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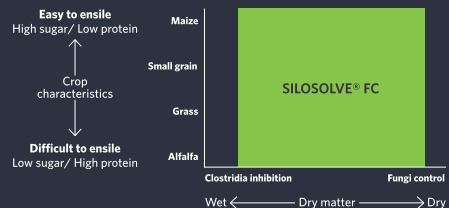
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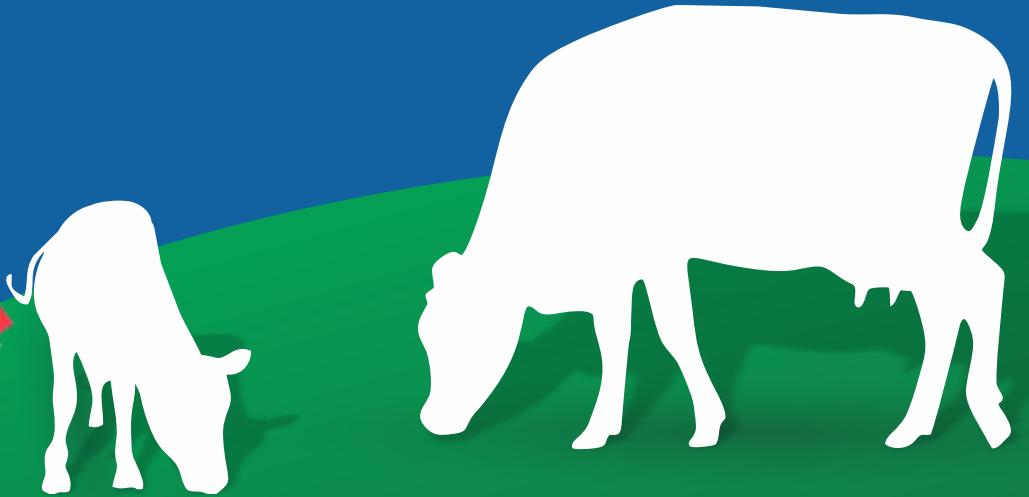
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From the Pen of Chief Editor



Growing Importance of Environmental Control System In Dairy Farming

In recent years, the value of dairy farming has been substantially increasing. Proper environmental control for dairy animals has become crucial for evaluating dairy quality. Dairy animals suffer from backlashes of ecological changes in general and effects of low temperatures, sudden temperature changes, stray air currents, and heat stress due to excess humidity in specific.

One of the most essential variables restricting production efficiency is the climatic condition. Dairy farmers all over have understood the importance of a well-managed and structured environmental control system and its increasing importance.

The environmental control system has become a proven solution for managing damages incurred through the climatic condition. Heat and moisture generation rates at predetermined ambient temperature levels can be used to manage the environment in dairy animal housing systems, thereby facilitating environmental, physiological, and behavioural aspects to be monitored automatically and regularly.

The current availability of technical breakthroughs, including intelligent sensors, detectors, analysers, cameras, and microphones, can permit comprehensive dairy management systems based on constant, real-time control and monitoring of productivity, animal welfare and health, and environmental circumstances. Dairy farmers can use such monitoring systems to detect heat stress, illness, or air quality issues in real-time and take appropriate action.

To optimize and improve animal well-being and output while also extending the structure's life, a need for a robust building environmental control system is evident. Ventilation extra heaters for cold situations and cooling devices for hot ones are the most common methods of ecological change.

Humidity, moisture, air velocity, and airborne pollutants are just a few critical environmental factors that a well-structured ecological control system can control. On the other hand, the ideal environmental variables vary depending on the local and regional temperature, site layout and infrastructure, dairy animal population, and production phase. Ventilation systems and heating or cooling demands are established based on heat and moisture loads to properly regulate environmental factors inside the facility.

To guarantee that animals receive adequate care inside commercially successful enterprises, contemporary dairy farming facilities are required to monitor environmental conditions and animal behaviour and health.

The environmental control system has not become an epitome in the dairy industry to describe dynamic behaviour change in dairy animals and to optimize the production level. The drawbacks of environmental changes can only be eradicated through proper Environmental control management.

Cost-effective Environmental control system for monitoring, recording, and analysing parameters such as body temperature, moisture, and behaviour that works well in hostile settings, is non-invasive and capable of operating autonomously and constantly needs to be created, refined, or verified.

Vishal

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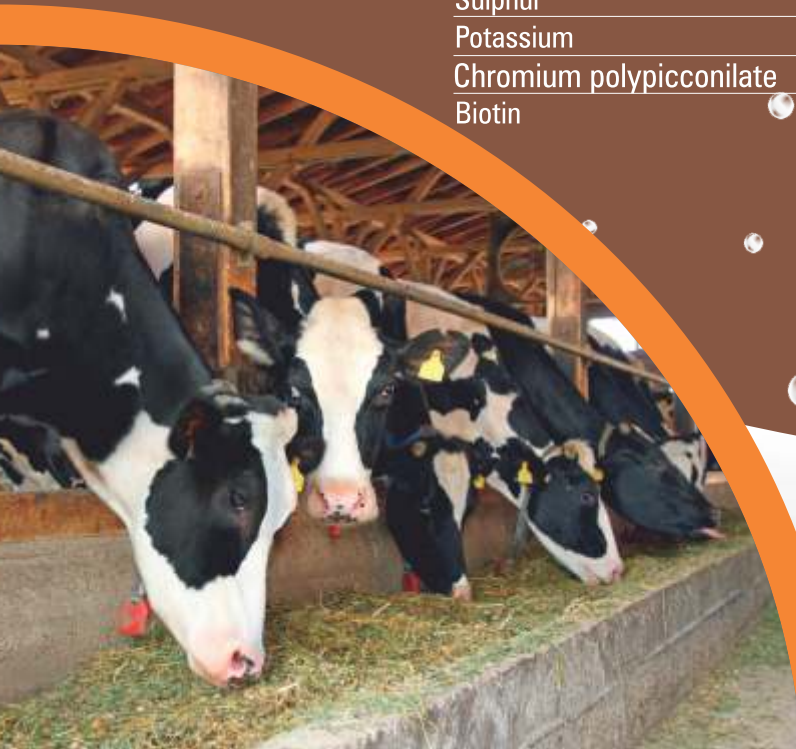
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CHR HANSEN

Improving food & health

A great success story from LATAM ARCOR Farm



ARCOR Farm

We're guessing you never thought of comparing silage making with a Formula 1 racing team. But pay attention as we take you through the surprising similarities.

The two drivers typically get the credit for success in Formula 1. However, without a fantastic car, great engineers, a passionate coach, a strong supporting team, dedicated mechanics, and willing sponsors -- the drivers would be hitchhiking!

Two great stories from Argentina right at the silage season peak demonstrate, as with F1, that the driver could do nothing without proper service and support.

Being there for the customer paid off

Fabricio Yannitto, our TSM in Argentina, works with his customers regarding their silage choices, especially when it comes to bunker inspections. With ARCOR Farm, time spent on auditing paid off well, both for the dairy producer and Fabricio.



One word – STABILITY – describes in full what is the major talking point in a region, where hot weather during harvest times is a fact. For SILOSOLVE® FC this was no problem!

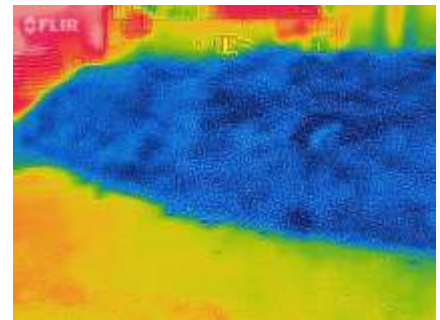
The silage audit showed that silage temperatures – even during this hot time – were close to ambient, and what's more important: stable. With a pH of 3.7 and, in general, aerobically stable corn silage, all indications pointed in the same direction of a good result! Take a look at the finish

line photo below! Infrared photo with cold silage to the right.

The customer was very satisfied with the results obtained using SILOSOLVE® FC. Because of the way they work and manage the silage, SILOSOLVE® FC is a right solution for them, and produced excellent results.

"In the current campaign, we are using SILOSOLVE® FC on all forages, without even a doubt," claims the farm owner.

So the SILOSOLVE® portfolio has its star driver, as SILOSOLVE® FC is. But this F1 Team has a co-driver, equally skilled and competent, driving fermentation through "hard corners and chicanes" of the difficult-to-ensile alfalfa.



Let us introduce SILOSOLVE® MC and Grupo Chivassa

The task was simple enough, but we all know that sometimes what may appear simple, unexpected situations can occur.



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2. Improves the fat percentage
3. Improves reproductive performance
4. Helps in better growth

2 Goals

1. More Milk
2. More Profit !!!



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Task: in the pit, take samples of the alfalfa cuts to be ensiled. Compare 6 samples of competitive inoculant with 6 samples of SILOSOLVE® MC. Prepare mini silos. Then open them the same day. Check it! That task was in the steady hands of Fabricio. Results?

pH fast enough, there is a potential risk of silage deterioration.

Want to go with alfalfa? Turn to SILOSOLVE® MC!

pH curve for SILOSOLVE® MC in alfalfa

The keys to have a success story?



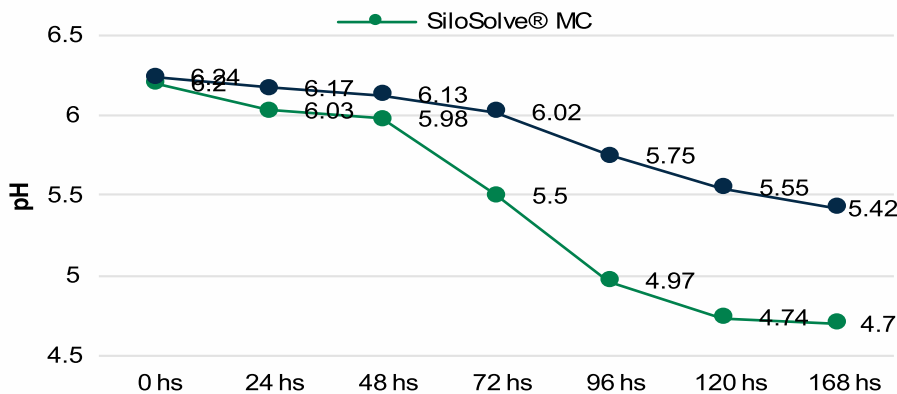
Immediately, you notice the difference: 5.4 for competitive product vs. 4.7 for SILOSOLVE® MC!

SILOSOLVER® MC simply performed!

The obvious difference in the pH values were measured in the first 6 days.

A rapid decrease in pH indicated a lower DM loss, in addition to protecting silage quality. If lactic acid bacteria fail to control the fermentation and lower the

Two great drivers: SILOSOLVE® FC and SILOSOLVE® MC – going hard on all tracks and situations. Great tech support, deploying all the tools that allowed the producer to see if the inoculant worked, a passionate coach, the mastermind TSM who set the strategy for the "team" with his expertise and hours spent in the field, identifying the pain points of the producers. That's what makes a successful team!





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Silage Making – A farmer friendly approach for fodder conservation



Neeti Lakhani

Assistant Professor, College of Veterinary Science, Rampura Phul, GADVASU

India is gifted with largest livestock population in the world accounting for 49% buffalo population, 21% cattle population, 26% crossbred and 4% goat population (BAHF&S, 2017-18). Livestock production and agriculture are complementary to each other and play crucial role in overall food security. Livestock sector is the fastest growing segment of agricultural economy whereas agriculture serves as the principle means of livelihood for more than 58 percent of rural households in India. To sustain livestock husbandry one should focus on the issues related to the development of fodder and feed resources in the country. At present, the country faces a net deficit of 35.6% green fodder, 10.95% dry crop residues and 44% concentrate feed ingredients. The demand of green and dry fodder is expected to reach 1012 and 631 million tonnes respectively, by the year 2050. Maintaining the availability of nutritious fodder round the year is very essential for sustainable profit in dairy sector.

The limited pasture growth, inadequate pasture conditions or inclement weather directs focus on conservation of fodder to feed livestock during periods of shortage in form of hay, haylage and silage. Selecting a conservation method involves suitability of the forage for a given method, storage capability, weather conditions and the intended use of conserved forage.

Silage is a fermented feed obtained from the storage of high moisture crops like grasses, green fodder, crop residues under anaerobic conditions in a structure known as silo. The process of making silage is known as ensiling where green fodder is stored in silo after wilting to prevent spoilage by aerobic microorganisms.

Assesment of crop for silage making

The chemical composition of a forage

crop or agro-industrial by-product plays an important role in determining the ease with which lactic acid fermentation can take place; and thus the ease with which a particular feed can be preserved as silage. Different plant materials such as hybrid napier, barley, maize, wheat, sorghum and various moist “by-products” can be used for ensiling. It is easier to ensile forages that have:

- high level of fermentable sugar (3.44g/100g DM);
- low level of protein (8-13% CP);
- low buffering capacity (250-500mE/kg of DM);
- dry matter content at ensiling time (30-35% DM)



The following tables represent the proper stage of harvesting, the dry matter of crop and chop length necessary for making quality silage.



Table 1: Proper stage of harvesting the crops for silage:

S. No.	Crop	Proper stage of harvesting
1.	Maize	Silk to milk stage
2.	Sorghum	Boot to milk stage
3.	Bajra	Boot stage
4.	Oats	Flowering to milk stage
5.	Guinea grass	Flowering stage

Table 2: Dry Matter Of Crop And Chop Length:

Dry matter	Ideal chop length
>37%	1 – 2cm
32 – 37%	2.5cm
28 – 32%	2.5 – 5cm
22-28%	8cm
<22%	8 - 10cm

Fermentation coefficient - A sufficient amount of water-soluble carbohydrate is necessary to obtain sufficient fermentation during ensiling. The fermentation coefficient depends on dry matter content and buffering capacity of the crop.

- If FC < 35 = bad ensiling
- If FC between 35 and 45 = middle ensiling
- If FC > 45 = good ensiling

Silo size and silage needs

Silo size should be decided on the basis of dry matter and type of forage. In a feeding system two or more silos will increase handling and management flexibility. Number of silos in operation depends upon annual silage required and length of storage. Annual silage needs depends upon dry matter intake of animal. Upright silos and horizontal silos can be used for silage making.

Daily silage needs: Daily silage needs depends upon the number of animals and their dry matter intake. There is generally 10% handling loss from storage area to feed consumption.

Face Removal Rate: Face removal rates should never go below 4 – 3 inches per day during the summer and winter months respectively. Minimum removal rates are most critical with hay crop silages and become more important as moisture content decreases. For design purposes a face removal of 6 inches is sufficient.

Silo Sidewall Depth: Sidewall depths of 8 to 12 feet are considered most practical. Typically, the sidewalls should have an 8:1 slope and packed with a



rounded top. Silos are usually designed with vertical sides and a flat top because of variation in packing.

Silo Width: A width of 16 feet is needed to ensure efficient packing. A bottom width of 30 feet or more increases the labor efficiency and it also helps in positioning the transport vehicle and minimize loader travel time.

Silo Length: The silo length is determined by multiplying face removal rate by storage period. If calculated length exceeds over 150 feet, then multiple horizontal silos should be considered because of labor efficiency. Another reason to use multiple horizontal silos is construction limitations where the site is located.

Advantages of silage making

Availability of silage ensures regular supply of fodder to the dairy animals. Provides uniform fodder quality to animals during changing environmental conditions. Silage can be made under almost all weather conditions. Surplus green fodder can be conserved resulting in minimum wastage. Feeding silage is an effective tool for the control of parasitic diseases, as ensiling destroys the parasites present in different stages in green fodder. Ensiling enhances green fodder productivity by improving harvesting intensity and livestock productivity by ensuring fodder supply, especially during lean period.

Benefits of silage making

Crop is ensiled and used as reserve feed during extreme feed shortage periods. Under optimal conditions storage period can be 1 to 20 years. The process of

ensiling is more mechanized and less labor intensive. Excess fodder growth can be preserved as silage to gain profit and avoid maturation and in situ decay. The nutrient content of the diet can also be balanced using silage whenever the feeds available are deficient. In silage making, there is less field loss because of which more nutrients are preserved per acre. It enables storage of perishable feed and preserve dry matter content of fermented feed. Silage is less affected by weather damage as it is not kept in the field open.

Silage storage

Silage storage systems should be designed and constructed to be located near the feed processing and preparation area. It should provide sufficient slope to allow rainfall and silage effluent to be drained away from storage site. The silo pit should be sound, long lasting and air tight. Storage should provide safe access for people and machinery during filling and removal. Storage space should be such that it should meet the expected feedlot demand maintaining silage quality during storage. It should promote sound economic inventory control.

Conclusion

The process of silage making serves as a useful method towards green fodder preservation during surplus periods. Quality silage feeding to dairy animal leads to increased production and ultimately farm profitability. A good method of silage fermentation improves its quality, increases the feeding value of silage and improves animal performance.

Need of Environmental Controlled Housing in Livestock



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Introduction

Current environmental controlled conditions for animals are primarily found in industry and government publications. Many of the current intensive livestock production systems require the provision of a controlled environment for housed stock. Pigs, poultry and animals are the most often associated with controlled environments in commercial agriculture; however, there are other animals that can also thrive in controlled conditions at some time during their lives. Most farmers would think an animal's 'environment' involves little more than temperature and humidity, but it goes much farther than that. 'Environment' embraces other factors like air speed, air quality, light level and colour and surrounding surface materials. Well-designed systems will maximise outputs by increasing growth and lowering mortality, while reducing inputs, particularly feed and energy, and improving stock health and welfare. Some of the essential principles involved are covered in this article.

Critical environmental issues for different species

Species	Temperature	Humidity
Pig	Growth and food intake highly dependent on temperature (piglets and weaners, in particular)	Extremes of humidity to be avoided. Optimum conditions 60–90% relative humidity
Adult Animals	Tolerant to a wide range of UK conditions, so controlled temperature only required in more extreme conditions	High relative humidity is detrimental and can be partially mitigated by high air exchange rates
Young animas	Thrive best in moderate conditions when animals are very young	Pneumonia is a potential problem with calves, so high air change rates are required
Sheep	Tolerant to the full range of UK conditions, so no need for controlled temperature; lambs can benefit from heat in marginal conditions	Not critical

Temperature

There is a temperature at which any species or breed of animal confined under a specific set of conditions will begin to divert more energy from growth to maintaining its own body temperature. The lower critical temperature is referred to as this (LCT). In addition, there is a temperature over which the animal will use additional energy to stay cool (Eg. by panting). The upper critical temperature is known too as this (UCT). The thermoneutral zone exists between the LCT and the UCT, and it is here that body 'maintenance' factors are minimised, allowing maximum use of food for production. The farmer can obtain the most cost-effective operation and highest margin by fine-tuning within the thermoneutral zone.

The animal's ability to maintain this body temperature is achieved by thermoregulatory mechanisms. For instance, to lose heat an animal can pant, sweat, the coat can be flattened and the blood vessels dilated. Conversely, to maintain heat there will be an absence of

panting, sweating, an erect coat and vasoconstriction. Additionally, at low temperatures an increase in metabolic rate will be needed to provide increased energy to maintain body temperature. The increase in energy usage at the upper end of the environmental temperature scale. It is necessary to provide the animal with a 'tighter', more controlled environment for good performance.

Housed cattle can be more susceptible

Air speed (metres per second)	0.25	0.73
Mean temp (°C)	21	21
Max temp (°C)	33	33
Feed gain ratio	3.48	3.15

to heat stress than animals kept outside because they simply get hotter. The exception is with grazing cattle, which do not have access to shade in the hottest conditions. Young ruminant stock is more susceptible to extreme conditions. Low temperatures alone are rarely a great problem for the young healthy animal because it can benefit from the heat and shelter provided by the body of its mother, but the effect of high air speed in cold conditions can cause problems. Reference to the wind chill factors in the relationship between temperature and air speed on body heat losses. In buildings for young stock, design of air flow must therefore avoid draughts at animal level. In cases where an animal has been orphaned, intentionally separated from the mother shortly after birth (removing the possibility of maternal warmth) or is sick, provision of additional shelter and supplementary heat can be necessary.

Air speed

LCT and UCT values are notably affected by draughts (for the purposes of this article, for calves draught is defined as air moving faster than 0.5m/s). Other species may be more or less tolerant. A well-designed ventilation system subjects the livestock to low air speed in winter to avoid chilling and higher air speed in summer to produce greater

evaporative cooling and so raise the UCT. These features are most important and are best achieved with fan ventilation systems. Below table shows how the LCT for pigs goes up as air speed increases and emphasises the importance of avoiding draughts in cold conditions.

Light

Knowledge of the effects of light levels, periods and spectrum is increasing all the time. Recent work has suggested that adjusted daily lighting periods can improve performance in pigs, calves and dairy cows in terms of growth and reproductive performance. Providing sufficient light and appropriate day lengths has also become a welfare issue and now these two factors are set out in welfare standards. One aspect receiving more attention recently is lighting spectrum. In the past, manipulation of the light spectrum has rarely been considered because the technology to put this into practice has not been economically viable. The introduction of LED (light-emitted diode) lighting has changed all this.

Animal responses to aspects of artificial lighting are an important factor in designing a lighting scheme. Using an inappropriate artificial light could result in the illuminance (lux) being too high or too low, or an unsuitable spectral output for the livestock. The consequences of inappropriate lighting may affect the health, production and welfare of your stock because of light-induced biological responses. The key characteristics to consider are:

- **Spectral composition** – the distribution of light wavelengths (how much of each colour is present)
- **Illuminance** – the total amount of luminous power produced in the visual part of the light spectrum, measured in lux (based upon the livestock you are considering)
- The number of hours of light and dark (or photoperiod) in a 24-hour period
- Rate of change of lighting level (dawn/dusk simulation)

These are some lighting sources Incandescent, Fluorescent, Light-emitting diode, Gas discharge used in house to maintain lights.

Light	Air speed
Various requirements with regard to reproductive success and feed intake	Critical chill factor and dunging habit and potential vice issues
Milk output, feed intake and growth rates for beef cattle	Not critical
Not critical	Air speed should be limited
Not critical	Not critical

Ventilation

Primary purposes of air ventilation systems for non-ruminant livestock houses should be able to satisfy the following major objectives:

- **Temperature control** – In temperate conditions, provide variable air throughput to control the house temperature to a prescribed level.
- **Temperature limitation** – In summer conditions, provide adequate air throughput to limit the building temperature to between 3°C and 4°C above the outside temperature.
- **Increase upper critical temperature** – In very hot conditions, provide high air speeds over the stock to increase animals' upper threshold of temperature tolerance (UCT).
- **Limit air pollutants and build-up of**

high humidity – In cold conditions, provide enough ventilation to suppress the build-up of polluted, stale or humid air, while maintaining desirable air flow without draughts on the animals and at a rate that minimises the use of heat.

In most mechanical ventilation systems used for livestock applications, the most common component is the propeller fan. These fans are characterised by a 'paddle' impeller, which can move large amounts of air at relatively low back pressures. Propeller fans are comparatively cheap, easy to install and reliable. Rather than the paddle blade, some modern types of propeller fan use an impeller with an aerofoil cross-section and are capable of operating at higher pressures.

Heating

Supplementary heating is used to maintain temperature when there is a deficit of heat in a building or an area of a

building. If this happens, the temperature may fall below the lower critical temperature of the animals and feed energy will be diverted from growth to maintenance. In extremes, especially for younger stock, low temperatures will have an effect on mortality rates. In British climatic conditions, heating is normally only considered for young, non-ruminant stock. With older non-ruminants, the use of carefully controlled minimum ventilation rates and insulation in adequately stocked buildings will ensure that recommended temperatures are achieved. Occasionally, in very cold conditions, heating may be used to advantage with young ruminant or sick animals. Bright emitter infrared lamp, Notable features, Ceramic dull emitter infrared heater, Panel heaters, Metal-sheathed dull emitter heater, Gas plaque and mesh radiant heaters, Gas-fired tubular heaters etc. are mostly used in livestock.

India's Innovation Mission: Digital solutions for Antimicrobial Resistance

Antimicrobial resistance (AMR) is recognised as a global threat to human and animal health and well-being. The silent pandemic is more widespread than previously thought. AMR does not stop at borders; it is a global health threat that necessitates coordinated action. Stopping the spread of AMR is a complex task that requires a One Health Approach that includes the water, agriculture, and health sectors.

The Netherlands and India are increasing their collaborative efforts to curb and mitigate the rising resistance. By working together to better understand resistance trends, improve monitoring and surveillance, and facilitate practical collaboration between clinicians/microbiologists and veterinarians.

Technology can aid in these efforts. Good data assists in defining the appropriate interventions at the appropriate

time and location. Antibiotic use in hospitals and agriculture can be rationalised with digital applications, as samples and sensors can tell (in real-time) where to focus and intervene.

An Innovation Mission titled 'digital solutions for antimicrobial resistance (AMR)' will be held in Delhi, Hyderabad, and Vijayawada from June 13-17. (Andhra Pradesh).

Dutch experts will conduct a deep dive into surveillance, monitoring, and digital capabilities in two Indian states as part of this innovation mission.



Heat Load Management for Feedlot Cattle



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Introduction

The thermal environment can have a negative influence on cattle welfare. Historically, Ames defined the thermoneutral zone as the thermal environment where an animal experiences optimum health and maximum productivity. Whilst cattle comfort and productivity may be compromised during exposure to cold, wet and/or windy conditions, there has been a predominant focus on the influence of hot weather on cattle, and other species. The impact of hot weather on cattle is of increasing importance, particularly in conjunction with the changing global environment.

For livestock production enterprises, climate change has the potential to alter the thermal environment, which may result in the climate having an increasingly negative impact on the welfare and productivity of cattle. Periods of hot weather are already associated with reduced animal health, reduced reproductive efficiency in both

males and females, and decreased feed conversion efficiency. Therefore, it is likely that climate change will have a considerable impact on the economic viability of animal agriculture worldwide.

In spite of this, all animals possess the capacity to adapt to their thermal environment. Animals are capable of modifying their behavioral, physiological, and morphological characteristics, or a combination of these, in response to the thermal environment. This review has attempted to provide a rounded overview of the impact that heat stress has on bovines.

Climate Change

The effect of climate change is highly variable globally and is largely influenced by geographical location. Cattle and livestock enterprises have the ability to adapt to an increasing mean global temperature, the primary concern, however, is the ability of livestock to cope with climatic extremes, e.g., heat waves. Climate change has the



potential to present as (i) rapid changes in climate over a couple of years or (ii) as more subtle changes over decades. However, irrespective of the manifestation of climate change, global warming is likely to have a significant impact on the stability and sustainability of livestock production worldwide. Globally, various climate change models are predicting a 1.1 °C to 6.4 °C increase in temperature by the end of this century.

Numerous species are likely to be negatively impacted by the changing global environment, due to changes in ecosystem microclimates. Many species have adaptations to cope with short-term climate variability, i.e., seasonal changes. However, these adaptations may not be successful for species survival with the predicted climate change. Predicting the effect of climate change on livestock is somewhat challenging due to the interrelationships that exist between the animal and its surrounding environment, and the impact of human activity on these relationships. It is also important to consider the indirect effects of climate change on soil fertility and degradation, water availability, grain yield, quality and availability, and spread of diseases/pathogens that may potentially impact the cattle producers and their ability to manage periods of hot weather.

Irrespective of livestock production contribution to climate change, animal production needs to increase to satisfy consumer demand. A challenge regarding the effects of climate change on livestock enterprises is how dependent the enterprise is on the thermal environment and what can be implemented to offset the impacts of increasing temperatures. The current effect of the thermal

environment is estimated by the impact of climatic conditions on animal performance, health, and welfare.

Traditionally, the impact of hot weather has been referred to as heat stress. Heat stress is caused by a combination of environmental conditions that result in the effective temperature of the environment to be greater than the temperature range of the thermoneutral zone. However, factors, such as genotype, coat type and coat color, diet type and diet composition, body condition, i.e., fat coverage and deposition, performance, i.e., growth and lactation, health status, and degree of adaptation, are known to influence thermal balance. Thus, throughout this review, the term heat load will be used rather than heat stress, as the term heat load incorporates the cumulative effects of animal factors and environmental conditions on the thermal comfort of animals and, therefore, becomes a better descriptor of an animal's thermal balance.

Animals that are adapted to a hot climate generally exhibit reduced growth and reproductive efficiency, which is associated with the adaptive mechanisms that ensure survival. In extensive grazing systems, it has been identified that climatic constraints are not the only factor that negatively influences livestock production. The indirect effects of climate change will also influence pasture resources, potentially depriving grazing animals of nutrient requirements. Similarly, the changing climate may also result in droughts, ultimately resulting in feed and water scarcity for grazing animals. These situations can be associated with a decrease in growth and reproductive efficiency in livestock.

Although the concept of multiple stressors is becoming a focal research topic in small ruminants, the impact of multiple stressors has not been adequately researched, and as such, there is no information on large ruminants. Therefore, it is essential to explore the impact of multiple stressors on both dairy and beef cattle, particularly in conjunction with the changing global environment.

Implication of Hot Environmental Conditions

Animal responses to environmental stressors have been investigated for some time, and although knowledge continues to be developed, managing livestock to reduce the negative impact of hot weather remains challenging. Reductions in dry matter intake (DMI), growth, feed conversion efficiency, reproduction, milk production and milk quality, are commonly observed when cattle are exposed to thermal stress. Quantifiable measures, such as physiological, behavioral, and biological responses to heat load have been identified as indicators of heat load. Physiological responses to heat load include increased sweating rate, respiration rate, breaths per minute, panting score, and body temperature. Behavioral responses include alterations to posture, including increasing the proportion of time standing, increased duration in shaded areas or increased shade seeking, including shade provided from other animals, and body splashing at water troughs. Biological markers in the blood are also indicators in determining the level of stress an animal is under. Cattle also use adaptive behaviors to reduce heat load, primarily consisting of shade seeking, under shade structures or other animals, and the alignment of the body in accordance with solar

radiation (W/m²) to reduce whole-body exposure to direct sunlight.

Nutrition and Eating Behavior

Heat production has a positive relationship with feed intake in ruminants, and it has been shown that heat production is closely associated with feeding time. Metabolic heat produced during microbial fermentation, accounts for 3 to 8% of the total heat production by cattle. As ambient heat load increases and DMI decreases there is a reduction in metabolic heat production. During hot weather, cattle compensate for the hotter conditions by consuming smaller meals, more frequently, and shifting feed intake to cooler parts of the day. Voluntary feed intake has been reported to commence declining when ambient temperature reaches approximately 25 °C to 27 °C. However, the ambient temperature at which DMI begins to decline is influenced by diet type and composition specifically diets with a greater proportion of roughage exhibit more rapid reductions in DMI. Variations in DMI are also influenced by breed (genotype), production status, health status, body condition, and days on feed.

Water Intake

Water is available to animals in three forms, free drinking water, water in feed, and water produced via oxidation of organic compounds or metabolic water. Water requirements of cattle are influenced by ambient conditions, diet type, breed (genotype), weight, and physiological functions. Daily water intake is also influenced by a number of body functions, including the regulation of core body temperature, growth and development, lactation and reproductive functions, digestion and metabolism, and hydrolysis of proteins, fats and carbohydrates.

Water intake is linked to DMI, with both feed intake and feed type influencing water intake. Furthermore, water intake is influenced by the amount of water gained from drinking, eating, via metabolic water, and the amount of water lost per unit time through respiration, sweating, feces, urine, and lactation. However, an increase in water intake may also be a reflection of ruminants attempting to compensate for heat loads, particularly in un-shaded grazing systems.

Body Temperature

During periods of hot weather, an increase in core body temperature becomes a function of heat accumulated and dissipated between the animal and the environment. Therefore changes in body temperature can be considered to be a reliable indicator of heat storage and disrupted homeostasis. However, it is important to consider that body temperature is not static and exhibits a circadian rhythm, although is generally regulated within a $\pm 1^\circ\text{C}$ gradient.

Under thermoneutral conditions, the core body temperature of cattle is between 38 °C to 38.5 °C and a rectal temperature greater than 42 °C is considered to be lethal.

Conclusion

Climatic conditions are an important regulator in agricultural production systems worldwide. For livestock production, climate change has the potential to alter the thermal environment, which may have a negative impact on welfare and productivity. It is clearly evident that the thermal environment has an influence on the wellbeing and productivity of bovines. Regardless of climate change and the predicted changes to the thermal environment, hot

weather will continue to incite heat load responses in cattle worldwide. Therefore, it is imperative that livestock production systems identify and utilize mitigation strategies that are efficient and effective at reducing heat load. In future years, an integrated approach to the adoption and management of mitigation opportunities will become increasingly important to support the sustainability of livestock production systems.

In anticipation of climate change and climate variability, there is a need to develop a greater understanding of the impact global warming is likely to have on biological parameters in cattle. However, this may be somewhat misleading as there is a level of uncertainty in the climate change predictions and what effect the changes will have on livestock in the coming decades. A more achievable objective may be to identify and establish effective management strategies for livestock under suboptimal conditions, rather than selection for maximum productivity and/or adaptability. Furthermore, there is a need to accurately quantify the indirect effects of climate change on livestock enterprises, such as changing soil quality, water availability, grain, and pasture resources, and the changing distribution of diseases and pathogens. Developing a comprehensive understanding of the factors that influence heat load, including climatic, environmental, and animal, will allow for innovative mitigation strategies to be established. Enhancing mitigation strategies provides an opportunity for the continual improvement of animal welfare and productivity during periods of heat load.

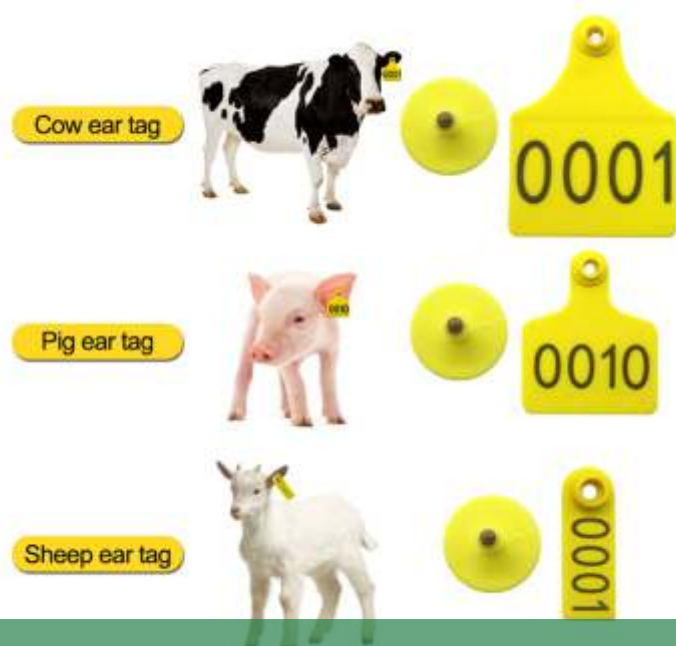


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Ear Tagging in Animals: Importance And Types

Animal identification using a means of marking is a process done to identify and track specific animals. It is done for a variety of reasons including verification of ownership, biosecurity control, and tracking for research or agricultural purposes. Ear tagging is mandatory for most of the genetic improvement programmes as a part of the recommended SOPs. In India, using 12-digit identifier, based on International Committee on Animal Recording (ICAR) recommendations, more than 2.6 crore animals are registered by NDDB.

An ear tag usually carries an Animal Identification Number (AIN) or code for the animal, or for its herd or flock. Non electronic ear tags may be simply handwritten for the convenience of the farmer (these are known as "management tags"). Pigs, cattle and sheep are

frequently earmarked with pliers that notch registered owner and/or age marks into the ear. Mares on large horse breeding farms have a plastic tag attached to a neck strap for identification; which preserves their ears free of notches. Dairy cows are sometimes identified with ratchet fastened plastic anklets fitted on the pastern for ready inspection during milking

Although there are many shapes of ear tags, the main types in current use are as follows:

- Flag-shaped ear tag: two discs joined through the ear, one or both bearing a wide, flat plastic surface on which identification details are written or printed in large, easily legible script.
- Button-shaped ear tag: two discs joined through the ear.
- Plastic clip ear tag: a moulded plastic strip, folded over the

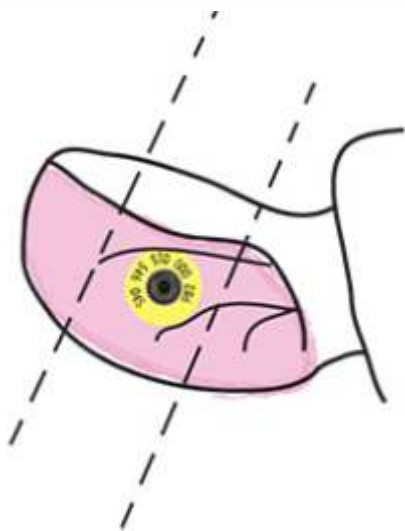


edge of the ear and joined through it.

- Metal ear tag: an aluminium, steel or brass rectangle with sharp points, clipped over the edge of the ear, with the identification stamped into it.

Identification systems

- Identification is usually alpha-numeric. On birth/purchase, the respective animal is identified with one unique number until it departs from herd. For example, if in a farm tag representation of the year 2002 is M, so 2003 will be by successive letter N while 2004 will be shown as P, omitting the letter O because of its resemblance with the numeral 0. Different years may be encoded by the 22 alphabets, excluding O,



V, Q and I to avoid confusion with numbers. This means, identification system can be replicated after 22 years.

Age and site

- Optimum age for ear tagging should be done usually before 6 months of age. In some farms, it is practiced within 20 days of birth while some farmers tag

their female sequentially as they reach puberty and enter the herd. Common tag site is proximal half of the ear, between the upper and lower cartilage. It should be placed neither too close to head, else it may sever the thicker cartilages and cause necrosis. Ear tags may sometimes cause chronic inflammation with Chondrus hyperplasia and osseous metaplasia of ear cartilage.

Importance

- **To indicate sex**
 - ✓ Allows rapid sorting by sex while sheep and goats are moving down a chute or in a holding pen.
 - ✓ No need to spend valuable time



to “check the plumbing” of each animal. Keeps your hands clean! To do this:

- Males: Insert the primary tag in left ear.
- Females: Insert the primary tag in right ear:

- **To indicate year of birth**

- ✓ Use a different color for each year.
- ✓ Begin tag number series with the year of birth. Example—tag 17275 indicates lamb is the 275th lamb tagged in 2017.

- **To indicate sire (and dam)**

- ✓ Use a different color second tag for each sire (blue tags = Sire XYZ; purple tags = Sire ABC).
- ✓ Have sire name printed on the tag of its progeny.
- ✓ Handwrite the ewe’s tag

number with a marking pen on the lamb’s tag. If space is limited write it on the inner surfaces of the tag. Note: Since tags can be lost, we strongly advise using 2 sire/dam tags (one in each ear).

- **To indicate problems**

- ✓ Put a tag that says “cull” (or a black tag) into problem animals.
- ✓ Use an ear notcher to mark the animal for culling.

- **To indicate single, twin or triplet**

Premier’s code is:

- blue = single
- green = twin
- orange = triplet

Different types of tags in animals

DO's

- Properly secure the animal to apply tag. Movement of the animal's head could create an undesirable situation to appropriately apply the ear tag. This could cause injury to the person or livestock, or improper tagging of the animal. The following immobilization suggestions work best, depending on species:
 - o Cattle: Chute with a head gate, halter and/or nose lead.
 - o Swine: Confine in a small pen, hog boards to restrict movement, or use of a hog snare to completely secure the hog.
 - o Sheep & Goats: Proper hand grip of animal's head to restrict movement.
- Identify the tagging site on the animal's ear.

Birds	Dogs	Horses
<ul style="list-style-type: none"> • Leg rings • Wing tags • Microchip implants (parrots) • Telemetry (falconry birds) 	<ul style="list-style-type: none"> • Collar • Microchip implants • Tattoo 	<ul style="list-style-type: none"> • Collars (non-electronic) • Branding (hot-iron) • Branding (freeze) • Microchip implants • Lip tattoo
Cattle	Sheep	Pigs
<ul style="list-style-type: none"> • Anklets • Branding (freeze) • Branding (hot-iron) • Collars (electronic and non-electronic) • Earmarking • Ear tags (non-electronic) • Ear tags (electronic) • Rumen bolus (electronic) • Cowbell 	<ul style="list-style-type: none"> • Freeze branding • Branding (hot-iron) • Collar • Earmarking • Ear tags (non-electronic) • Ear tags (electronic) • Semi-permanent paint 	<ul style="list-style-type: none"> • Collars (electronic and non-electronic) • Earmarking • Ear tags (non-electronic) • Ear tags (electronic) • Semi-permanent paint • Tattoo

- Once the animal has been tagged, proper care must be taken to ensure the animal stays healthy. Daily topical application of hydrogen peroxide directly to the ear and ear tag puncture for five to seven days following the tag application will assist in preventing infection. Additional topical application of hydrogen peroxide to the ear in the following weeks is recommended until the ear is completely healed. If a serious infection occurs, consult your veterinarian for assistance and recommendations for treatment.

DON'Ts

- o Tags should be applied in the middle third of the ear between the upper and lower ribs.
- o It is important, when using electronic identification (EID) tags to apply the tag with the visual panel, male portion, of the tag on the outside back of the ear with the EID button, female portion, of the tag on the inside of the ear.
- Proper hygiene and cleanliness during the tagging process is necessary to reduce the risk of infection. Use rubbing alcohol or a disinfectant solution to clean the jaw of the applicator. Also, clean the tagging site of the animal's ear.
- Place each half of the tag onto the applicator. The stud must be inserted completely onto the applicator pin and the panel/button portion placed under the opposite clip.
- Before tagging the animal, check alignment of the tagger by closing the jaw of the applicator to the point where the two halves meet; the stud should be centered with the hole.
- Position the applicator in the identified tagging site on the animal's ear. Firmly close the applicator in a fast manner and release.
- Examine the tag to verify it is correctly, comfortably, and securely positioned. Record necessary data on the animal.
- Never practice ear tagging on a windy day and when the stock is wet, to minimize chances of infection.
- Numbered side should appear on the back of ear.



Guidelines for Environment Control Housing for Dairy

The major environmental issues that are faced by dairy farms are the discharge of wastes and urinal wastewater. Dairy farms are a major contributor to air and water pollution. The poor handling and mismanagement of wastewater create an odor problem. Many dairy farms discharge the cattle dung with water into the drains, which leads to clogging, and it reaches the rivers resulting in water pollution. The clogged drains also become a breeding place for many mosquitoes that create health hazards.

The disposal of cow dung is a big challenge for dairy farm owners. However, if the cattle dung gets utilised, it can be converted into manure. The cattle contains many beneficial constituents which can be used as fuel.

The following guidelines are framed for the management of wastes from dairy farms:

1. Solid waste management: The solid waste produced from dairy farms majorily includes cattle dung, feed residue, etc. the waste produced is not hazardous, but it is essential to handle it properly. The guidelines for the management of solid waste are as follow:
 - i) The cow dung on the floor should be clean at regular intervals, to keep the floor clean.
 - ii) The dairy premises must be sanitized at the proper interval.
 - iii) The solid waste must be collected properly and adequate steps should be followed for its treatment.
- iv) The dairy farm must dispose of the domestic hazardous wastes as per the provisions of "Solid Waste Management Rules, 2016".
- v) The dairy farms should not flow the cow dung into drains to avoid clogging of water.
- vi) The dairy farms should have adequate infrastructure to ensure proper handling of the cattle waste.
2. Waste water management: the guidelines for wastewater management are as follows:
 - i) The dairy farms have to use water judiciously. The use of water must not exceed 150 liters/day/cattle which include drinking and bathing of cattles and other services that including floor cleaning.
 - ii) The dairy farms should ensure that wastewater is treated adequately as per the standards.
 - iii) The dairy farm owner must make sure that the waste water does not pollute the groundwater.
3. Air quality management: The guidelines for air quality management are as follows:
 - i) The dairy farm should be adequately ventilated to allow a sufficient supply of fresh air and prevent the building of harmful gases.
 - ii) The dairy farms should maintain proper sanitary conditions to minimize odour nuisance.





Swachta hi Seva- Maahi Milk initiative



Maahi Milk Producer Company Limited has voluntarily and consistently engaged in the "Swachta hi Seva" campaign in Saurashtra and Kutch year after year, shouldering the responsibility of cleaning public places.

Cleaning activities are organised in 9 districts of Suarashtra and Kutch region, namely Amreli, Bhavnagar, Junagadh, Girsomnath, Jamnagar, Kutch, Porbandar, Surendranagar, and Rajkot, on the auspicious occasion of our Father of Nation, Mahatama Gandhiji's birthday

on October 2nd of every year, with over 300 volunteers participating on behalf of the co-operative.

The main goal is to improve rural society's quality of life while also promoting long-term economic growth. MMPCL has always prioritised the growth of all stakeholders and the enhancement of the quality of life for all of its employees and the communities in which it operates.

This Maahi Milk CSR initiative should be applauded by all.







Quest of Sid's Farm in the Milk Industry

**SID'S
FARM**
We care..

Sid's Farm has set a high benchmark for delivering superior quality milk products in the dairy industry. The journey was started in 2012 to thrive in relationships with dairy farmers, build a sustainable ecosystem and provide a superior level of milk products. Telangana-based Sid's Farm, a premium dairy brand founded by **Kishore Indukuri**, who is the current Managing director of the company and an **IIT Kharagpur and the University of Massachusetts Alumni**, started its journey of providing

superior quality milk products to keep the customer satisfied and building a long term relationship without compromising on essential proteins.

The company claims to have **45 quality tests** before the milk reaches its consumers for high quality and purity. Its main aim is to provide milk and milk products to every household which are healthy and free from antibiotics, hormones, preservatives, and other harmful adulterants.

Their journey started in 2012 -



13, when they started home delivery of milk, and sooner in 2014 established a small pasteurization plant and started distribution in Hyderabad. Sooner in 2016, the company bought land, followed by 2017, when it began a new pasteurization facility, and later in 2018, it started its fully operational farm. By 2019, the company successfully launched milk products like Curd, Ghee, and Paneer.

Sid's Farms' **primary objective** is to promote the growth and wellness of livestock since various types of antibiotics and hormones are being used beyond the tolerance limits set by FSSAI. They collect samples from every batch of milk they acquire from farmers and get from their animals at Sid's Farm.

Antibiotics, hormones, and other adulterants are all screened out of the milk. They also have a **zero-tolerance policy** and do 45 tests on every batch of milk before it reaches consumers' houses, including Fat and SNF testing, alcohol stability-60%, 70%, and 80%, MBRT, and COB tests.

The farm already distributes more than **23,000 liters of milk to Hyderabad** and plans to expand to Bangalore and other surrounding cities. Sid's farm is now concentrating on expanding from 300 to 1500 physical locations across the country and increasing direct-to-customer penetration.

Sid's farm has also developed a **mobile application** where the consumer can directly order cow milk, Buffalo milk, Ghee, Paneer, and curd; consumers can place their order before 10 pm, and the items will be delivered before 7 am for the utmost customer satisfaction.



Merck Animal Health Announces the Availability of AROVYN™ for the Treatment of BRD



AROVYN™ (tulathromycin injection) is now available to veterinarians who prescribe tulathromycin to control and treat bovine respiratory disease (BRD), as well as treat foot rot and pink eye. The FDA-approved prescription antibiotic is the latest addition to Merck Animal Health's comprehensive antimicrobial portfolio and BRD solutions.

"AROVYN provides veterinarians and producers with a new, cost-effective option for tulathromycin," said Merck Animal Health technical services manager David Sjeklocha, D.V.M. "AROVYN, which is approved for use in high-risk cattle, can also be used to treat BRD, foot rot, and pinkeye – all of which are common and costly diseases."

AROVYN is indicated in beef and non-lactating dairy cattle for the treatment of BRD and the control of respiratory disease in animals at high risk of developing BRD caused by *Mannheimia haemolytica*, *Pasteurella multocida*, *Histophilus somni*, and *Mycoplasma bovis*. It is also approved for the treatment of pinkeye or infectious bovine keratoconjunctivitis (IBK) caused by *Moraxella bovis*, as well as foot rot caused by *Fusobacterium necrophorum* and *Porphyromonas levii*. AROVYN is indicated in suckling calves, dairy calves, and veal calves for the treatment of BRD caused by *M. haemolytica*, *P. multocida*, *H. somni*, and *M. bovis*.

AROVYN is approved for cattle and swine and is available in vials of 50, 100, 250, and 500 mL. It is produced in the same facility as other Merck Animal Health antimicrobials, such as ZUPREVO® (tildipirosin), and adheres to the same stringent quality control standards.

For more information, visit www.ArovyntforBRD.com or your veterinarian.

PM Modi Officially Opens the World's First Nano Urea Liquid Plant in Gandhinagar



Prime Minister Narendra Modi has inaugurated IFFCO's World's First Nano Urea Liquid Plant in Kalol, Gujarat, in an effort to provide farmers with tools to increase productivity and income.

At a ceremony in Gandhinagar, the Prime Minister dedicated the ultramodern Nano Urea Liquid Fertilizer plant to the nation. Among those present were Amit Shah, Union Home Minister and Minister of Cooperation, Gujarat Chief Minister Bhupendra Patel, and Union Ministers of Health and Family Welfare, Chemicals and Fertilizers Mansukh Mandaviya.

U S Awasthi, MD, IFFCO, explained how the plant works and its various technologies using a walkthrough video that was shown live during the launch.

The use of IFFCO Nano Urea was demonstrated to the farmers present in a film, which was inspired by the Prime Minister's vision of reducing urea use in the soil. He stated that drones will be the vehicle for the Nano Urea revolution, as they will introduce modern farming techniques and practises.

IFFCO has established new manufacturing facilities in Aonla, Phulpur, Kalol (Expansion), Bengaluru and Paradeep, Kandla, Deoghar, and Guwahati to produce Nano Fertilisers.

All of these units will have a design capacity of 2 lakh bottles per day, with a total investment of Rs 3,000 crore, of which Rs 720 crore has already been committed, and will employ thousands of people.

Dileep Sanghani, Chairman of IFFCO, stated that Nano Urea Liquid was created in accordance with the Prime Minister's vision of Atmanirbhar Bharat and Sahkar se Samridhi, with the goal of increasing farmer income. The Indian Farmers Fertiliser Cooperative Ltd (IFFCO) introduced the world's first IFFCO Nano Urea (Liquid) earlier this year, which is included in the Fertiliser Control Order (FCO, 1985).

India to host IDF World Dairy Summit 2022



The most coveted event in the dairy sector, the International Dairy Federation (IDF) World Dairy Summit 2022, will be held in India's New Delhi-NCR from September 12-15 this year, with dairy stakeholders from all over the world attending. This was revealed at a New Delhi curtain raiser event on Tuesday.

Dr. Sanjeev Balyan, Union Minister of State for Fisheries, Animal Husbandry, and Dairying, expressed his delight at India hosting the World Dairy Summit for the first time in 48 years. Furthermore, Shri Atul Chaturvedi, Secretary, Department of Animal Husbandry and Dairying, stated that the World Dairy Summit is the International Dairy Federation's first physical summit following Covid.

"We will benefit from the experience of the International Dairy Federation and the world leaders on dairy who will come to India, and the country will benefit by learning from them what they do for the dairy sector," Shri Chaturvedi, who is also the Chairman of the IDF-Indian National Committee, said.

"IDF cares about the entire dairy chain, and we provide all science-based support to the dairy sector," says Mr. Piercristiano Brazzale, President of the International Dairy Federation (IDF). This year's summit will bring together technicians and experts from all over the world."

"I am pleased to announce the launch of the new IDF Dairy Innovation Awards." The awards will be presented on September 12th, 2022, the first day of the World Dairy Summit. The awards will be given out in 12 categories. All of the information is available on our website, <https://idfwds2022.com>, and you can register until July 1st," he added.

According to Shri Meenesh Shah, Chairman of the National Dairy Development Board and Member Secretary of the Indian National Committee of the International Dairy Federation, the dairy sector is the most important sector for boosting India's rural economy because it provides livelihood opportunities to about eight crore farmers, which is why the World Dairy Summit is important to Indian stakeholders.

Dairy is linked to not only farmers, but also landless farmers. Milk is an important source of income in our country, according to Shri Shah.



Organized Industry on cow based products is a reality now: Shri Parshottam Rupala



Shri Parshottam Rupala, Union Minister for Fisheries, Animal Husbandry, and Dairying said that Global Confederation of Cow-based Industries (GCCCI) has proved that organized Industry on Cow-based products is a reality now. Speaking at the global webinar jointly organized by ICAR-CIRC and GCCCI on the occasion of World Milk Day 2022, Shri Rupala appreciated GCCCI for having established a new dimension by making such a Confederation.

Scientists, Veterinarians, Industrialists, and Farmers from across the globe attended the online event. The topic of the webinar was – ***Sustainability in the Dairy sector as well as Environmental, Nutritional, and Socio-Economic empowerment.***

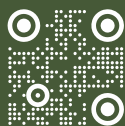
Shri Rupala said that world is now aware about the importance of Cows. He added that the Corona period has established the importance in looking towards means for immunity. He added that the world is returning towards Milk, Ghee, and other Cow products.

He said that youth is showing enthusiasm in Cow Entrepreneurship. **He pointed out that in New India the people working in this sector are be in recognized and appreciated. Speaking on the occasion he informed that the Government of India has approved 4000 Mobile Veterinary Units. He added that one needs to dial 1962 to call for Cattle Ambulance and this will revolutionize this sector.**

GCCI founder Dr. Vallabhbhai Kathiria said that there is a paradigm Shift under Prime Minister Narendra Modi and the country is transforming. He said that the milk of Desi Cow is elixir, keeping us healthy and full of vitality throughout life.

Dr. Abhijit Mitra, Director, ICAR-CIRC talked about CIRC's work, achievements, and research findings for the improvement of cattle for high profitability. He added that the Milk giving capacity of Indigenous Cows is increasing. He further said that **India contributes 21% of total milk production in the world.**

Managing Director of Amul, Dr. R.S. Sodhi discussed sustainability through the Dairy sector. He told supply chain efficiency in the dairy sector of India is the best in the world.



The Union Home Minister Dedicates and Inaugurates Several Development Projects at Panchamrit Dairy in Godhra



On the second day of his visit to Gujarat, Union Home and Cooperation Minister Shri Amit Shah inaugurated and dedicated several development projects at Panchamrit Dairy in Godhra. Shri Amit Shah, Union Home and Cooperation Minister, dedicated the new PDC Bank head office, three mobile ATM vans, a 30 cubic metre per hour capacity oxygen plant built in 250 square metres, and a dedicated Panchamrit butter cold storage and Dairy Plant at Malegaon (Maharashtra), as well as laying the foundation stone for the newly established Dairy Plant at Ujjain (Madhya Pradesh). The event was attended by a number of dignitaries, including Gujarat Chief Minister Shri Bhupendra Patel and Union Minister Shri Purushottam Rupala.

Shri Amit Shah, speaking on the occasion, stated that today's five programmes will strengthen the cooperative movement of three districts (Panchmahal, Malegaon and Ujjain). Today, 1,598 milk markets from Panchmahal, Mahisagar, and Dahod districts stand united, producing approximately 73 thousand litres of milk. A huge success with 18 lakh litres of milk and a revenue of Rs.300 crores.

The Union Cooperation Minister stated that for years, people from all over the country who are involved in the cooperative movement have demanded that the cooperative movement receive the assistance it requires, and that previous governments have failed to respond. Today, I am pleased to report that Prime Minister Shri Narendra Modi established a Ministry of Cooperation at the Centre and made it a priority for the first time a year ago, for the sake of the cooperative movement. The Prime Minister also increased the cooperatives' budget by seven times.

When people in India and abroad hear about Amul, Shri Amit Shah says their eyes light up. It's difficult to imagine a 60-

thousand-crore-dollar cooperative movement. Today, as the Minister of Cooperation, I'd like to state that Prime Minister Shri Narendra Modi has established the Ministry of Cooperation, and that under his leadership, the cooperative sector will undergo a major transformation within the next five years. Many new areas are being discussed, as well as the creation of a database and training. In order to triple the number of PACS, we are considering legal reforms.



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Arla Launches its Largest Dairy Investment to Date in Order to Meet Rising Global Demand for Affordable Dairy Nutrition



Arla officially opened a new production plant at Pronsfeld dairy in Germany today. The expansion is Arla's largest dairy investment to date, and it is a key driver in meeting the growing global demand for sustainable, affordable, and nutritious dairy products.

Arla has invested EUR 190 million in the expansion of its dairy in Pronsfeld, Germany, to increase production of primarily milk powder. Pronsfeld is Arla's largest dairy, and the investment is the company's largest single investment in a site. The expansion will support Arla's international business's expected annual branded volume growth of 5-7 percent in line with the company's five-year Future26 strategy.

The Pronsfeld dairy expansion includes a production plant with a 51-meter-high drying tower that can process 685 million kilos of milk per year, producing around 90,000 tonnes of high-quality milk powder. Because of the nature of milk powder and its long shelf life, it is particularly suited to Arla's international markets, where milk powder is an integral and important part of the local diet, particularly in fast-growing urban areas.

The construction of the manufacturing plant began in 2019. Today, Pronsfeld dairy employs 1000 people and exports dairy products to approximately 70 countries worldwide.

Shri Parshottam Rupala inaugurates the Conclave of 75 Entrepreneurs and Exhibition of 75 Indigenous Livestock Breeds



Shri Parshottam Rupala, Union Minister for Fisheries, Animal Husbandry and Dairying inaugurated the Unnat Pashudhan Sashakt Kisan Conclave-the Conclave of 75 Entrepreneurs and Exhibition of 75 Indigenous Livestock Breeds' in New Delhi today. Dr. L. Murugan, MoS, FAHD and Dr. Sanjeev Kumar Balyan, MoS, FAHD were the Guests of Honour and also delivered address at the event. Shri Parshottam Rupala along with Dr. L. Murugan and Dr. Sanjeev Balyan inaugurated the Digital exhibition to showcase the best 75 indigenous breeds from bovine/caprine/avian/porcine species. Digital exhibition showcased 75 Indigenous Livestock Breeds and success stories of dairy and poultry farmers, FPOs, innovative entrepreneurs, start-ups and industry. Shri Atul Chaturvedi, Secretary, DAHD and Dr. O. P. Chaudhary, Joint Secretary, DAHD were present in the event. Shri Meenesh Shah, Chairman, NDDDB, Shri Sanjay Singal, COO - Dairy & Beverages, ITC Ltd., Shri Sangram Chaudhary, MD, Banaskantha District Cooperative Milk Producers' Union Ltd.

and other representatives of dairy sector were present. More than 1200 farmers were present in the event. The farmers from across the country were connected with the event through 1,000 Common Service Centres.

As a part of Azadi Ka Amrit Mahotsav, Department of Animal Husbandry & Dairying, Ministry of FAHD in association with CII has organised the Conclave with a focus on dairy & poultry farmers, innovative entrepreneurs, startups and industry. Ahead of the Conclave, Shri Rupala performed Gou Puja today.

While addressing the conclave, Shri Rupala mentioned that India's dairy sector is growing rapidly due to the combined contributions of all the stakeholders. The minister said that Government aims to ensure growth of the livestock sector by increasing farmers' access to animal health & credit services.



Shri Rupala launched the Training Programme for A-HELP at the Conclave. The Minister felicitated 3 Padma Shree awardees – Prof. Moti Lal Madan, Dr.

Kushal Konwar Sarma and Dr Sosamma Iype during the event. Further, Shri Rupala felicitated the winners of the Animal Husbandry Startup Grand Challenge 2.0 at the Conclave. The Coffee Table book about 75 Indigenous Breeds & 75 Entrepreneurs was launched at the Unnat Pashudhan Sashakt Kisan Conclave. The event showcased videos of 4 farmers who have achieved recognition at national and global level due to their innovative techniques in farming and dairy sector.



Dr. Murugan, during his address, shared how India is rapidly progressing towards providing quality animal health services at the farmers' doorsteps.

Dr. Balyan elaborated on how the NPDD scheme is advancing the establishment of dairy production & processing infrastructure across India.

Addressing the conclave, Shri Atul Chaturvedi said that the farmers from across the country are connected with the event through 1,000 Common Service Centres. Dr. O. P. Chaudhary

said that all stakeholders must collaborate in a way to ensure that the future generations can benefit from the dairy sector. Dr Praveen Malik, Animal Husbandry Commissioner, DAHD delivered vote of thanks.

The conference at the Conclave is focussing on three technical thematic sessions namely Increasing productivity and improving animal health, Value addition and market linkages and Innovation and technology. The focus is on showcasing the key trends, identifying the opportunity and drawing a clear roadmap for the dairy and poultry sector with focus on enhancing farmers' incomes. The sessions in the Conclave are showcasing some of the innovative solutions/best practices that offer the potential to transform the dairy and poultry sector and enhance farmers' incomes and will aim towards creating a road map for the dairy and poultry sector. It is a deep dive into the emerging opportunities and will be a platform to learn from the experiences of progressive farmers, entrepreneurs, as well as start-ups as to how value addition, diversified product portfolio and improved market access have helped in changing the dynamics in the dairy and poultry sector and also created enhanced income opportunities.



August 2022

- The Dairy Expo**
@ The Livestock & Agri Expo
Dates: August 3-5, 2022
Venue: India Expo Center & Mart
City: Greater Noida - Delhi
Country: India
Email: info@thedairyexpo.in
Website: www.thedairyexpo.in
- ILDEX Vietnam 2022**
Dates: August 3-5, 2022
Venue: SECC, HCM
City: Ho Chi Minh City
Country: Vietnam
Email: panadda@vnusiapacific.com
Website: www.ildexvietnam.com
- Livestock Malaysia**
Dates: August 10 - 12, 2022
Venue: MITC Complex
City: Melaka
Country: Malaysia
Email: livestockmalaysiamy@informa.com
Website: www.livestockmalaysia.com
- Livestock Philippines 2022**
Dates: August 24 - 26, 2022
Venue: World Trade Center
City: Pasay city
Country: Philippines
Email: rita.lau@informa.com
Website: www.livestockphilippines.com

September 2022

- Victam Asia 2022**
Dates: September 7 - 9, 2022
Venue: IMPACT Exhibition Center
City: Bangkok
Country: Thailand
Website: www.victamasiasia.com

October 2022

- World Dairy Expo**
Dates: October 2 - 7, 2022
Venue: Alliant Energy Center
City: Madison, Wisconsin
Country: United States
Website: www.worlddairyexpo.com
- Sommet-elevage, France**
Dates: October 4 - 7, 2022
Venue: Grande Halle Showgrounds
City: Ferrand
Country: France
Website: www.sommet-elevage.fr
- VIETSTOCK 2022**
Dates: October 12 - 14, 2022
Venue: Saigon Exhibition & Convention Center (SECC)
City: Ho Chi Minh City
Country: Vietnam
Website: www.vietstock.org

November 2022

- EuroTier**
Dates: November 15 - 18, 2022
Venue: Deutsche Messe AG
City: Hannover
Country: Germany
Website: www.eurotier.com

December 2022

- Agri Livestock 2022**
Dates: December 2 - 4, 2022
Venue: Myanmar Expo Hall
City: Yangon
Country: Myanmar
Website: www.agrilivestock.net

India Denmark signs a G2G agreement to establish a dairy centre of excellence in Himachal Pradesh



India Denmark signed a G2G agreement in the dairy sector to establish a Center of Excellence in Himachal Pradesh. This will be a physical setup with cutting-edge Danish dairy technology installed throughout the chain. Both countries have had a long-standing relationship in the dairy sector since the days of Operation Flood. Danish cows are highly valued in India due to their high milk productivity and nutritional value. Denmark, in fact, is synonymous with Dairy in India.

During an official visit to Denmark on May 3-4, 2022, Her Excellency Ms. Mette Frederiksen, Prime Minister of Denmark, hosted His Excellency Shri Narendra Modi, Prime Minister of the Republic of India.

The two Prime Ministers welcomed the Letter of Intent to establish a Green Shipping Center of Excellence, which will strengthen bilateral maritime cooperation. The two leaders also agreed to expand agricultural cooperation through a Joint Declaration of Intent to establish, among other things, a Dairy Centre of Excellence.

India and Denmark are collaborating in technology, research and development, capacity building, policy and regulations, and learning from each other's experiences under the umbrella of a

unique partnership called the 'Green Strategic Partnership.'

Amul Dairy Signs a MOU for Liquid Biofertilizer Technology with Anand Agricultural University

AAU and Amul Dairy will work together to effectively transfer liquid biofertilizer technology in order to reduce agricultural chemical fertiliser use.

"It's because of Prime Minister Modi's commitment to serving the interests of Indian farmers and making Indian agriculture 'Atma Niobrara by selling eco-friendly merchandise," an AAU spokesperson said in response to the announcement.

According to Jhala, the MoU is intended to promote not only the market and business of low-cost, reliable, and demand-driven liquid biofertilizer manufacturing, but also effective technology transmission to change farmers' attitudes toward using chemical fertilisers excessively.

According to Ramsinh Parmar, chairman of Amul Dairy, the biggest barrier to any game-changing technology is mass adoption.

"The global brand value of Amul and AAU will undoubtedly act as the most active catalyst to protect the larger interests of farmers and the environment," Katherine stated.

Assam signs an agreement with the NDDDB to increase daily milk output

The Assam government has signed an agreement with the National Dairy Development Board (NDDDB) to delegate operational management of the East Assam Milk Producers' Cooperative Union Limited to the national dairy organisation.



Representatives from both sides signed the agreement in the presence of Chief Minister Himanta Biswa Sarma during the day-long Northeast Dairy Cooperative Conclave 2022 held at the Sankardev Kalakshetra complex.

Assam chief minister Himanta Biswa Sarma expressed hope that the agreement to hand over operational management of the East Assam Milk Producers' Cooperative Union Limited to NDDDB would improve the financials of the ailing cooperative body, as it did in the case of Purabi Dairy, while speaking to milk cooperative unions from across the Northeast states at the first ever Northeast Dairy Cooperative Conclave at the Sankardev Kalakshetra here.

In comparison to Gujarat and Karnataka (with 2 crore litres and 80 lakhs of daily milk production, respectively), the state's overall daily milk production is only about 1 lakh litres (against a requirement of nearly 42 lakh litres). The chief minister spoke about the measures already in place or in the pipeline to bring about a "white revolution" in the state.

The World Bank and the Maharashtra government partners to launch the SMART AgTech Integration Facility 2022

The Maharashtra government and the World Bank have partnered to launch the SMART Agtech Integration Facility 2022, which aims to transform rural Maharashtra through disruptive



agricultural technologies (DATs). This facility is currently accepting applications from DAT solution providers with a presence in India for digital and technical innovations in agriculture.

The facility will allow selected DAT solution providers to collaborate directly with Maharashtra's Community Based Organizations (CBOs) to implement transformative solutions.

The facility is part of the Hon. Balasaheb Thackeray Agribusiness and Rural Transformation (SMART) project, which aims to enable smallholder farmers to participate in competitive agriculture value chains, facilitate agri-business investments, increase market access and productivity, and improve crop resilience to recurrent floods and droughts in the state.

Facilitating DAT adoption among CBOs in the state is a key sub-component of the project. The SMART Agtech Integration Facility 2022 will identify relevant DAT solution providers and facilitate interactions between technology providers and CBOs so that appropriate solutions can be customised and adopted.

The project's main goal is to make it easier for CBOs in the state to adopt DATs. The SMART Agtech Integration Facility 2022 will identify relevant DAT solution providers and facilitate interactions between them and CBOs to enable customization and adoption of appropriate solutions.

The SMART AgTech Integration Facility is looking for DAT solution providers to help them implement digitization solutions for farmer cooperatives, build value chain actor aggregation platforms, enable precision agriculture and automation services, work with urban food systems and logistics solutions, develop market linkage and traceability solutions, and make financial services more accessible.

'Kerala will provide dairy farmers with year-round subsidies,' says Animal Husbandry Minister J. Chinchu Rani



According to the Minister, female cattle-care workers in the Animal Husbandry Department will be paid more beginning next month for their efforts to sell more KFL products to dairy farmers.

Because Kerala continues to pay farmers the highest milk price in the country, any further increase in market rates will jeopardise the influx of low-cost dairy products. Nonetheless, the government recognises that farmers' milk sales revenue does not cover the cost of keeping cattle.

As a result, the administration has decided to provide farmers with subsidies through collaboration with the Animal Husbandry and Dairy Development departments, as well as Milma and local self-government institutions, according to the Minister,

who spoke at a seminar hosted by Kerala Feeds Ltd (KFL) in Thrissur.

"We have made arrangements to ensure that subsidies reach farmers' bank accounts directly," she said during the symposium's opening session on 'Cattle-feed: Quality, Price, and Availability.'

Chinchurani stated that efforts have begun to grow the cereal grain on a large scale in the State, citing a lack of maize as a key raw material for cattle feed as a persistent operational issue for the public-sector KFL.

"KFL has expressed its willingness to purchase any amount of maize," she added, revealing that a delegation of scientists from top institutions across the country will arrive in Kerala this weekend to assist in carrying out the plan.

Mother Dairy intends to become "plastic waste neutral" by fiscal year 2023-24.



Mother Dairy Fruit & Vegetable Pvt Ltd announced on Thursday that it has set a target of recycling over 7,000 million tonnes (MT) of post-consumer used plastic waste in the current fiscal year and plans to become a 'plastic waste neutral' company by 2023-24.

To become plastic waste neutral, the company will collect, recycle, or co-process the same amount of plastic waste that is used in its product packaging over the course of a year.

Mother Dairy launched its plastic waste collection and recycling/co-processing initiative in Maharashtra in FY2018-19 under the Extended Producer Responsibility (EPR)

programme, and expanded the initiative to a pan-India scale for Multi-Layered Plastic Waste (MLP) in FY2019-20, in accordance with the Plastic Waste Management (PWM) Rules 2018 as amended.

Mother Dairy said in a statement that it has been working closely with its suppliers and leading Waste Management Agencies (WMA) to implement the National EPR framework.

From June 2018 to March 2022, the Company collected and co-processed/recycled approximately 8,164 MT of post-consumer used plastic waste (5,318 MT of Single Layered Plastic Waste and 2,846 MT of Multi-Layered Plastic Waste) through its associated partners.

As a responsible organisation, we reaffirm our commitment to a safer, cleaner environment for a brighter future. "Our Token Milk (branded loose milk) offering since 1984 has helped us save approximately 7 lakh kg of plastic entering the environment each year," said Manish Bandlish, Managing Director, Mother Dairy Fruit & Vegetable Pvt Ltd.

"In keeping with our commitment, we have now set our sights on becoming a plastic waste neutral organisation by FY2023-24, while also contributing to keeping our planet safe for future generations," he said.

Mother Dairy noted in the statement that the company is also working to reduce plastic consumption by providing alternatives to plastic straws used for the consumption of dairy beverages and will soon be available with paper-based straws across its markets of operations.

Kutch's Sarhad Dairy plans to open a new factory in Anjar

Sarhad Dairy of Kutch is preparing to open its milk processing plant in Chandrani village, Anjar taluka, with a capacity of four lakh litres per day.



The dairy intends to manufacture peda, kaju katli, honey, and fruit juice at his plant and sell them under the Amul brand. Prime Minister Narendra Modi laid the foundation stone for this Rs 130 crore plant in December 2020.

Following the completion of the new facility, the dairy will produce four lakh litres of milk per day, up from the current capacity of five lakh litres.

Sarhad Dairy's chairman, Valamji Humbal, stated, "The dairy will be able to process whole milk in the Chandarni factory after the new facility is completed, saving it a significant amount of money on transportation costs. In the future, we intend to manufacture peda, kaju katli, and honey".

"The dairy has conducted a poll of honey producers and will make arrangements to buy from them. Honey is produced by many farmers in Kutch, but they do not have access to a broader market. We'll start by getting honey and shipping it to honey-processing dairies in Banas and Gandhinagar", he added.

Guru Angad Dev Veterinary and Animal Sciences University celebrates World Milk Day

The College of Dairy Science and Technology (CODST), Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, celebrated World Milk Day on June 6, 2022, under the auspices of the university's ICAR-funded Institutional Development Plan (IDP). The college organised a Food Festival in honour of World Milk Day.

The chief guest on this occasion was Dr. Inderjeet Singh, Vice-Chancellor of GADVASU. He praised the college for commemorating World Milk Day by involving students in the preparation and sale of high-quality milk products. He believes that adding value to milk is the best way to maximise profits. This initiative will instil entrepreneurial skills in students.

Dr. Ramneek, Dean of CODST, stated that the college is committed to producing trained dairy graduates and postgraduates, and that the college's Experimental Dairy Plant (EDP) is committed to supplying fresh and quality milk and milk products to consumers.





The festival's main draw were newly launched dairy-based food products such as goat cheese, ricotta cheese spread, natural vanilla ice cream, and muskmelon ice cream, as well as other milk products such as whey drinks, sweet and masala Lassi, hazelnut cold coffee, and so on. These products were created by college students using milk from the GADVASU Dairy Farm. A poster-making competition was also held, with approximately 15 students participating.

Zenex Animal Health becomes the first corporate member of the Association of Mastitis.

Association of Mastitis offers different types of membership. Zenex Animal Health has become the Association of Mastitis' first corporate member. The Association of Mastitis is a professional organisation dedicated to the advancement, innovation, and revolution of the dairy industry and animal health, particularly udder health. Encourage the use of new technologies in the dairy



industry, particularly in the diagnosis, treatment, prevention, and control of mastitis.

The association's main goal is to bring together all veterinary clinicians, scientists, researchers, and policymakers in the field of animal health in general, and mastitis in particular, to educate farmers about healthy udders, clean milk production, major production diseases, and so on.

This platform is for field veterinarians, scientists, researchers, farmers, and policymakers to share their perspectives and knowledge for the development of the dairy sector through improved milk production, milk quality, and dairy products.

The Odisha dairy farmers'

association wants the milk MSP to be Rs 50 per litre.

On 4 May 2022, a group of dairy farmers in Odisha wrote to Union Minister Sanjeev Balyan, demanding a minimum support price of Rs 50 per litre for milk. Rabi Behera, chairman of the Odisha Milk Farmers' Association, met with Balyan, who is visiting the state for two days.

Milk producers have ensured that India maintains its global leadership in the sector, but they do not receive a fair price for their product, according to the association's representation. "As a result, in the current era of price rises, there is a need to fix up milk MSP at Rs 50 per litre," it said.

The ICDS scheme is one of the Center for Early Childhood Care and Development's flagship programmes, and the Mid Day Meal is one of the world's largest initiatives to improve school-aged children's nutrition through cooked food.

The association also advocated for the establishment of milk parlours along national highways, which would provide additional employment opportunities for unemployed youth. It also urged the minister to take the initiative of establishing milk hubs on the premises of various temples across the country, where dairy products could be made available for puja.

They have also called for the protection of grazing land throughout the country in order to boost animal husbandry. Behera stated that the minister appreciated the association's demand and assured him that the necessary steps would be taken to boost the sector. Behera stated that the minister appreciated the association's demand and assured him that the necessary steps would be taken to

Editorial Calendar 2022

Publishing Month: January Article Deadline : 30th, Dec. 2021 Advertising Deadline : 3rd, Jan. 2022 Focus : Disease Prevention	Publishing Month: February Article Deadline : 30th, Jan. 2022 Advertising Deadline : 3rd, Feb. 2022 Focus : Herd Management	Publishing Month: March Article Deadline : 28th, Feb. 2022 Advertising Deadline : 3rd, March 2022 Focus : Heat Stress	Publishing Month: April Article Deadline : 30th, March 2022 Advertising Deadline : 3rd, April 2022 Focus : Cold Chain Mgmt.
Publishing Month: May Article Deadline : 30th, April 2022 Advertising Deadline : 3rd, May 2022 Focus : Nutrition	Publishing Month: June Article Deadline : 30th, May 2022 Advertising Deadline : 3rd, June 2022 Focus : Environmental Control	Publishing Month: July Article Deadline : 30th, June 2022 Advertising Deadline : 3rd, July 2022 Focus : Calf & Heifer Mgmt.	Publishing Month: August Article Deadline : 30th, July 2022 Advertising Deadline : 3rd, August 2022 Focus : Processing
Publishing Month: September Article Deadline : 30th, August 2022 Advertising Deadline : 3rd, September 2022 Focus : Milking Practices	Publishing Month: October Article Deadline : 30th, September 2022 Advertising Deadline : 3rd, October 2022 Focus : Feed & Fodder	Publishing Month: November Article Deadline : 30th, October 2022 Advertising Deadline : 3rd, November 2022 Focus : Winter Management	Publishing Month: December Article Deadline : 30th, November 2022 Advertising Deadline : 3rd, December 2022 Focus : Methane Emission

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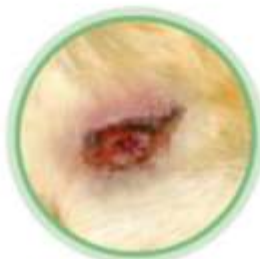
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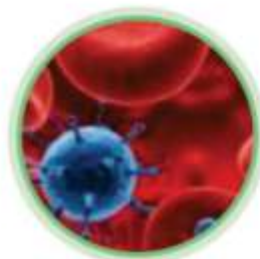
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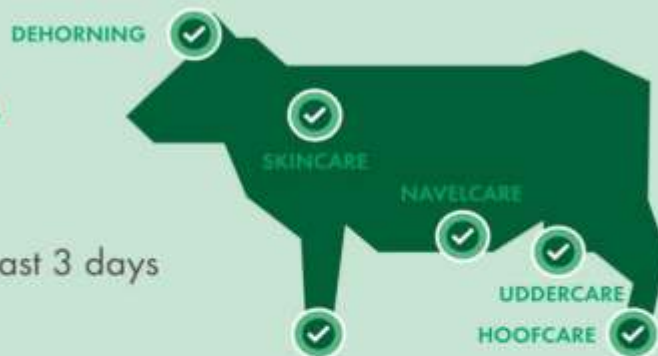
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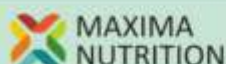
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