

MARCH 2024

MONTHLY BILINGUAL

INR 300

DAIRY PLANNER

HARBIL/2004/22481

Title Code HARBIL00698

Vol. 21 | No. 03 | March - 2024

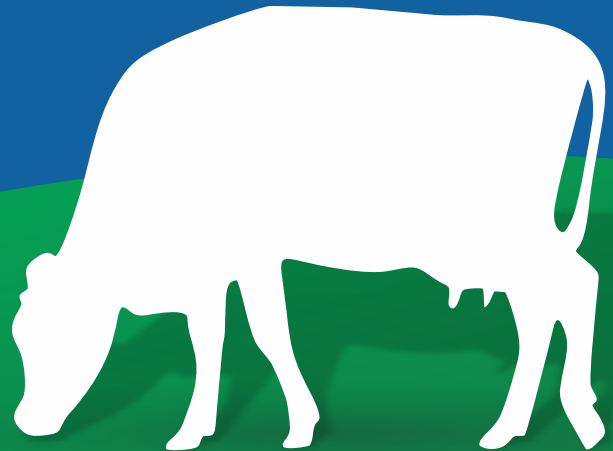


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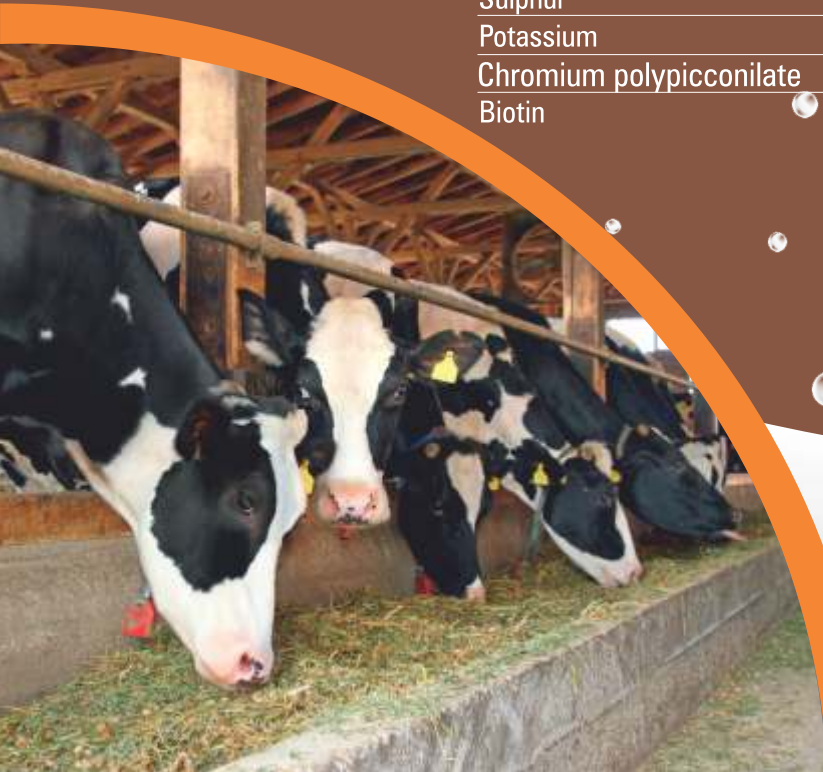
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From the Pen of Chief Editor



Beat the Heat: Strategies for Effective Summer Stress Management in Dairy Farming

As the temperature rises and the sun beats down, dairy farmers face a critical challenge: managing the summer stress that threatens the well-being and productivity of their herds. The scorching heat of summer brings with it a host of challenges for dairy cattle, ranging from heat stress and dehydration to decreased feed intake and compromised milk production. Effectively navigating these challenges requires a proactive approach and a suite of management strategies tailored to the unique needs of dairy farming during the hottest months of the year.

At the forefront of summer stress management in dairy farming is combating heat stress, a condition that can have serious implications for the health and performance of dairy cattle. Providing adequate shade is essential, whether through natural tree cover or purpose-built shelters, to offer relief from the relentless sun. Alongside shade, optimizing ventilation within barns and implementing cooling systems such as fans, misters, and sprinklers are crucial for maintaining comfortable conditions and reducing heat stress.

Nutrition plays a pivotal role in supporting dairy cattle through the summer months. Adjusting feed formulations to meet the changing nutritional requirements and feed intake patterns of cows during periods of heat stress is essential for sustaining milk production and body condition. Ensuring access to clean, fresh water at all times is equally critical, as dehydration exacerbates the effects of heat stress and compromises animal welfare.

Beyond environmental and nutritional management, proactive health monitoring is essential for detecting and preventing potential issues exacerbated by summer stress. Heat stress can compromise the immune system of dairy cattle, increasing susceptibility to diseases such as mastitis and metabolic disorders. Maintaining stringent biosecurity measures, practicing proper sanitation protocols, and conducting regular health assessments are key components of disease prevention and herd management during the summer months.

Moreover, optimizing cow comfort and minimizing stressors associated with handling and routine management practices are essential for reducing overall stress levels and maximizing productivity. Gentle handling techniques, routine grooming, and providing clean, comfortable resting areas contribute to the well-being and resilience of dairy cows during periods of heat stress.

In addition to on-farm management strategies, collaboration among stakeholders is essential for developing and disseminating best practices for summer stress management in dairy farming. Veterinary professionals, nutritionists, researchers, and industry organizations play vital roles in providing support, guidance, and resources to dairy farmers seeking to navigate the challenges of summer stress effectively.

In conclusion, effective management of summer stress is critical for maintaining the health, welfare, and productivity of dairy cattle and ensuring the long-term sustainability of dairy farming operations. By implementing comprehensive strategies encompassing environmental, nutritional, health, and behavioral management practices, dairy farmers can mitigate the impact of heat stress and optimize the performance of their herds during the hottest months of the year. Collaboration, education, and proactive planning are key to successfully managing summer stress and securing the future of dairy farming.

Vishal

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Publisher, Printer : **Mr. Vishal Gupta** on Behalf of **Pixie Publication** Karnal.

Printed at : Jaiswal Printing Press, Chaura Bazar, Karnal-132001 (Haryana).

Published at : Anand Vihar, near gogripur railway crossing, hanshi road, karnal-132001 (Haryana)

Editor-In-Chief: Mr. Vishal Rai Gupta

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- Biosint** 03
- Ecolex Animal Nutrition** 01
- Irides** 39
- Pixie Expomedia** 02
- The Livestock Expo** 40

PRESS RELEASE

NOVUS Names new Director for South Central Asia 17



Carus Laboratories Hosts Successful Product Information Session at GADVASU, Extends ... 18



ICAR-Indian Veterinary Research Institute - Annual Review Meeting ... 19

ICAR NRC Nagaland - A Mithun Mela-cum-Health Camp 20

ICAR Kolhapur - Indigenous Cow Exhibition 21

EW Nutrition Acquires BIOSTABIL Product Line from ... 22



NOVUS Acquires Enzyme Company BioResource ... 23



ARTICLE

Page **06** **Enhancing Dairy Farm Productivity: An insight into Rumen Bypass Strategies**



Page **07** **Summer Stress Management in Dairy Animals**

Anuj Kumar

Page **09** **Effect of Heat Stress in Dairy Animals**

Reetinder Singh, Satnam Singh, Prateek Kamboj, Bilawal Singh

Page **11** **Milk Fever In Cattle**

Simran jeet Singh, Aditya Kumar, Aprajita Johri and Aditi Kuriyal

Page **14** **Heat Stress In Dairy Cows and Its Management**

Dr. Jyotika

04 Editorial **38 Editorial Calendar**

24 News **38 Subscription Form**





Enhancing Dairy Farm Productivity: An insight into Rumen Bypass Strategies

Preserving the nutritional value of feed ingredients is crucial for the growth and productivity of dairy cows. Rumen bypass plays a vital role in achieving this, especially for high-value components like fats and proteins. In this article, we will explore strategies for optimizing rumen bypass in livestock feed, based on the expertise of Ecolex Animal Nutrition from their Functional Lipid platform.

What is rumen bypsss and why it matters:

Rumen bypass is the process of shielding feed ingredients from degradation in the rumen, preventing a loss of nutritional value. High-value ingredients, such as fats and proteins, are essential for animal growth and development. Without protection, these may not be absorbed properly, leading to diminished growth and productivity.

Factors Influencing Rumen Bypass:

The composition of fatty acids in feed significantly affects rumen bypass efficiency. Long-chain fatty acids are more resistant to degradation, while medium- and

short-chain fatty acids break down more easily in the rumen. The type and amount of fatty acids in feed play a pivotal role in determining rumen bypass efficiency.

Innovations in Rumen Bypass:

It is essential to protect feed ingredients from degradation in the rumen, and Ecolex Animal Nutrition leverages on its expertise in developing technologies that enhance rumen bypass characteristics. The constant evolution of technologies and strategies provides farmers with effective solutions for their livestock's nutritional needs.

Future Prospects and Implications for the Livestock Industry:

Optimizing rumen bypass efficiency can significantly improve overall animal health and productivity. Continued investment in research and development is crucial for the long-term success of the livestock industry. Staying at the forefront of new technologies ensures that farmers receive innovative and effective solutions for their farming needs.

Within the Functional Lipids

competency platform of Ecolex, there are three forms of rumen bypass fat: calcium salt of fatty acid, triglyceride, and free fatty acid. Rumen-protected fat, like the calcium salt of Palm Fatty Acid Distillate (PFAD), has a high melting point and low solubility. It enhances energy intake and prevents rumen acidosis syndrome. Rumen-inert fat, found in products like tallow, hydrogenated oil, palm stearin, and palmitic fatty acid, does not interact with rumen microbiota. Higher palmitic acid intake improves energy intake, milk production, and quality of milk in term of higher fat levels.

Rumen bypass fat is crucial for increasing energy intake and improving performance in dairy cows. Proper usage depends on different factors such as feeding modes, target milk yield, milk fat goals, genetic background, and environmental factors. Ecolex offers a range of comprehensive solutions and stands as a reliable partner for Indian dairy farmers seeking innovative solutions to enhance the health and productivity of their livestock.

For more information contact

Ecolex Animal Nutrition via <http://www.ecolexanimalnutrition.com> or follow the QR code below:





Summer Stress Management in Dairy Animals

Any stress associated to high temperatures that causes alterations in a cattle's thermoregulatory system is referred to as heat stress. Cattle's capacity to regulate their body temperature by sweating and panting is hampered in extremely hot, humid or hot, dry conditions, leading to heat stress. Increased body temperature, elevated heart rate, elevated peripheral blood flow, decreased feed intake, and increased water intake are additional consequences of severe heat stress. The body is unable to sustain the core body temperature by sweating and panting (evaporative heat loss mechanism) when the surrounding temperature rises over the Upper Critical Temperature (24°–26°C for exotic and crossbred cattle, 33°C for Zebu cattle, and 36°C for buffaloes). This combined with the animal's increased rate of bodily heat generation causes hyperthermia. Heat stress causes a variety of alterations that might result in decreased breeding effectiveness, decreased productivity, and in severe situations, even death. Every year, heat stress causes major losses in milk production in India, resulting in enormous

financial losses. In addition to its negative effects on oestrus expression and conception rate, heat stress also lengthens the dry period and increases the length of service. Cattle that are crossbred or exotic are more susceptible to heat stress, even though native breeds are more thermotolerant. Due to their darker skin, which absorbs more sun radiation, and their smaller sweat gland count (one-sixth that of cattle), buffaloes are more vulnerable to this. This reduces their ability to dissipate heat by evaporative heat loss.

Summer stress sign

Fast and feeble heart rate
Breathing quickly but superficially
Abnormal vital parameters include elevated heart rate, breathing rate, rectal temperature
Peculiar salivation pattern
Unconsciousness
Body temperature of an animal suffering from heat stroke might reach a high of 106 to 108°F.

Management of summer stress

- Make sure the animals are housed in shade. Trees are the best natural shade source. A thatched roof with a minimum height of nine



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feet should be supplied in the absence of shade trees.

- A cooler atmosphere can be achieved by thatching the roof with materials such as paddy straw, painting the roof white or installing fake ceiling insulation.
- Build wind-blocking structures out of thatched walls or damp gunny bags or linen.
- In a covered shed, make sure each cow has a ventilator measuring three by one foot. The best solution in these enclosures is a heavy-duty fan to facilitate ventilation
- Misting/Fogging of water on animals.
- Another way to alleviate heat discomfort in animals is to

physically spray or sprinkle water on their bodies.

- Wallowing in the water pond is the most efficient method for buffalo to recover from heat stress.
- Make sure animals have access to enough drinking water throughout the day, preferably in a shaded area.
- It is recommended to practise feeding in the early morning, evening and night.
- To avoid the intense heat, prefer grazing in the early morning and late evening hours.
- Ration density can be raised to deliver the same nutrients while consuming less dry matter. Dietary heat increase is smaller in low-fiber and high-fermentable-carb diets

than in high-fiber diets.

- To satisfy the increased demand for minerals during hot weather, make careful to ensure enhanced supplementation of minerals. It is best to use a mineral mixture that is high in potassium.

Conclusion

Summer stress in dairy cattle is a pressing concern with significant economic and production-related consequences. By implementing effective management strategies and prioritizing cow comfort, dairy farmers can navigate the summer months while ensuring the well-being of their herd and maintaining milk production.





Effect of Heat Stress in Dairy Animals

Dairy animals play a significant role in India's GDP (Gross Domestic Product). India has one of the largest cattle populations in the world, with estimates ranging from 300 to 350 million cattle. India stands first in the world in buffalo population with 112.33 million heads which is 56.37 % of the world's buffalo population. The buffalo contributes >49 % to the total milk production of the country making India the world's largest milk producer. The country produces over 190 million metric tons of milk annually, with cows and buffaloes. Dairy animals are a source of livelihood for millions of smallholder farmers and rural households across India. They provide a steady income through the sale of milk, dairy products, and surplus animals.

Heat stress in dairy animals can have significant negative effects on their health, well-being, and productivity. Hence causing great loss to the dairy sector and country's GDP as well as the farmer.

Effects of Heat stress on animal are:

1. **Reduced Milk Production:** Heat stress can lead to decreased milk production in dairy animals. High temperatures can cause them to eat less, reducing their overall energy intake, which directly impacts milk production. Additionally, heat stress can disrupt hormonal balance, affecting lactation.
2. **Decreased Reproductive Performance:** Heat stress can impair reproductive functions in dairy animals. It can lead to decreased estrus expression, irregular estrous cycles, and lower conception rates. This ultimately results in longer calving intervals and reduced herd fertility.
3. **Increased Mortality Rates:** Severe heat stress can lead to increased mortality rates among dairy animals. Heatstroke and dehydration are significant risks during extreme heat events, especially for animals with limited access to shade and water.
4. **Impaired Immune Function:** Heat stress compromises the immune system of dairy animals, making them more susceptible to diseases and infections. This can result in higher incidences of mastitis, metritis, and other health issues, leading to decreased overall herd health and increased veterinary costs.
5. **Nutritional Imbalances:** Heat-stressed animals may alter their feeding behavior, consuming less feed or changing their diet preferences. This can lead to nutritional imbalances, affecting their overall health and productivity. For example, they may consume fewer nutrients essential for milk production, reproduction, and maintaining body condition.
6. **Heat-induced Respiratory and Cardiovascular Stress:** High temperatures can cause respiratory and cardiovascular



Reetinder Singh, Satnam Singh, Prateek Kamboj, Bilawal Singh

stress in dairy animals. Panting is a common response to heat stress, which can lead to respiratory alkalosis and dehydration. Additionally, increased heart rate and blood pressure put additional strain on the cardiovascular system.

7. **Behavioural Changes:** Heat-stressed dairy animals may exhibit altered behaviour, such as increased restlessness, reduced activity, and seeking shade or water more frequently. These behavioural changes can affect their overall welfare and may lead to management challenges for dairy farmers.
8. **Economic Losses:** Collectively, the effects of heat stress on dairy animals result in significant economic losses for dairy farmers. Reduced milk production, impaired reproductive performance, increased veterinary costs, and higher mortality rates all contribute to decreased profitability and sustainability of dairy operations.

Overall, heat stress is a multifaceted issue with serious implications for the health, welfare, and productivity of dairy animals, as well as the economic viability of dairy farming enterprises. Implementing strategies to mitigate heat stress, such as providing shade, adequate ventilation, and access to cool water, is essential for maintaining optimal animal welfare and farm profitability in hot climates

To mitigate heat stress in dairy animals, farmers can implement various techniques and management practices. Here are some effective strategies:

1. **Provide Adequate Shade:** Ensure that dairy animals have access to shaded areas throughout the day, especially during peak

sunlight hours. Shade structures like trees, shade sails, or built shelters can help reduce direct exposure to the sun and lower ambient temperatures.

2. **Optimize Ventilation:** Improve airflow within barns or housing facilities to enhance cooling. This can be achieved through natural ventilation (windows, vents) or mechanical ventilation systems (fans, evaporative cooling pads). Proper ventilation helps dissipate heat and humidity, promoting thermal comfort for the animals.
3. **Cooling Systems:** Install cooling systems such as misters or sprinklers to cool the air and provide evaporative cooling for dairy animals. These systems can be utilized in holding areas, milking parlors, or loafing areas to help animals regulate their body temperature.
4. **Access to Fresh Water:** Ensure dairy animals have continuous access to clean and cool water. Install water troughs or automatic waterers in multiple locations within the housing area to encourage adequate hydration, especially during hot weather conditions.
5. **Dietary Management:** Adjust feeding practices to accommodate heat stress conditions. Provide high-quality forage and balanced diets rich in energy and nutrients to support maintenance and production requirements. Consider feeding during cooler times of the day to encourage intake and minimize heat production from digestion.
6. **Reduce Stocking Density:** Avoid overcrowding in housing facilities to prevent heat

buildup and improve air circulation around animals. Adequate space allows for better heat dissipation and reduces competition for resources like shade and water.

7. **Timely Herd Management:** Schedule routine tasks such as feeding, milking, and handling during cooler parts of the day to minimize heat stress on dairy animals. Additionally, monitor herd health closely and promptly address any signs of heat stress or related health issues.
8. **Heat Stress Monitoring:** Implement monitoring systems to track environmental parameters such as temperature, humidity, and heat index. This data can help farmers anticipate and respond to heat stress conditions effectively, implementing interventions as needed to protect animal welfare.
9. **Genetic Selection:** Consider selecting dairy breeds or genetic lines known for heat tolerance and adaptability to hot climates. Breeding for heat-resistant traits can help improve the overall resilience of the herd to heat stress conditions.
10. **Behavioural Enrichment:** Provide enrichment activities and amenities that encourage natural behaviour and help alleviate stress. This can include access to pasture, resting areas with comfortable bedding, and socialization opportunities within the herd.

By implementing these techniques and management practices, dairy farmers can effectively mitigate the impact of heat stress on their animals, promoting both welfare and productivity in hot climates.



Milk Fever In Cattle

Introduction:

It is a metabolic disorder that affects adult dairy cows and buffaloes usually around the time of parturition or within 72 hours of parturition arising because of disordered homeorhetic change, characterized by acute to per acute, flaccid paralysis. Sternal and lateral recumbency, circulatory collapse are also clinical indicators.

Etiology:

According to Shank et al. (1981), Curtis et al. (1985), Stevenson and Lean (1998), there is a significantly increased risk of disease during the periparturient or transition phase, which lasts for 4 weeks before and 4 weeks after calving. According to Bauman and Currie (1980), this period is characterized by a sequence of homeorhetic adjustments to the needs of lactation. Homeorhetic processes involve a planned series of metabolic changes that enable an animal to adjust to the difficulties of the altered state. Hypocalcemia is one of the issues brought on by unbalanced homeorhetic change, which reflects unbalanced homeostasis. Hence, Hypocalcemia is the main contributing factor in the etiology of Parturient paresis. Bone, intestine, liver, kidney, endocrine glands, adipose tissue, and mammary gland are the target organs most linked to calcium homeostasis. The disparity between fetal and lactational calcium requirements poses a challenge to calcium homeostasis during the process of homeostatic adaptation to lactation. The discrepancy between the 13 to 18 g of calcium released in colostrum or milk and the 5.3 g daily fetal drain can be more than the combined quantity of calcium in plasma and interstitial fluid (between 6 and 10 g). This discrepancy must be balanced

by either increasing the amount of calcium that enters the bloodstream by gastrointestinal absorption or bone resorption, or decreasing the amount of endogenous fecal calcium that leaves the body through routes other than milk. Milk fever like conditions arise in cases where there is excessive drain or loss of calcium through colostrum and milk and the body cannot mobilise enough calcium from bone due to the excessive losses of calcium through colostrum (2.3 g/kg) and milk (1.2 g/kg) (Bhikane et al., 2004; Radostits et al., 2007) along with reduced intestinal absorption of calcium during pregnancy due to starvation or reduced feed intake throughout pregnancy or at the time of delivery or digestive disorders like intestinal illnesses, ruminal atony, and indigestion reduce absorption. Slow mobilization of Ca from bone / skeleton due to Parathormone deficiency, high calcitonin in blood and Vitamin D3 deficiency are other factors contributing to disruption of Ca- homeostasis.

Dietary Factors:

The calcium homeostatic mechanism is suppressed by a high calcium diet during pregnancy. Such animals are more prone to severe Hypocalcemia just after delivery because they are unable to start calcium resorption from bone or boost intestine absorption. A high-phosphorus diet during pregnancy inhibits the renal enzyme that is responsible for formation of 1,25-(OH)₂D, which is catalyzed by the enzyme, resulting in reduction of intestinal calcium absorption.

An unhealthy calcium-to-phosphorus ratio in the diet i.e., and highly alkaline diet for e.g., legumes and excessive intake of oxalates and phytates can also be predisposing

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Synonyms:

Parturient paresis,
Post Parturient
Hypocalcaemia,
parturient apoplexy,
paresis puerperalis

factors of this disease.

Clinical Signs:

There are three distinct stages to parturient paresis.

Stage 1:

Animals are mobile but exhibit hypersensitivity and excitability. The triceps and flanks of cows may tremble slightly. The animal is reluctant to move and frequently consumes less or no feed. A small head shake, tongue sticking out, and teeth grinding are possible symptoms. Normal to slightly over normal rectal temperature; the skin may feel cold to the touch. The animal has an ataxic appearance, abnormal gait and falls frequently. A close inspection reveals agalactia and rumen stasis. A normal heartbeat and normal breathing patterns are also possible. Cows are likely to advance to the second, more severe stage if calcium therapy is not started.

Stage 2:

Sternal recumbency and lowered consciousness are the characteristics of the second stage. The cow seems drowsy in sternal recumbency, typically with a lateral bend in the neck or the head turned into the flank. Some of these cows may exhibit behavioral changes like nervousness and fright when approached. Tetany of the limbs that was present in the first stage disappears in this stage. The skin and extremities are cold, dry muzzle and the rectal temperature is subnormal (between 36 and 38°C, or 97 and 101°F) tachycardia with indistinct murmuring of heart. It is challenging to raise the jugular veins since the venous pressure is low and the arterial pulse is weak. The respirations are not significantly altered, however occasionally a slight forced grunt or groan is discernible. Constipation is a common distinctive symptom, as is ruminal stasis and secondary bloat.

Stage 3:

Diminished responsiveness to any external stimuli or even comatose

cow in lateral recumbency is a hallmark of the third stage, animal is unable to assume sternal recumbency without support. The cardiovascular system and temperature depression are more pronounced. The pulse is virtually impalpable, the heart rate is up to 120 bpm, the heart noises are almost inaudible, and it can be impossible to lift the jugular veins. Bloat is frequently caused by lateral recumbency and protracted rumen stasis. Without care, some animals persist unchanged for several hours, but the majority deteriorate over several hours until passing away silently from shock in a state of total collapse.

When hypocalcemia and hypomagnesemia co-exist, the clinical consequence will be tetany and hyperesthesia past the point of initial excitation. The eyelids could twitch fibrillarly. Most non parturient milk fever cases respond to calcium medication, but if the fundamental root cause is not treated, they may reoccur.

Diagnosis:

- Based on characteristics clinical signs like sternal or lateral recumbency and history of age, parturition and milk output, exposure to cold stress and transportation or inefficient ruminal activities or in certain cases history of access to plant rich in oxalates like spinach, beet greens, rhubarb, Swiss chard, parsley, purslane, and certain types of nuts such as almonds and cashews.
- Clinical pathology -
 - a) low Serum Ca, P, glucose, and high serum Mg levels
 - b) Ca:P ratio decreases to 1:1 from 2:1 and Ca: Mg ratio decreases to 2:1 from 4:1
 - c) Urine analysis - the calcium precipitation test is usually negative.
- Observe the cow's reaction to the Ca therapy, searching for symptom

improvement like salivation, eructation, occurrence of defecation, urination and rumination and indications of better muscular tone.

Differential diagnosis:

- 1) Subclinical Hypocalcemia - no clinical signs like lateral kink of neck, downer cow, lethargy, cold extremities, rumen atony etc. Blood calcium concentration reaches levels even lower than their baseline six hours after treatment.
- 2) Ketosis - animal respond to Ca therapy (stands up quickly) but signs of ketosis persist
- 3) Hypomagnesemia - low serum Mg (<1.2mg/dl), response to IV Mg injection recorded within 20 minutes.
- 4) Degenerative myopathy- No response to Ca therapy, SGOT levels are high.
- 5) Botulism - in any sex at any age and no response to Ca therapy
- 6) Retained placenta - in case of toxemia may die if treated with Ca or Mg salts.

Treatment:

It's ideal to start treatment during the first stage itself as long delay can lead to ischemic muscle necrosis.

- 1) Parenteral injection of Calcium borogluconate is the standard practice of management of Hypocalcaemia during milk fever.
Dose & Route: Ca-borogluconate (18-25%) @ 450ml /kg body weight (250ml IV- & 200-ml SC to avoid Ca toxicity) in cattle for at least 30 minutes.
Sheep & Goat- 25-50 ml/kg body weight slow IV
- Ca-gluconate cause less tissue irritation than Ca borogluconate
- To counteract Ca⁺⁺ toxicity, MgSO₄ 10% @ 200-400ml is given either IV or Subcutaneously.

- Slow administration of Ca injection is recommended (ratXe - 10-20 drop/minute)
2. Monitor Vital Signs:
 - Monitor heart rate, respiration rate, and body temperature, with signs of dysrhythmia therapy should be stopped.
 - Atropine Sulphate- @0.02-0.2 mg/kg body weight is administered in case of bradycardia.
 3. Oral Calcium Supplementation:
 - Calcium Gel/Bolus/Drench
 - Dosage: 150-200 gm
 - Administered after IV treatment
 - Continue for 2-3 days in case of severe milk fever
 4. Electrolyte Balance:

Fluid therapy (Ringer's lactate, DNS @10-15ml/kg)
 5. Supportive Care:

Inj. vit D3 @ 10 million unit i.e., 1 million units / 45 kg body weight I/M one week before calving
 6. Phosphorus injection: inj URIMIN @10-15ml in cattle in cases when Hypocalcemia is associated with Hypophosphatemia

Prevention & Control:

- A diet high in calcium during pregnancy may make the cow more susceptible to milk fever. Additionally, a high phosphorus diet during late pregnancy increases the likelihood of developing milk fever. The chances of milk fever is thought to be reduced by keeping the Ca:P ratio in feed during the final month of gestation at 1:3.3.

However, it is established that a low calcium diet during early pregnancy and a high calcium diet before parturition significantly reduce the incidences of milk fever.
- Calcium injections given as a preventative soon after calving are efficacious.
- Feeding of Forage crops like alfalfa, clover, or kale, as well as grains like barley and oats containing high levels of anions (Sulphur & chloride) are evident to have a minimizing role in inducing milk fever over diet containing greater level of cations (Sodium & Potassium) since excess anions help in calcium absorption.
- NH₄Cl @25 gm orally during last few weeks of gestation and @100 gm/day at the time of parturition helps in producing acidosis which further helps in the enhancement of blood calcium metabolism.
- To prevent over or under acidification that could cause problems in the blood calcium metabolism, cation anion diets or the use of ammonium chloride in diets should be monitored by tracking the pH of urine.
- Vitamin D supplementation: A practice by some farms is supplementing high amounts of vitamin D to prepartum dry cows in the feed. These vitamin D doses pharmacologically increased intestinal Ca⁺⁺ absorption.
- Achieving the correct body condition score at calving and dry period is critical for the prevention of milk fever.
- Farmers are to be advised to avoid suckling by young ones or milking for 3 days after treatment.
- Avoid Cold stress conditions by proper sheltering to the lactating or pregnant animals.
- Travelling large distances is to be avoided during pregnancy
- The animal is to be kept at strict surveillance 48 hours prior to calving and 48 hours following calving and any early signs should be checked
- To encourage rumen contractions because concentration causes stasis, give roughages to animals that are about to give birth.

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Heat Stress In Dairy Cows and Its Management

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Summer is a time of sunshine, picnics, and beach days - a season that many of us look forward to. However, for dairy farmers, summer can also bring an array of challenges, one of which is production loss in their dairy cows. Dairy cows are highly sensitive animals, and their milk production can be affected by various factors. One of the main reasons for production loss during summer is the extreme heat.

meaning they maintain a constant body temperature regardless of their surroundings. Their normal body temperature ranges from 101.5°F to 102.5°F. When the environmental temperature and humidity rise, cows are unable to dissipate heat efficiently, causing their body temperature to increase.

What are the Factors Responsible for Heat Stress in Dairy Cows?

1. High Environmental



What is Heat Stress?

Heat stress is a condition where an animal's body temperature rises above its normal range, causing discomfort and affecting its overall health. It is a common problem in dairy cows, especially during hot and humid weather.

Cows are homeothermic animals,

Temperature and Humidity

The most significant cause of heat stress in dairy cows is high environmental temperature and humidity, especially when they occur together. Cows are more sensitive to heat stress than other animals because they have a thick layer of fur and

Temperature Humidity Index (THI)									
		Relative Humidity %							
C	20	30	40	50	60	70	80	90	100
22	66	66	67	68	69	69	70	71	72
24	68	69	70	70	71	72	73	74	75
26	70	71	72	73	74	75	77	78	79
28	72	73	74	76	77	78	80	81	82
30	74	75	77	78	80	81	83	84	86
32	76	77	79	81	83	84	86	88	90
34	78	80	82	84	85	87	89	91	93
36	80	82	84	86	88	90	93	95	97
38	82	84	86	89	91	93	96	98	100
40	84	86	89	91	94	96	99	101	104

No heat stress

Moderate heat stress

Severe heat stress

Dead cows

lack sweat glands. As a result, they cannot cool themselves efficiently when the temperature rises above their comfort zone.

2. Lack of Shade and Ventilation

Another common cause of heat stress in dairy cows is the lack of shade and proper ventilation in the barn or pasture. Cows need access to shade to escape the direct sunlight and cool off. Moreover, proper ventilation is crucial to allow air circulation and reduce the temperature inside the barn.

3. Overcrowding

Overcrowding can also contribute to heat stress in dairy cows. When cows are packed too tightly in a barn or pasture, it can impede their ability to cool down through natural behaviour such as panting and sweating. Additionally, crowded conditions can also lead to increased body heat due to the heat generated by the cows' bodies.

4. Lack of Access to Fresh Water

Water is essential for regulating a cow's body temperature. When cows are heat-stressed, they start panting to cool off, which

causes them to lose water and electrolytes. If they do not have access to fresh water, their dehydration can worsen, leading to more severe cases of heat stress.

What are the clinical sign and Effects of Heat Stress on Dairy Cows?

1. Reduced Milk Production

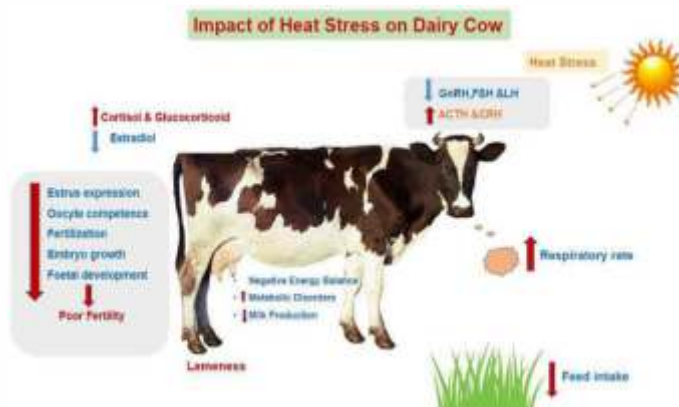
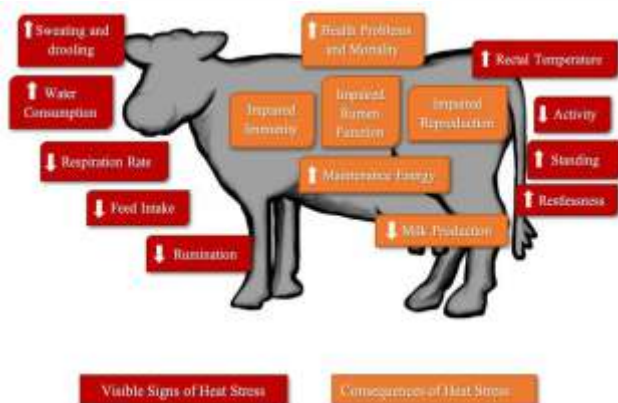
Heat stress can have a significant impact on a cow's milk production. When cows are heat-stressed, they divert their energy from milk production to cool themselves down, resulting in lower milk yields. According to research, for every degree Celsius above 25°C, a cow's milk production decreases by 1-2%.

2. Poor Reproductive Performance

Heat stress can also affect a cow's reproductive performance. Insemination success rates decrease during hot weather, and cows may experience extended periods of anestrus (not cycling) due to heat stress. This can result in longer calving intervals and decreased fertility.

3. Health Issues

Heat-stressed cows are more



susceptible to various health issues such as mastitis, lameness, and metabolic disorders like ketosis and acidosis. These health problems not only affect the cow's wellbeing but also have economic implications for the farmer.

What can be done to prevent heat stress in dairy cow?

1. Provide Adequate Shade and Ventilation

The first step in preventing heat stress in dairy cows is to ensure that they have access to adequate shade and proper ventilation. This could be in the form of trees in the pasture or shade structures in the barn. Additionally, fans or sprinkler systems can help cool down the cows and improve air circulation.

2. Manage Feed and Feeding Time

Low quality, forages generate more heat by fermentation inside the rumen. High quality forages are digested faster and

result in less heat being produced. Cows produce more body heat during digestion, so it is best to feed them during the cooler parts of the day, such as early morning or late evening.

3. Increase Access to Fresh Water

Water is crucial for cooling down cows and preventing dehydration. Make sure there are enough water sources available, and clean and refill them regularly.

4. Install sprinkler system

It can be an effective way to cool down cow during hot weather.

5. Monitor Cows for Signs of Heat Stress

It is essential to monitor cows closely for any signs of heat stress. These can include increased respiration rate, open-mouth breathing, and decreased feed intake. If you notice any of these signs, take immediate action to cool the cow down.

6. Implement a Heat Stress Management Plan

Creating a heat stress management plan can help farmers be proactive in preventing heat stress in their herd. The plan should include actions to take when the temperature rises, such as adjusting feeding and milking schedules, providing extra shade and water, and monitoring individual cow's body temperatures.

Conclusion

Heat stress is a significant concern for dairy farmers, but by understanding its causes and effects, farmers can take proactive measures to prevent it from affecting their herd. Providing adequate shade and ventilation, managing feeding time, increasing access to fresh water, and monitoring cows for signs of heat stress are all crucial in managing this condition. With proper management, dairy cows can thrive even during the hottest months of the year.





NOVUS Names new Director for South Central Asia



fully engaging my colleagues,” he says.

“Agriculture is a business about animals and plants, but the foundation is people. It takes many people in many roles working together to produce high-quality, safe, nutritious food. By fostering a collaborative working environment across all my teams, we will be more successful as a trusted partner for all our customers and stakeholders.”

BENGALURU, INDIA (February 7, 2024) – NOVUS recently named Dr. Manish Kumar Singh its new regional director for NOVUS in South Central Asia. In this role, Dr. Singh is responsible for developing and executing the Novus business strategy in the region.

“Asia represents a huge opportunity for growth for NOVUS,” says Vaibhav Nagpal, DVM, NOVUS vice president and managing director for Asia. “Manish has extensive expertise about the market and the customers throughout South Central Asia. He also has the confidence of his colleagues to make sound, strategic decisions that will help grow the business in the region. With 15 years of experience working in South Asia and Asia-Pacific regions in various roles, I am sure he will strengthen the NOVUS team and grow the business.”

Dr. Singh says his top priority in the new role is his colleagues.

“I aim to build a culture of trust by

Speaking about the poultry and dairy customers in South Central Asia, Dr. Singh says there are many opportunities for intelligent nutrition from NOVUS to positively impact animal performance and help producers achieve their goals.

“Feed cost is a top concern for producers worldwide. We can help optimize feed costs and affect the impact of anti-nutritional factors through our knowledge about feedstuffs along with our CIBENZA® Enzyme Feed Additive,” he says. “Meat consumption and processing is on the rise; we have solutions for those concerned about meat quality, growth efficiency and structural health. Our team also has global expertise in maternal health that, partnered with the use of MINTREX® Bis-Chelated Trace Minerals, can help optimize the reproductive performance.”

As an international company, Dr. Singh said NOVUS has a dedicated team of in-house technical experts

and renowned third-party consultants to support producers as they work to improve gut health and immune system function and implement antibiotic-free production.

“Through an integrated approach combining technical know-how with gut health products like AVIMATRIX® Feed Solution and NEXT ENHANCE® Feed Solution, we are helping create effective ABF production,” he says.

Dr. Singh says following the initial success of the NOVUS dairy team in India, the company has invested more resources, allowing further expansion in this market. The goal is to reach more customers and bring innovative solutions backed by scientific research to the largest dairy market in the world.

“There are many challenges and opportunities in dairy production. NOVUS has decades’ worth of research and commercial trials demonstrating how we can improve milk fat production and reproductive performance,” he says. “On the challenge side, we have products that are shown to reduce somatic cell count and manage lameness to improve productivity and extend the herd’s longevity. This is an important growth market for NOVUS and we have a lot to offer.”

Dr. Singh came to NOVUS in 2019 to serve as the head of strategic marketing and technical services for South Central Asia before leading the marketing team for the Asia-Pacific region. He held roles at Cargill and Alltech before coming to NOVUS.

To speak with Dr. Singh or his team about how NOVUS is supporting customers in South Central Asia, visit the Contact Us page at novusint.com.

Carus Laboratories Hosts Successful Product Information Session at GADVASU, Extends Scholarships to Meritorious Students

Carus Laboratories, a distinguished name in the veterinary pharmaceutical industry, proudly announces the successful execution of a product information session at Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), one of India's premier institutions in veterinary and animal sciences.

The event showcased Carus's innovative and high-quality solutions for animal health and nutrition, receiving commendable feedback from both faculty and students in attendance. As part of its corporate social responsibility (CSR) initiatives, Carus Laboratories participated in the oath ceremony for BVSc and AH students, offering scholarships of INR 51,000, INR 31,000, and INR 21,000 to the top three meritorious students.

We extend our heartfelt congratulations to the accomplished students and wish them continued success in their future endeavors," said Dr. Deepak Kumar Dhiman, General Manager at Carus Laboratories. "This initiative aligns with our commitment to fostering education and supporting promising individuals in the field of veterinary sciences."

The scholarships were presented during the ceremony, underscoring Carus's dedication to recognizing and encouraging excellence in veterinary education. Dr. Deepak Kumar Dhiman, General Manager of the Nutrition Division, and Dr. Rajan Sharma, Product Manager of the Injectable Division, represented Carus Laboratories at the event, contributing significantly to its success.

Carus Laboratories looks forward to fostering more collaborations



and partnerships with GADVASU and other esteemed institutions in the realm of animal health and welfare.



ICAR NRC Nagaland - A Mithun Mela-cum-Health Camp

ICAR- National Research Centre on Mithun, Nagaland, organised a MithunMela-cum-Health Camp at Riga village, Siang district, Arunachal Pradesh today.

Chief Guest, DC Siang PN Thungun and Guest of Honour, SP Siang Opirparon, graced the occasion with their presence.

The programme provided

vaccination and treatment services to Mithuns and recognized outstanding farmers in various categories, including best bull, dam, heifer, calf, and maximum Mithun collector with rewards. Farmers received TSP inputs to establish semi-intensive Mithun rearing units, with 72 Mithuns tagged for identification. Government

officials, scientists, and technical officers attended an event advocating for scientific Mithun-rearing techniques and production technologies.

Dr. Anthony Pertin, District Veterinary Officer, was also present during the event.

Over 400 farmers actively participated in the event.



(Source: ICAR- National Research Centre on Mithun, Nagaland)

ICAR Kolhapur - Indigenous Cow Exhibition



ICAR- Shri SiddhagiriKrishiVigyan Kendra, Kolhapur, Maharashtraorganised an Agriculture Exhibition on Indigenous Cow (Khillar&KokanGidd Breed) from 7th-9th March 2024.

The exhibition was inaugurated by Dr. MachhindaraShinde, District Deputy Commissioner, Animal Husbandry, Kolhapur. He stressed developing quality breed lines for self-sufficiency in milk production and utilization of different farmers' welfare schemes for the animal husbandry sector.

Shri. P.P. AdrushyaKadsiddheshwar Swami, Chairman, Shri Siddhagiri-KVK, Kolhapur, emphasised farmers' transformation into dynamic entrepreneurs, transcending the conventional role of mere cultivators. Swami Ji, highlighted the importance of fostering a connection between a greater

number of farmers and the production of value-added products derived from cow urine and dung. He urged the establishment of Farmer Producer Organizations to enhance market connectivity.

Dr. Ravindra Singh, Head, Shri Siddhagiri-KVK, Kolhapur urged the farmers to establish indigenous cow-based goshala and dairy units with the technical help of KVK. He

also stresses on specialised marketing strategies for the sustenance of the indigenous cow-based dairy units.

About 150 Khillar&KokanGidd Breed breeds were exhibited and prizes for best cow under different categories were also rewarded.

A total of 18810 farmers and farm women visited during the program.



(Source: ICAR-Shri SiddhagiriKrishiVigyan Kendra, Kolhapur, Maharashtra)



EW Nutrition Acquires BIOSTABIL Product Line from DSM-firmenich

VISBEK, 5 March 2024 – EW Nutrition, a global provider of animal nutrition solutions, announced today that it has acquired the BIOMIN BIOSTABIL product line from dsm-firmenich. The deal gives EW Nutrition ownership over an established and successful line of silage inoculants.

"The agreement we have concluded gives us a solid foothold in a sector where we are currently developing a more substantial presence" says Jan Vanbrabant, CEO of EW Nutrition. "EW Nutrition continues to expand strategically, enriching its portfolio with market-leading solutions, developed in-house or through acquisitions. The BiominBiostabil line joins an innovative portfolio that has been growing tremendously in the last three years with the launch of Ventar D and Protect D, our Feed Quality and Pigment lines acquired in 2021, and yet another momentous global launch coming up shortly." This solid, well-proven line of silage inoculants, says Vanbrabant, will be an important addition to customers of EW Nutrition's On-Farm Solutions business around the world.

The transaction was closed on March 1, 2024. Under the services agreement concluded, all customers will be actively supported over the next months, while the asset, brand, and go-to-market will be transitioned to EW Nutrition in the coming period.

The financial details of the sale remain confidential.

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About EW Nutrition

EW Nutrition is a global animal nutrition company that offers comprehensive, customer-focused solutions for gut health management, antibiotic reduction, feed quality, animal care, and more.

Website: ew-nutrition.com

Contact: info@ew-nutrition.com



NOVUS Acquires Enzyme Company BioResource International, Inc.

Acquisition will strengthen the company's portfolio and innovation goals

CHESTERFIELD, MO (March 5, 2024) – Novus International, Inc. announces it has completed the acquisition of U.S.-based enzyme company BioResource International, Inc. (BRI). Under the terms of the agreement, NOVUS becomes the owner of all BRI's products and intellectual property and takes control of the company's facilities.

"This move will allow us to serve our customers better and expand our innovation pipeline further," says NOVUS President & CEO Dan Meagher. "Enzymes are vital tools for producers to ensure animal health and well-being and help deliver on-farm profitability. We're very excited to offer our customers more options as well as aspire to develop new feed additives."

The relationship between the two companies isn't new. NOVUS has partnered with BRI since 2008 to manufacture its protease product, CIBENZA® Enzyme Feed Additive. Meagher says having full ownership and control of the product line and the option to expand NOVUS' portfolio beyond protease enzymes is a natural fit in the company's long-term strategic plans.

"As a leader in intelligent nutrition,

NOVUS' priorities include investing further in functional proteins and the gut health segment, growing our portfolio, and achieving stronger control of our supply chain," he says. "Along with supporting these goals, acquiring BRI also increases our capabilities to develop innovative solutions in the fermentation space."

BRI's products include Versazyme® protease feed additive, Xylamax® xylanase feed enzyme, Dymanase® mannanase enzyme, Phytamax® granulated, thermostable, microbial 6-phytase enzyme; and EnzaPro® enzyme and direct-fed microbials, among others.

BRI's co-founder and CEO Giles Shih, Ph.D., says the acquisition and tapping into the knowledge of employees in both BRI and NOVUS allows for the continued growth of the company he helped create 25 years ago.

"We are super excited about the future where BRI's products and people combine forces with the global reach and deep industry knowledge NOVUS brings to the feed additive space," Shih says. "This deal is not one of happenstance. Our two companies have worked closely together since

2008 to launch the first generation of heat-stable protease feed enzymes and shape how they are developed, marketed, and optimized to add value to customers worldwide. This acquisition will enable NOVUS to innovate the next generation of proteases and enzymes that will do even more, from promoting gut health to promoting the bottom line."

Along with BRI's current product portfolio, NOVUS also takes over the company's facilities in North Carolina in the U.S.

For current BRI customers, Meagher said continuity is key. He said current customers should experience "business as usual" throughout the integration period.

NOVUS is the intelligent nutrition company providing solutions for the global animal agriculture industry. The company's portfolio includes bis-chelated organic trace minerals, enzymes, organic acids, essential oils, liquid and dry methionine, and a network of experts worldwide to provide guidance on management best practices. NOVUS is owned by Mitsui & Co., Ltd. and Nippon Soda Co., Ltd.

Indore's Vigilance on Adulteration: Fat Checking Machines Mandated at Milk Dairies for Quality Assurance

Indore, India's cleanest city for seven consecutive years, is preparing to ensure its residents receive unadulterated and quality milk. The district administration has decided to make Fat Checking Machines compulsory at all milk dairies across the district to ensure the best quality milk from each dairy. The ban will be issued under Section 144 CrPc. The Fat Checking Machines will help consumers make informed decisions about purchasing milk from a particular dairy. However, the district administration has not set a deadline for the installation of the machines.

Indonesia houses around 1,500 milk dairies, which will display the results of the Milk Fat Check on dedicated machines. Milk is sourced from villages and neighboring districts, and collected at Collection Centers before being transported to the dairies to prevent adulteration. Despite this practice, complaints from consumers about adulteration have been received.

The district administration has also decided to create a detailed database of all shops operating in the city's famous food lane, the Sarafa Night Food Market. The database will cover details of each shop, including their operating hours and what is being served. This comprehensive survey will help ensure safe food for the city's residents.

Amul Dairy Introduces Amul SNF Vriddhi to Enhance Milk Quality

Amul Dairy has introduced a new feed variety that improves solid-non-fat (SNF) content in cow and buffalo milk.

The issue of low fat and SNF in milk is common in the country's domestic dairy industry. The milk union's study revealed that low SNF content was caused by a lack of protein and energy in the dairy animals' diets.

"We launched a project in which 3,000 machines were installed in all of the villages in our milk shed region. We began providing details of fat and SNF content to our dairy farmers via a special software," said Amul Dairy's MD, Amit Vyas.

"We also started investigating the causes of low SNF content in dairy animals. "There are usually three main reasons for low SNF content: mixing water with milk, subclinical mastitis (which reduces milk production), or a lack of vitamin and mineral-rich feed," he explained.

Ahead of the summer season, Amul Dairy chairman Vipul Patel and other board members introduced Amul SNF Vriddhi, a feed supplement that will increase milk yield, fat, and SNF content for dairy farmers.

DMF, Maker of 'Frubon', Eyes Expansion with Recent Funding Round

Dev Milk Foods Pvt. Ltd. (DMF),

founded by DD Verma, a senior dairy technologist from National Dairy Research Institute, is a Jaipur-based dairy company that sells ice cream, milk, and value-added dairy products under the brand "Frubon." The company has a strong presence in over 40 cities and towns in North India and has recently secured funding from Fireside Ventures, Pi Ventures LLP, and other angel investors, with Dexter Capital as the exclusive financial advisor.

Since its commercial launch in April 2017, DMF has achieved a growth rate of over 65% annually and is projected to reach revenues exceeding Rs 100 crores in FY 2024. The company plans to utilize the newly raised funds to expand its retail footprint, enter new North Indian cities through various retail channels, enhance production and distribution capabilities, and diversify its product offerings.

DMF emphasizes transparent and fair processes in sourcing high-quality raw milk from milk farmer societies, ensuring fair pricing through quality evaluations, prompt payments, and cashless transactions. The company also focuses on farmer development and education initiatives to improve production quality.

Rahul Verma, director of Dev Milk Foods, expressed excitement about the partnership with Fireside Ventures, aiming to establish the brand as one of the most trusted dairy brands in India. Fireside Ventures, through partner Vinay Singh, highlighted their investment in Frubon based on the brand's sustainable practices, efficient supply chain, high-quality products, and social responsibility. They are committed to supporting founders who prioritize both business success and societal impact.

India Eyes UK Market for Ghee in Exchange for Blue Cheese Access

India is attempting to open the UK market for ghee in exchange for bringing the latter's blue cheese to the Indian market under the proposed free trade pact being negotiated between the two countries. Trade negotiators have pressed the UK to waive its sanitary and phytosanitary (SPS) rules to let in ghee and other dairy products, which remain shut from the British market.

Traceability of ghee and other dairy products is a stumbling block for trade negotiators, as these food safety rules insist on traceability of goods, a task that is difficult in India where large dairy co-operatives source milk from millions of individual cattle farmers and small dairy farms.

India is seeking to get SPS waiver for Indian ghee, which will provide for its entry into the UK market. This is being sought since India is considering allowing cheese under the free trade agreement (FTA), which will provide a big market to their blue cheese. The UK has a negative trade balance for blue veined cheese, with its exports representing 2.9% of world exports for this product but ranking 5 in world exports.

The move would give a boost to exports of Indian dairy companies, as India-made ghee is already exported to various other markets like the US and Australia, where there is a large Indian diaspora, as there is in the UK. According to R.S. Sodhi, president of the Indian Dairy Association, the branded ghee market in India is estimated at

₹50,000 crore, and exports globally would be just ₹1,500 crore. The market is expected to grow to ₹6.9 lakh crore by 2032, at a compounded annual growth rate (CAGR) of 8.72% from 2024.

ITC Foods' Digital Pivot Set to Elevate Dairy and Beverage Sector amidst Recovery

ITC Foods, a branded packaged foods business of ITC, anticipates a demand revival for the dairy and beverage sector in six to nine months due to a hot summer and a favorable dairy season. The company has prioritised leveraging digital technology to streamline its supply chain, ensure consistent product quality, comply with food regulations, and enhance food security.

Premiumisation is picking up in rural areas as consumers transition from loose milk to packaged options for better quality and safety, particularly for their children. ITC Foods' success stories include milk-based smoothies and premium coconut water under the 'B Natural' brand, catering to health-conscious urban consumers seeking nutritious options. In rural areas, affordable yet tasty lassis in pouches at INR 10 cater to local tastes and budgets, providing a cooling refreshment during hot summers.

ITC Foods is implementing digital technology for transparency in its dairy and beverage operations, ensuring quality and compliance throughout the supply chain. The company engages with farmers via an app, offers timely veterinary support, and uses innovative solutions like QR-coded milk

packets and organic ghee with traceable origins. By integrating digital solutions into supply chain management, ITC maintains product quality while fostering trust and transparency with consumers.

Inflation, particularly in dairy, has shown signs of cooling after a period of high commodity rates until six months ago. The current cycle in India appears more favorable, promising a better year ahead for dairy companies. With national elections around the corner, the segment anticipates increased demand, with special stalls set up during events like elections to distribute summer products like lassi and juices actively.

The dairy and beverage segment outlook hinges on a promising summer, vital for the beverage and ice-cream industries post-challenges from last year's unseasonal rains. Consumers increasingly favor natural and healthier products like coconut water and smoothies alongside traditional options.

Kerala Feeds Limited and Indian Immunologicals Limited Join Forces to Boost Dairy Sector

In a significant move to strengthen the dairy sector, Kerala Feeds Limited (KFL), a state-owned entity, has begun trials of select products from Indian Immunologicals Limited (IIL) in approximately 500 milk cows across 11 districts in the state.

This collaboration is part of a partnership with the National Dairy Development Board (NDDB)

subsidiary, which is India's leading manufacturer of animal and human vaccines, nutraceuticals, and formulations.

The ongoing trials involve testing a productivity-boosting solution and a calcium supplement, with the ultimate goal of benefiting dairy farmers. KFL intends to make IIL's products widely available following the trial period, with the goal of increasing dairy milk production in the future, resulting in greater profitability for the sector. According to KFL sources, IIL is committed to producing its products at affordable prices, which is consistent with KFL's goal of providing significant support to farmers.

This collaboration has the potential to transform Kerala's dairy industry by providing farmers with innovative solutions to increase productivity and contribute to the sector's overall growth. As the trials progress, KFL and IIL hope to pave the way for sustainable and economically viable practices in the dairy farming community.

Centre's AHIDF Scheme to Boost Dairy Sector with INR 29,610 Crore Investment

Parshottam Rupala, Union Minister of Fisheries, Animal Husbandry, and Dairy, has launched the INR 29,610 crore realigned Animal Husbandry Infrastructure Development Fund (AHIDF) Scheme. The minister stated that the scheme, which began during the Covid period, has been realigned and will be implemented for an additional three years. The industry, farmers' producers organisations (FPOs), and dairy cooperatives will benefit

from the scheme, which has been doubled from INR 15,000 crore to INR 29,610 crore.

On February 1, the Union Cabinet approved the realignment of the AHIDF under the Infrastructure Development Fund with an outlay of INR 29,610 crore, nearly doubling the INR 15,000 crore allocated under the Dairy Infrastructure Development Fund, which has been subsumed in the scheme.

Dairy cooperatives will now benefit from a 3% interest subvention under AHIDF, rather than the 2.5 percent received under DIF. The Dairy Cooperative will also receive credit guarantee support from the AHIDF Credit Guarantee Fund. The scheme will assist dairy cooperatives in upgrading their processing infrastructure with modern processing technology. The minister stated that this will benefit many of the country's milk producers.

The industry associations, NDDB, dairy cooperatives, FPO, and northeastern state officials attended the inaugural event. During the interaction, ABIS Export Private Limited, one of the eligible entities, praised the scheme's role in building infrastructure in the livestock sector and stated that they will invest INR 2,000 crore in infrastructure development.

The scheme's highlights include credit guarantees covering up to 25% of term loans. There is no loan amount limit. Loan up to 90% of the estimated or actual project cost. Integrating with capital subsidy schemes from other ministries or state-level programs.

Ease of application through the online portal www.ahidf.udaymimitra.in.

Kerala Adopts Gujarat Model to Train Kudumbashree Cowherds for Dairy Development

Kerala will train Kudumbashree cowherds following the Gujarat model. Pasushakis refer to Kudumbashree members who have received basic cattle management training. The Animal Husbandry Department provides cow farmers with high-level training to expand cow rearing in rural areas and increase milk production.

The training will be conducted by 40 veterinary doctors who have been trained as 'Master Trainers' by the National Dairy Development Board in Gujarat. The Department of Animal Welfare and Kudumbashree are working together to implement the project, which is being funded by the Central Government. 2,000 cowherds will be trained and appointed at the panchayat level.

Farmers will receive awareness and technical training through rationing, animal immunisation, animal calving, farm loans from the central and state governments, and technical training. The cowherds will also be trained on how to prepare nutritious food from the raw materials available at each farmer's home, using the e-Gopala app. They will provide animal welfare services to farmers very quickly.

Banas Dairy Set to Introduce AI and Breed

Improvement Programs in Purvanchal

Banas Dairy, set to be inaugurated by Prime Minister Narendra Modi during his visit to Varanasi, aims to develop the dairy sector in Purvanchal, eastern Uttar Pradesh.

The dairy has adopted scientific methods in animal husbandry from the semi-arid region of Banaskantha, Gujarat, and plans to replicate these results in Uttar Pradesh. Banas Dairy has initiated artificial insemination (AI) facilities in seven villages and established the Banas Bovine Breeding and Research Centre (BBBRC), which prepares embryos for local breeds of Gangatiri, Red Sahiwal, and Red Sindhi.

The dairy has distributed 150 high-quality Gir cows to farmers and milk producers as part of its breed improvement program. To enhance awareness and knowledge of animal husbandry among farmers, Banas Dairy organized a six-day classroom and field training for over 150 local farmers from Purvanchal at Palanpur in Banaskantha. Additionally, 22 AI workers have been selected to provide AI services to all 250 villages it is associated with.

A veterinary center has been established in Mohansarai, treating over 400 animals and soon 1,200 more. Animal healthcare services have been initiated in 241 villages, and veterinarians will regularly visit designated villages and stay connected with farmers through a route system. Banas Dairy will conduct awareness campaigns and meetings for farmers, covering topics such as scientific methods of animal husbandry, feed quantity, quality, and central government assistance schemes.

Madhya Pradesh Government to Offer INR 5 Per Litre Incentive to Milk-Producing Farmers

The Madhya Pradesh government plans to provide an incentive of INR 5 per litre to milk-producing farmers in the state, aiming to boost milk production and support farmers. This initiative will cost the government INR 200 crore annually and will be directly transferred to the farmers' bank accounts. The government, led by Chief Minister Mohan Yadav, aims to streamline milk collection and ensure that farmers benefit from the scheme. The proposal has received approval from the finance department and is expected to be presented in a cabinet meeting before the upcoming Lok Sabha elections.

The Dugdh Sangh in Madhya Pradesh currently purchases 10 lakh litres of milk daily from farmers through cooperative societies. Minister of State for animal husbandry and dairy, Lakhan Patel, mentioned that the decision on providing the incentive is under consideration and will be finalized soon. The government is also exploring the possibility of implementing an Amul-like model in Gujarat to improve milk collection and support dairy farmers in Madhya Pradesh.

In a meeting in Ahmedabad, Chief Minister Mohan Yadav discussed collaborating with Sanchi and Amul to enhance milk procurement from Madhya Pradesh's milk producers and ensure fair prices for dairy farmers. The focus is on strengthening milk federations and

unions in both states to improve milk collection, quality control, processing, marketing, and capacity building. The government aims to support dairy farmers through welfare schemes and training programs to enhance the cooperative system and benefit milk producers.

GCOMMF Golden Jubilee: PM Modi Applauds Amul's Contribution to Dairy Sector Growth

Prime Minister Narendra Modi attended the Golden Jubilee celebration of the Gujarat Cooperative Milk Marketing Federation (GCOMMF) in Ahmedabad, India, where he praised the resilience and entrepreneurial spirit of cooperatives, particularly highlighting the success of Amul as one of the strongest dairy brands globally. He emphasized the role of farmers in making Amul a symbol of trust, development, public participation, empowerment, and technological advancements. Modi noted Amul's achievements, including its extensive network of milk cooperative committees, farmers, and daily milk processing capacity, as well as its significant export presence in over 50 countries.

Modi also highlighted the significant growth of the Indian dairy sector, with a substantial increase in milk production and per capita availability over the past decade. He underscored the crucial role of women in the dairy sector, noting that up to 70% of the sector is led by women and their turnover

surpasses that of wheat, rice, and sugarcane combined. The Prime Minister discussed initiatives such as the Mudra Yojana to support women entrepreneurs and efforts to empower women in dairy cooperatives through direct income disbursement and financial assistance programs.

The Prime Minister emphasized the importance of strengthening the rural economy, particularly focusing on supporting small farmers, expanding animal husbandry, promoting fisheries and honey-bee keeping, and providing modernized seeds to cope with climate change. He highlighted initiatives like the National Gokul Mission to enhance dairy cattle species and improve the livelihoods of farmers. Modi also discussed the government's efforts to address water scarcity through water conservation measures and the transformative impact of projects like the Narmada water distribution system on rural economies.

The government is committed to empowering small-scale farmers through modern technology, efficient irrigation methods, and initiatives like the Gobar Dhan Yojana for biogas production. Modi emphasized the importance of cooperative societies in driving economic growth, with the establishment of a separate Ministry of Cooperation and investments in livestock infrastructure and modernizing milk plants. The government is also promoting manufacturing through the 'Made in India' initiative, providing incentives to cooperative societies to participate in domestic manufacturing.

Prime Minister Modi expressed his vision of a developed India (Viksit Bharat) and highlighted the role of Amul in meeting the nutritional needs of the growing population.

He commended Amul's target to double its processing capacity in the next five years, reflecting his belief in collective efforts (Sabka Prayas) towards national development. Overall, Modi's address at the GCMMF event underscored the government's commitment to supporting the dairy sector, empowering farmers, promoting cooperative societies, and driving rural economic growth through various initiatives and investments.

Governor of Gujarat, Shri Acharya Devvrat, Chief Minister of Gujarat, Shri Bhupendra Patel, Union Minister of State for Animal Husbandry, Dairying and Fisheries of India, Shri Parshottam Rupala, and Chairman of Gujarat Cooperative Milk Marketing Federation, Shri Shamal B Patel were present on the occasion among others. More than 1.25 lakh farmers were part of the celebrations.

Himachal Pradesh's Milk Cess Funds Rural Development and Cattle Rearing

The Himachal Pradesh government has imposed a milk cess of INR 10 per bottle sold in its budget for 2023-24, which has significantly impacted the state's coffers.

According to data from the state Assembly, the state government is expected to earn a revenue of INR 100 crore from this during the current financial year. Chief Minister Sukhvinder Singh Sukhu, who is behind the move and aiming for a major shift on the cattle economy in the state, said that more liquor sold in the state is showing an impressive outcome on the state's revenue generation efforts. The money generated from the milk

cess will be used in creating better infrastructure for milk production and also higher income for the cattle rearers, which will help the rural economy see a boost.

The state has collected INR 90.78 crore through Milk Cess till January 15, 2024. The highest share of collection has come from the district of Kangra, the state's biggest district bordering Punjab. The milk cess collections from Mandi have been equally impressive at INR 9.31 crore, while Kullu and Lahaul-Spiti together posted a return of INR 7.28 crore. Una and Kinnaur returned INR 5.72 crore and 1.28 crore respectively.

In the next budget, the government has given a substantial hike in milk prices to farmers as a step to raise their income. The price of cow milk has been raised from INR 38 to 45 per liter in case of cow milk and INR 47 to 55 for buffalo milk from April 1, 2024. The government has also proposed setting up a 1.5 Lakh litre per day capacity fully automated milk and milk products plant at Dhagwar in Kangra district of lower Himachal region.

Mahananda Dairy's Board Resigns, NDDB to Lead Revival Efforts amidst Opposition

The board of Mahananda Dairy, the state's apex body for cooperative milk producers in districts and tehsils, has resigned, allowing the National Dairy Development Board (NDDB) to take over. This move has faced opposition from Shiv Sena MP Sanjay Raut and NCP (Sharad Pawar group) Jitendra Awhad. The state government will need to approve a soft loan of INR 253.6 crore for the revival, which needs

clearance from the state cabinet.

The opposition has criticized the move as a conspiracy by the Shinde government to send Maharashtra's project to Gujarat. The state's milk supply is dominated by private players, with milk cooperatives controlling 30% of the supply and private suppliers controlling 70%. The Mahananda Dairy is the apex body of the district and taluka cooperative milk unions.

Former chairman of Mahanand Dairy Rajesh Parjane argues that the body is not heading for a permanent takeover by the NDDDB but only a temporary one to help revive the outfit. He also points out that in the case of a Jalgaon milk cooperative, the NDDDB took over the body and then revived it and returned it to the cooperative fold within nine years.

Akshayakalpa Organic Joins Hands with BII and Samunnati to Provide Financing for Smallholder Dairy Farmers

Akshayakalpa Organic has signed a Memorandum of Understanding (MoU) with British International Investment plc (BII) and Samunnati Financial Intermediation & Services Private Limited (Samunnati) to provide financing to up to 1,500 smallholder dairy farmers in Karnataka, Tamil Nadu, and Telangana. The partnership will extend guarantees for new and existing smallholder farmers, who are typically outside the formal lending ecosystem, to enable them to access formal financing to scale up their organic dairy business. This

commitment is made through BII's £200 million Climate Innovation Facility, announced by the UK Government at COP26 to provide finance for pioneering climate solutions in developing countries.

The MoU underscores Akshayakalpa's commitment to fostering sustainable agricultural practices and empowering local farming communities. The company will leverage this partnership to enhance the betterment of farmers through the provision of infrastructure, advanced technologies, and comprehensive support to the farmers in its network. Transitioning to organic and sustainable farming practices will increase milk production per cow by 2.3 times and increase crop productivity per acre while obtaining organic certification. Transitioning to this organic model is expected to decrease greenhouse gas emissions per litre of milk produced by its farmers and contribute to climate change mitigation and sustainability of the dairy industry in India.

Shashi Kumar, CEO & co-founder of Akshayakalpa Organic, said that this association with British International Investment and Samunnati's Agri Commerce and Finance Solutions marks a significant milestone for the company, as it validates its mission to promote sustainable and organic farming and amplifies its ability to make a positive impact on the lives of its dedicated farmers.

New Dairy Complex to Boost Cooperative Development in Uttar Pradesh

Banas Kasi Sankul, a newly

constructed dairy complex in Uttar Pradesh, is expected to become a cornerstone of development for the region. The complex will also write a new chapter for cooperatives, providing training in scientific methods of animal husbandry and dairy industry to farmers in eastern Uttar Pradesh. This new model of cooperation will enhance the prosperity of farmers in the region.

The dairy cooperative's business in Uttar Pradesh is spread across approximately 4,600 villages in 48 districts, including seven districts in Eastern Uttar Pradesh. By next year, the expansion of milk collection is expected to reach 7,000 villages in 70 districts, including the addition of 15 new districts in eastern UP. There are already around 1,300 dairy cooperatives established in eastern UP, with more than 600 currently operational. By the end of this year, the number of dairy cooperatives is expected to increase to 2,600.

Banas Dairy is working with around 3,50,000 milk producers in UP and is expected to add an additional 2,00,000 milk-producer families in the state by collaborating with farmers in villages. By March 2025, the current daily milk collection in UP is expected to increase to 2.5 million litres, with 9,00,000 litres coming daily from Varanasi and eastern UP alone.

In Purvanchal, Banas Dairy has a well-established milk collection network spanning seven districts, operating through 1,346 cooperatives, of which 618 are actively collecting milk from over 78,000 registered dairy-producing families. By the end of this year, the program will expand to encompass 22 districts, involving the formation of 2,600 dairy cooperatives and registration of 1,00,000 dairy-producing families. Banas Dairy plans to establish 13 new milk

chilling centers and increase daily milk procurement to seven lakh liters, resulting in an ambitious target of collecting 31 crore litres of milk annually from the region.

Tata Motors' Dairy Development Initiative Transforming Lives in Sanand

Tata Motors, along with the Ahmedabad District Co-operative Milk Producers Union Limited and the Gujarat Dairy Development Board, has initiated a 'White Revolution' in Sanand, India. The initiative has led to socio-economic transformation for beneficiaries, improving access to education and healthcare facilities and elevating their status within the community. Over 1600 women from remote regions of Sanand have brought about significant changes in the social and economic conditions of rural Gujarat.

India, the world's largest milk producer, has a low per capita yield, and dairy farming is traditionally led by women from the Bharwar and Koli Patel communities in Sanand. Tata Motors introduced these women to cooperatives and technology to enhance their dairy output and income. This strategic intervention led to the introduction of Automated Milk Collection Systems and Bulk Milk Chilling Units, transforming the lives of over 4496 cooperative members across 32 villages. Tata Motors has also played a pivotal role in imparting essential training, instilling hope and promoting sustainability within these communities.

Increased income has empowered these women to send their children to school and aspire for better

opportunities. They have also improved maternal and child mortality rates by focusing on antenatal care. Tata Motors' dairy development initiative has significantly improved the quality of life in these communities.

Tata Motors' CSR Head, Mr. Vinod Kulkarni, emphasizes their commitment to fostering hope and transformation, and their partnership with the Ahmedabad District Co-operative Milk Producers Union Limited and Gujarat Dairy Development Board is instrumental in propelling these transformative endeavors.

Lactalis India Implements NewgenONE for Centralized Invoice Processing

Lactalis India is utilizing Newgen's Invoice Processing Solution, built on NewgenONE, a low-code platform, to centralize its invoice processing and establish standardized practices. The solution provides finance and account managers with real-time metrics for vendor payments, intelligent user allocation, automatic case routing, and straight-through processing of transactions for faster turnaround time. A gamified experience motivates and improves the performance of all business users.

Lactalis India entered the Indian market in 2014 through the acquisition of Thirumala Milk Products Pvt. Ltd, and expanded its presence by acquiring other leading dairy companies in India, including Anik Industries and Prabhat Dairy in 2016 and 2019. The low-code-based digital transformation platform has eliminated manual intervention in

the invoice management process, bringing Lactalis closer to achieving end-to-end digitization and process standardization. The NewgenONE platform is instrumental in delivering a completely digitized invoice management process with quick, secure, and easy access to information.

Lactalis India is a subsidiary of GROUPE LACTALIS, a global dairy group that provides a wide range of dairy products for retail and food service customers.

Newgen Software is a low-code application platform used by successful enterprises globally to develop and deploy complex, content-driven, and customer-engaging business applications on the cloud.

Tetra Pak to Showcase Innovation and Sustainability at Dairy Industry Conference

Tetra Pak, a prominent food processing and packaging solutions company, is celebrating its 36-year legacy in India by participating in the Dairy Industry Conference's golden jubilee edition in Hyderabad. The conference, themed 'Indian Dairying: Innovation and Entrepreneurship', will showcase Tetra Pak's innovative solutions that have significantly influenced India's dairy industry over the years. Tetra Pak has been instrumental in introducing both global and local solutions that have enabled dairy businesses to innovate, diversify their product offerings, enhance operational efficiencies, and meet

environmental sustainability goals. At the event, Tetra Pak will highlight a wide range of product categories, including White Milk, Cheese, Yoghurt, and Value-Added Dairy products, as well as showcase its locally manufactured processing equipment and digital automation capabilities. The company's focus on sustainability will also be emphasized to inspire ideas for reducing carbon footprints in the dairy value chain.

Tetra Pak's commitment to 'Make in India' aligns with its goal of supporting dairy entrepreneurship and fostering new startups through innovative solutions and data-driven technologies. By championing a robust dairy infrastructure, Tetra Pak aims to meet the evolving needs of consumers across India while upholding its vision of ensuring food safety and availability worldwide. With a global presence in over 160 countries and a workforce of more than 25,000 employees, Tetra Pak emphasizes responsible industry leadership and sustainable business practices.

NDDB Aims to Boost India's Milk Production to 30% of Global Output by 2030

India's National Dairy Development Board (NDDB) Chairman and Managing Director, Meenesh Shah, has announced plans to increase India's milk production to 30% of the total world production by 2030. The country is currently the largest milk producer in the world, producing 24% of the world's milk production, which contributes 4% to the nation's GDP. To achieve this,

the NDDB is working on increasing animal productivity, genetics, genomic chip, and health of animals. The government has also introduced a free vaccination program for FMD and Brucellosis, two critical diseases for farmers.

The NDDB is also working with the Government of India's Rashtriya Gokul Mission programme to improve animal breeding. They are also working on solar rooftops in dairy cooperative societies in all villages, bulk milk coolers, and automatic milk collection systems powered by solar energy. The NDDB is actively involved in working with KfW or Kreditanstalt für Wiederaufbau, a German state-owned investment and development bank, to provide grants and subsidised loans for promoting solar energy use in dairy plants.

A joint venture company between the Assam government and NDDB has been formed to work for the holistic development of the dairy sector in the state. The plan is approved by the cabinet of Assam, with a target of procuring 10 lakh litres of milk in Assam and processing it. The NDDB has been working with the West Assam Cooperative Milk Union (WAMUL) since 2008.

Assam Chief Minister Himanta Biswa Sarma is scheduled to inaugurate a new dairy plant in Purabi Dairy, which will increase the processing plan from 60,000 litres of milk per day to 1.5 lakh litres per day. The new plant will have the capacity to produce 10 MT of curd per day, 10,000 litres of lassi per day, and 2 tonnes of paneer per day. Additionally, an ice cream plant will be set up in the new processing plant, producing 2000 litres of ice-cream.

Assam CM Inaugurates Purabi Dairy's Expanded Plant

Assam Chief Minister Dr. Himanta Biswa Sarma inaugurated the expanded dairy plant of West Assam Milk Producers' Cooperative Union Ltd., Purabi Dairy, in Panjabari, Guwahati. The plant, which has a capacity of 1.5 lakh liters, will bring significant benefits to thousands of dairy farmers by enhancing market access. The Assam Government's joint venture with NDDB marked its first commercial product launch with the inauguration.

Dr. Sarma announced an additional INR 5 benefit per liter of milk for organized sector dairy farmers starting next year, aiming to further support farmers already implementing various yield-enhancing measures. WAMUL decided to raise the basic milk procurement price by INR 1 per liter, effective from March 1, 2024. The government pledged funds for the development of milk processing units in Jorhat and Dibrugarh, alongside the new plant in Guwahati.

The Purabi Dairy processing plant significantly contributes to the production of various dairy products, with sales turnover exceeding INR 200 crore in the fiscal year ending March 2023. The plant's upgraded facilities, including a solar thermal system, aim to increase energy efficiency and reduce costs. The collaboration between the Government of Assam and NDDB has been instrumental in advancing dairy development in the state, with various schemes supporting dairy sector growth.

Uttar Pradesh to Witness Rs 9,000 Crore Investments in Dairy Sector

Uttar Pradesh, the highest milk producer in the country, is set to receive investments of INR 9,000 crore in dairy sector projects. The state, which emerged as the highest milk producer in 2022-23, is struggling with low cattle milk production capacity and has significant potential to enhance total production. The projects will also create employment opportunities within the state.

Prime Minister Narendra Modi inaugurated the Banas Kashi Complex in Varanasi, which will provide direct employment to 3,000 people and indirect employment to around 1 lakh people, particularly benefiting farmers in 1,346 villages of Purvanchal. Dairy producers will receive a percentage of the company's dividend at the end of the year.

Banaskantha District Cooperative Milk Producers' Union Ltd plans to set up a dairy unit in Baghpat with an initial milk handling capacity of 10 lakh litre per day, creating 4,000 employment opportunities. CP Milk and Food Products Private Ltd plans to expand with an additional investment of INR 300 crore in Barabanki, generating employment for 90 people.

Smart Grid Pvt Ltd will establish a unit in Gonda, opening up 3,000 employment opportunities. Rinku Dairy is setting up an enterprise in Bareilly with an investment of INR 490 crore and another unit in Shahjahanpur, employing more than 1,300 people.

Navigating Regulations: Plant-Based Dairy Companies Modify Labels in India

Plant-based dairy brands in India are refraining from using traditional dairy terms on their product labels due to a ban announced by the Food Safety and Standards Authority India (FSSAI) in 2020 and 2021. This ban prohibited terms like 'milk' and 'cheese' for plant-based products, leading companies to modify their labels. The ban was temporarily stayed by the Delhi High Court in 2021 after intervention from five companies, including Drums Food International. However, the industry still lacks clarity on the regulations, prompting companies to comply with the initial order by using terms like 'beverage' instead of 'milk' on their labels.

Various plant-based dairy companies in India, such as Hershey's SOFIT and start-up Alt Co, have shifted to terms like 'soya-based drink' and 'Mlk' on their product labels to emphasize their dairy-free and plant-based nature. This move aligns with FSSAI's suggestion of using nomenclature that accurately reflects the products' composition. The plant-based industry in India is closely monitoring developments, with the hope for clearer regulations in the future.

In a positive development for the plant-based industry, Oatly in the United Kingdom recently won a case against Dairy UK, allowing it to continue using the term 'milk' in its marketing materials as part of a slogan rather than a product descriptor. This victory provides a

glimmer of hope for plant-based brands facing similar challenges in labeling and marketing their products.

MAFSU Proposes to Establish India's First Wildlife One Health Centre

The Maharashtra Animal and Fisheries Sciences University (MAFSU), Nagpur, has proposed the Wildlife One Health Centre to the state government. It will be an extension of the existing Wildlife Research and Training Centre (WRTC) in Gorewada.

Dr. Shirish Upadhye, director of instruction and dean (veterinary), MAFSU, stated that if the government approves the ₹30 crore project, it will be the country's only institution dedicated to Wildlife One Health. The one health concept concerns the relationship between human and animal health. Currently, the majority of One Health institutes and research centres focus on domestic animals. Dr. Upadhye stated that our proposed Wildlife One Health Centre will deal with wild animals and diseases caused by their interference with human habitat.

He pointed out that increased human-animal conflict must have resulted in many new health complications for wild animals as well. The centre will conduct research into both human and wildlife health. MAFSU has submitted information on the equipment required, temporary staff for five years, and other requirements. The infrastructure at Gorewada will be used for the centre, and after five years, the available staff at WRTC in Gorewada will manage it.

Dr Niteen Patil, MAFSU's vice-chancellor, stated that the university is working on a number of important projects. They are also the first veterinary university to implement the New Education Policy (NEP) and credit-based system at the postgraduate level.

Dr. Anil Bhikane, Director of Extension, stated that construction of the ICMR-sponsored One Health lab is in full swing. Following Prime Minister Narendra Modi's formal bhumi-pujan last year, the BSL-4 level lab is being built here. Underground construction is progressing quickly. Construction will be completed within the specified time frame.

GADVASU's Centre for One Health Launches 21-Day Winter School Programme on Applied Concepts

The Centre for One Health at Guru Angad Dev Veterinary and Animal Sciences University has launched a 21-day winter school programme on Applied Concepts in One Health, sponsored by the Indian Council for Agricultural Research (ICAR), to address zoonoses, antimicrobial resistance, and food safety.

JPS Gill, the university's director of research, welcomed the participants, along with the guests, Inderjeet Singh, vice-chancellor; Sindura Ganapathy, fellow principal scientific advisor, government of India; and Sandeep Puri, principal of Dayanand Medical College & Hospital, Ludhiana.

Gill kicked off the event by providing a comprehensive overview of the Centre for One Health's activities, emphasising its critical role

in addressing complex issues of human, animal, and environmental health. A total of 25 scientists from various organisations across India have enthusiastically joined this training programme, eager to delve into the multifaceted aspects of the One Health approach.

Inderjeet Singh emphasised the changing role of "One Health" in addressing emerging public health challenges. The V-C and other dignitaries released the training compendium, the Centre for One Health's activity handbook, and a pocket guide to foot-and-mouth disease in cattle, demonstrating their commitment to providing participants with comprehensive resources.

Ganapathy emphasised the importance of collaboration and teamwork in addressing food safety, zoonotic diseases, and antimicrobial resistance. He highlighted the central role in coordinating efforts across national, state, and local health agencies to improve human and animal health using the "One Health" approach. Puri emphasised the enormous challenge posed by antibiotic resistance and advocated for community awareness campaigns to reduce its impact. He emphasised the importance of strengthening collaborations between human and animal health professionals in combating endemic and emerging zoonoses.

JS Bedi, director of the Centre for One Health, thanked all of the dignitaries, participants, faculty, and university officers who attended the event. The event ended on a positive note, with participants eager to apply their newly acquired knowledge and skills to meaningfully promote holistic health and well-being in society.

WOAH Turns 100: A Century of Global Efforts in Animal Health and Welfare

The World Organisation for Animal Health (WOAH), founded as the Office International des Epizooties (OIE), has celebrated its 100th anniversary on January 25, marking the organization's commitment to animal health and welfare worldwide. WOAH began as a united effort by nations to fight rinderpest, a contagious viral disease affecting cloven-hoofed animals, in the early 1920s. The disease caused devastating losses to animal populations, primarily cattle and buffalo, and severely disrupted economies across Africa, Europe, and Asia.

WOAH has missions of ensuring transparency in the global animal disease situation, safeguarding world trade by publishing health standards for international trade of animals and animal products, and encouraging international solidarity in the control of animal diseases, particularly by improving the legal framework and resources of national veterinary services. The organization, headquartered in Paris, has since grown to 183 member countries and has undergone a comprehensive rebranding campaign in May 2022.

The early 1900s saw a significant expansion in the international trade of live animals and their products. In 1920, rinderpest unexpectedly appeared in Belgium for the first time due to the shipment of infected zebu cattle from India to Brazil via Antwerp. This led to a greater understanding among countries that there was a need to fight animal diseases at a global level. At the International

Conference on Epizootic Diseases of Domestic Animals in May 1921, representatives from 43 countries called for the establishment of an international organization to coordinate responses against infectious animal diseases.

On January 25, 1924, 28 nations signed an international agreement that created the Office International des Epizooties. By 1927, the agreement had been ratified by 24 countries, and later that year, the first General Session of the new organization was held. A year later, the organization's first conference met in Geneva, Switzerland, where a committee of eight experts developed a document that established the basis for an international sanitary policy.

WOAH continued to establish itself as a reference organization by partnering with groups such as the International Federation for Animal Health (IFAH) and reaching agreements with the Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO) in the 1950s and 1960s. In 1994, an international treaty was signed that established the World Trade Organization (WTO), which included the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

WOAH Terrestrial and Aquatic Animal Health Codes serve as a basis for the organization's authority, while its manuals provide a standardized approach to the diagnosis of diseases listed in the codes. Today, WOAHS faces more dangers to address, including threats posed by avian influenza, African swine fever, antimicrobial resistance, and the sustainability of animal production. To help address these concerns, WOAHS tracks the incidence of reportable diseases

and collects and analyzes the latest scientific information on animal disease detection and control.

New Zealand Startup Raises \$5 Million to Scale up Sustainable Protein Production

New Zealand startup Miruku has raised \$5 million in a pre-series A round to support its B2B model, bringing its total investment to \$7.4 million. Motion Capital led the round, with participation from Movac, NZVC, Cultivate Ventures, and Icehouse Ventures. The funding will advance Miruku's "dairy seed system" and conduct trials for its initial crop cultivation with Australian farming partners, including the Commonwealth Scientific and Industrial Research Organization (CSIRO).

Miruku's approach aims to meet global dairy protein demand while reducing environmental impact and supporting biodiversity, climate resilience, and sustainable agriculture efforts. The company argues that molecular farming is more efficient because it can be easily scaled and incorporated into existing agricultural practices. The end proteins are not genetically modified, allowing faster approvals.

Motion Capital's Managing Partner, Laclan Nixon, expressed support for Miruku's molecular farming technology, which enables the production of bio-similar dairy proteins and fats at a significantly cheaper cost and with less environmental impact than traditional animal agriculture. Miruku was founded in 2020 to become a supplier of novel and sustainable proteins for producing food alternatives to animal

products.

Tetra Pak Leads Sustainability Efforts in China's Dairy Sector with Energy-Efficient Solutions

China's dairy industry, the world's fourth largest, is embracing automation and innovation to become more efficient and sustainable. Food packaging and equipment giant Tetra Pak is helping drive this change by implementing a program for reducing energy, waste, and water usage associated with its equipment. The company has set targets to help customers' facilities halve their greenhouse gas emissions, waste generation, and water usage by 2030, compared to levels in the baseline year of 2019. Tetra Pak has recently launched a milk separator that uses 40% less energy than semi-open separators, while the latest milk sterilisation equipment has a 38% smaller carbon footprint and uses 41% less water.

Tetra Pak posted revenue of €12.5 billion (US\$11.7 billion) in 2022, with 36% coming from Asia-Pacific. Its main food processing equipment factory in China is located in Kunshan, Jiangsu province. One such facility in the Ningxia Hui autonomous region delivered a 67% improvement in packaging efficiency, a 43% energy consumption reduction, and a 19% total production cost reduction. The company's owner, China Mengniu Dairy, was driven by a desire to rank among the most cost-efficient producers in the industry globally, besides posting

sustainability benefits.

The company distributed 193 billion aseptic cartons in 2022, with 8.8 billion packages and 11.9 billion caps using plant-based plastic, 24% and 12% more than in 2021, respectively. Some 131,000 tonnes of carbon emissions were avoided through the replacement of fossil plastic. Tetra Pak aims to invest €100 million annually in the next five to 10 years to raise the paper content to 80%, remove metal usage, and introduce plant-based plastic. In doing so, the renewable content of its output could reach 90% from 70%, and the carbon footprint could be cut by a third.

The liquid food packaging and processing company, known more for its aseptic cartons that preserve milk and juices, is also playing a role in China's food sufficiency drive. Brand said his company plans to tap the growing market demand for alternative protein such as plant-based or laboratory-cultivated food by supplying equipment such as bioreactors to help Chinese companies manufacture products with lower greenhouse gas footprints than meat.

Feeding Chili pepper plant extract Improves Milk Production in Transition and Early Lactation Period in Dairy Cows

A study published in the *Journal of Animal Feed Science and Technology* explored the effects of feeding rumen-protected Capsicum oleoresin (CAP) to dairy cows during the transition period and early lactation. CAP, derived from chili

pepper plants, contains bioactive compounds that can influence energy metabolism in dairy cows. Encapsulation technologies have been developed to facilitate the use of CAP in animal nutrition.

The research involved 24 healthy Holstein cows enrolled four weeks before the expected calving date. The study found that feeding rumen-protected CAP during the transition period and early lactation increased fat-corrected milk yield, improved milk fat yield, and enhanced feed efficiency in dairy cows. The authors noted that there is limited data on the supplementation of encapsulated Capsicum oleoresin during this critical period for dairy cows, with only one previous study by Oh et al. (2021) exploring this area.

The researchers observed that dry matter intake and related dietary variables were not significantly affected by the diets during the pre- or post-partum periods. There were no differences in the digestibility of dry matter, organic matter, or crude protein between the groups during these periods. Serum metabolite concentrations were similar between the groups in both pre- and post-partum periods.

Milk yield was found to be higher in cows fed CAP compared to the control group. Additionally, fat-corrected milk yield and milk fat yield were significantly greater in cows fed CAP. The study concluded that feeding rumen-protected Capsicum oleoresin at a dosage of 100 mg/day during the transition period and early lactation improved fat-corrected milk yield, milk fat yield, and feed efficiency without affecting total-tract apparent digestibility of dry matter and markers of body fat mobilization during the post-partum period.

Source: *Journal of Animal Feed*

Science and Technology

Title: Feeding rumen-protected Capsicum oleoresin to dairy cows during the transition period and early lactation: Effects on nutrient digestibility, blood metabolites, and performance

Authors: FP Rennó et al

PIPA LLC and Dairy Management Inc. Teams Up to Harness AI for Dairy Research

PIPA LLC, an AI leader in Nutrition and Ingredient Innovation, has partnered with Dairy Management Inc. (DMI), a national dairy research and promotion organization, to explore the health benefits of dairy products. Through the use of AI application LEAP™, DMI aims to identify new research and development opportunities in milk and validate product claims using scientific evidence. This partnership is seen as a groundbreaking development for the U.S. dairy industry, integrating AI into dairy research and innovation efforts.

Barbara O'Brien, President and CEO of DMI, highlighted the significance of this partnership in leveraging AI to uncover health and wellness opportunities within the dairy industry. Eric Hamborg, PIPA's Chief Commercial Officer, expressed excitement about the collaboration, emphasizing the potential for discovering new health benefits in dairy products with the help of AI technology.

PIPA is focused on using AI to accelerate science and innovation in the nutrition and ingredient industries, aiming to improve productivity and decrease time in research and development

processes. Their AI apps, LEAP and Ingredient Profiler, along with in-house pipelines, offer solutions to advance scientific breakthroughs and drive innovation opportunities for partners.

DMI, funded by American dairy farmers and importers, works to increase trust and sales in the dairy category through research, education, and innovation. The organization manages various entities such as the National Dairy Council and the American Dairy Association, and has founded initiatives like the U.S. Dairy Export Council and the Innovation Center for U.S. Dairy.

The partnership between PIPA and DMI signifies a collaborative effort to leverage AI technology in exploring the health benefits of dairy products and driving innovation in the dairy industry.

CH4 Global Recognized as Top GreenTech Company by TIME Magazine

TIME magazine named CH4 Global one of America's Top GreenTech Companies for its innovative seaweed-based cattle feed supplement, which can reduce enteric methane emissions by up to 90%. The company announced this today.

TIME and Statista created the inaugural GreenTech rankings, which evaluated over 4,600 companies based on their positive environmental impact, financial strength, and innovative ability. Finally, CH4 Global was named to the prestigious list alongside 250 other companies headquartered in the United States.

CH4 Global recently completed commercial deliveries of its Methane Tamer™ cattle feed supplement, which is currently being fed to cattle on a feedlot in South Australia. In January, the company began construction on the world's first commercial-scale facility for growing the Asparagopsis seaweed, which is the product's key ingredient. CH4 Global is urging Congress to pass the Innovative FEED Act, which would simplify the process of introducing Methane Tamer™ to the US market.

"This recognition from TIME magazine is a landmark achievement for CH4 Global and a strong validation of our commitment to pioneering sustainable solutions," said Steve Meller, PhD, chief executive officer of CH4 Global. "Our team is proud to lead the charge in reducing methane emissions and contributing to the global effort to mitigate climate change."

Methane, a powerful greenhouse gas produced naturally in cows' bellies and released through burping, is over 80 times more potent than CO2 in trapping heat in the atmosphere over a 20-year period, making it a critical target in efforts to combat global warming. Agriculture is the largest human-made source of methane emissions (more than the oil and gas industry), and cows are the primary source of methane in agriculture.

About CH4 Global

CH4 Global, founded in 2018, is on a mission to bend the climate curve through strategic partnerships around the world. Led by a world-class team of senior business builders, scientists, and entrepreneurs, the company creates market-

disruptive products that allow the food industry value chain to significantly reduce GHG emissions. The company's first innovation, Methane Tamer™ feed additives for feedlot cattle, uses Asparagopsis seaweed to reduce enteric methane emissions by up to 90%. CH4 Global is headquartered in Henderson, Nevada, and has subsidiaries in Australia and New Zealand.

EASY BIO Acquires Devenish Nutrition LLC to Strengthen Feed Additive Business in North America

South Korea-based EASY BIO has acquired a 100% stake in Devenish Nutrition LLC, a US corporation specializing in feed additives, to strengthen its feed additive and premix business in North America. The acquisition was made by EASY BIO USA, the former's U.S. subsidiary, from its parent company, Devenish Holdings Ltd. Devenish Nutrition has been operating businesses such as feed additives and premixes since its launch in 1998. The company has five production plants and six research facilities in the United States and Mexico. Over 30 of its 200-plus employees are Ph.D.-level personnel, which has helped the company establish a firm position in the North American livestock market through value-adding products and services based on high-quality technology and research capabilities.

EASY BIO has led the technology in alternative antibiotic solutions, cost-saving solutions, and animal

gut health solutions under the banner of "guidance for sustainable animal industry." It has chalked up rapid growth mainly through its subsidiary Pathway Intermediates Ltd. in the United Kingdom in global markets such as the United States, Canada, Spain, China, Vietnam, and Thailand. It has also supplied a host of animal nutrition solutions to approximately 50 countries worldwide.

The acquisition is based on the belief that Devenish Nutrition's management philosophy, which has developed and supplied various technology-based solutions for customer success and sustainable growth, is in line with EASY BIO's mission, "the value-added solution of feeding tomorrow," to provide valuable solutions to customers for sustainable livestock. The solutions, technologies, and sales power of the various portfolios of the two companies are expected to enable mutual strategic supplementation and synergy creation in the future, beefing up competitiveness in North America and enabling customer satisfaction through more diverse and differentiated solutions in the global markets.

NOVUS Expands Canadian Presence Through Partnership with Halchemix

Halchemix will become the exclusive distributor for NOVUS' MINTREX® Bis-Chelated Trace Minerals and MHA® Feed Additive, as well as the sales agent for ALIMET® Feed Additive starting March 1, 2024. This partnership aims to expand NOVUS' reach in Canada's agriculture industry,

particularly among poultry, swine, and dairy producers.

The decision to work with Halchemix was driven by the need to efficiently serve customers across Canada's vast geography. While Halchemix will handle sales and distribution, NOVUS' technical services team will continue to support customers and offer assessments through the C.O.W.S.® Program. Additionally, Halchemix will manage the sale of ALIMET® Feed Additive, with NOVUS overseeing its supply chain through the AIMS® system and utilizing Ruan as a trucking partner for methionine delivery.

Halchemix, established in 1986, specializes in trucking services, formulation, and technical support throughout Canada. President Lyndon Hiebert views NOVUS products as a valuable addition to their existing high-quality feed additives.

The partnership reflects NOVUS' dedication to research-backed products and a strong technical team that adapts to evolving customer needs. NOVUS plans to introduce more feed additives from its portfolio to Canadian customers as regulations permit.

DSM-Firmenich and Donau Soja Join Hands to Assess Environmental Impact of Animal Feeds

DSM-Firmenich and Donau Soja have partnered to utilize the Sustell life-cycle assessment platform to assess the

environmental impact of animal feeds and feed ingredients in the animal protein value chain. This partnership aims to help businesses in the value chain improve and communicate their sustainability efforts. The use of advanced LCA platforms like Sustell allows for precise measurement and improvement of sustainability, unlocking new revenue sources and supporting initiatives such as eco-labelling and sustainable finance.

Food production contributes significantly to global greenhouse gas emissions, with a notable portion coming from livestock emissions. As a result, companies in the food value chain are under increasing pressure to measure, report, and reduce their environmental footprints due to sustainability commitments, regulations, and consumer preferences. Animal feed plays a significant role in the environmental footprint of animal products, with protein sources like non-certified soybean meal being major contributors to greenhouse gas emissions. Donau Soja has conducted studies showing the potential reduction in carbon footprint by using certified European soya in animal feed.

The partnership between DSM-Firmenich and Donau Soja, supported by Sustell, aims to bring transparency to the feed and food industry, enabling more sustainable food production and consumption. By conducting science-based calculations and promoting the use of certified European soya in animal feed, the partnership seeks to empower businesses to make more informed decisions that benefit both the environment and their operations.

Editorial Calendar 2024

Publishing Month: January Article Deadline : 28th, Dec. 2023 Advertising Deadline : 30th, Dec. 2023 Focus : Opportunities and Challenges	Publishing Month: February Article Deadline : 28th, Jan. 2024 Advertising Deadline : 30th, Jan. 2024 Focus : Budget	Publishing Month: March Article Deadline : 26th, Feb. 2024 Advertising Deadline : 28th, Feb. 2024 Focus : Summer Stress Management	Publishing Month: April Article Deadline : 28th, March 2024 Advertising Deadline : 30th, March 2024 Focus : Cold Chain
Publishing Month: May Article Deadline : 28th, April 2024 Advertising Deadline : 30th, April 2024 Focus : Nutrition	Publishing Month: June Article Deadline : 28th, May 2024 Advertising Deadline : 30th, May 2024 Focus : Milk - Production & Preservation	Publishing Month: July Article Deadline : 28th, June 2024 Advertising Deadline : 30th, June 2024 Focus : Monsoon Management	Publishing Month: August Article Deadline : 28th, July 2024 Advertising Deadline : 30th, July 2024 Focus : Sustainability
Publishing Month: September Article Deadline : 28th, August 2024 Advertising Deadline : 30th, August 2024 Focus : Processing & Packaging	Publishing Month: October Article Deadline : 28th, September 2024 Advertising Deadline : 30th, September 2024 Focus : Disease Prevention	Publishing Month: November Article Deadline : 28th, October 2024 Advertising Deadline : 30th, October 2024 Focus : Biosecurity	Publishing Month: December Article Deadline : 28th, November 2024 Advertising Deadline : 30th, November 2024 Focus : Winter Stress

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