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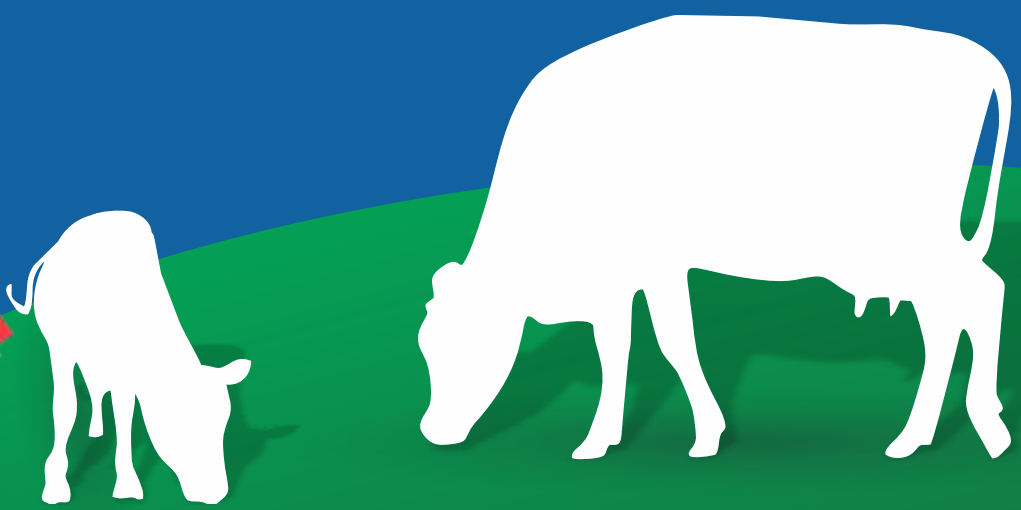

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When you're struggling to get through the day and you need a little pick-me-up, reach for an ice cold glass of milk. You will feel revitalized in no time.

From the Pen of Chief Editor

From Genes to Gadgets: Building a Resilient Cattle Industry

The relentless march of global warming casts a long shadow over every facet of life, and agriculture is no exception. While discussions often center on crop resilience or water scarcity, the impact of rising temperatures on livestock, particularly cattle, is a critical, often overlooked, challenge. Cows, vital to global food security for their milk and meat, are highly susceptible to heat stress. As thermometers climb, so too do the stakes for animal welfare, productivity, and the economic viability of countless farms. The urgent need for "climate-ready cows" is driving a wave of innovative solutions, transforming how we approach livestock management in a warming world.

Heat stress in cattle is a multifaceted problem. When temperatures and humidity rise, cows struggle to dissipate their internal heat. This leads to a cascade of negative effects: reduced feed intake, decreased milk production, impaired reproductive performance, weakened immune systems, and in severe cases, increased mortality. For dairy farmers, this translates directly into significant economic losses. Traditional mitigation strategies, such as providing shade and fans, are helpful but often insufficient against the escalating intensity and duration of heatwaves. A more proactive, technologically advanced approach is imperative.

Fortunately, scientific innovation is stepping up to meet this challenge. One of the most promising avenues lies in genetic selection and breeding. Researchers are identifying and breeding cattle with inherent heat tolerance traits. A prime example is the "slick-haired" gene, which results in shorter, smoother coats that allow for more efficient heat dissipation. By selectively breeding animals possessing this trait, we can develop herds naturally better equipped to handle warmer climates, reducing reliance on external cooling mechanisms.

Beyond genetics, nutritional adjustments are playing a crucial role. Scientists are developing specialized feed formulations and additives that can reduce the metabolic heat generated by digestion or enhance a cow's ability to cope with stress. These dietary interventions can help maintain productivity even under challenging conditions.

The advent of precision livestock farming offers another layer of resilience. Wearable sensors, smart tags, and IoT devices can continuously monitor individual cow parameters like body temperature, heart rate, respiration, and activity levels. This real-time data allows farmers to identify early signs of heat stress, enabling timely intervention and personalized care.

Furthermore, advancements in housing and shelter design are moving beyond simple shade structures. Innovations include evaporative cooling systems, specialized ventilation, and even passive cooling designs that leverage natural air currents and reflective materials to create more comfortable microclimates within barns. Research into the bovine microbiome also holds potential, exploring how modifying gut bacteria could enhance a cow's ability to adapt to heat stress.

The benefits of these innovations extend far beyond just maintaining productivity. They represent a significant leap forward in animal welfare, ensuring that cows can live and produce in more comfortable and humane conditions. Economically, they safeguard the livelihoods of farmers by mitigating the devastating impact of heat stress. Environmentally, by improving efficiency and reducing losses, they contribute to a more sustainable agricultural system.

While the path to widespread adoption may face hurdles, including the cost of new technologies and the need for farmer education, the urgency of climate change demands our commitment. Investing in "climate-ready cows" is not merely about protecting an industry; it's about safeguarding global food security, promoting animal well-being, and building a more resilient agricultural future in the face of an undeniable environmental shift. These innovations offer a beacon of hope, demonstrating that with ingenuity and collaboration, we can adapt and thrive even in a warming world.

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PRESS RELEASE

ARTICLE

Dairy Farming in a Warming World: Breeding Climate-Ready Cows

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As global temperatures continue to climb, agriculture faces one of its biggest challenges yet—adapting livestock systems to an increasingly hostile climate. Among the most vulnerable animals in this scenario are dairy cows. These animals, crucial to food production and rural economies, are highly susceptible to heat stress, which can significantly reduce milk yield, fertility, and overall health. To meet this challenge, researchers and farmers are pioneering a new wave of innovation: breeding and managing climate-resilient cows.

The Rising Heat Challenge in Dairy Farming

Dairy cows funtion best within a narrow temperature range, typically between 5°C and 25°C. Beyond this range, especially during heatwaves, they experience thermal stress. This leads to reduced appetite, slower metabolism, and decreased milk output. In addition, prolonged exposure to high temperatures can compromise their immune system and reproductive efficiency.

With global warming exacerbating these conditions, regions like South Asia, Latin America, and parts of the southern United States are witnessing more frequent and intense impacts. These climate pressures are not only threatening animal welfare but also the economic viability of dairy farming in many areas.

Genetic Innovation: Building Better Cows for the Climate

To address these issues, scientists are investing in genetic approaches that enhance the natural ability of cows to cope with higher temperatures. Three key strategies are emerging:

1. **Selective Breeding for Resilience**

   Modern genomic tools allow breeders to pinpoint and select for traits associated with heat tolerance—such as shorter, slicker coats, efficient metabolism, and better thermoregulation. Over time, this method enhances the herd's capacity to perform under heat stress without sacrificing milk quality or yield.

2. **Crossbreeding with Indigenous Breeds**

   Local breeds like the Sahiwal (South Asia), N'Dama (West Africa), and others are naturally adapted to hot,

humid conditions. Though these animals generally produce less milk, they exhibit superior resilience to heat and disease. Crossbreeding them with high-yielding commercial breeds offers a middle ground—combining hardiness with productivity.

3. **Biotechnology and Genetic Engineering**

   Newer approaches like gene editing are also being explored. Techniques such as CRISPR allow scientists to insert specific genes linked to heat tolerance, like the "slick hair" gene, into the DNA of high-producing dairy cows like Holsteins. Though still in early phases, these efforts show strong potential.

Practical Solutions: Cooling, Monitoring, and Feeding

While breeding takes time, immediate solutions can help protect dairy cows from heat stress today.

Farm Design and Cooling Technologies

Installing cooling systems such as fans, water misting devices, and improved ventilation can significantly reduce barn temperatures. Some operations are adopting tunnel ventilation and cooling pads to enhance airflow and reduce thermal loads.

Smart Monitoring Tools

Technology is playing a growing role in animal welfare. Wearable sensors and automated monitoring systems track each cow's body temperature, movement, and milk production. These tools help detect early signs of heat stress, allowing farmers to respond proactively.

Nutritional Adjustments

In hot climates, cows eat less, so feed must be optimized. Providing nutrient-rich, easily digestible diets and ensuring constant access to clean, cool water helps maintain energy levels and milk output. Electrolyte supplements and feeding during cooler parts of the day are also effective strategies.

Global Partnerships and Policy Initiatives

Across the globe, various organizations and governments are investing in research and implementation of climate-smart dairy strategies.

Programs like the **African Dairy Genetic Gains (ADGG)** and **Feed the Future** are helping to identify and distribute superior genetics to farmers in climate-vulnerable regions. In countries like Australia and the United States, national institutes are driving large-scale genetic research, sustainable farm design, and emissions-reducing practices.

Public and private sector collaboration is essential to bring these innovations to scale. Investments in infrastructure, training, and access to technology will ensure that smallholder and commercial farmers alike benefit from these advancements.

A Climate-Resilient Future for Dairy

The development of climate-ready cows is more than a scientific pursuit—it's a necessity for the future of global food systems. By combining genetic improvements, smarter technologies, and sustainable farm practices, the dairy industry can adapt to climate change without compromising productivity or animal health.

This transformation, however, must be inclusive and ethically guided. The adoption of genetic technologies should respect biodiversity, animal rights, and traditional farming knowledge. As the climate continues to shift, building resilience into dairy systems is not only a technical challenge—but a moral imperative for feeding future generations.

Conclusion: Turning Challenge into Opportunity

As the climate crisis intensifies, the dairy industry stands at a crossroads—adapt or decline. Yet within this challenge lies an extraordinary opportunity to reshape livestock systems for a more sustainable, resilient, and equitable future. Climate-ready cows are not just a scientific achievement; they are a symbol of how innovation, when guided by compassion and foresight, can safeguard livelihoods, nourish communities, and protect the planet. With continued collaboration, investment, and vision, we can ensure that the dairy sector not only survives—but thrives—in a warming world.

Impact of Stress and its ameliorative measures in Livestock

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Introduction

Stress in livestock poses a major challenge for farmers because it directly influences the health and productivity of animals. Different stress factors, such as environmental conditions, management practices, and physiological changes, can negatively affect farm animals. The given essay examines the various types of stress and their effects on animal health and productivity, emphasizing the consequences for farmers.

Stress in Livestock

1. Environmental Stress

Environmental stress arises from adverse climatic conditions that challenge the animal's ability to maintain homeostasis.

- **Heat Stress:** Occurs when temperatures exceed the thermoneutral zone of animals, causing heat gain rather than loss. This leads to reduced feed intake, increased water consumption, impaired reproductive function, and decreased milk production. Heat stress also compromises immune function, increasing susceptibility to diseases like mastitis.
- **Cold Stress:** Happens when temperatures drop below the animal's comfort zone, leading to increased energy expenditure to maintain body heat. Severe cold stress can cause frostbite, reduced colostrum absorption in calves, and increased mortality.

2. Social Stress

Social stress results from interactions within the herd or group dynamics that disrupt social stability.

- **Social Isolation:** Separation from the group causes anxiety, increased heart rate, cortisol levels, and abnormal behaviours such as excessive defecation and urination.
- **Social Instability:** Changes in group composition, such as moving animals to new pens, lead to decreased feed intake and elevated stress hormones.
- **Crowding:** Overcrowding reduces available space, causing competition for resources, reduced growth, and increased mortality rates.

3. Handling Stress

Handling stress is induced by human-animal interactions and

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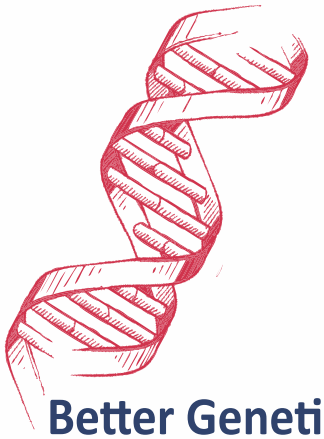

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routine management practices.

- Activities such as transportation, vaccination, weaning, and other physical manipulations can trigger fear and anxiety in animals.
- Poor handling techniques, loud noises, and sudden movements exacerbate stress responses, increasing cortisol levels and negatively impacting health and productivity.

4. Nutritional Stress

Nutritional stress occurs when animals experience inadequate or imbalanced diets.

- Low energy or improper protein levels can impair reproductive performance and immune function.
- Sudden dietary changes or poor-quality feed reduce feed intake and nutrient absorption, affecting growth and disease resistance.

5. Pathological Stress

Pathological stress is caused by disease or injury.

- Illnesses, infections, and parasitic infestations provoke physiological stress responses that weaken immunity and reduce productivity.
- Managing health through regular veterinary care and parasite control is vital to minimize this type of stress.

6. Transportation Stress

Transportation is a common source of stress due to confinement, movement, unfamiliar environments, and handling.

- It causes behavioural changes, elevated cortisol levels, and increased risk of respiratory diseases.
- Proper planning, low-stress handling, and minimizing transport duration help reduce transportation stress.

Effects of Stress on Animal Health

The physiological response to stress involves several changes that can compromise animal health:

- **Immune Function:** Stress negatively impacts the immune system, making animals more susceptible to diseases such as mastitis in dairy cows. Chronic stress can lead to increased pathogen carriage and shedding, further complicating health management on farms.
- **Reproductive Health:** Stress has been linked to reduced fertility rates in livestock. For instance, heat stress directly affects reproductive hormones and can lead to lower conception rates.
- **Growth and Development:** Animals under stress often exhibit decreased growth rates due to reduced feed intake and poor nutrient absorption. This not only affects individual animals but also impacts overall herd productivity.
- **Nutritional Stressors:** Inadequate nutrition or sudden changes in diet can also cause stress. Poor nutrition affects growth rates and overall health, making animals more susceptible to diseases.

Economic Impact on Farmers

Stress in livestock leads to significant financial losses:

- **Lower Productivity:** Stress reduces milk yield, weight gain, and feed efficiency. For example, heat-stressed dairy cows produce less milk with lower fat content, directly reducing profits.
- **Higher Veterinary Costs:** Stress-related illnesses increase veterinary expenses for treatments and medications.
- **Reduced Market Value:** Stress can lower the quality of meat and milk, leading to decreased market prices or unsold products, further affecting farmers' income.

Monitoring Stress in Livestock

Farmers can implement several effective strategies to manage stress in their livestock, enhancing animal welfare and productivity.

- Behavioural changes like increased vocalization, restlessness, reduced feeding, and unusual social interactions.
- Altered movement patterns, including decreased activity or heightened aggression.
- Physiological markers like elevated cortisol levels measured through blood or saliva tests.

Strategies to Manage Stress

Farmers can adopt several

approaches to minimize stress and improve animal welfare:

Environmental Management

- Provide adequate shelter to protect animals from extreme weather and ensure proper ventilation.
- Maintain constant access to clean water and balanced nutrition.
- Avoid overcrowding by ensuring sufficient space for animals to move freely.

Handling Techniques

- Use low-stress handling methods, such as calm voices and gentle restraint.
- Acclimate animals gradually to handling routines.
- Limit mixing animals from different sources to reduce social stress; use preconditioning when mixing is necessary.

Health Management

- Conduct regular veterinary health checks for early disease detection.
- Follow deworming schedules to prevent parasitic infections.
- Use appropriate antibiotic treatment during high-risk events like transport to reduce illness.

Behavioural Enrichment

- Provide comfortable bedding and opportunities for natural behaviours.
- Encourage positive interactions between handlers and animals to foster calmness.

Specific Measures for Heat Stress

- Offer shade and ensure good ventilation during hot periods.
- Adjust feeding times to cooler parts of the day to reduce heat from digestion.
- Ensure ample hydration and increase nutrient density in feed to compensate for reduced intake.

Conclusion

Livestock are exposed to various types of stress including environmental, social, handling, nutritional, pathological, and transportation stress, that significantly impact their health and productivity. Recognizing these stressors and implementing appropriate management practices is crucial for promoting animal welfare and enhancing farm efficiency. Addressing stress effectively not only improves the well-being of animals but also supports the economic sustainability of livestock farming. Understanding the different stressors and their consequences enables the adoption of better management practices. By effectively reducing stress, farmers can enhance animal welfare and improve their economic sustainability in a competitive agricultural market.

Management Etiquette for High Producer Dairy Cow

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Cow producing more than 20 kg of milk per day and buffaloes yielding more than 15 kg a day are categorized as high producer animals.Management of high producer dairy cow require multifaceted approach includingbalance nutrition, housing health and reproduction to reach peak of production and sustain it without compromising welfare and longevity.

1 **Balanced nutrition:** Feeding a variety of feed and fodders in correct proportion and quantities to meet animal's nutrient requirement.

- High energy TMR (total mixed ration) fed to the animals to get energy density.
- Provide effective fiber (NDF > 28%) to maintain rumen function.
- Minerals and vitamins: Balanced macro and trace minerals may be added such as calcium, phosphorus, magnesium and selenium.
- High grade fodder: Highly digestible forage like alfalfa or corn silage may be offered.
- Frequency of feeding: Feedingmultiple times a day encourage dry matter intake.
- Water: Clean and fresh water is essential for high milk yield. High producer can drink over 150 litres/ day.

2 **Forage quality:** High grade forage is crucial and essential for rumen function and overall health. High producer cow requires highly digestiblegreen fodders like alfalfa, berseem and corn silage.

3 **Feeding of baking soda (sodium bicarbonate) to cow:** Feeding baking soda to high producer elite cow is beneficial practice for shifting cow from low to high energy ration after calving. It regulates rumen pH and maintains acid-base balance and behave as buffer, improve dry matter intake and ultimately production. It neutralizes excess of acid in rumen. Moreover, supplementation of baking soda reduces fertility problems and udder infections in dairy cows. Dose of sodium bicarbonate 150-250g/day.HF cows fed bicarbonate produces more milk without change in fat content (Donker and Marx, 1980).Addition of sodium bicarbonate improved the acid-base status after abrupt change in ration and may be associated with significant increase in dry matter intake and improve ration adaptation, however plasma minerals and metabolites did not varied significantly.

4 **Transition cow program:** Careful management of dry period and fresh cow diet to avoid milk fever, ketosis, fatty liver etc.

5 **Negative DCAD diet during close-up dry cow:** Feeding negative DCAD can be beneficial for preventing hypocalcaemia (milk fever) and improving overall health and production during postpartum period. DCAD in diet should be carefully fed to induce a compensated metabolic acidosis and achieve acidity of urine pH between 5.5-6.0.

6 **Precision cow management:**

- **Maintain BCS:** Maintenance of BCS involves feeding and management aiming to maintain optimal energy reserves during various stages of lactation and pregnancy. It is tool that determines the relative fatness or energy reserve of cow.
- **Wearables and sensors:** Collars and tag may be used to track rumination, activity, temperature and milk yield in real time.
- **Milk components tracking:** Monitor fat, protein and somatic cell count to detect early sign of stress and mastitis.

7 **Reproductive management:**

- **Heat detection:** It is process of identifying a cow in receptive to mating and can become pregnant. Accurate estrus detection is crucial for successful breeding programs and optimizing fertility of herd. Most important sign of estrus is standing to be mounted in cows.
- **Timed AI (TAI) protocols:** It involves synchronizing ovulation and insemination with specific hormone treatments (Ov synch, Co synch protocol), eliminating the need for heat detection.
- Reducing calving interval: It include proper nutrition, health, heat detection.
- Cyesiognosis/ Pregnancy diagnosis: Pregnancy diagnosis is practiced to maintain continuity in milk production through rectal palpation, transrectal ultrasonography, milk progesterone etc., Practiced between 1-2 months of conception.
- Post calving care to reduce endometritis, retention of fetal membrane.

8 **Health management:**

- **Vaccination:** Essential for protectingherd health and productivity. FMD, HS and BQ is essentially to be controlled.
- **Mastitis control:** Udder hygiene and post milking teat dips. After milking cow should be fed concentrate in order to avoid sitting in cow immediately after milking. Proper cleaning and drying of udder before milking and teat dip practice after milking.
- **Lameness prevention and foot health:** Importance of hygiene and nutrition be kept in mind and early detection and treatment of foot problem should be emphasized. Routine trimming

9 **Housing and comfort:**

- Ventilation: Good air flow reduces respiratory issues and heat load inside the building.
- Bedding materials: Sand, straw or mattresses may be used to encourage lying time.
- Adequate space per cow: Overcrowding need to be avoided.
- Heat stress prevention: Arrangement of shade, adequate ventilation and plenty of cool water. Mist cooling practice in shed, arrangement of fans, arrangement of night feeding and feeding of mineral mixture.
- Comfort index: Target for more than 12 hours per day lying time by using deep, clean and dry bedding.

10 **Milking management:**

- **Routine hygiene:** With the objective of clean milk production following practice need to be adopted including washing of teats and udder, use of teat dips or spray and cleaning of milking equipments. Use of clean hands, separate towels, full hand milking, dust control, clean clothing and trimmed nails are common practices required to be adopted.
- **Machine maintenance:** Involves regular cleaning, checking and upkeep of machine and its components to ensure efficient milking and reduce contamination.
- **Milk yield and somatic cell count:** Standard monitoring is common to assess udder health. Somatic cell count should be less than 3 lakh/ ml of milk.
- **Parlour routine:** Use of consistent calm parlour routine along with well-maintained equipments.
- **Quick milking practice:** Rapid and complete milk removal with minimal stress to animal should be practiced in order to achieve high production yield in herd. Milking should be complete within 5-7 minutes with hand milking and within 2 minutes in machine milking practice..

- **Robotic milking system-** Best for elite cow to individualize milking frequency.

11 Record keeping, monitoring and data-based decision:

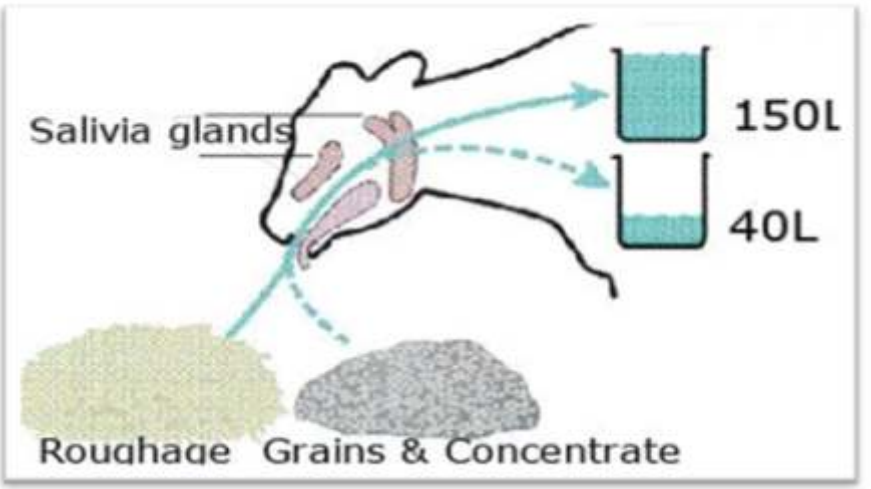
- Use of software or logs to track production, treatment if any, date of service and calving records.
- Integrated herd management software like DeLaval Afimilk may be used to analyse trends and flag at risk animal early.

12 Waste management

13 Environment monitoring

14 Minerals vitamin supplementation:

15 Dietary buffers: Diets of high producer cow contains more than half as concentrate mixture, which results in less saliva production results in less rumen buffering.The easily fermentable grain-basedconcentrate leads to increased acid production and decreased rumen pH results in reduced fiber degradation, feed efficiency and low milk fat percentage. Mixing of dietary buffers @1.5% of concentratemay neutralize the acidity in rumen.



16 Bypass nutrients/ rumen undegradable nutrients (Bypass for better cow): Nutrientsare not digested in rumen by microbes insteadget available at lower part of GI tract followed by subsequent digestion and absorptionmaking it more available for growth and milk production in high yielding dairy animals. Actually, it is protected fat, proteins, starch, chelated minerals and vitamins. Heat and formaldehyde treatment to protein is considered effective way of bypassing proteins. Bypass protein increase milk production, milk quality and growth. Supplementation of bypass fat in diet is very useful to increase milk yield, FCM yield, efficiency of nutrient utilization, postpartum recovery of body weight and BCS, reproductive performance and alleviate a unique problem of negative energy balance without adversely affecting intake of dry matter and rumen fermentation protocol. Dose rate of bypass fat- at least 200-300 g/day.

- **Bypass fat:** Rumen protected fat may be offered to increase energy density

17 Challenge feeding(Feed the challenge, harvest the potential): Challenge feeding considered as path of excellence. Describes feeding additional concentrate in order to challenge cow with high potential. It starts two weeks prior to commencement of parturition. It helps to condition digestive system for increased quantity of feed to provide sufficient nutrient to initiate lactation at high plane. Animals are started with 1.5 to 2.0 kg concentrate mixture 2weeks before calving followed by increment 0.5 kg daily to reach free choice before calving. This is practice to challenge the cow to reach her maximum milk production potential.

Management titbits

1) Cow should be kept in well-spaced and properly ventilated shelter
2) Cow should be fed several small meals in place of routine two-time large meal especially during high humid summer season.
3) Concentrate may be fed to the cow during milking for proper letdown and after milking to increase standing time after milking to avoid new infection in mammary gland.
4) Fresh feed needs to be offered after milking
5) High grade feed ingredients may be procured and also analysed for nutrients periodically.
6) Sudden drastic change in feed and fodder should be restricted.
7) Modulated supplementation of mineral mixture as per physiological status of cow i.e., minimum mineral mixture may be added before parturition especially calcium, however, amount of mineral mixture

increased after parturition keeping in view production status of animal.

8) Cow should be dried at least 60 days before expected date of calving.

By implementing a comprehensive management protocol which addresses key areas(like Nutrition, reproductive management, health management, housing etc.,)dairy farmers can maximize the milk production and health of high producing cows.

Local/ desi formula for increasing milk production

- **Deworming + liver tonic followed by use of calcium and energy booster:** Calup gel- 300 ml- Once a day for 3 days along with Himshakti energy booster- 200ml/day once a day for five days.
- Wheat grit/wheat daliyamixed withwater and boiled+ **Taramira** /Arugula (50 g)+ Jaggery (100g) + Mustard oil (50-100 ml) + Meetha soda (50 g)+ Fenugreekgrain (25-50g)+**lime powder**(5-10g) & **cotton seed** may be addedmay be added --------4-5 kg/ 10 kg of milk
- Simply giving water of lime powder (5-10g)- has good effect on milk production and improve fertility also.
- Add salt (50g) increase water intake + Meetha soda (50g)increase digestive efficiency + Mineral mixture 50-100gsupplementation of deficient elements + Mustard oil 50 ml + Jaggery (100g)
- Add 1 kg iodine salt + 1kg black salt + 1 kg rock salt = form a mixture------**formula-I**; Rock sugar (Misri)- 2kg – Grind ------**Formula-II- Now** take 50 g from formula I and 50 g from formula-II **and mix it in concentrate** for increasing milk production
- **Soyabin roasted** (250-500g) may be fed along with Milkofeed platinum powder + Milk magic powder
- Fennelor Sauf50-100g + batasa 100-200g for 3 day ----- increase milk production
- Ajwain (50-100g after parturition) + Jaggery + **Satawari** root (Asparagus) - 50g----------increase milk production. Parakh milk magic powder 50-100 g may also be given daily for 10-20 days for good result.
- Jaggery 200g+ Bengal gram flour/ **Besan- 200gdrink in water–** also increases milk production- 10-20 days after parturition
- Moringa leaves + lime powder/ Leaves of Arjuna (source of calcium)+ neem leaves once in a week + **Satawar root**– milkenhancer, natural dewormerimprove fertility also

Note: A high producer cow HF cow participated in National Dairy mela-2025 at Karnaland ranked One in competition. Reported to produce 87 litres of milk per day and are fed as follow: Green fodder – 10 kg, Silage- 45 g, Turi/ Bhusa- 1.5 kg, Concentrate- 20 kg and mineral mixture 200g/ day.

Conclusion: Management of high producing dairy animalsthus involves a multifaceted approach encompassing proper feeding interventions like bypass fat protein chelated minerals along with maintenance of animal wellbeing, comfortable state and hygienic environment.

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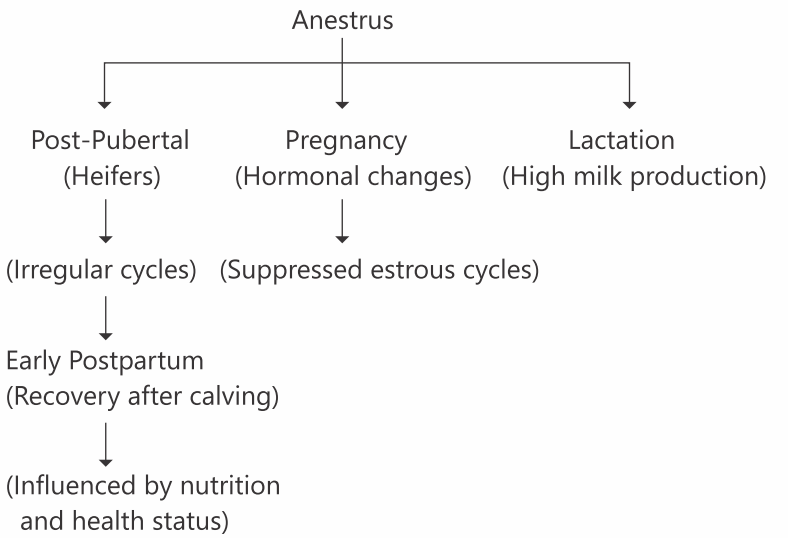
Understanding and Managing Anestrus in Cattle: A Short Guide to Reproductive Health

Cattle rearing has been a traditional livelihood in India and is closely linked to agricultural economy. Production efficiency of dairy cattle is largely dependent on reproductive performance. Indigenous cattle playing crucial role in the national economy through supply of draught animal power, milk, cow dung (organic manure) and cow urine (medicinal value). However, infertility in cows due to anestrus has significantly impacted production capacity in India over the past few decades. Addressing this issue is crucial for improving reproductive efficiency and overall productivity in the dairy industry.

Infertility refers to difficulties in timely conception, with anestrus being a significant cause. Infertility is a complex and multifactor problem; anestrus and repeat breeding have been identified as the main factors responsible for this. Anestrus is indeed a significant reproductive issue in cattle and buffalo, particularly in India, where it can have profound effects on productivity and the overall economy of livestock farming. Anestrus refers to the absence of estrus (heat), leading to delayed breeding and lower conception rates. Anestrus is a reproductive disorder characterized by no visible signs of estrus, due to either lack of expression or failure to detect it. The purpose of this short communication is to review the following aspects of anestrus in female cattle: what anestrus is, the types of anestrus, factors affecting it, its causes, the impact of anestrus on reproductive performance, as well as the diagnosis and

Flow chart representation for the situations in which anestrus can occur.



treatment options available. This short overview aims to enhance understanding and management of anestrus in dairy cattle. Anestrus can be caused by various factors, including nutritional deficiencies, poor management practices, diseases, and environmental stresses.

The physiological mechanisms of anestrus in cows involves a blockage of the GnRH "pulse generator" in the hypothalamus, but other mechanisms are also likely at play, as this approach doesn't work for all cows. The causes of anestrus may differ depending on its stage. Importantly, the mediating factors do not include prolactin, oxytocin, adrenal activity, or direct neural signals from the mammary gland; rather, they are at least partially associated with blood glucose levels and the endogenous opioid peptide system.

Understanding these factors helps in effective reproductive management in cattle.

Anestrus can be categorized into several types, each with distinct causes and characteristics:

Physiological Anestrus refers to normal periods of anestrus in animals that are not related to infertility, occurring during:

1. **Pre-Pubertal Anestrus:** Before puberty.
2. **Gestational Anestrus:** During pregnancy.
3. **Lactational Anestrus:** During lactation.
4. **Post-Partum Anestrus:** Early postpartum period.

These stages are natural and do not indicate infertility

Prepubertal Anestrus occurs in young animals where follicular waves resemble those of adults but follicles only develop to the theca interna stage before regressing. This stage is marked by:

- Low LH pulse frequency, leading to insufficient follicle growth.
- Inhibitory effects of opioids on LH secretion.
- High threshold for estradiol's positive feedback on LH surge.

As a result, heifers remain in anestrus until puberty

Gestational Anestrus occurs due to elevated progesterone levels during pregnancy, which negatively feedbacks on GnRH secretion and reduces LH pulse frequency, leading to anestrus.

Postpartum Anestrus refers to the period of anestrus that all females experience after giving birth. This duration varies but is generally short. Notably, the postpartum anestrus period is usually longer in buffalo compared to cattle, even under similar management conditions

Pathological Causes of Anestrus include conditions such as ovarian agenesis, dysgenesis, or disruptions in follicular-luteal dynamics, which can lead to anestrus and infertility, presenting a herd problem. These conditions may be congenital or acquired.

Ovarian Disorders: Conditions like ovarian agenesis, dysgenesis, or other follicular-luteal dysfunctions that impair ovarian activity.

Infections or Diseases: Conditions such as endometritis or systemic diseases that affect reproductive health.

1. **Nutritional Anestrus:** Caused by deficiencies in energy, protein, or essential minerals that impair reproductive function.
2. **Environmental Anestrus:**

   Triggered by extreme environmental conditions, such as heat or cold stress, which can disrupt normal reproductive cycles.
3. **Management-Induced Anestrus:**

- Results from factors like excessive suckling, poor breeding management, or stress from handling or housing conditions.

Each type of anestrus has specific management and treatment implications, emphasizing the need for targeted interventions based on the underlying cause.

Factors affecting anestrus

Nutritional status affects follicular growth and ovulation, with undernutrition being a key cause of anestrus in heifers. In tropical regions, prolonged postpartum anestrus (>150 days) often results from inadequate feed quality.

Reduced intake during late gestation or early postpartum and negative energy balance (NEB) from high metabolic demands after calving delay LH pulsatility and prolong anestrus. Additionally, deficiencies in minerals like calcium,

phosphorus, copper, zinc, and manganese hinder reproductive performance, as these minerals are vital for hormone and enzyme function.

Environmental Stress from extreme cold and heat impacts follicle development and estrus expression in cattle and buffalo. While buffaloes are adapted to hot, humid climates, heat stress significantly reduces ovarian activity, often resulting in anestrus.

Body Condition Score (BCS) indicates an animal's nutritional status and significantly affects reproductive performance. Extremes in BCS (very low or very high) during pre-calving, calving, and early postpartum can delay the onset of cyclicity.

Breed: Dairy cows that are suckled tend to have longer postpartum intervals than those in the beef category.

Parity: First-calving (primiparous) cows take more time to return to first ovulation than cows that have calved before (multiparous).

Suckling suppresses postpartum ovarian activity in both cattle and buffalo, leading to an extended period of postpartum anestrus. Additionally, postpartum anestrus is longer in continuously suckled animals compared to those that are restricted or partially suckled.

Season: In the winter are at a higher risk of anestrus. Seasonal changes can affect photoperiod stimulation in the brain. Although dairy cattle are not seasonal breeders, these environmental factors can still influence reproductive performance.

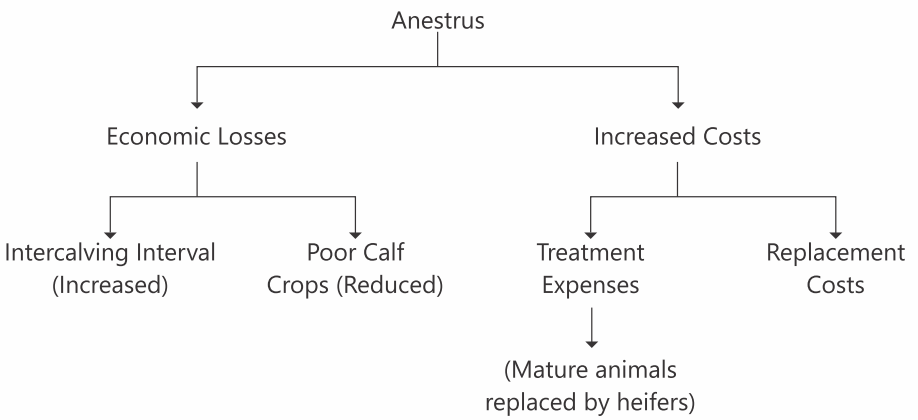
Parasitic Infestations represent a major stress factor, especially in growing cattle, rather than adults. Severe infestations can adversely affect the future productivity and reproductive performance of the affected animals.

Incidence of anestrus is higher in adult cattle and buffalo than the heifers.

Economic impact. This flow chart outlines how anestrus leads to various economic losses in livestock management.

Diagnosing anestrus in cattle and buffalo involves several key steps:

1. **Clinical Examination:** Assess the general health and body condition of the animal. Look for signs of reproductive disorders, such as abnormal discharge or signs of previous calving.



2. **History Taking:** Review the animal's reproductive history, including age, breeding records, and any previous health issues. This refers to the inability of animals to display visible signs of estrus after reaching puberty or 60–90 days postpartum. Initially, they may show symptoms of estrus with regular cyclicity, but then these symptoms cease, and the animals revert to anestrus. Note the duration of anestrus and any management practices, such as nutrition and stress factors.
3. **Hormonal Testing:** Measure hormone levels (e.g progesterone, estrogen) through blood tests to assess ovarian activity.

Progesterone Estimation: True anestrus is characterized by the lack of ovarian progesterone production. Diagnosing it can be confirmed by measuring basal progesterone levels (0.5–1 ng/ml) in blood samples taken every 8–10 days. If progesterone levels exceed 1 ng/ml, it indicates the presence of a corpus luteum, suggesting that anestrus might result from unobserved estrus, silent estrus, or a persistent corpus luteum.

Per Rectal Examination: Pregnancy is a key cause of anestrus and should be excluded through careful examination of the ovaries and uterus during gynaecological checks. In true anestrus cattle the ovaries appear smooth, small, and inactive, with no corpus

luteum present. However, follicles may develop to the prematuration stage but subsequently become atretic

4. **Ultrasound Examination:** Perform transrectal ultrasound to evaluate the ovaries and check for the presence of follicles or any abnormalities. Ovarian pathologies that cannot be accurately assessed through per rectal palpation can be visualized using ultrasonography. This method allows for the detection of different stages of follicular growth and helps identify the type of anestrus present in the animal
5. **Vaginal Cytology:** Collect and examine vaginal swabs to assess the cellular changes related to estrus cycles.
6. **Monitoring Estrus Behaviour:** Keep records of estrus behaviour in the herd. The absence of regular estrus signs can help confirm anestrus.
7. **BSE (Breeding Soundness Examination):** Conduct a thorough reproductive examination to rule out other causes of infertility.

These methods help veterinarians and farmers identify anestrus and implement appropriate management strategies to enhance reproductive performance.

The treatment of anestrus in cattle focuses on addressing the underlying causes and restoring normal reproductive function. Here are common treatment strategies:

1. **Nutritional Management:** Ensure a balanced diet rich in energy, protein, vitamins, and minerals to support reproductive health. Address any deficiencies, particularly in minerals like calcium, phosphorus, copper, zinc, and manganese. Undernutrition, particularly a lack of dietary energy, is a major cause of delayed rebreeding in cattle, especially during late gestation. Cows in poor body condition at calving face extended intervals to postpartum estrus and ovulation due to slowed LH restoration and suckling effects on GnRH secretion. This can delay follicle development for over 100 days. Although increasing feed intake after calving can help, it's often not cost-effective. The best approach is to help cows regain body condition during the dry period after weaning, when nutrient needs are lowest and gains are most economical. Calving cows in good body condition is ideal. If needed, strategic protein supplementation can improve intake and digestion of low to medium-quality forages during postpartum rebreeding. Ensuring nutrition is managed to maintain a body condition score of 5 to 7 before calving.
2. **Plant-Based Heat Inducers:** Plants have historically been used for animal treatment. Indigenous herbal preparations like Prajana HS, Janova, Sajani, Heat Up, Heat Raj, Fertivet, and Aloes Compounds are commercially available and have proven effective in restoring cyclicity, achieving notable success rate.
3. **Utero-Ovarian Massage:** This technique is one of the oldest and most straightforward methods to induce estrus in anestrus cattle. It is also cost-effective and has proven to be effective.
4. **Use of Lugol's iodine:** One potential mechanism for the intrauterine use of Lugol's iodine is its role as a chemical irritant, which helps replace the uterine mucosa with new tissue. This new endometrial tissue releases luteolytic factors (like PGF2α) that reach the corpus luteum through the utero-ovarian pathway, leading to luteolysis. This can trigger the estrous cycle if anestrus is due to a persistent corpus luteum (PCL). However, Lugol's solution is now discouraged for treating anestrus because of its irritating nature and harmful effects on the endometrium.
5. **Health Management:** Treat any underlying diseases or infections that may affect reproductive performance. Implement regular veterinary check-ups and vaccinations.
6. **Hormonal Therapy:** Use hormonal treatments, such as prostaglandins or gonadotropins, to stimulate ovarian activity. Administer progesterone to regulate estrous cycles, especially in cases of silent heat.

- **Use of Progesterone Alone:** The use of progesterone alone to stimulate the early

resumption of oestrous cycles in suckled or dairy cows

- **Use of Progesterone Followed by Chorionic Gonadotropin:** The treatment involves administering chorionic gonadotropin after a period of progesterone therapy to promote ovarian follicle development and increase oestradiol production. This method has been evaluated in both suckled and milking cows, but the outcomes have varied.
- **Use of Progesterone Followed by Estradiol:** Estradiol has been utilized to stimulate ovulation and promote the expression of estrus after progesterone treatment in several studies.
- **Use of Estradiol in Conjunction with Progesterone**
- **Use of GnRH Analogues with Progesterone**
- **Use of GnRH Analogues with PGF2α**

7. **Breeding Management:** Employ artificial insemination (AI) techniques and synchronization protocols to enhance breeding efficiency. Monitor estrus closely and use tools like heat detection aids. Restricting the breeding season to 45–55 days.
8. **Environmental Management:** Reduce stress by improving housing conditions and managing temperature extremes. Provide adequate shade and water in hot climates.
9. **Addressing Suckling Issues:** Consider weaning strategies if suckling is suppressing ovarian activity, particularly in cows with prolonged anestrus. In suckled cows, temporarily removing calves can effectively shorten the interval to first ovulation. Isolating calves from their mothers, rather than keeping them in adjacent pens, further decreases the postpartum interval (PPI). However, these methods often result in reduced estrous expression before ovulation and shorter estrous cycles unless combined with progesterone treatment. Judiciously implementing complete, partial, or short-term weaning practices.
10. **Culling:** In cases of chronic anestrus with no response to treatment, consider culling animals that do not return to reproductive cycles. Minimizing the effects of dystocia and stimulating estrous activity using a sterile bull and estrous synchronization techniques.

Implementing these strategies can help improve reproductive performance and reduce the incidence of anestrus in cattle.

Prevention of anestrus is preferable to treatment and can be achieved through effective farm management practices that promote animal health. Key strategies include:

1. **Nutrition:** Ensure a balanced diet that supports ovarian activity. Prevent negative energy balance, especially in high-yielding animals, by providing adequate rations during the pre- and postpartum periods.
2. **Supplementation:** Include vitamins, minerals, and antioxidants in the feed to enhance reproductive health and support the restoration of cyclicity.
3. **Health Management:** Conduct regular health checks and vaccinations to prevent diseases that can impact reproduction.
4. **Stress Reduction:** Minimize environmental stressors, such as extreme temperatures and poor housing conditions.
5. **Monitoring:** Keep accurate records of reproductive performance to identify and address issues early.

By focusing on these preventive measures, farmers can enhance reproductive efficiency and reduce the incidence of anestrus in their herds.

Conclusion

Effective management of anestrus in dairy cows is crucial for improving fertility and reproductive performance. Key strategies include ensuring adequate nutrition, particularly during late gestation and the postpartum period, and maintaining optimal body condition at calving. Monitoring and addressing hormonal and physiological factors, along with strategic supplementation, can help facilitate timely estrus and ovulation. By prioritizing these practices, producers can enhance reproductive efficiency and ultimately improve herd productivity.

Packaging Systems for Fresh, Cured, Dehydrated, Freeze-Dried, and Shelf-Stable Meat, and Chicken Products

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Introduction

Packaging plays an important role in preserving the safety, quality, and shelf life of perishable food items. Different processing methods—such as curing, dehydration, and freeze-drying—require specialized packaging solutions tailored to the product's moisture content, microbial stability, and susceptibility to oxidation. This article explores the diverse packaging systems used for various forms of milk, meat, and chicken products.

1 Fresh Products

Characteristics: High moisture content, short shelf life, highly perishable.

Packaging Requirements:

- Barrier to oxygen and microbes
- Maintenance of cold chain
- Prevention of physical damage

Common Packaging Systems:

- **Modified Atmosphere Packaging (MAP):** Used for fresh meat and chicken to extend shelf life by replacing oxygen with CO_2 and N_2.
- **Vacuum Packaging:** Removes air to inhibit bacterial growth and oxidation.
- **Thermoformed Trays with Lidding Film:** Common for retail cuts of fresh chicken and beef.
- **Aseptic or HDPE Bottles (for fresh milk):** Provide light and oxygen barriers with refrigerated storage.

2 Cured Products

Characteristics: Treated with salt, nitrites/nitrates; improved microbial stability but still sensitive to oxidation and moisture.

Packaging Requirements:

- Protection from light and oxygen
- Barrier to moisture
- Prevention of off-flavor development

Common Packaging Systems:

- **Vacuum Packaging:** Prevents oxidation and spoilage of sliced or whole cured meats.
- **High-Barrier Films:** Protect cured products like sausages and ham from oxygen and UV light.
- **Flexible Pouches or Laminates:** Used for cured meats with grease-resistant and hermetic seals.

3 Dehydrated Products

Characteristics: Reduced water activity, extended shelf life, light weight.

Packaging Requirements:

- Moisture-proof
- Oxygen barrier
- Protection from physical breakage

Common Packaging Systems:

- **Laminated Foil Pouches:** Multi-layered films (e.g., PET/Aluminum/LDPE) to provide excellent barrier properties.
- **Vacuum-Sealed Bags:** Used for powdered milk and meat powder.
- **Rigid Containers with Desiccants:** For bulk milk powders or protein concentrates.

4 Freeze-Dried Products

Characteristics: Extremely low moisture content, very light, highly sensitive to moisture and oxygen.

Packaging Requirements:

- Absolute moisture and oxygen barrier
- Resealability for multiple uses
- Compact and lightweight

Common Packaging Systems:

- **Aluminum Foil Laminates:** Triple-layer packaging (e.g., PET/Al/LDPE) with high-barrier properties.

- **Glass Jars with Air-Tight Lids:** Sometimes used for premium freeze-dried milk powders.
- **Nitrogen Flushing:** Added to packages to prevent oxidative rancidity.

5 Shelf-Stable Products

Characteristics: Heat-treated or processed to eliminate spoilage organisms, long shelf life at ambient temperature.

Packaging Requirements:

- Hermetically sealed
- Retortable or aseptic
- Barrier to oxygen, light, and moisture

Common Packaging Systems:

- **Retort Pouches:** Multilayer films that withstand high temperatures during sterilization (commonly used for ready-to-eat chicken curry or beef stew).
- **Cans and Tetra Packs:** Used for UHT milk and shelf-stable meat/chicken meals.
- **Aseptic Packaging:** Used for sterilized milk, offering up to 6 months of shelf life without refrigeration.

Conclusion

The diversity of milk, meat, and chicken products demands equally diverse packaging systems. From moisture-proof laminates for dehydrated foods to vacuum-sealed pouches for fresh and cured items, each packaging solution plays a critical role in preserving safety, quality, and sensory appeal. Innovations in materials and technology continue to enhance the efficiency and sustainability of food packaging systems, ensuring better protection and longer shelf life across all categories.

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Poultry & Dairy Planners Team Up with ILDEX Indonesia 2025 for Industry Advancement

Haryana, India – June 2, 2025 – In a move set to significantly boost industry innovation and market access, **Poultry Planner** and **Dairy Planner**, two leading publications catering to their respective sectors, have announced a strategic media partnership with **ILDEX Indonesia 2025**. This collaboration promises to expand the global reach of these publications while driving growth and technological advancement across Indonesia's vital livestock, dairy, meat processing, and aquaculture industries.

ILDEX Indonesia 2025, one of the most anticipated international trade exhibitions in the region, will be held from **September 17 to 19, 2025**, at the Jakarta International Expo. The event is a key meeting point for global professionals, suppliers, and decision-makers, focusing on cutting-edge technologies, industry trends, and valuable networking opportunities.

As official media partners, Poultry Planner and Dairy Planner will host an exclusive stall at the exhibition. This dedicated space will serve as a central hub for industry professionals to connect, exchange insights, and explore the latest trends in the poultry and dairy sectors. This partnership marks a significant milestone in expanding the reach of these influential magazines, bringing critical knowledge and business prospects to stakeholders throughout Indonesia and beyond.

Fostering Growth Through Strategic Collaboration

This alliance between Poultry Planner, Dairy Planner, and ILDEX Indonesia 2025 reflects a shared commitment to fostering innovation, knowledge exchange, and robust business development within the livestock and dairy industries. Through this collaboration, the publications will:

- **Offer In-Depth Coverage:** Provide comprehensive reporting on ILDEX Indonesia 2025, including exclusive interviews, panel discussion summaries, and expert insights from industry leaders.
- **Facilitate Networking:** Actively engage with exhibitors, attendees, and key stakeholders to cultivate meaningful business connections and promote knowledge sharing.
- **Showcase Innovations:** Highlight the latest technological advancements and emerging trends in the poultry and dairy sectors, offering a prime platform for businesses to present their products and solutions.
- **Host Interactive Sessions:** Organize live discussions, presentations, and networking events at their exhibition stall to encourage dynamic industry engagement.

Commitment to Industry Excellence

Mayank Arya, Project Manager with the team of Poultry Planner and Dairy Planner, shared his enthusiasm for the partnership. "We're thrilled to join forces with ILDEX Indonesia 2025 as an official media partner," he stated. "This collaboration perfectly aligns with our mission to provide industry professionals with valuable insights and updates, while also creating opportunities for knowledge exchange and business growth." He anticipates their presence at the event will drive impactful discussions on the future of the poultry and dairy industries.

As part of this collaboration, Poultry Planner and Dairy Planner will also publish special editions dedicated to ILDEX Indonesia 2025. These editions will feature expert opinions, detailed market trends, and exclusive insights into the evolving landscape of the poultry and dairy sectors.

Industry stakeholders, business leaders, and professionals are encouraged to visit the Poultry Planner and Dairy Planner stall at ILDEX Indonesia 2025. It's an excellent opportunity to explore new avenues, discuss industry trends, and engage with thought leaders.

CLFMA of India and Gokul Milk Host Seminar on Sustainable Dairy Farming and Innovations in Kolhapur

The Compound Livestock Feed Manufacturers Association (CLFMA) of India, in collaboration with Gokul Milk, successfully hosted an impactful seminar on "Sustainable Dairy Farming and Innovations" at Regal Hall, Residency Club, Tarabai Park, Kolhapur. The event brought together top leaders, veterinary experts, and researchers from the dairy and livestock sectors to highlight the advancements and prerequisites in India's dairy ecosystem through science, innovation, and sustainable practices. Sustainable dairy farming prioritizes environmental, social, and economic health, ensuring the well-being of the dairy farm, the animals, and the broader community.

The seminar was convened and ably guided by Mr. S. V. Bhave, Past Chairman, CLFMA of India. In his welcome address, Mr. Bhave extended warm greetings to the participants and introduced the distinguished dignitaries present from Gokul Dairy, including Mr. Navid Mushrif, Director, Gokul, Mr. Ajit Narake, Director, Gokul, Mr. Yogesh Godbole, Managing Director, Gokul.

He also acknowledged the presence of other prominent members of the Board of Directors of Gokul:

- **Mr. Yuvraj Patil**
- **Mr. Nandkumar Dhenge**
- **Mr. Prakash Patil**
- **Mr. S. R. Patil**
- **Mr. Bayaji Shelake**

Following the introductions, **Mr. Divya Kumar Gulati, Chairman, CLFMA of India, addressed the gathering and provided a comprehensive overview of CLFMA's vision, key initiatives, and its pivotal role in strengthening the livestock sector in India.**

Mr. Divya Kumar Gulati, Chairman, CLFMA of India, shared, "This seminar in collaboration with Gokul is a testament to CLFMA's unwavering commitment toward strengthening India's sustainable dairy farming and innovation through science-

backed revolution, knowledge sharing, and stakeholder collaboration. In this seminar, we emphasised how a progressive dairy farming approach can be a stress-relief for farmers and also contribute significantly to public health through better-quality milk and livestock management. From promoting Total Mixed Ration (TMR) and effective veterinary practices to encouraging nutrition-focused feeding strategies, our aim is to empower farmers and professionals with tools that ensure both animal welfare and economic viability Through our consistent efforts and awareness-driven initiatives like this, we aim to nurture a more informed, robust, and forward-thinking approach toward India's livestock and cattle feed industry."

The Seminar was further anchored by engaging sessions led by leading voices from the Indian sustainable dairy farming and innovations.

- Dr. Vijay Magre of Gokul presented on Etho Veterinarian Practices, shedding light on animal welfare and ethical livestock management.
- Dr. Pritpal Singh, National Manager – Progressive Dairy Solution, addressed modern approaches to stress management and Total Mixed Ration (TMR) in dairy farming.
- Mr. Munish Sharma shared insights from the Punjab dairy sector, highlighting scalable innovations.
- Dr. Niteen Manmohan Markande, Retd. Dean, Veterinary College, Parbhani, emphasized the untapped potential of buffalo-based dairy.
- Dr. Prashant Shinde of Cargill and Dr. Chandrashekhar Pandey of Lallemand India elaborated on cattle nutrition and silage solutions for small-scale dairy farmers.
- An engaging panel featuring Dr. Pradeep P. Mahajan (Viziva Services), Dr. V. D. Patil (Gokul), Dr. Niteen Manmohan Markande (Retd. Dean, Veterinary College, Parbhani) and Dr. Prakash Jyoti Salunke (Gokul Milk Union) addressed future-ready practices in dairy nutrition and feed

management moderated by Mr. S. V. Bhave (Past Chairman, CLFMA of India).

The Seminar concluded with a memento presentation to sponsors, speakers and address by **Mr. Arun Ganpatrao Dongale, Chairman, Gokul.**

Vote of thanks by Dr. Saikat Saha was extended to all the dignitaries who attended the event and shared their extensive knowledge and experience on sustainable dairy practices. More than 350 participants attended the seminar.


















Dairy





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Dairy




Dairy



















Poultry Planner and Dairy Planner Partner with ILDEX Indonesia 2025 to Boost Livestock Industry

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As official media partners, Poultry Planner and Dairy Planner will have an exclusive stall at the exhibition, serving as a central hub for industry engagement and insights. This partnership is a significant step in expanding the magazines' reach, bringing valuable knowledge and business opportunities to stakeholders in the region.

A Strategic Collaboration for Industry Growth

This partnership underscores a shared commitment to fostering innovation, knowledge-sharing, and business development in the livestock and dairy industries. Through this collaboration, Poultry Planner and Dairy Planner will:

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Commitment to Industry Excellence

Mayank Arya, Project Manager with Team of Poultry Planner and Dairy Planner, expressed enthusiasm about the partnership, stating, "We are thrilled to join hands with ILDEX Indonesia 2025 as an official media partner. This collaboration aligns with our mission to provide industry professionals with valuable insights and updates, while also creating opportunities for knowledge exchange and business growth." He added that their presence at the event will drive impactful discussions on the future of the poultry and dairy industries.

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

Amul's Double Delight: Higher Milk Price, Cheaper Feed for Farmers

Anand-based Amul Dairy is implementing a significant two-pronged strategy to bolster the financial well-being of its milk producers. Effective June 1, 2025, the cooperative is increasing the milk procurement price it pays to farmers while simultaneously reducing the cost of cattle feed.

Amul Dairy will now pay ₹865 per kilogram of fat for milk, an increase of ₹10 from the previous rate of ₹855. This makes Amul's new procurement price the highest in Gujarat, directly benefiting over 700,000 milk producers across Anand, Kheda, and Mahisagar districts. This hike aims to provide farmers with a better return on their produce, especially given the rising input costs they face. For the fiscal year 2024-25, Amul Dairy reported paying an average of ₹1,028 per kilogram of fat as the final price, which was the highest in the union's history.

In a move described as historic by Chairman Vipul Patel, Amul Dairy has also reduced the price of cattle feed by 50 paisa per kilogram. This means a 70-kg bag of cattle feed, previously priced at ₹1,540, will now cost ₹1,505 and a 50-kg bag will now be available for ₹1,050, down from ₹1,075.

This reduction in input costs will further alleviate the financial burden on dairy farmers, making dairy farming more economically viable and sustainable.

This dual decision by Amul Dairy is a strong indication of their commitment to supporting their farmer members. By increasing the procurement price and decreasing feed costs, Amul is directly enhancing farmers' earnings while reducing their operational expenses. This proactive approach by a major dairy cooperative like Amul sets a benchmark in the industry and is expected to strengthen farmer loyalty and the overall sustainability of the dairy supply chain in the region.

Dairy Sector Gets Triple Boost: Govt Forms 3 New Sustainability Co-ops

In a significant move aimed at revolutionizing the dairy sector, the Indian government has announced the establishment of three new multi-state cooperative societies. This strategic decision, unveiled during a high-level meeting chaired by Cooperation Minister Amit Shah, underscores a renewed commitment to fostering sustainability and a robust circular economy within the nation's vast dairy cooperative framework.

Minister Shah articulated the vision for this initiative, stating that as India progresses towards "White Revolution 2.0," the focus extends beyond mere expansion and efficiency of dairy cooperatives. The overarching goal is to cultivate a

comprehensive "ecosystem of dairy which is sustainable," ensuring long-term viability and environmental responsibility.

These newly formed cooperative societies are designed to tackle critical aspects of dairy farming, each with a specialized mandate.

Society for Animal Feed Production, Disease Control, and Artificial Insemination: This crucial cooperative will address fundamental inputs and health management for dairy livestock. By centralizing efforts in animal feed production, it aims to ensure the availability of high-quality, cost-effective feed, directly impacting milk yield and animal health. Concurrently, its focus on disease control will mitigate economic losses due to animal ailments, while advancements in artificial insemination will facilitate genetic improvement of dairy breeds, leading to enhanced productivity and resilience.

Society for Dung Management Models: Recognizing the significant environmental challenges and untapped potential of cattle waste, this cooperative will be dedicated to developing and implementing innovative dung management models. This includes exploring avenues such as biogas production for clean energy, conversion into organic fertilizers to boost agricultural productivity, and other value-added products, thereby transforming waste into a resource.

Society for Circular Use of Dead Cattle Residues: This unique society will spearhead initiatives for the circular utilization of dead cattle residues. This involves adopting scientific and sustainable methods to process and repurpose these materials, potentially for the production of bone meal, gelatine, or other industrial applications, minimizing waste and promoting resource recovery in a dignified and environmentally sound manner.

Minister Shah particularly emphasized that the economic benefits, such as carbon credit earnings, derived from these sustainable practices should directly accrue to the farmers through scientifically designed models. He underscored the necessity of integrated cooperative efforts to significantly enhance farmers' income, fostering a self-reliant and prosperous dairy community.

The Minister encapsulated the ambitious journey ahead, stating, "We have to together travel a journey from 'Sustainability to Circularity' which will be multidimensional." This holistic approach signifies a paradigm shift from linear production models to an integrated system where waste is minimized, resources are continually reused, and environmental impact is reduced.

The significant announcement was made in the presence of Union Ministers of State for Cooperation Krishan Pal Singh Gurjar and Muralidhar Mohol, along with senior government officials and the heads of pivotal institutions like the National Dairy Development Board (NDDB) and National Bank for Agriculture and Rural Development (NABARD), signifying robust institutional support for these transformative initiatives. This concerted effort is expected to not only fortify India's position as a global dairy leader but also set a new benchmark for sustainable agricultural practices.

India's Coarse Grain Deficit Signals Major Opportunity for U.S. Sorghum, Trade Hurdles Remain

India's booming livestock sector, particularly its rapidly expanding poultry and dairy industries, is generating an unprecedented and growing demand for feed grains, positioning the country as a crucial new market for U.S. sorghum exports. For the first time in recent history, India has become a net importer of coarse grains, signaling a domestic production deficit that its vast animal feed industry is increasingly looking to international suppliers to fill.

The Indian animal feed market is on a steep growth trajectory, projected to reach approximately USD 23.5

billion by 2032, driven by rising incomes, changing dietary preferences, and a growing awareness of livestock nutrition. While poultry feed currently leads the market due to surging demand for meat and eggs, the cattle feed segment is also experiencing significant expansion. India, the world's largest milk producer, is witnessing milk demand that is set to exceed 200 million metric tonnes annually, further intensifying the need for high-quality, consistent feed inputs.

Despite its strong agricultural base, India faces a persistent demand-supply gap for feed and fodder. Raw materials like maize (corn), soybean meal, and even domestic sorghum are increasingly being diverted for human consumption or are subject to price volatility and inconsistent supply. This forces Indian feed manufacturers to seek reliable, cost-effective, and nutritionally sound international alternatives.

U.S. sorghum is particularly well-suited to meet India's evolving feed requirements, offering distinct advantages as a significant portion of U.S. sorghum production is non-genetically modified, aligning directly with India's strict import policies and consumer preferences, especially important given that most globally traded corn is GM.

U.S. sorghum provides a consistent and high-quality energy source vital for modern, intensive livestock farming. Ongoing trials and educational efforts by organizations like the U.S. Grains Council are demonstrating how U.S. sorghum, specifically tannin-free varieties, can be effectively incorporated into Indian poultry and cattle diets as a primary coarse grain.

Sorghum's inherent drought tolerance makes it a more sustainable crop to produce, requiring less water than other grains like corn, an attractive feature for an industry in a country facing increasing water scarcity challenges.

Importing U.S. sorghum allows Indian feed manufacturers to diversify their raw material sourcing, reducing their dependence on volatile domestic crop prices and mitigating risks from local weather patterns or supply disruptions.

Despite the clear opportunity, significant trade hurdles remain. India currently imposes a 50% import tariff on U.S. sorghum, placing American farmers at a disadvantage compared to local grains and other competitors. Furthermore, the absence of a published Pest Risk Assessment, though paperwork has been submitted by the USDA, creates bureaucratic delays.

U.S. sorghum industry representatives, however, remain optimistic. They emphasize that building trusted relationships and maintaining a persistent presence are critical to unlocking the Indian market, drawing parallels to past successes in developing markets for ethanol and aquaculture.

Beyond animal feed, sorghum, known locally as jowar, cholum, or jonna, also has applications for human consumption and potential in India's growing biofuel sector. With U.S. sorghum production expected to account for over 50% of global sorghum trade in the 2024/25 marketing year, this strategic focus on India represents a pivotal moment for the industry's global growth trajectory.

Alembic Pharma's Animal Health Division Outperforms, Eyes 20% Margins

Alembic Pharmaceuticals, a prominent Indian pharmaceutical company, is witnessing continued growth in its U.S. generics business and notable margin gains in its animal health division, according to recent financial reports. Despite a slight dip in overall net profit for Q4 FY25, the company's strategic focus on these segments is yielding positive operational improvements.

Alembic Pharmaceuticals continues to prioritize expanding its U.S. portfolio and scaling up manufacturing capabilities to capitalize on future opportunities in this critical market. The company

recently received multiple Abbreviated New Drug Approvals (ANDAs), bolstering its regulatory pipeline for the U.S.

Meanwhile, Alembic's animal health division has consistently outperformed expectations. It registered a 19% growth in Q4 FY25, fueled by a strong portfolio of established and well-known brands. The company is actively optimizing this segment through operational efficiencies and cost control initiatives, with an ambitious target to push its segmental margins closer to the 20% mark in the medium term. This focus underscores the animal health vertical's anticipated vital role in Alembic's long-term profitability.

Beyond the U.S. and Animal Health, Alembic's Ex-US international generics business also showed strong growth, rising by 43% for the quarter, reflecting strategic expansion in various international markets.

While the company's share price has faced some pressure over the past year, its strategic focus on high-margin businesses like animal health and its continued expansion in the U.S. generics market could offer significant upside potential in the medium term, positioning Alembic Pharmaceuticals for sustained growth in the evolving pharmaceutical landscape.

Tripura Unveils Ambitious ₹1,248 Crore Plan to Achieve Agri-Protein Self-Sufficiency

Tripura Chief Minister Dr. Manik Saha has submitted an ambitious ₹431.71 crore proposal to the North

Eastern Council (NEC), specifically targeting a significant boost in the state's milk, meat, and egg production. This substantial investment is a key component of a larger ₹1,248.21 crore plan aimed at achieving complete agri-protein self-sufficiency for Tripura and positioning the state as a vital food basket for the entire Northeast region. The Chief Minister's initiative directly addresses the state's per capita food availability shortfall, highlighted in the fiscal year 2023-24, through a strategy focused on scientific interventions and inclusive rural development.

The ₹431.71 crore allocation for the milk, meat, and egg sectors outlines precise strategies to enhance productivity and sustainability. In the dairy segment, a major thrust will be on promoting artificial insemination using sex-sorted semen, a cutting-edge technique designed to significantly increase milk yield by ensuring a higher proportion of female calves. Concurrently, efforts will be made to strengthen existing dairy cooperatives across the state, fostering better organization and support for milk producers. For the poultry sector, the proposal includes providing financial incentives and crucial support to women actively engaged in poultry farming, recognizing their pivotal role in egg and meat production within rural households. Additionally, support will be extended to entrepreneurs operating under the National Livestock Mission, many of whom contribute to the poultry and small ruminant sectors. A cornerstone of this comprehensive strategy is the planned establishment of a modern animal disease detection laboratory in Tripura, which is critical for enhancing overall livestock health and productivity, and particularly vital for safeguarding against cross-border disease outbreaks given Tripura's extensive international border with Bangladesh.

While the primary focus is on milk and poultry, a separate and substantial ₹816.5 crore proposal has also been put forth for the fisheries sector. This initiative, implemented through central schemes like the Pradhan Mantri Matsya Sampada Yojana (PMMSY) and the state's Chief Minister Matsya Vikas Yojana, aims to make Tripura self-reliant in fish production and contribute to the

nutritional needs of other northeastern states. The combined funding request, discussed during a high-level DoNER (Ministry of Development of North Eastern Region) meeting chaired by Union Minister Jyotiraditya Scindia, underscores Tripura's strategic vision. The successful execution of these proposals is expected to not only bridge the existing food gap but also significantly catalyze rural income generation and foster entrepreneurship across Tripura's agricultural landscape, with a strong emphasis on empowering milk and poultry producers.

New Delhi Offers 'Deep' Tariff Cuts to US, Firm on Shielding Key Agri Markets

India has presented the United States with an offer of "deep" tariff cuts on a range of industrial and some agricultural products, aiming to secure an interim trade agreement before a looming July 9 deadline. The urgency stems from the potential activation of a 26% reciprocal duty on Indian imports, a threat articulated by President Donald Trump and temporarily suspended for 90 days earlier this year. However, New Delhi remains resolute in its commitment to shield its vast grain and dairy sectors from foreign competition, a stance rooted in protecting the livelihoods of millions of Indian farmers.

The ongoing high-stakes negotiations are focused on hammering out an interim deal to prevent the imposition of additional duties on Indian goods and to achieve a full rollback of tariffs announced on April 2. India is keen to secure duty reductions on its labor-intensive exports, including textiles, gems and jewelry, leather products, garments, chemicals, and shrimp, which are crucial for its economic growth.

At the heart of India's defensive strategy lies its agricultural sector. India, the world's largest milk producer and a major foodgrain powerhouse, maintains stringent tariffs on dairy (30-60%) and foodgrains (70-80%) to safeguard its extensive network of smallholder farmers. Officials underscore that policies surrounding dairy imports, particularly those related to animal-derived feed, are non-negotiable due to deep-seated religious and economic sensitivities. This approach mirrors India's success in protecting sensitive sectors in recent trade agreements, such as the 2022 deal with Australia.

The US, in turn, is pushing for greater market access in India for its industrial products, automobiles (especially Evs), wines, petrochemical items, and agricultural goods like apples, tree nuts, and genetically modified (GM) crops. Another key point of contention revolves around "rules of origin," with the US seeking a 60% domestic value addition for products to qualify as "made-in-India," a threshold India finds too high and proposes to lower to around 35%.

Despite these complex divergences, both nations share an ambitious long-term goal: to more than double bilateral trade to $500 billion by 2030 from the current $131.84 billion (FY 2024-25). The upcoming visit of a US trade delegation to New Delhi in early June for potentially the final round of face-to-face discussions underscores the critical nature of these talks.

As the July 9 deadline approaches, the outcome of these negotiations will not only shape the future of India-US trade relations but also demonstrate the ability of major economies to navigate protectionist pressures while seeking mutually beneficial agreements.

New 40 TLPD Milk Plant Opens in Tripura, Paving Way for Dairy Self-Sufficiency

Union Minister for Fisheries, Animal Husbandry and Dairying, and Panchayati Raj, Rajiv Ranjan Singh, announced on Saturday that a

central expert team will visit Tripura in July. The team's mission is to provide comprehensive support for the state's ambitious goal of achieving self-sufficiency in milk and fish production.

The announcement was made by Minister Singh during the inauguration of a new 40 TLPD (Thousand Litres Per Day) Milk Plant, Dairy Unit-II, at Bamutia in West Tripura district. He highlighted the central government's belief that Tripura possesses significant potential to become self-reliant in both dairy and fisheries sectors.

The expert team will comprise officials from the Union Animal Husbandry Department, the National Dairy Development Board (NDDB), and the National Fisheries Development Board (NFDB). Their visit in July will involve in-depth consultations with the state government to draft a detailed roadmap and provide necessary guidance and technical assistance. Earlier, Minister Singh indicated that discussions with Chief Minister Prof. (Dr.) Manik Saha would take place in June, potentially followed by his own visit with a team for initial deliberations.

During his address, Minister Singh reiterated the Centre's unwavering commitment to supporting Tripura's agricultural and dairy development. He underscored India's global leadership in milk production, attributing a consistent 6% annual growth to Prime Minister Narendra Modi's initiatives. Singh also emphasized the critical role of Artificial Insemination (AI) in boosting dairy productivity, noting that Tripura has already seen 2.7 lakh AI procedures resulting in the birth of 50,000 calves.

The Minister lauded the Tripura government's development efforts under Chief Minister Saha's leadership and stressed that empowering farmers involved in milk and fish production would be instrumental in strengthening the state's overall economy. Tripura has reportedly set a five-year target to achieve self-sufficiency across milk, eggs, fish, and meat production.

This central support is expected to provide a significant impetus to Tripura's efforts, helping to bridge existing gaps and accelerate its journey towards food security and rural prosperity.

Uttar Pradesh Boosts Dairy Investments with 35% Subsidy Increase

In a significant move to attract greater investment and spur growth in its burgeoning dairy sector, the Uttar Pradesh Cabinet on Thursday approved amendments to the UP Dairy Development and Milk Production Promotion Policy 2022, increasing the subsidy for dairy units to 35%.

This substantial hike from the previous 10% subsidy aims to bring the dairy policy in line with other progressive state policies, such as the Food Processing Industry Policy 2023, which already offers a 35% subsidy. The decision underscores the state government's commitment to making Uttar Pradesh a more attractive destination for dairy entrepreneurs.

Under the revised policy, new dairy units and those undergoing upgrades will now be eligible for a 35% subsidy, with a maximum cap of ₹5 crore. Additionally, the policy now provides a 35% subsidy, up to ₹2.5 crore, for the modernization of dairy plants, and a 35% subsidy, up to ₹1 crore, for the purchase of machinery and equipment. Crucially, a 35% subsidy, up to ₹1 crore, has also been offered for establishing cold chain infrastructure for dairy products.

Uttar Pradesh is already the largest milk-producing state in India, contributing approximately 16% to the nation's total milk production. However, the state aims to further increase its processing capacity and overall productivity. This increased subsidy is expected to incentivize

the establishment of new, modern dairy processing units and the expansion of existing ones, thereby improving milk processing levels and ensuring better remunerative prices for milk producers.

The move is part of the state's broader strategy to enhance employment opportunities, ensure nutritional security, and contribute to the goal of a one trillion-dollar economy. By making dairy investments more financially viable, the government is hoping to attract private players and foster a more robust and technologically advanced dairy ecosystem across the state.

Kerala Launches Comprehensive Insurance Scheme for Dairy Farmers

Kerala's Animal Husbandry and Dairy Development Minister, J Chinchu Rani, announced a comprehensive insurance scheme aimed at safeguarding dairy farmers in the state from financial losses due to livestock mortality. The announcement was made during a meeting of dairy farmers in the Neeleswaram block.

The new scheme is designed to provide significant compensation for various types of livestock losses. Under the initiative, farmers will receive ₹37,500 for cows that die due to skin diseases or severe heat stress. For calves, the compensation will be ₹20,000, and for stillbirths, farmers will be compensated ₹10,000.

Minister Chinchu Rani emphasized that all programs implemented by the Dairy Development Department are geared towards improving the livelihoods and resilience of dairy farmers. The meeting where the announcement was made was jointly organized by the Neeleswaram dairy development unit and various dairy cooperatives, with support from Milma, the Animal Husbandry Department, and Kerala Feeds. The event also marked the inauguration of a hygienic milk collection room established by the Edayilakode milk producers' cooperative society.

This initiative comes at a critical time, as Kerala's livestock sector has been facing challenges, including climate-related stress such as extreme heatwaves. The comprehensive insurance scheme is expected to act as a crucial safety net, providing much-needed financial assistance and stability to the state's dairy farmers.

Vet Varsity Educates Farmers on Infertility in Dairy Animals

Guru Angad Dev Veterinary and Animal Sciences University (GADVASU) in Ludhiana is actively engaging with dairy farmers to address the critical issue of infertility in their livestock. The university recently organized an awareness camp and is consistently conducting training programs to equip farmers with the knowledge and skills necessary to manage reproductive health in dairy animals.

Recognizing the significant economic losses incurred by farmers due to infertility, GADVASU's initiatives aim to enhance awareness regarding its causes, prevention, and effective management. Experts from the university's Department of Veterinary Gynaecology and Obstetrics are at the forefront of these efforts.

During recent camps, veterinary scientists examined and treated infertile dairy animals, including cattle and buffaloes, identifying common issues such as anestrous (absence of heat), follicular cysts, and silent heat. Farmers received direct treatment for their animals and were educated on the subsequent protocols to follow as part of the treatment.

The awareness drives emphasize the financial impact of infertility, highlighting its role in decreased milk production, delayed calving, and a reduced productive lifespan of dairy animals. Farmers are also being advised on crucial reproductive management practices, particularly focusing on mitigating heat stress during summer months, which can significantly impact reproductive efficiency.

In addition to practical demonstrations and treatments, GADVASU distributes informative literature on reproductive health management and the importance of balanced nutrition, including mineral mixtures, for enhancing overall productivity and reproductive health. These efforts reflect GADVASU's commitment to improving livestock health and supporting the rural farming community through targeted interventions and knowledge dissemination.

India and New Zealand Push for Deeper Ties, FTA Progresses Amidst Dairy Discussions

India and New Zealand are making "concrete progress" towards a Free Trade Agreement (FTA), with both nations committing to deeper cooperation across various sectors including defence, trade, and technology. This announcement comes from New Zealand's Deputy Prime Minister and Foreign Minister, Winston Peters, who recently concluded an official visit to India from May 29-30, 2025.

Despite the positive momentum, discussions surrounding the dairy sector remain a key point of contention in the FTA negotiations. India has traditionally protected its vast domestic dairy industry, which supports millions of farmers and prioritizes self-sufficiency. New Zealand, a major global dairy exporter, is keen to gain greater access to the Indian market for its premium dairy products, including butter, milk powder, and cheese.

Deputy PM Peters acknowledged India's concerns regarding its dairy industry. However, he emphasized New Zealand's potential to assist India in enhancing its dairy productivity through improved performance, breeding, and overall production, rather than simply

being a competitor. "You need 35% more food in the next 35 years, and our country, rather than being an opponent, can be a serious help, to drive up your productivity in the dairy industry," Peters stated during his visit.

The renewed push for an FTA follows a decade-long hiatus in negotiations, which recommenced in March 2025. While a specific timeline for the agreement's conclusion has not been set, both sides are engaged in "real meaning" conversations.

Beyond trade, Peters highlighted the expanding scope of the bilateral relationship, which now extends to crucial areas like defence and security. A recently signed Defence Cooperation Arrangement aims to foster closer links between the militaries of both countries, reflecting a shared commitment to a free, open, secure, and prosperous Indo-Pacific.

Despite India's economic scale, it currently ranks as New Zealand's 12th largest trade partner, accounting for only 1.5% of New Zealand's exports. Peters expressed determination to change this, identifying vast untapped potential for New Zealand's strengths in food and beverage, agriculture, forestry, horticulture, education, and tourism.

The ongoing discussions are part of India's broader engagement in trade talks with multiple partners, aiming to solidify its position in the global trade landscape amidst evolving geopolitical dynamics.

Amul Firmly Resists Donald Trump's Tariff Demands, Citing Critical Importance of India's Dairy Ecosystem

India, the world's largest milk producer, is strongly resisting pressure from the United States to open its dairy market as part of ongoing trade talks. Industry leaders, most notably Amul, the country's largest dairy brand, are vocally asserting that India's dairy ecosystem is critical to the nation's economy and the livelihoods of millions of small farmers, making it imperative to protect it from cheap American dairy imports.

Donald Trump's policy, seeking lower tariffs from India, has been met with strong pushback from Indian officials and dairy industry representatives. Jayen Mehta, Managing Director of the Gujarat Co-operative Milk Marketing Federation Ltd (GCMMF), which owns Amul, has warned that allowing American dairy imports could lead to "market dumping" and devastate the 80 million small farmers across India who depend on dairy for their sustenance.

India's dairy sector not only feeds over 1.4 billion people but also provides livelihoods to a vast rural population. The average herd size in India is typically small, often just two to three animals per farmer, which puts them at a significant disadvantage compared to the large-scale dairy farms in the United States.

Beyond economic concerns, cultural and dietary considerations also play a crucial role in India's stance. R.S. Sodhi, President of the Indian Dairy Association, has pointed out that cattle in the United States are often fed animal by-products, which does not align with Indian consumer preferences.

While India and the U.S. have been engaged in high-level negotiations for an interim trade deal, with a 90-

day reciprocal tariff pause set to end on July 9, India is likely to exclude the dairy sector from any bilateral trade agreement. Senior officials in the federal trade ministry have reiterated that India will not surrender under any circumstances and will continue to protect its dairy sector.

Experts warn that removing tariffs on products like skimmed milk powder could incentivize Indian food producers to opt for imported products, thereby reducing their purchases from local farmers and potentially driving down domestic milk prices. This firm stance by Amul and the Indian government underscores the deep-rooted economic, social, and cultural importance of the dairy sector in India.

Mother Dairy Rolls Out "Maa Jaisi" Campaign, Celebrating Nurturing Spirit in Everyday Life

Mother Dairy, a leading Indian milk and milk products major, has launched its "Maa Jaisi" (Like a Mother) campaign, a heartwarming initiative that celebrates the universal values of love, care, emotion, and compassion exemplified by mothers and echoed in everyday interactions.

The campaign, conceptualized by Ogilvy India and featuring an anthem penned by renowned poet Gulzar, seeks to broaden the definition of "motherly care" beyond traditional familial bonds. It highlights instances where individuals—friends, colleagues, even strangers—demonstrate a quiet instinct to care, nurture, and support others, mirroring the unconditional love received from a mother.

A notable adaptation of the campaign, titled "Aai Jaisi Mumbai", was specifically rolled out for Mumbai around mid-May 2025. This localized version pays tribute to the city's unique blend of resilience, compassion, and community spirit, drawing parallels between Mumbaikars and the nurturing qualities of a mother. It showcases slice-of-life moments in the city's bustling environments, like local trains, tapris (tea stalls), and cab rides, where acts of kindness and selflessness are observed. The "Aai Jaisi Mumbai" campaign features a digital video commercial (DVC) with evocative black-and-white frames and an authentic street-style rap voiceover, aimed at deepening Mother Dairy's emotional connection with the city's residents.

Manish Bandlish, Managing Director of Mother Dairy, emphasized that the campaign aligns with the brand's core philosophy of trust and nourishment. He stated that Mother Dairy is synonymous with maternal care and unwavering trust, evident in every product, and the campaign aims to extend this legacy of love and care to communities.

The "Maa Jaisi" campaign is being promoted through a multi-channel approach, including digital video

commercials, print, radio, and out-of-home (OOH) advertising, aiming for a wide reach across various markets in India. The initiative underscores Mother Dairy's commitment to connecting with consumers on an emotional level, reinforcing its brand values of purity, goodness, and care, much like the care a mother provides.

Assam Cabinet Greenlights Land for Amul's Dairy Plant

In a significant boost to its dairy sector, the Assam Cabinet on Friday approved the allocation of land for the establishment of a state-of-the-art dairy processing plant by Amul, India's largest dairy brand. This strategic move is part of the state government's broader initiative to enhance dairy production, support local farmers, and attract investment.

The decision was made during a cabinet meeting chaired by Chief Minister Himanta Biswa Sarma. As per the approval, 20 bighas of land at the Institute of Farm Management campus in Rani, on the outskirts of Guwahati, will be leased to Amul for the upcoming facility.

The new dairy plant is designed to have an initial processing capacity of 1 lakh litres of milk per day, with the potential for future expansion. The project is estimated to cost between ₹75 crore and ₹150 crore and is expected to directly benefit approximately 20,000 dairy farmers across Assam. This initiative stems from a Memorandum of Understanding (MoU) signed between the Government of Assam and Amul during the Advantage Assam 2.0 investment summit.

The Amul plant is anticipated to play a crucial role in strengthening Assam's dairy infrastructure, improving milk procurement, generating rural employment, and boosting income for farmers. This development is set to foster healthy competition and growth within Assam's dairy market, which also features strong institutional presence from Purabi Dairy, supported by the National Dairy Development Board (NDDB).

DSM-Firmenich Selects ABB for Dalry Bovaer Plant Electrical, Automation Systems

Global technology leader ABB has been selected by animal nutrition and health specialist DSM-Firmenich to supply advanced automation and electrical systems for its new Bovaer® production facility. This cutting-edge plant, located in Scotland, is a crucial step in significantly increasing the global output of Bovaer®, a groundbreaking feed additive designed to dramatically reduce methane emissions from cattle.

Bovaer® is a fast-acting, innovative feed additive developed over more than 15 years of research by DSM-Firmenich. Just a quarter teaspoon per cow per day can reportedly reduce enteric methane emissions by an average of 30% for dairy cows and up to 45% for feedlot beef cattle, thereby significantly lowering the environmental footprint of dairy and beef products. Methane is the second-largest contributor to global warming after carbon dioxide, and its reduction is critical for meeting global climate targets.

ABB's comprehensive solutions for the Dalry facility will include all automation hardware and software. The scope of work also extends to critical infrastructure such as IT and OT networks, cybersecurity systems, process CCTV systems, electric motor control centers, and variable speed drives. These integrated systems are expected to enhance engineering efficiency, optimize operator effectiveness, and maximize asset utilization at the plant.

This project extends an existing partnership between ABB and DSM-Firmenich. ABB's on-site work is slated for completion by November 2025, with the facility becoming fully operational shortly thereafter.

Bovaer® is already commercially available in over 65 countries worldwide and has been rigorously tested in more than 130 farm trials

across 20+ countries, backed by over 80 peer-reviewed scientific publications. This new large-scale production plant in Scotland marks a pivotal moment in its global rollout, aligning with the ambitions of the Global Methane Pledge, signed by over 150 countries to cut methane emissions by at least 30% by 2030.

Vietnam Goes Zero: No Import Tax on Feed Raw Materials

The Vietnamese government has implemented a significant policy change to bolster its domestic animal feed production sector. It has slashed the import tax on crucial raw materials like soybean meal and corn to 0%.

This move is expected to have a profound positive impact on the industry, as raw materials currently constitute a substantial 60-70% of total animal feed production expenses. By eliminating import taxes, businesses can now optimize their raw material costs, leading to significantly lower production expenses and enhanced competitiveness.

Vietnam is a major player in the global animal feed raw material market, annually importing around 10-11 million tons of corn and 4-5 million tons of soybean meal. The country ranks as the world's third-largest importer of soybean meal and ninth-largest importer of soybeans.

This policy is anticipated to be a crucial driver for the entire Vietnamese animal feed industry, reducing its reliance on expensive supplies and enabling it to gain a competitive edge over regional rivals. Amid rising demand for livestock products, the tax reduction is viewed as a key factor empowering domestic companies to optimize costs, expand production scale, and improve operational efficiency in the near future.

Poop to Pulp: UCL Pioneers Sustainable Cellulose Production from Cow Dung

Researchers at University College London (UCL) have unveiled a groundbreaking "pressurized spinning" innovation that promises to revolutionize the production of cellulose materials, utilizing an unlikely raw material: cow dung. The novel process, detailed in a study recently published in The Journal of Cleaner Production, offers a significantly cheaper and cleaner method for extracting valuable cellulose, heralding a "win-win-win situation for manufacturers, dairy farmers and the environment."

This pioneering technology transforms what is typically an agricultural waste product into a sustainable and economically viable resource. The discovery could pave the way for a new era of eco-friendly manufacturing, reducing reliance on traditional cellulose sources like wood pulp and cotton, which often carry significant environmental footprints.

The core of the innovation lies in the "pressurized spinning" technique, which the UCL team has engineered to efficiently separate and refine cellulose fibers from bovine manure. While the full technical details are elaborated in their journal paper, the method is designed to be more energy-efficient and environmentally benign than existing cellulose extraction processes.

"Implementing this new technology would genuinely be a win-win-win situation," stated researchers from UCL in a press release.

Cow dung is a rich source of cellulose, derived from the plant material in the animals' diet. Historically, managing this vast amount of agricultural waste has been a global challenge. This new process offers a compelling solution by converting the waste into a high-value commodity.

The extracted cellulose can be utilized in a wide array of applications, including the production of sustainable paper, eco-friendly textiles, biodegradable plastics, and advanced composite materials. This development aligns perfectly with global efforts to decarbonize industries and transition towards more circular and resource-efficient economies.

The research not only presents a viable pathway to unlock the hidden potential within agricultural waste but also underscores the crucial role of scientific innovation in addressing pressing environmental and economic

challenges simultaneously. Further development and scaling of this "pressurized spinning" technology could see cow dung emerge as a key sustainable raw material of the future.

Merck Animal Health to Expand Vaccine Manufacturing, R&D with $895M Kansas Project

Merck Animal Health, a division of Merck & Co., Inc., has announced a monumental $895 million investment to expand its manufacturing and research & development facilities in De Soto, Kansas. This significant capital injection represents one of the largest private investments in Kansas history and the biggest economic development project to date for Merck Animal Health.

The substantial investment, underscores Merck Animal Health's commitment to advancing animal health solutions and strengthening its domestic manufacturing footprint. The project will see $860 million allocated to expanding the existing manufacturing facility and $35 million directed towards its research and development laboratories.

The 200,000-square-foot manufacturing expansion is specifically designed to increase the facility's filling and freeze dryer capacity for large molecule vaccines and biologic products. This expansion is critical to meeting the growing global demand for Merck Animal Health's portfolio of animal biologics. As a designated "Center of Excellence," the De Soto plant will play a pivotal role within the company's extensive international manufacturing network.

The investment in research and development laboratories will further enhance Merck Animal Health's global drug discovery and development initiatives, particularly in novel parasiticides and therapeutics.

Site preparation and facility design are slated to begin immediately, creating approximately 2,500 construction jobs. Commercial manufacturing at the expanded facility is expected to commence in 2030, bringing more than 200 new full-time roles to the area.

This massive expansion by Merck Animal Health is seen as a major boost for Kansas, further solidifying its status as a global leader in animal health.

The investment is part of Merck's broader strategy, which has seen the company allocate over $12 billion since 2017 to enhance domestic manufacturing and research capabilities, with additional planned investments of over $9 billion by the end of 2028.

WOAH Sounds Alarm: AMR Threatens $100 Trillion Economy, Food Security for 2 Billion by 2050

The global economy faces a staggering potential cost of $100 trillion by 2050 due to Antimicrobial Resistance (AMR), a crisis that also imperils food security for two billion people. This dire warning comes from the World Organisation for Animal Health (WOAH) in its inaugural global animal health report. WOAH underscores that without urgent and coordinated action, the world risks escalating threats to both public health and global food systems.

AMR occurs when bacteria, viruses, fungi, and parasites evolve to resist the medicines designed to eliminate them, rendering infections harder or impossible to treat. While a natural phenomenon, its acceleration is significantly fueled by the misuse and overuse of antimicrobials across humans, animals, and plants. The WOAH report details the severe consequences for animal health, welfare, and production outcomes, noting that resistant germs can spread from animals to humans, including through the food chain if handling and cooking practices are not adequate.

Key findings from the report highlight the urgency. The projected $100 trillion economic loss by 2050 emphasizes the immense financial burden AMR could impose worldwide. The threat to food security for two billion people by mid-century underscores the direct link between animal health and human sustenance, with livestock production losses from drug-resistant bacteria alone potentially matching the consumption needs of 746 million people in even the "very low resistance" scenarios. Disturbingly, despite international standards, approximately 20% of WOAH member countries still reported using antimicrobials as growth promoters in animals, with 7% of these utilizing antibiotics classified by WHO as "highest priority critically important for human medicine," such as colistin and enrofloxacin.

The report did note a global 5% decrease in antimicrobial use in animals between 2020 and 2022, with significant reductions in Europe (-23%) and Africa (-20%). However, experts caution that this progress is insufficient to stem the rising tide of resistance. WOAH stresses that reducing antimicrobial use begins with better animal husbandry, stringent biosecurity measures, and preventive healthcare, including vaccination. The report estimates that cutting antibiotic use by 30% through improved hygiene, vaccination, and biosecurity could boost the global economy by an additional $120 billion by 2050.

Javier Yugueros-Marcos, Head of the Antimicrobial Resistance and Veterinary Products Department at WOAH, reiterated, "The indiscriminate use of antimicrobials contributes to antimicrobial resistance (AMR), which is a major threat to both animal and human health." He added that while the declining use of antibiotics in almost all regions is encouraging, further reductions are achievable by prioritizing preventative measures against animal diseases, with vaccination as an essential component. WOAH continues to advocate for a One Health approach, recognizing the interconnectedness of human, animal, and environmental health in combating AMR. The report calls for stronger national surveillance systems, improved data collection, and full adherence to international guidelines for responsible antimicrobial use to safeguard both animal and human health for future generations.

Danone, Sistema.bio Join Forces to Deploy 6,500 Biodigesters for Dairy Farmers by 2030

Global food and beverage giant Danone has announced a strategic partnership with biodigestion technology firm Sistema.bio, setting an ambitious target to deploy 6,500 biodigester systems for smallholder dairy farmers worldwide by 2030. This collaborative initiative aims to significantly reduce methane emissions from livestock while simultaneously empowering farmers with on-farm renewable energy solutions.

The core of the program involves installing biodigesters that convert livestock waste into valuable resources. This technology transforms animal manure into renewable biogas, which farmers can use for cooking, heating, or generating electricity, thereby reducing reliance on traditional, often polluting, energy sources. Crucially, the process also yields organic fertilizer, known as digestate, which can be applied to fields to improve soil health, enhance crop yields, and optimize water use efficiency.

This widespread deployment is poised to deliver substantial environmental benefits, primarily by mitigating potent greenhouse gas emissions from dairy farming. Methane, a byproduct of livestock digestion and manure decomposition, is a powerful contributor to global warming. By capturing and utilizing this methane, the partnership directly addresses a key environmental challenge within the agricultural sector.

Initial implementation of the program has already commenced in key agricultural regions, including Mexico, Morocco, and India, reflecting a global commitment to fostering sustainable practices within the dairy supply chain. The partnership underscores a growing industry trend towards integrating ecological responsibility with economic viability for farmers.

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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