is to be produced in a symmetrical manner in every village of the country and every household is to be made self-reliant, then this work is possible only through cooperative dairying.

Shri Amit Shah said that Indian dairies have brought laurels to the country in the world in milk production. He said that in 1946, when a dairy in Gujarat started exploitation, Sardar Vallabhbhai Patel inspired Tribhuvan Bhai against it and in 1946, small dairies were started in 15 villages. He said that a small beginning against exploitation in 1946 transformed into a huge movement and from this came the idea of white revolution in the country and the emergence of NDBB. He said that today many cooperative dairies have developed across the country. Amul processes around 40 million liters of milk every day and 36 lakh sisters store the milk and every week they get the price of the milk produced. Shri Shah said that in 2021-22 Amul Federation has a turnover of Rs. 72000 crores.

The Minister of Cooperation said that Prime Minister Shri Narendra Modi has brought about many revolutions in the country, including the digital revolution. Diplomats, politicians, heads of state from all over the world had come here for the G-20 and everyone was surprised as to how online payments and digital transactions could increase so much in a country like India. He said that one feels happy to see when in a small village, a woman takes out her mobile and scans it and makes payment. He said that India is among the fastest growing economies in the field of digital transactions in the entire world and in the next 4-5 years we will reach the top. Nearly 80 countries have sought information about the success of

our online payment system and India has happily agreed to provide this information.

Shri Amit Shah said that awards have been given today for promoting e-market in the dairy industry. He urged the members of NCDFI to go towards 100 percent business. The Minister of Cooperation said that we have just started a small experiment in Gujarat, in collaboration with Panchmahal District Dairy, Banaskantha District Dairy and Gujarat State Cooperative Bank. We are giving Rupay cards to every farmer. Every village dairy is being made a 'Bank Mitra' and is being provided ATMs, and the accounts of the dairy and every farmer are being transferred to the District Cooperative Bank. He said that deposits of Rs 800 crore have increased in Banaskantha district alone and 193 ATMs are operational. RuPay debit card has reached 96 percent farmers. Now the farmer does not need to go to anyone. The payment for their milk is deposited directly into the account of District Cooperative Bank, Banaskantha. S/he has a RuPay card linked to it. If s/he wants to buy anything from anywhere and needs cash, s/he can take cash from the ATM of the dairy of his/her village. Shri Shah said that by making every dairy in the district a center, this model should be implemented in the entire Gujarat, then the farmer will not have to take out cash from his pocket for any purchase.

The Minister of Cooperation said that cooperatives should play an important role in promoting the formal economy & economy of the country instead of the informal economy. He said that we have envisioned such an economic system where the cooperative plays a role in promoting the cooperatives. All the milk union officials should study this model and send it to every district milk producer union so that it can be known how much the strength of the cooperative sector has increased.

Shri Amit Shah said that NCDFI should take steps towards organic farming. Amul has used it very well. He said that with the inspiration of Prime Minister Shri Narendra Modi, we have formed a multi-state cooperative institution at the national level, which will do the marketing of organic products. People have started connecting with it. Adopting this model, today an organic cooperative is promoting organic products in the country. Along with this, a cooperative has also been formed for export because the world market for organic products is very big and also expensive. If the world wants to consume expensive organic products then there should be no delay in sending them from India.

The Minister of Cooperation said that we have also formed a seed cooperative which will conserve and promote Indian seeds. Today, big seed manufacturing companies remain with the big farmers. Even if someone has two acres of land, it will reach there through PACS and will also connect the farmers with seed cultivation. This will increase the farmer's profit. He urged NCDFI, as a nodal agency, to take the good model that emerged in this regard to every district union. If any district union wants to adopt it, then a team should be formed to guide it and the success achieved in one district should be achieved in every district of India.

Shri Amit Shah said that e-auction platform, reverse auction and forward auction are also now going to be provided and there is also a provision for procurement of one lakh metric tonnes of pulses on the e-market portal of NCDFI. Similarly, NAFED's app is going to be launched on 4th January, in which no matter how much pulses a farmer produces in India, NAFED will buy the entire produce at the rate of one rupee more than the MSP. He said that we want to make India self-reliant in the oilseeds sector, hence this work has been entrusted to NAFED. The farmer will register on NAFED's app and cultivate pulses and all the pulses will be purchased by NAFED at the rate of MSP plus one rupee.

The Minister of Cooperation said that Prime Minister Shri Narendra Modi has formed a global alliance for ethanol, but even before forming the alliance, we have made a policy for making ethanol from maize. According to this policy, if a farmer sows maize, 100 percent of his maize will be purchased by NAFED and sent to the ethanol manufacturing company and the farmer will get a price higher than the MSP. He said that we have set goals like crop diversification, less use of fertilizers, self-reliance in pulses and oilseeds.

President of India Virtually Inaugurates/ Launches Cow Induction, Gift milk and Market support for Omfed Initiatives of the National Dairy Development Board

The President of India, Smt Droupadi Murmu virtually inaugurated/launched Cow Induction, Giftmilk and Market supportfor Odisha StateCooperative Milk Producers'Federation (OMFED) initiativesof the National Dairy Development Board from Rashtrapati Bhavan today (January 13, 2025).

Speaking on the occasion, the President said that livestock plays an important role in the rural economy and rural household income. India has a diverse range of livestock breeds. All those breeds have contributed to the rich agricultural heritage of the country.To support and promote our livestock, several measures and policy efforts have been taken by the government for breed development and genetic upgradation of livestock.

The President said that India's achievements in the field of milk and milk products are extraordinary. The productivity of our Milch cattle has also seen extraordinary growth in the last 10 years. All these achievements reflect our commitment to excellence in animal husbandry.

Still, a lot can be done regarding animal health. She appreciated the objectives and efforts of the National Gokul Mission.

The President said that by paying attention to both the number and health of animals, the quality of food products and other products obtained from animals including milk will improve. By making such efforts in all areas of the country, a significant contribution can be made to building a healthy India.

Every day, the dairy company Amul gazes at bread: A doodle on the comments made by the L&T Chairman

Amul Responds to L&T Chairman's 90-Hour Workweek Comments with Humorous Doodle

In the wake of the controversial statement made by Larsen & Toubro (L&T) Chairman SN Subrahmanyan, who defended a 90-hour workweek and suggested employees should work even on Sundays, the dairy brand Amul responded with its signature humor in the form of a witty doodle.

Subrahmanyan had sparked a wave of online reactions when he expressed his belief in a rigorous work ethic during a meeting with L&T staff. In the undated video that gained viral attention, Subrahmanyan remarked, "I regret I am not able to make you work on Sundays. If I can make you work on Sundays, I will be more happy, because I work on Sundays." He further added, "How long can you stare at your wife?" suggesting employees should focus more on work rather than spending time with their families. His comments quickly became the subject of memes, jokes, and discussions across social media platforms.

Amul, known for its humorous and sharp-witted social commentary, took the opportunity to make a light-hearted retort. In the doodle, the Amul girl is depicted staring at a Sunday on a calendar, with the slogan: "Labour & Toil? Amul stares at bread daily." The image cleverly juxtaposes the concept of hard work with the brand's enduring commitment to quality dairy products, reflecting Amul's role in the daily lives of consumers.

The image also plays on the notion of "bread," symbolizing Amul's dairy products, which are a staple in many households across India. This clever and humorous comment drew attention not only to the serious issue of work-life balance but also underscored the significance of labor in everyday life.

Subrahmanyan's comments have caused a stir not only in the online community but also among business leaders. Several industrialists, including Anand Mahindra and Harsh Goenka, voiced their thoughts on the matter, with many expressing concerns over the potential negative impact of such extreme work demands on employee well-being.

In a broader context, the debate surrounding Subrahmanyan's remarks has ignited discussions on work culture and employee rights in India's corporate sector. Critics argue that a 90-hour workweek may not be sustainable or conducive to long-term productivity, while others contend that such high work demands could potentially lead to burnout and reduced efficiency.

On the other hand, some supporters of Subrahmanyan's comments argue that dedication to work is necessary for the growth and success of large organizations, and that it is a reflection of the competitive environment in today's business world.

Despite the controversy, Amul's doodle has added an element of levity to the conversation, and once again demonstrated the brand's ability to use humor to engage with current events. Amul's playful and clever take has once again proven its knack for speaking to the common man while also engaging with societal issues, blending humor with insightful commentary.

Meet the two women from Karnataka and Kerala who won accolades for being the finest dairy farmers, earning Rs 80 lakh from milk.

Women Dairy Farmers Shine at Southern Dairy Summit-2025

At the Southern Dairy Summit-2025, held on Saturday, two exceptional women dairy farmers were recognized for their remarkable contributions to the dairy industry. Organized by the Indian Dairy Association (South Zone), the summit celebrated outstanding achievements in milk production and rural entrepreneurship. Among the honorees were Mangalamma from Karnataka and Vidhu Rajeev from Kerala, whose inspiring journeys demonstrate the transformative potential of dairy farming.

Mangalamma's Remarkable Journey to Success

Hailing from Dinka village in Karnataka's Mandya district, 47-year-old Mangalamma has emerged as a prominent figure in the state's dairy industry. Her journey began two decades ago when she and her husband decided

to venture into dairy farming despite having no initial capital or prior experience.

Starting on a modest one-gunta (1/40th of an acre) farm with a few cows, the couple relied on sheer determination and a commitment to learning. They attended seminars, studied scientific methods, and adopted innovative techniques to enhance milk production. “We started with no investment but gradually implemented scientific approaches like using a milking machine and a well-planned feeding regime,” Mangalamma shared.

Today, her farm is home to 30 cows and two buffaloes, producing an impressive 300 litres of milk daily. Her cattle are fed a carefully planned, nutrient-rich diet consisting of maize, oil cake, groundnuts, and sorghum fodder. This balanced diet ensures the animals remain healthy and yield high-quality milk, which has become the cornerstone of her success.

Beyond her own achievements, Mangalamma's dairy business has had a positive impact on her local community. She has created employment opportunities for three other families in her village, contributing to rural economic development. “I hope my story inspires other aspiring dairy farmers, and together, we can build a supportive community,” she said.

At the Southern Dairy Summit, Mangalamma was honored as the 'Best Dairy Farmer from Karnataka' for her exceptional contributions. In 2024 alone, she earned Rs 30 lakh from her dairy operations, a testament to her hard work and innovative practices.

Vidhu Rajeev: A Pioneer in Kerala's Dairy Industry

Vidhu Rajeev, a dairy farmer from Kottayam, Kerala, was also celebrated at the summit for her significant contributions to the dairy industry. Over the past year, she produced more than 1 lakh litres of milk, earning Rs 50 lakh by supplying it to the Kerala Dairy Development Department.

Vidhu attributes her success to the integration of sustainability and scientific practices in her operations. Her farm is equipped with advanced technologies, such as an automated drinking system for cows, ventilation fans, and temperature control systems, to ensure optimal living conditions for the animals.

“Sustainability is at the core of our operations,” Vidhu explained. “We use biogas generated from cattle dung to power my kitchen, sell manure at Rs 40 per kg, and use slurry as fertilizer for our paddy fields.” These environmentally friendly practices not only reduce costs but also make her farm a model of sustainable dairy farming.

Vidhu's farm currently has 50 milking animals, and she plans to expand her operations further. Her dedication to innovation, sustainability, and quality has made her a role model for dairy farmers in Kerala and beyond.

Celebrating Women Empowerment in Dairy Farming

The Southern Dairy Summit-2025 was not just a platform to recognize individual achievements but also a celebration of women's empowerment in the dairy industry. Women like Mangalamma and Vidhu are breaking barriers and setting new benchmarks in a sector traditionally dominated by men. Their success stories underscore the importance of providing access to knowledge, technology, and resources to rural entrepreneurs.

In addition to honoring these trailblazers, the summit also discussed ways to encourage more women to participate in the dairy sector. Experts highlighted the role of cooperatives, government schemes, and financial support in enabling women farmers to thrive.

The Role of Scientific and Sustainable Practices

Both Mangalamma and Vidhu's stories highlight the transformative power of adopting scientific and sustainable farming practices. From balanced diets and automated systems to waste management and renewable energy, these innovations are helping farmers increase productivity and profitability while reducing environmental impact.

Their achievements align with India's broader goals for the dairy industry, including increasing milk production, improving milk quality, and promoting sustainability. As India continues to grow as the world's largest producer of milk, stories like these serve as inspiration for others to follow.

Looking Ahead

The success of farmers like Mangalamma and Vidhu demonstrates the potential for dairy farming to serve as a powerful tool for rural empowerment. By embracing innovation, sustainability, and community collaboration, they have transformed their lives and the lives of those around them.

As India looks to the future, events like the Southern Dairy Summit are crucial for fostering knowledge exchange, celebrating achievements, and inspiring the next generation of dairy farmers. With the continued support of cooperatives, government initiatives, and industry stakeholders, women farmers will undoubtedly play a central role in

shaping the future of India's dairy industry.

Their stories are a testament to the fact that with determination, knowledge, and the right resources, rural farmers can achieve extraordinary success and contribute significantly to the nation's economy.

Suzuki will purchase a 26% share in NDDB's biogas project.

Suzuki Partners with NDDB Mirda Ltd. to Boost CBG Sector in India

Suzuki Motor Corporation, one of Japan's leading automobile manufacturers, has strategically entered India's bio-gas sector by acquiring a 26% stake in NDDB Mirda Ltd., a bio-gas venture of the National Dairy Development Board (NDDB). This move is part of Suzuki's broader commitment to leveraging Compressed Bio-Gas (CBG) for vehicle sustainability, improving engine performance, and promoting environmentally friendly fuel options.

The Genesis of the Collaboration

Suzuki's journey to this partnership began with a request for a 49% ownership stake in NDDB Mirda Ltd. However, the Indian government permitted the company to acquire an initial 26%, with an option to gradually increase its stake to 49%. This strategic investment highlights Suzuki's growing interest in renewable energy and sustainable vehicle technology.

The decision to focus on CBG aligns with Suzuki's research findings that CBG derived from cattle dung offers superior benefits for vehicle longevity and engine performance compared to bio-gas from other organic sources. Meenesh Shah, Chairman of NDDB, revealed in an exclusive interview with BusinessLine that Suzuki's interest was sparked by the success of NDDB's bio-gas plants, particularly their potential for large-scale production of high-quality CBG.

Details of the Agreement

Suzuki's wholly-owned subsidiary, Suzuki R&D Center India Pvt. Ltd. (SRDI), has finalized an agreement to invest ₹8.84 crore initially in NDDB Mirda Ltd., which has an initial equity capital of ₹300 crore. NDDB retains a 74% stake, while Suzuki will fund additional investments based on the venture's requirements. Beyond this, Suzuki has pledged to establish four new CBG plants in Gujarat as part of its Corporate Social Responsibility (CSR) initiative.

The collaboration includes a Memorandum of Understanding (MoU) signed in September 2023 between Banas Dairy, Suzuki, and NDDB. These four CBG plants, spread across Banaskantha in Gujarat, will support an existing CBG facility developed by Banas Dairy. NDDB will oversee the setup of these plants, while Banas Dairy will manage operations. Suzuki, in turn, will provide the necessary funding and share profits with Banas Dairy.

Expanding Horizons: More Dairy Unions Join the CBG Push

Encouraged by Suzuki's involvement, other major dairy unions in Gujarat—Sabar Dairy, Dudhsagar Dairy, and Panchmahal Dairy—have shown interest in collaborating with NDDB and Suzuki to set up CBG plants. Suzuki's investment in NDDB Mirda Ltd. marks a transition from merely CSR funding to a long-term business strategy in India's renewable energy sector.

These developments are timely, given India's push toward sustainable energy. The Indian government's proposal to mandate blending of CBG with Compressed Natural Gas (CNG) and Piped Natural Gas (PNG) has added momentum to the sector. Shah noted that NDDB's early entry into the CBG market gives it a significant edge over competitors.

Mandatory Blending of CBG: A Game-Changer

In November 2023, the National Biofuels Coordination Committee (NBCC) approved the phased mandatory blending of CBG with CNG (for transportation) and PNG (for domestic use) in the City Gas Distribution (CGD) sector. Known as the CBG Blending Obligation (CBO), the initiative is expected to revolutionize the renewable energy landscape in India.

The blending obligation will be introduced in two phases. It will remain voluntary until FY2024-25, after which it will become mandatory. Starting with a 1% blending requirement in FY2025-26, the obligation will gradually rise to 5% by FY2028-29. This phased approach provides an opportunity for private players and Oil Marketing Companies (OMCs) to establish infrastructure and supply chains to meet the growing demand for blended CBG.

Suzuki's Vision for the Future

Suzuki's investment in NDDB Mirda Ltd. underscores the company's commitment to sustainability and renewable energy. By targeting rural areas where Maruti Suzuki Eeco vehicles are widely used, the company aims to create a circular economy that benefits farmers, dairy cooperatives, and the automotive industry. The use of cattle dung to produce CBG not

only reduces waste but also provides a reliable energy source that can power vehicles and homes alike.

Suzuki's plans extend beyond Gujarat. The company is exploring opportunities to replicate this model in other states, leveraging India's vast dairy network. Additionally, the profits generated from these ventures will be reinvested into expanding CBG production and supporting local economies.

A Sustainable Future for India

The NDDB-Suzuki partnership is expected to have far-reaching implications for India's energy and agricultural sectors. By integrating renewable energy production with dairy farming, the initiative has the potential to reduce the country's dependence on fossil fuels, lower carbon emissions, and create new economic opportunities for rural communities.

Suzuki's collaboration with NDDB Mirda Ltd. is a testament to the growing synergy between industry and agriculture in India. As the country moves toward a greener and more self-reliant future, partnerships like these will play a crucial role in achieving its sustainability goals.

Suzuki's foray into the CBG sector with NDDB Mirda Ltd. represents a bold step toward sustainable innovation. By focusing on renewable energy, rural development, and cutting-edge research, the company is setting an example for other global corporations. With the government's support and increasing interest from private players, the CBG sector in India is poised for significant growth, transforming the way energy is produced and consumed.

Omfed's program to boost milk output and dairy producers in Odisha

Vijay Amruta Kulange, Managing Director of Omfed, announced on Monday that initiatives are underway to establish model Khira Dhara Kendras (KDKs) in every panchayat to boost milk production and sales.

During a meeting with all unit heads and supervisors at the Cuttack Milk Union office, Kulange emphasized the importance of increasing the number of milk farmers in the state. He urged attendees to develop a micro plan aimed at enhancing milk production.

Kulange also encouraged identifying grassroots farmers and involving them in the Mukhyamantri Kamadhenu Yojana (MKY) and Mukhyamantri Krushi Utkarsa Yojana (MKUY), which will help increase the number of dairy farmers and, consequently, milk production.

Highlighting the significance of improving fodder cultivation, Kulange stated that cows will produce more milk when provided with adequate feed. "Farmers are encouraged to breed female calves, and Omfed is offering various facilities for their breeding and care. We must ensure that these benefits reach every farmer. An increase in female calves will lead to higher milk production. That's why Omfed is offering food, medicines, and medical services at discounted rates," he said.

Kulange also mentioned that arrangements have been made to showcase Omfed products to the Indian diaspora visiting the state for the Pravasi Bharatiya Divas. "We have set up stalls at tourist destinations where the diaspora is expected to visit," he added.

Omfed has established 21 stalls in Puri, Bhubaneswar, and Cuttack. "We are ready to welcome the Indian diaspora and are making every effort to ensure that Omfed products, representing Odia pride, reach them," Kulange concluded.

The 25th Anniversary of Nova Dairy's Malanpur Plant

Nova Dairy, a trailblazer in India's dairy industry renowned for its commitment to purity, proudly celebrates the 25th anniversary of its Malanpur Plant, which began operations on December 26, 1999. This silver jubilee marks not just the plant's extraordinary journey but

also the immense value it has delivered to the industry and consumers over the last 25 years.

The Malanpur Plant exemplifies Nova Dairy's unwavering dedication to quality, innovation, and sustainability. Over the decades, it has played a central role in achieving the company's mission of providing top-notch dairy products to millions of Indian households. From its modest beginnings, the plant has grown into an industry leader, characterized by consistent progress, excellence, and steadfast commitment.

On this momentous occasion, Ravin Saluja, Director of Sterling Agro Industries Ltd. (Nova Dairy), expressed his gratitude, stating, "This milestone is a moment of immense pride. Our silver jubilee not only celebrates our journey but also recognizes the unwavering trust and support from our employees, partners, and consumers. It is an opportunity to reflect on our accomplishments and extend heartfelt thanks to everyone who contributed to this success."

Equipped with state-of-the-art technology and adhering to world-class safety and quality standards, the Malanpur Plant has been a cornerstone of Nova Dairy's operations. Over the years, the facility has evolved to adapt to the dynamic demands of the dairy industry while staying true to its focus on sustainability and innovation.

"This celebration is about more than just acknowledging an achievement; it's about honoring the collective efforts of our partners—farmers, employees, distributors, and consumers alike. We are deeply grateful for their trust and collaboration," Mr. Saluja added.

The silver jubilee of the Malanpur Plant serves as a reminder that milestones are a testament to perseverance and success. Nova Dairy takes immense pride in this accomplishment, reaffirming its commitment to excellence and its vision for a sustainable future.

As the company celebrates this historic achievement, it remains dedicated to its mission of delivering high-quality dairy products and advancing the dairy industry's growth in India. The 25th anniversary is not just a reflection of past successes but a foundation for an even brighter and more impactful future.

Nutri-hormonal therapy developed by ICAR will transform dairy farming.

ICAR-CCARI Goa Develops Breakthrough Nutri-Hormonal Therapy to Address Repeat Breeding in Dairy Cattle

The Indian Council of Agricultural Research-Central Coastal Agricultural Research Institute (ICAR-CCARI) Goa has achieved a major milestone in the dairy industry by developing an innovative nutri-hormonal therapy. This groundbreaking solution tackles one of the most persistent challenges faced by dairy farmers: repeat breeding in crossbred cows.

A Game-Changer for Dairy Farmers

Repeat breeding, characterized by a cow's inability to conceive after multiple breeding attempts,

has long plagued dairy farmers, leading to economic losses and productivity declines. The nutri-hormonal therapy combines bypass fat supplementation with targeted hormonal treatments to improve conception rates and enhance reproductive performance in dairy cattle.

During a field day held at Mayem, Bicholim, the effectiveness of the therapy was showcased to a gathering of 24 local farmers, experts, and officials from the Department of Animal Husbandry and Veterinary Services. Farmers shared their experiences, while scientists and veterinarians discussed the science behind the therapy and its practical applications.

Insights from Experts

Udharwar S V, subject matter specialist in animal science and head of Krishi Vigyan Kendra (KVK), North Goa, shared real-world success stories to highlight the therapy's impact. He explained how the treatment had successfully resolved fertility issues in cows that had previously failed to conceive despite four to five breeding attempts.

"In three specific cases, cows treated with the nutri-hormonal protocol not only became pregnant but also delivered healthy calves. This therapy has shown exceptional promise in restoring reproductive health and improving overall farm productivity," Udharwar stated.

Dr. Gokuldas PP, Senior Scientist in Animal Reproduction at ICAR-CCARI Goa, delved deeper into the scientific principles underpinning the therapy. He elaborated on the role of critical hormones such as gonadotropins, sex hormones, and prostaglandins in regulating the oestrous cycle and optimizing reproductive efficiency. Additionally, he emphasized the importance of combining hormonal therapies with assisted reproductive technologies like artificial insemination to maximize conception rates.

Key Benefits of the Therapy

The nutri-hormonal therapy offers a range of benefits:

1. **Enhanced Fertility:** By addressing hormonal imbalances and optimizing nutrition, the therapy significantly improves conception rates in crossbred cows.
2. **Improved Health:** The inclusion of bypass fat in the cows' diet ensures better energy availability, supporting overall health and reproductive success.
3. **Economic Relief:** Dairy farmers can mitigate losses associated with repeat breeding and achieve higher productivity.

A Promising Future for Dairy Farming

The successful implementation of this therapy represents a transformative step forward for India's dairy industry, especially in rural areas where repeat breeding has long been a challenge. With its focus on improving the reproductive health and productivity of crossbred dairy cattle, the therapy holds the potential to uplift the livelihoods of farmers and strengthen the dairy sector as a whole.

ICAR-CCARI Goa has plans to collaborate with veterinary departments and dairy cooperatives to scale up the adoption of this therapy. Training programs, on-field demonstrations, and awareness campaigns are being organized to educate farmers about the benefits and practical application of the nutri-hormonal treatment.

Voices from the Field

Farmers who attended the event expressed their optimism about the new therapy. "This treatment has been a game-changer for us. My cow, which failed to conceive multiple times, is now pregnant after undergoing the therapy," said a dairy farmer from Mayem.

Expanding the Reach

Building on this success, ICAR-CCARI Goa aims to expand its research and extend the benefits of the nutri-hormonal therapy to other parts of India. The institute is working on refining the treatment further to address additional reproductive challenges in dairy animals.

This innovation underscores ICAR-CCARI Goa's commitment to empowering farmers through science and technology. By addressing critical issues like repeat breeding, the institute is playing a pivotal role in transforming the dairy landscape and ensuring sustainable growth for the industry.

As the therapy gains traction, it is expected to set a new benchmark for reproductive health management in dairy farming, paving the way for a more productive and prosperous future for farmers across the country.

Nepal Will Examine Bringing in Indian Dairy Products Despite Export Fears

As both countries talk about trade agreements and market access, Nepal agrees to take into consideration importing some dairy products from India.

India and Nepal Discuss Dairy Trade and Strengthen Bilateral Trade Ties

During the recent India-Nepal Inter-Governmental Committee (IGC) meeting on Trade, Transit, and Cooperation to Combat Unauthorised Trade, held in Kathmandu on January 10-11, India raised critical concerns about the challenges faced by its milk exporters in Nepal. Responding positively, Nepal expressed its willingness to consider easing the import of specific dairy products such as whey and cheese, which are not widely produced within the country.

Facilitating Dairy Trade

India's request to facilitate imports of whey and cheese into Nepal aims to bridge the gaps in local dairy production while also bolstering India's export sector. This move is seen as a step toward addressing market shortages in Nepal and enhancing trade relations between the two countries. According to officials, Nepal is now exploring ways to streamline import regulations for these products, which could pave the way for smoother cross-border dairy trade.

An Indian official involved in the talks noted, "Nepal's positive response to easing dairy imports is a significant step forward. It not only helps Indian exporters but also supports Nepal's dairy market by providing access to high-quality dairy products that are in short supply locally."

Reviewing Key Agreements

Beyond dairy trade, the IGC meeting covered a wide range of issues aimed at strengthening bilateral trade. Both countries reviewed the Treaty of Transit and the Treaty of Trade, identifying areas for potential amendments to enhance trade facilitation. These treaties, which form the backbone of India-Nepal trade relations, were last revised over a decade ago.

Key areas of focus included harmonizing standards for goods,

upgrading trade infrastructure, and reducing logistical bottlenecks. The electrification of the Raxaul-Birgunj rail line, identified as a priority project, was also discussed in detail. Once completed, this project is expected to significantly improve trade connectivity, making it easier to transport goods between the two countries.

Addressing Market Access and Regulatory Challenges

The meeting also delved into broader market access issues, intellectual property rights, and customs duty concerns. India emphasized the need for streamlined customs processes and mutual recognition of standards to ensure smoother trade flows. On its part, Nepal highlighted its desire for better access to Indian markets for its agricultural and handicraft products.

One of the major outcomes was India's agreement to enforce maximum axle weight limits for Nepali cargo vehicles transiting through the Kakarbhitta (Nepal)-Banglabandha (Bangladesh) route via Phulbari (India). Under this arrangement, two-axle vehicles will have a maximum limit of 18.5 tonnes, while three-axle vehicles will be allowed up to 28 tonnes. These weight limits align with Indian road transport regulations and aim to ensure safer and more efficient transit for Nepali goods.

Strengthening Infrastructure and Connectivity

Both countries recognized the importance of improving trade-related infrastructure to reduce costs and delays. Discussions included the modernization of border facilities, the creation of integrated check posts (ICPs), and the development of additional rail links. The Raxaul-Birgunj rail line electrification project, once operational, will not only boost trade between India and Nepal but also contribute to the region's environmental sustainability by reducing the carbon footprint of freight transportation.

Combatting Unauthorised Trade

The IGC meeting also addressed the issue of unauthorised trade, which continues to be a challenge along the India-Nepal border. Both sides agreed to enhance coordination between customs and border security agencies to curb smuggling and other illicit activities. Additionally, efforts to raise awareness about trade compliance among businesses were discussed as part of a broader strategy to promote lawful trade practices.

High-Level Representation

The Indian delegation was led by Commerce Secretary Sunil Barthwal, while the Nepali delegation was headed by Secretary of the Ministry of Industry, Commerce, and Supplies, Gobinda Bahadur Karkee. Their leadership ensured that the discussions remained focused on achieving actionable outcomes.

Sunil Barthwal highlighted the importance of India-Nepal trade ties, saying, “India and Nepal share a unique relationship, and trade is a cornerstone of our partnership. Through mutual understanding and collaboration, we aim to address existing challenges and unlock new opportunities for growth.”

Gobinda Bahadur Karkee echoed this sentiment, emphasizing Nepal's commitment to fostering a conducive trade environment. He noted, “Our discussions at the IGC meeting have laid a strong foundation for deeper cooperation. By addressing regulatory and logistical challenges, we can create a win-win situation for both countries.”

Future Roadmap

Looking ahead, India and Nepal are expected to hold follow-up meetings to implement the agreements reached during the IGC meeting. Task forces are likely to be established to address specific issues, such as harmonizing standards, implementing infrastructure projects, and promoting sustainable trade practices.

The successful conclusion of the IGC meeting marks another milestone in the India-Nepal partnership. By addressing key trade challenges and exploring new opportunities, both nations are taking significant steps toward strengthening their economic and cultural ties. As these initiatives unfold, the benefits are expected to extend beyond trade, fostering greater regional stability and prosperity.

India's Rural Economy Needs More Amul-Like Cooperatives, Modi Says

During the Grameen Bharat Mahotsav's launch ceremony, Prime Minister Narendra Modi highlighted the importance of cooperatives in improving rural livelihoods and the urgent need for five to six more cooperative organizations like Amul to drive meaningful changes in rural India. Modi also highlighted milk production as the most profitable sector for farmers.

Amul: A Model for Rural Transformation

Established in 1946 with just two village dairy cooperative societies, Amul has evolved into a national

success story. Today, over 16 million milk producers supply milk to 1.85 lakh dairy cooperative societies across India. These societies process milk through 222 District Co-operative Milk Unions and market it via 28 State Marketing Federations. Describing Amul as a catalyst for rural empowerment, Prime Minister Narendra Modi called for the creation of similar large-scale cooperatives to replicate its success.

"India is progressing towards prosperity through cooperation," Modi stated, emphasizing the significance of the Ministry of Cooperation, formed in 2021, in driving this vision.

Strengthening Rural Economies

Modi highlighted various initiatives designed to boost rural incomes and modernize village economies. Over 70,000 Primary Agricultural Credit Societies (PACS) are being digitized to improve efficiency and ensure farmers receive better returns.

He also discussed the Vishwakarma Yojana, a scheme focused on revitalizing traditional village occupations such as blacksmithing, carpentry, and pottery. By offering skill development and financial support, the program is creating new opportunities for rural artisans.

Growing Rural Prosperity

Pointing to a recent survey, Modi noted that rural consumption has nearly tripled since 2011, reflecting improved living standards. For the first time since independence, rural households are spending less than 50% of their income on food, allowing for greater expenditure on other goods and services.

"Providing a dignified life for rural India is our highest priority," Modi remarked, citing government initiatives aimed at enhancing basic amenities, healthcare access, and reducing out-migration.

Revolutionizing Rural Healthcare

The Prime Minister highlighted significant advancements in rural healthcare, such as the establishment of over 1.5 lakh Ayushman Arogya Mandirs and the growing use of telemedicine platforms like e-Sanjeevini. These digital healthcare solutions have enabled millions of rural residents to access top medical professionals and facilities.

Modi also praised the resilience of India's villages during the COVID-19 pandemic, as vaccines were successfully delivered to even the remotest areas.

A Vision for Self-Reliant Villages

Concluding his address, Modi reaffirmed his government's commitment to empowering rural India and fostering self-reliance. "When intentions are noble, the results are fulfilling," he said, reflecting on the progress achieved over the past decade.

Looking ahead, Modi emphasized that creating new Amul-like cooperatives could play a transformative role in boosting the rural economy and improving the quality of life for millions.

To strengthen the dairy industry, NDDB launched OMFED initiatives for cow induction, giftmilk, and market support.

President Murmu Highlights Livestock's Role in Rural Development at OMFED Event

President of India, Droupadi Murmu, virtually launched a series of new initiatives under the Odisha State Cooperative Milk Producers' Federation (OMFED) on January 13, 2025. The event, which was held at Rashtrapati Bhavan, introduced several key projects aimed at strengthening Odisha's dairy sector. These initiatives—Cow Induction, Giftmilk, and Market Support—are designed to address key challenges in the dairy industry and offer long-term solutions for rural growth in the state.

The initiatives are part of a broader effort to modernize dairy farming in India, promote livestock welfare, and enhance productivity in rural areas. The Cow Induction program aims to introduce high-yielding cows to improve milk production, while the Giftmilk initiative will provide free milk to underprivileged families in rural regions, ensuring better nutrition and economic stability. Additionally, the Market Support program will help dairy farmers in Odisha gain access to better markets and improve the marketing of their products, thereby helping farmers secure better prices for their milk and milk-based products.

Promoting Livestock as a Driver of Rural Economy

In her virtual address, President Murmu emphasized the essential role that livestock plays in boosting rural household incomes and driving the broader economic growth of rural India. "Livestock has been the backbone of rural India for generations. It not only supports the livelihood of millions of families but also plays a central role in the country's agricultural economy," she stated.

President Murmu also acknowledged the diversity of livestock breeds in India, which have been integral to the country's agricultural heritage. She highlighted that the government's

continued efforts to improve livestock genetics and enhance breeding programs have led to better quality milk and improved the overall productivity of milch cattle. She underscored that such initiatives have contributed to raising the incomes of dairy farmers, particularly in rural India, where dairy farming is a major source of livelihood.

"Improvement in livestock health is essential to enhance the quality of milk and animal-based products, and this must be a priority," President Murmu added. She praised the government's focused programs aimed at improving animal health and welfare, recognizing the need for more comprehensive efforts to reduce veterinary diseases and enhance reproductive health in cattle.

India's Commitment to Animal Husbandry

India has seen remarkable improvements in its dairy industry over the last decade, with significant advancements in milk production. In her address, President Murmu acknowledged these strides and highlighted the critical role that animal husbandry has played in ensuring food security and supporting economic prosperity across the nation.

"The consistent improvements in the productivity of milch cattle over the last decade reflect India's strong commitment to advancing animal husbandry practices," she said. She pointed out that the government has focused on strengthening dairy cooperatives and enhancing the availability of veterinary care, which are pivotal to achieving sustained growth in the dairy sector.

National Gokul Mission: A Path Toward Sustainable Dairy Farming

A significant aspect of the President's speech was her support for the National Gokul Mission, a national initiative aimed at conserving and improving indigenous cattle breeds. This mission is part of a broader national effort to preserve genetic diversity, improve milk yields, and ensure that indigenous cattle breeds thrive.

The President emphasized that the National Gokul Mission should be expanded further across the country, with efforts focused on improving the overall health, productivity, and genetic potential of livestock. "The National Gokul Mission has the potential to uplift rural communities by promoting sustainable farming practices and ensuring that dairy farming remains a profitable and viable livelihood option for millions of farmers," she added.

She also stressed that improving animal health and productivity in rural India requires a collective approach, involving government, industry, and local communities. "This is not just a government effort; it is a call to all stakeholders to come together and work toward building a healthier, more prosperous India."

The Road Ahead: Enhancing Rural Prosperity

Concluding her address, President Murmu called for continued innovation in the dairy sector to ensure the long-term success and sustainability of rural development. She encouraged the implementation of modern scientific methods, animal health initiatives, and farmer education programs to help improve dairy farming practices.

"These efforts will have a transformative impact on the lives of millions of farmers and contribute to making India a leader in sustainable dairy farming," President Murmu remarked. She called for a nationwide effort to ensure that dairy farmers, especially in rural areas, have the tools, support, and knowledge they need to succeed.

The President's address also included a call for greater collaboration between the government, private sector, and civil society organizations to ensure that the benefits of these initiatives reach the farthest corners of rural India. She noted that while many strides have been made, there remains much work to be done to fully realize the potential of India's dairy industry and to ensure that rural prosperity becomes a reality for all.

OMFED's Impact on Odisha's Dairy Industry

The OMFED initiatives are a critical part of the National Dairy Development Board's broader strategy to modernize and expand India's dairy sector. As one of the largest dairy cooperatives in India, OMFED plays a key role in enhancing milk production, supporting local dairy farmers, and improving the overall dairy ecosystem in Odisha.

By focusing on high-quality milk production, advancing genetic improvements in livestock, and providing support to rural farmers, these initiatives aim to uplift Odisha's dairy sector and set an example for other states to follow. Through these targeted interventions, President Murmu believes that Odisha can serve as a model for rural development that benefits both dairy farmers and consumers alike.

The continued development of these programs will further India's goal of creating a more self-sufficient and prosperous rural India, where livestock farming not only supports livelihoods but also becomes a key driver of sustainable economic growth.

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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