LIVESTOCK TECHNOLOGY

LT

Pulse of Livestock Industry

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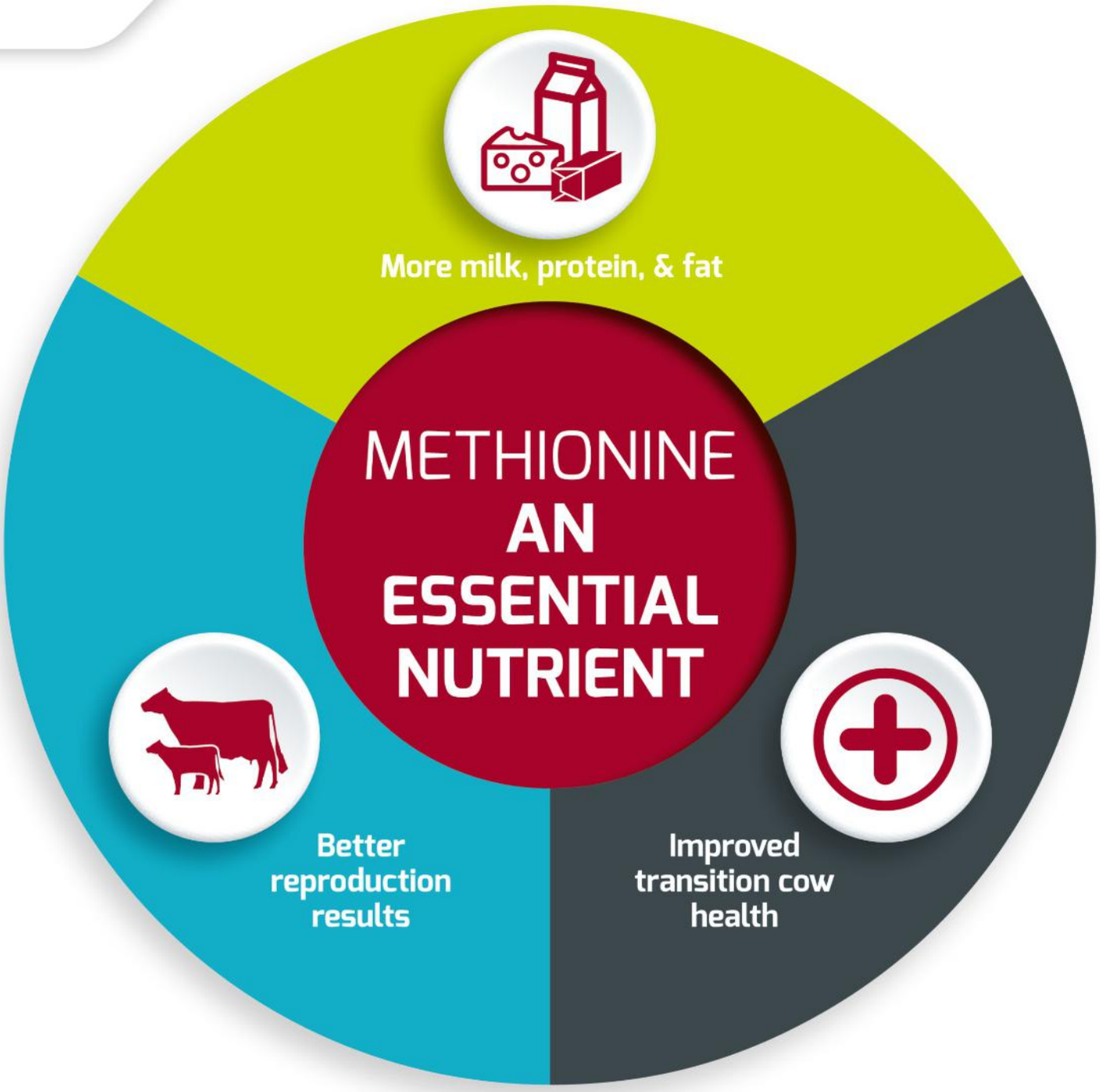

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From the Editor's Desk

India will not compromise the future of dairy farmers while making a deal with the USA or any other country

Even as India and the US look to finalise an interim trade deal, dairy and agriculture continue to be sticky issues. India has hardened its stance on opening its dairy and agriculture sector to the US, a move experts say is necessary, as opening the dairy sector may cause huge losses. A recent State Bank of India (SBI) analysis reveals that Indian dairy farmers could face annual losses of Rs 1.03 lakh crore if the sector opens to US imports. India's dairy industry is integral to its rural economy, generating approximately 2.5-3 per cent of the national Gross Value Added (GVA), equivalent to Rs 7.5-9 lakh crore. The sector employs about 8 crore individuals directly, creating one employment opportunity for every Rs 1 lakh contribution to GVA. The SBI analysis highlights concerns about the impact on small-scale dairy farmers' income, noting the substantial subsidies received by the American Dairy industry.

According to the SBI report, if the dairy sector is opened up, the price of milk in India is likely to drop by at least 15 per cent, which could cause a potential annual loss of Rs 1.03 lakh crore to dairy farmers. SBI's report underscores the substantial risks to Indian farmers' income from US dairy competition, suggesting that India's milk imports could rise by approximately 25 million tonnes per year. According to the analysis, a 15 per cent reduction in milk prices would adversely affect farmers' earnings and diminish the industry's economic significance. The calculated GVA reduction would reach Rs 0.51 lakh crore, considering expenses for inputs including feed, fuel, transportation, and the uncompensated family workforce. The anticipated advantages include simplified visa procedures, expanded outsourcing prospects, American investments in cold storage facilities and precision farming technologies, alongside reduced costs for agricultural necessities such as feed, equipment, and veterinary supplies. The analysis indicated that whilst liberalising the dairy sector could foster enhanced economic and strategic partnerships with the US, it is crucial to consider the potential negative effects on the livelihoods of millions of Indian farmers. India levies significant taxes on dairy imports: 30% on cheese, 40% on butter and 60% on milk powder. Considering these, it is not profitable to import these products from countries like New Zealand and Australia, which usually offer cheaper prices.

HR Food Processing is engaged in the manufacturing and sale of milk and milk products. With its premium brand 'Osam', and has established a strong dairy ecosystem in Bihar and Jharkhand. Its turnover was Rs 282.6 crore in FY25. The objective of acquisition is to enter new geographical markets, particularly in Eastern India. Since HR Food Processing operates in a similar line of business, this strategic move is expected to strengthen Dodla Dairy's presence in Bihar, Jharkhand, West Bengal, and the broader Eastern Indian dairy market. As a market, Eastern India is a very exciting market for the dairy industry, with faster growth as compared to the national average. This market supports a large population, & milk consumption has immense headroom for growth driven by high urbanization potential and strong GDP growth.

Amul has retained its crown as India's most valuable food brand, according to the latest Brand Finance India 100 – 2025 report. With a brand value of $4.1 billion, the Gujarat-based dairy giant outpaced competitors by a wide margin. Mother Dairy secured the second position with a brand value of $1.15 billion, moving up from third place last year. Among food brands, Britannia took third place, followed by Karnataka's Nandini and Dabur in fourth and fifth positions, respectively.

Gujarat has successfully translated the Prime Minister's vision of women's empowerment into actionable initiatives. By prioritising the cooperative model, the state has not only enhanced women's leadership in the rural economy but also strengthened the cooperative sector. This approach emphasizes the vital role of economically and socially empowering women as part of building a self-reliant India. Through these efforts, Gujarat exemplifies how cooperative models can uplift communities and foster sustainable development. Between 2020 and 2025, the number of women-led dairy cooperative societies grew by 21% from 3,764 to 4,562. During the same period, women's participation in the management committees of village-level cooperative societies has increased by 14%. The number of women in these committees has risen from 70,200 to 80,000. Milk procurement by women-led societies has increased by 39% from 41 lakh liters per day (2020) to 57 lakh liters (2025). This accounts for 26% of Gujarat's total milk procurement. This success stands as a strong testament to the empowerment of women through the cooperative model.

Editor

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- खनिज और विटामिन से युक्त, बेहतर उत्पादकता और रोग प्रतिरोधक क्षमता के लिए।
- बेहतर दूध उत्पादन, वसा (फैट) और एस.एन.एफ के लिए।
- रुमन माइक्रोब द्वारा आर.डी.पी. (R.D.P) में सुधार।
- बेहतर स्वास्थ्य और बीसीएस में सुधार के लिए।
- बेहतर एवं सम्पूर्ण उत्पादक काल (लैक्टेशन पीरियड) हेतु पशुओं के लिए सर्वोत्तम आहार।
- मक्की के साइलेज के साथ खिलाने से अधिकतम लाभ।
- दूधारू पशुओं के शीघ्र गर्भधारण में सहायक।
- 1 किलो फीड प्रति 2.5 लीटर दूध उत्पादन के लिए।

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एफ्लाटॉक्सिन कंट्रोल्ड

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PULSE OF LIVESTOCK INDUSTRY

AUGUST 2025

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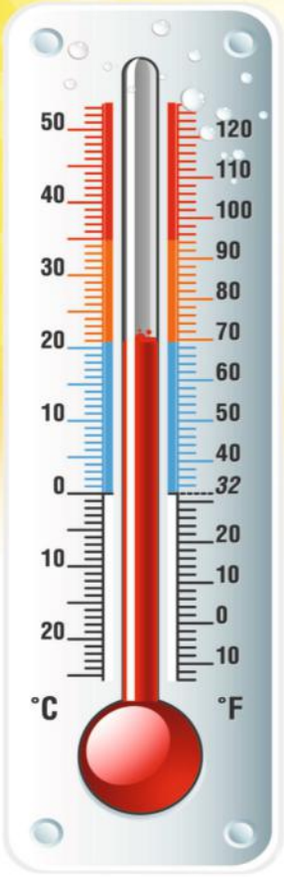
Temperature is rising...



...LEVUCELL®SC maximizes milk production during heat stress

Levucell® SC
Rumen Specific Yeast

€ EU approved for use in bovine destined for milk and meat production, dairy goats, dairy ewes and lambs (E1711/4a1711/4b1711). Not all products are available in all markets nor associated claims allowed in all regions.

Heat stress adversely impacts dairy cow performance

Did you know that heat stress can cost over 400€/cow/year[1]? The consequences of heat stress include significant losses in milk production, (which can be up to 35%), coupled with rumen dysfunction and reduced reproduction rates.

The level and impact of heat stress on cows is influenced by a combination of ambient temperature and relative humidity. New research has shown that temperatures in excess of 20°C and 50% relative humidity[2] will lead to cow discomfort and reduced milk production.

1 Saint Pierre et al., 2003 - 2 Burgos & Collier, 2011.

Even under conditions of heat stress, LEVUCELL®SC will maximize diet potential and your Income Over Feed Costs

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- Increased Feed efficiency : up to 7%*, +120g of milk/kg/Dry Matter Intake.
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**Marfola, et al, ADSA 2010.*

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Dry Period

A Boon for the Dairy Farm

The dry period in dairy cattle is one of the most important yet often underestimated phases in a cow's productive life. While it may seem like a non-productive interval, it is actually the foundation for the cow's next successful lactation. Proper management of this phase can lead to improved milk yield, better udder health, enhanced fertility, and overall profitability of the dairy farm.

Understanding the Dry Period

The dry period is the non-lactating phase between two successive calvings, typically lasting 45 to 60 days. This period allows the udder tissue to undergo physiological rest and regeneration. It is during this time that the mammary gland involutes, removes old and damaged cells, fights latent infections, and rebuilds new milk-producing secretory cells. Without a proper dry period, these critical biological processes remain incomplete, leading to lower yields and higher mastitis risk in the next lactation.

Ideal Duration Based on Milk Yield

- High-producing cows (>20 L/day): 60 days
- Medium producers (10–20 L/day): 45–60 days
- Low producers (<10 L/day): 40–45 days
- First-lactation cows: Preferably a longer rest period of 60 days

Shorter dry periods may be used selectively for cows with lower yield or extended lactations, but the general goal should be 60 days, particularly in high-performing herds.

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Innovation is in our DNA

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- Transition stress
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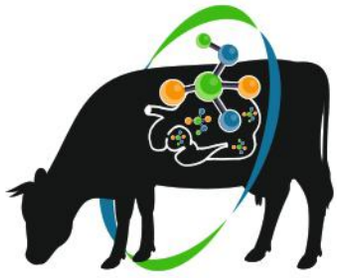
- Milk fat
- Lameness



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Enzymes Blend for Mastitis Management

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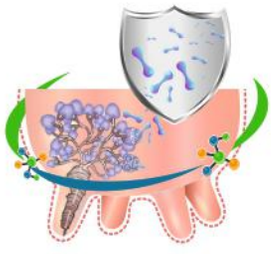
- Anti-Fibrolytic action on chronic wound
- Tissue regeneration factors
- Assists in alveoli rejuvenation during dry period



Enhance Life Bonds

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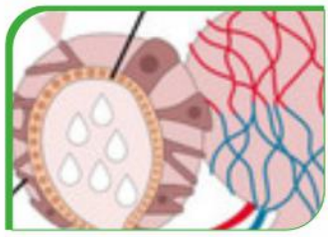
Biological Changes During the Dry Period



Immediately after stopping milking, pressure builds up in the udder and triggers the cessation of milk synthesis. Immune cells enter the gland to clear bacteria and debris. Over the next few weeks, epithelial cells lining the alveoli regenerate, restoring the udder's secretory capacity. By the last 2–3 weeks of gestation, colostrum formation begins, rich in antibodies for the newborn calf. A properly managed dry period ensures complete recovery and sets the stage for healthy colostrum and peak milk production post-calving.

Managing Body Condition and Nutrition

Body Condition Score (BCS) should be carefully monitored:

- Target BCS at dry-off: 3.0 to 3.25 (on a 5-point scale)
- Avoid over-conditioning (BCS > 3.75) as it increases risk of ketosis and fatty liver
- Thin cows (BCS < 2.75) may not meet energy demands post-calving

Dry period is an excellent time to adjust BCS slowly and safely through proper nutrition.

The dry period can be divided into:

- Far-Off Period (Day 1 to Day 35):
  Emphasis on high-fiber, low-energy diets with limited calcium to prevent milk fever
  Forages like mature grass hay or low-quality silage are ideal
  Provide a good quality mineral mix with vitamin E, selenium, and zinc

Close-Up Period (Last 21 days before calving):

- Gradually introduce transition feed with slightly higher energy Add anionic salts to reduce risk of hypocalcemia
  Introduce key supplements such as rumen-protected choline, live yeast, and MOS Maintain protein levels at 12–14% and balance dietary cation-anion difference (DCAD)

The Role of Teat Sealants and Dry Cow Therapy

At the time of drying, long-acting intramammary antibiotic formulations are infused into each quarter to eliminate existing subclinical infections. Following this, a sterile internal teat sealant is infused to provide a physical barrier that protects the teat canal from new infections. In high-risk environments, external teat sealants or sprays may also be used. These preventive steps significantly reduce mastitis incidence in early lactation.

Precautions During Dry Period

- Maintain excellent hygiene during drying procedure
- House cows in clean, dry pens with good ventilation
- Avoid sudden diet changes or stressful movement between groups
- Monitor for signs of mastitis or premature calving
- Ensure dry cows are not accidentally milked by mistake

Global Brand to Manage DCAD during Humid season

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Step-by-Step Field Protocol for Drying Off High-Producing Cows

Pre-Dry-Off Phase (Day -7 to Day -1)

- Identify cows due for dry-off (~60 days before expected calving)
- Record milk yield and health status (mastitis history, SCC if available)
- Target BCS: 3.0 to 3.25
- Begin reducing concentrate by 30–50% and increase roughage
- Move cow to dry cow pen and prepare clean, calm housing

Dry-Off Day (Day 0)

1. Milk the cow completely one last time
2. Clean each teat thoroughly with alcohol swabs
3. Infuse intramammary dry cow antibiotic into each quarter
4. Follow with sterile internal teat sealant (do not massage upward)
5. Apply post-milking iodine dip
6. Mark the cow clearly as "DRY" with expected calving date
7. Move the cow to designated dry cow pen

Post-Dry-Off Monitoring (Days 1 to 7)

- Daily check for swelling, heat, or teat leakage
- Maintain clean bedding and calm surroundings
- Avoid stressful movements and ensure constant water access

What to Do if There Are Issues

- Mild Swelling (no heat): Normal in first 2–3 days. No treatment required.

- Swelling + Heat + Pain: Suspect mastitis. Do not milk. Contact veterinarian. Anti-inflammatories and systemic antibiotics may be required.
- Teat Leakage: Apply external teat sealant. Ensure bedding is clean and dry. Avoid milking unless infection is confirmed.

Dry Period Nutrition (Day 8 to Day 60)

- Continue high-fiber, low-energy feeding during far-off period
- From Day 35 onward, introduce close-up ration with moderate energy and anionic salts
- Supplements to include:
  - o Rumen-protected choline (15–30 g/day)
  - o Vitamin E and selenium
  - o Live yeast cultures and MOS
  - o Bypass fat (if BCS is <3.0)

Final Week Before Calving

- Observe signs of calving and shift to clean maternity pen
- Provide transition diet and avoid feed changes
- Prepare clean calving equipment and ensure adequate supervision

Conclusion

The dry period is not a passive break but an active investment into the cow's future productivity. It provides the mammary gland and entire body the time to recover, reset, and rebuild. When managed correctly, it enhances peak milk yield, improves colostrum quality, reduces disease risk, and increases the longevity of the animal in the herd. Farms that implement structured dry-off protocols, monitor body condition, and provide tailored nutrition during this phase consistently outperform others. A well-managed dry period is not a cost—it is a cornerstone of profitable dairy farming.

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Gyandhara

Badhiya Wala Pashu Aahar

Ritu Agarwal, Managing Director, Gyandhara Industries.

A COMPANY THAT HAS EVOLVED FROM SUPPORTING GYAN DAIRY TO BECOMING A SIGNIFICANT FORCE IN THE REGIONAL FEED INDUSTRY, TRULY REVOLUTIONIZING THE SECTOR.

Gyandhara Industries began as a captive feed solution specifically designed for Gyan Dairy, with the primary goal of providing high-quality cattle feed to their network of milk suppliers. This strategic initiative quickly gained substantial traction as farmers observed tangible improvements in both the productivity of their livestock and their overall animal health. What started as an essential internal support system soon expanded successfully into the open market, allowing Gyandhara to establish itself firmly as one of Uttar Pradesh's leading cattle feed manufacturers, supported by a robust and efficient distribution network.

ROOTED IN RURAL WISDOM, BUILT ON SCIENCE

Gyandhara's philosophy is deeply rooted in a profound respect for dairy farmers, operating on the guiding principle of "**Achha Aahar, Achha Utpadan" (Good Feed, Good Output).** They meticulously develop feed variants that are precisely tailored for both buffalo and cow dairying practices prevalent in Uttar Pradesh and Bihar. Their formulations are carefully balanced in terms of TDN (Total Digestible Nutrients), protein, fat, and essential micronutrients. These formulations are specifically designed to improve milk yield, enhance body conditioning, and optimize reproductive performance, thereby ensuring both the well-being of the animals and the profitability for the farmers.

UNWAVERING COMMITMENT TO QUALITY & SAFETY

Quality and safety are paramount at Gyandhara, forming the bedrock of their operations. All products consistently meet BIS (Bureau of Indian Standards) compliance and are rigorously aflatoxin-controlled. Their unwavering commitment to quality is further reinforced by the advanced analytical techniques employed, including the use of NIR (Near-Infrared) machines and MPAES (Microwave Plasma Atomic Emission Spectroscopy) technology for comprehensive heavy metal testing. This dedication to excellence has earned the trust of countless farmers and channel partners alike.

Currently, their state-of-the-art Sandila plant produces 500 MT per day. To effectively meet the ever-growing demand, they are launching a new, cutting-edge 1000 MT/day plant in Trishundi, Sultanpur, which will be equipped with advanced automation and sophisticated traceability systems. This significant expansion will increase their total production capacity to an impressive 1500 MT per day, strategically positioning them among the largest integrated cattle feed producers in northern India.

ENABLING, NOT JUST SELLING

Gyandhara truly stands out through its profound focus on education and empowerment, going beyond mere sales. They actively engage with farmers through impactful on-ground programs, timely WhatsApp advisories, and innovative initiatives such as Gyandhara Manthan, all aimed at simplifying complex feed science into easily understandable concepts. By diligently promoting balanced nutrition over fragmented feeding practices, Gyandhara effectively helps farmers unlock greater value and potential from their cattle.

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> **What began as a solution for Gyan Dairy's internal supply chain has today become a purpose-driven movement. Our unwavering focus on quality, farmer trust, and science-backed nutrition continues to guide us every step of the way.**
>
> ***- Ritu Agarwal***

THE ROAD AHEAD

With a turnover exceeding ₹300 crores and an expanding presence across Uttar Pradesh, Bihar, and various parts of eastern India, Gyandhara has far surpassed its initial mandate as a captive feed solution. They continue to operate with the unwavering goal of providing high-quality, dependable nutrition to every dairy farmer, a mission that is consistently backed by sound scientific principles, unwavering integrity, and genuine care.

Gyandhara is immensely proud to carry forward the deep-seated trust that forms the fundamental foundation of the dairy world - the vital bond between farmer and cattle, the confidence between brand and market, and the harmonious blend of tradition and innovation.

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WHAT YOU LEARN

1. Basics of feed manufacturing
2. Receiving and sampling for feed ingredients
3. Quality assurance and control
4. Storage and grain quality management of particle size or grinding
5. Batching and mixing system, premixing
6. Pelleting including cooling and crumbling
7. Liquid applications
8. Extrusion process including drying and cooling
9. Finish feed load-out
10. Animal nutrition for feed manufacturing
11. Maintenance

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- Professionals with 1-5 years of work experience in the animal feed milling industry
- Aspiring early-to-mid career protein professionals
- Does NOT require prior formal feed milling education

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MEET YOUR INSTRUCTORS

YOUR INTERNATIONAL EXPERTS

DR. CARLOS CAMPABADAL

Faculty Member, Department of Grain Science and Industry, Kansas State University

Dr. Carlos Campabadal is a faculty member at the Department of Grain Science and Industry at Kansas State University focusing his work on the International Grains Program Institute (IGP) as an extension specialist and leader focused on outreach in the areas of grain storage, quality and processing, U.S. grain grading, export systems, and feed manufacturing. He conducts applied research in stored product protection focusing on grains, oilseeds and its co-products. He is active in international development with several projects with USAID and USDA in Central America and in Africa. He was born and raised in Costa Rica, Central America.

He obtained his doctoral degree in Agricultural and Biological Engineering from Purdue University focusing on Stored Product Protection and was a part of the Post-Harvest Education and Research Center (PHERC). He obtained his master's degree in Agricultural Engineering at the University of Illinois focused on grain processing. Before, his graduate studies and after obtaining a B.S. degree in Mechanical Engineering from the University of Costa Rica, he worked in his family feed mill company for three and a half years as a process and maintenance engineer. His previous experience includes animal farm management in beef cattle and swine farms. Dr.Carlos has travelled throughout Latin America, Africa, Asia, and Europe as a technical consultant, and speaker in more than 35 countries and 50 short courses and seminars in the areas of grain storage and feed manufacturing for U.S. Grains Council, U.S. Soybean Export Council, U.S. Wheat Associates, USDA, WISHH, World Bank, and private companies. He has also presented his research at several scientific and professional conferences, and has several publications in scientific journals. He is still involved in his family feed manufacturing and farm business operations.

DR. WILMER JAVIER PACHECO

Extension Specialist and Associate Professor, Department of Poultry Science, Auburn University

Dr. Wilmer Pacheco was born in Honduras where he obtained a BS in Food Science in 2005. Shortly after graduation, Dr. Pacheco began a feed mill manager training program with Murphy Brown, LLC in Laurinburg, North Carolina where he was responsible for overseeing the production of approximately 10,000 tons of pellet feed per week. In June 2009, Dr. Pacheco was awarded a fellowship in the Department of Poultry at North Carolina State University, where he earned his Master's in Poultry Science and his Ph.D. in Physiology and Nutrition. Currently, Dr. Pacheco is an Associate Professor and Extension Specialist at Auburn University in the State of Alabama. His research activities are focused on understanding the interrelationships between feed processing and nutrition on broiler performance. Additionally, Dr. Pacheco conducts research on nutrition strategies to reduce production costs, improve broiler performance, and nutrient digestibility. Dr. Pacheco is lead or supporting author of 32 research articles and 88 news articles primarily in Feedstuffs magazine, which is the leading source of news for animal agriculture in the United States with 12,500 accredited subscribers. Dr. Pacheco has been invited to give more than 165 presentations in 16 countries, has served as chair or member of 25 graduate student committees, and has mentored 21 visiting scholars from 12 countries.

YOUR WEEKLY CHECK-IN NATIONAL EXPERT

MR. MEENAKSHISUNDARAM KANAGARAJ

Consultant

Mr. Meenakshisundaram Kanagaraj is a freelancing consultant, technical trainer, and speaker on feed milling. He holds a Post Graduate Diploma in Digital Instrumentation and a Bachelor's degree in Physics. He has worked for an instrumentation company, an auto ancillary components manufacturer, and a multinational animal feed additive manufacturer. He has successfully completed a course on Lean Six Sigma Black Belt by the American Society for Quality (ASQ) and a course on Fundamentals of Feed Milling Technology conducted by the American Feed Industry Association (AFIA). As a consultant, he is involved in new feed mill projects from design to commissioning. He has helped feed milling organizations improve quality and productivity.

ਤਣਾਅ ਕਾਰਣ ਲਵੇਰਿਆਂ ਦੀ ਖ਼ੁਰਾਕੀ ਵਿਉਂਤਬੰਦੀ

ਨਿਹਾਰਿਕਾ ਠਾਕੁਰ ਅਤੇ ਪਰਮਿੰਦਰ ਸਿੰਘ
ਗੁਰੂ ਅੰਗਦ ਦੇਵ ਵੈਟਨਰੀ ਅਤੇ ਐਨੀਮਲ ਸਾਇੰਸਜ਼ ਯੂਨਿਵਰਸਿਟੀ, ਲੁਧਿਆਣਾ

ਜਦ ਵੀ ਕਿਸੇ ਮੱਝ / ਗਾਂ ਦੇ ਕੁੱਦਰਤੀ ਰੱਖ-ਰੱਖਾਅ ਵਿੱਚ ਤਬਦੀਲੀ ਆਂਉਂਦੀ ਹੈ ਤਾਂ ਉਹ ਤਣਾਅ (ਦਬਾਅ; Stress) ਮਹਿਸੂਸ ਕਰਦੀ ਹੈ। ਤਣਾਅ ਬਾਹਰੀ (ਗਰਮੀ, ਸਰਦੀ, ਹੁਮਸ, ਖ਼ੁਰਾਕੀ) ਅਤੇ ਅੰਦਰੂਨੀ (ਮੱਲਪ, ਬਿਮਾਰੀ) ਆਦਿ ਹੋ ਸਕਦਾ ਹੈ। ਕੁੱਝ ਹਾਲਾਤਾਂ ਕਾਰਣ ਜਦੋਂ ਲਵੇਰੇ ਬੇਚੈਨੀ ਮਹਿਸੂਸ ਕਰਣ ਅਤੇ ਸਮਰੱਥਾ ਅਨੁਸਾਰ ਪੈਦਾਵਾਰ ਨਾਂ ਦੇਣ ਤਾਂ ਇਹ ਸਮਝਣ ਲੈਣਾ ਚਾਹੀਦਾ ਹੈ ਕਿ ਉਹ ਕਿਸੇ ਤਣਾਅ ਦਾ ਸ਼ਿਕਾਰ ਹਨ। ਤਣਾਅ ਵੀ ਦੋ ਕਿਸਮ ਦੇ ਹੋ ਸਕਦੇ ਹਨ। ਪਹਿਲਾ ਜਿਨ੍ਹਾਂ ਤੋਂ ਨਹੀਂ ਬੱਚਿਆ ਜਾ ਸਕਦਾ ਤੇ ਦੂਸਰਾ ਬੱਚਿਆ ਜਾ ਸਕਦਾ ਹੈ। ਦੋਹਾਂ ਦੀ ਕੁੱਝ ਉਦਾਹਰਣਾ ਸੂਚੀ ਨੰ: 1 ਵਿੱਚ ਦਰਸਾਈਆਂ ਗਈਆਂ ਹਨ।

ਸੂਚੀ ਨੰ: 1 ਵੱਖ ਵੱਖ ਕਿਸਮ ਦੇ ਤਣਾਅ

ਲੜੀ	ਬੱਚਿਆ ਨਹੀਂ ਜਾ ਸਕਦਾ	ਬੱਚਿਆ ਜਾ ਸਕਦਾ
1.	ਟੀਕਾਕਰਣ	ਘੱਣਤਾ
2.	ਢੋਆ / ਢੋਆਈ	ਖ਼ੁਰਾਕੀ ਬਣਤਰ
3.	ਤਾਪਮਾਨ (ਗਰਮੀ, ਸਰਦੀ)	ਉਲੀ ਰਹਿਤ ਫੀਡ
4.	ਹੁਮਸ	ਹਵਾ ਦਾ ਨਿਕਾਸ
5.	ਪੈਦਾਵਾਰ	ਪਾਣੀ (ਮਿਕਦਾਰ, ਮਿਆਰ)
6.	ਇਲਾਜ / ਮੱਲਪ ਰਹਿਤ ਕਰਨਾਂ	ਸ਼੍ਰੇਣੀਆਂ ਅਨੁਸਾਰ ਰੱਖ ਰੱਖਾਅ
7.	ਸਿੰਗ ਦਾਗਣੇ / ਖੁੱਰਾਂ ਦਾ ਇਲਾਜ	ਸਾਫ ਸਫਾਈ

ਤਣਾਅ ਕਾਰਣ ਹਰ ਇੱਕ ਲਵੇਰੇ ਵਿੱਚ ਤਿੰਨ ਕਿਸਮ ਦੀਆਂ ਅੰਦਰੂਨੀ ਤਬਦੀਲੀਆਂ ਹੁੰਦੀਆਂ ਹਨ: ਹਾਲਾਤ ਅਨੁਸਾਰ ਤਬਦੀਲੀ, ਖੱਤਰੇ ਦੀ ਘੰਟੀ ਅਤੇ ਨਿਢਾਲ ਅਵੱਸਥਾ। ਗਰਮੀਆਂ ਦੌਰਾਨ; 40-45 ਡਿਗਰੀ ਦਾ ਤਾਪਮਾਨ, ਜਿਥੇ ਬੰਦੇ ਨੂੰ ਸਾਹ ਲੈਣਾ ਔਖਾ, ਇਹ ਵਿਚਾਰੀਆਂ ਦਾ ਕੀ ਬਣੂ। ਬਹਿਣ ਨੂੰ ਜਗਾਹ ਨਹੀਂ, ਕਿਲੇ ਨਾਲ ਬੱਝੀਆਂ, ਇਕ ਕਦਮ ਆਪ ਨੀ ਪੁਟ ਸਕਦੀਆਂ, ਉਪਰੋਂ ਪਾਣੀ ਮਿਲਿਆ ਕਿ ਨਾ। ਸਰਦੀਆਂ ਦੌਰਾਨ; ਕੋਹਰਾ/ਧੁੰਦ, ਸੂਰਜ ਦਿੱਖ ਦਾ ਨਹੀਂ, ਫ਼ਰਸ਼ ਸਿੱਲੇ, ਪਾਣੀ ਠੰਡਾ, ਜਵੀਂ ਜਹਿਰੀਲੀ। ਬਰਸਾਤਾਂ ਦੌਰਾਨ: ਦੋ - ਤਿੰਨ ਸ਼ਰਾਟੇ ਪੈਣ ਤੇ ਹੀ, ਵੱਧੀ ਹੋਈ ਨਮੀ ਦੇ ਨਾਲ ਨਾਲ ਵਧੇਰੇ ਤਾਪਮਾਨ- ਦੁੱਧ ਦੇਣ ਵਾਲੀ ਲਵੇਰੀ ਕੀ ਕਰੇ? ਦੁੱਧ ਤਾਂ ਭਾਈ ਫਿਰ ਉਡੂ !

ਗਰਮੀ ਦਾ ਟਾਕਰਾ ਕਰਨ ਲਈ ਜਾਨਵਰ ਖੁੱਦ ਕਈ ਯਤਨ ਕਰਦਾ ਹੈ। ਸੱਭ ਤੋਂ ਪਹਿਲਾਂ ਉਹ ਆਪਣੀ ਸਾਹ ਲੈਣ ਦੀ ਕ੍ਰਿਆ ਨੂੰ ਵਧਾਉਂਦਾ ਹੈ। ਇਸਦੇ ਵਾਸ਼ਪੀਕਰਣ ਦੇ ਮੋਸਾਮ ਘੱਟ ਵਿਕਸੱਤ ਹੁੰਦੇ ਹਨ, ਇਸੇ ਕਰਕੇ ਸਾਹ ਰਾਹੀਂ ਗਰਮੀ ਬਾਹਰ ਕਢਣ ਦਾ ਯਤਨ ਕਰਦਾ ਹੈ। ਉਹ ਠੰਡੀ ਤੇ ਛਾਂਅ ਵਾਲੀ ਜਗਾਹ ਭਾਲਦਾ ਹੈ ਪਰ ਮਾੜੀ ਕਿਸਮਤ ਅਕਸਰ ਨਹੀਂ ਮਿਲਦੀ। ਉਸਦੀ ਗਰਮੀ ਕਾਰਣ ਭੁੱਖ ਘੱਟ ਜਾਂਦੀ ਹੈ ਨਤੀਜਾ ਦੁੱਧ ਘੱਟਦਾ ਹੈ। ਇਕ ਲਵੇਰਾ ਠੰਡੇ ਵਿਹਲੇ ਖਾਣਾ ਪੰਸਦ ਕਰਦਾ ਹੈ ਕਿਉਂਕਿ ਖ਼ੁਰਾਕ ਖਾਣ ਉਪਰੰਤ ਸਰੀਰ ਅੰਦਰਲੀ ਗਰਮੀ ਵੱਧਦੀ ਹੈ। ਗਰਮੀਆਂ ਵਿੱਚ ਵਧੇਰੇ ਦੁੱਧ ਦੇਣ ਵਾਲੀਆਂ ਲਵੇਰੀਆਂ ਦਾ ਸਰੀਰਕ ਤਾਪਮਾਨ ਘੱਟ ਦੁੱਧ ਦੇਣ ਵਾਲੀਆਂ ਲਵੇਰੀਆਂ ਤੋਂ ਜ਼ਿਆਦਾ ਹੁੰਦਾ ਹੈ, ਇਸੇ ਕਰਕੇ ਇਨ੍ਹਾਂ ਤੇ ਜ਼ਿਆਦਾ ਮਾੜਾ ਅਸਰ ਹੁੰਦਾ ਹੈ। ਇੱਸ ਦੇ ਉਲਟ ਸਰਦੀਆਂ ਸਮੇਂ ਸੱਭ ਤੋਂ ਪਹਿਲਾਂ ਉਹ ਆਪਣੇ ਸਰੀਰਕ ਤਾਪਮਾਨ ਨੂੰ ਬਰਕਰਾਰ ਰੱਖਣ ਲਈ ਆਪਣੀ ਖ਼ੁਰਾਕ ਵਧਾਉਂਦੇ ਹਨ। ਬੈਠਣ ਨੂੰ ਸੁੱਕੀ ਅੱਤੇ ਨਿੱਘੀ ਜਗਾਹ ਲੱਭਦੇ ਹਨ।ਬਾਹਰ ਜੇ ਧੁੱਪ ਹੈ, ਤਾਂ ਉੱਥੇ ਜਾਣਾ ਚਾਹੁੰਦੇ ਹਨ ਅੱਤੇ ਪਾਣੀ ਘੱਟ ਪੀਦੇਂ ਹਨ।ਬਰਸਾਤ ਤੋਂ ਬਾਅਦ ਵੱਧੀ ਹੋਈ ਨਮੀ, ਚੱਮਕਦੀ ਧੁੱਪ, ਵਧੇਰੇ ਵਾਸ਼ਪੀਕਰਣ ਤੇ ਹਵਾ ਦਾ ਰੁਕਣਾ ਲਵੇਰਿਆਂ ਲਈ ਬਹੁਤ ਘਾਤਕ ਹੁੰਦਾ ਹੈ। ਭੁੱਖ ਘੱਟ ਜਾਂਦੀ ਹੈ, ਦੁੱਧ ਅੱਧਾ ਰਹਿ ਜਾਂਦਾ ਹੈ, ਦੁੱਧ ਵਿੱਚਲੀ ਫੈਟ ਤੇ ਗਰੈਵਿਟੀ ਸਦਕਾ ਰੇਟ ਵੀ ਸਹੀ ਨੀ ਮਿਲਦਾ। ਉਪਰੋਂ ਉਲ੍ਹੀ ਸਦਕਾ ਤੂ ਜਾਣ ਦੀ ਬਿਮਾਰੀ, ਲੇਵੇ ਦੀ ਸੋਜ, ਬੋਲਦੀ ਨਹੀਂ, ਠਹਿਰਦੀ ਨਹੀ, ਮੂੰਹ ਖ਼ੁਰ, ਗਲ਼ ਘੋਟੂ ਆਦਿ ਸਾਰੀਆਂ ਨਾਮੁਰਾਦ ਬਿਮਾਰੀਆਂ ਇਸੇ ਮੌਸਮ ਵਿੱਚ ਜ਼ਿਆਦਾ ਹੁੰਦੀਆਂ ਹਨ।

ਅੰਦਰੂਨੀ / ਬਾਹਰੀ ਤਣਾਅ ਕਾਰਣ ਸਰੀਰ ਦੇ ਅੰਦਰ ਕੁਝ ਗ੍ਰੰਥੀਆਂ (ਐਡਰੀਨਲ ਗਲ਼ੈਂਡ; Adrenal Gland) ਸਭ ਤੋਂ ਵੱਧ ਪ੍ਰਭਾਵਿਤ ਹੁੰਦੇ ਹਨ। ਖੂਨ ਵਾਲੀਆਂ ਨਾੜਾਂ ਸੁੰਗੜਦੀਆਂ ਹਨ, ਜਿਸ ਨਾਲ ਖੂਨ ਦਾ ਦਬਾਅ ਵੱਧਦਾ ਹੈ। ਖੂਨ ਵਿੱਚਲੀ ਕੋਲੈਸਟ੍ਰੋਲ ਘੱਟਦੀ ਹੈ, ਚਿੱਟੇ ਸੈਲ ਵੀ ਘੱਟਦੇ ਹਨ ਨਤੀਜਾ ਬਿਮਾਰੀਆਂ ਨਾਲ ਲੜਨ ਦੀ ਸ਼ਕਤੀ ਘੱਟਦੀ ਹੈ। ਊਰਜਾ ਦੀ ਪੂਰਤੀ ਲਈ ਕੋਰਟੀਕੋਸਟੀਰੋਨ (Corticosterone) ਰਾਸਾਇਣ ਵੱਧ ਜਾਂਦਾ ਹੈ। ਸਾਹ ਲੈਣ ਦੀ ਕ੍ਰਿਆ ਵੱਧਦੀ ਹੈ, ਦਿਲ ਦੀ ਧੜਕਨ ਵੱਧਦੀ ਹੈ, ਚੱਮੜੀ ਦਾ ਤਾਪਮਾਨ ਘੱਟਦਾ ਹੈ। ਚਰਬੀ ਟੁੱਟਦੀ ਹੈ ਅਤੇ ਖੂਨ ਵਿੱਚ ਬੇਲੋੜੀ ਚਰਬੀ ਵੱਧਦੀ ਹੈ। ਜਿਸ ਕਾਰਣ ਸਰੀਰਕ ਪੱਠਿਆਂ ਦੀ ਗਲਾਈਕੋਜਨ (Glycogen) ਘੱਟਦੀ ਹੈ। ਅੰਦਰੂਨੀ ਪ੍ਰੋਟੀਨ ਵੀ ਵਧੇਰੇ ਟੁੱਟਦੀ ਹੈ। ਵੱਧ ਗਰਮੀ ਕਰਕੇ ਸਰੀਰਕ ਥਾਈਰੋਕਸਿਨ (Thyroxin) ਰਾਸਾਇਣ ਨਹੀਂ ਬਣਦਾ ਨਤੀਜਾ ਭੁੱਖ ਘੱਟਦੀ ਹੈ; ਪੈਦਾਵਾਰ ਤੇ ਮਾੜਾ ਅਸਰ ਪੈਂਦਾ ਹੈ। LH ਅਤੇ FSH ਹਾਰਮੋਨ ਘੱਟ ਬਣਦੇ ਹਨ ਜਿੱਸ ਕਾਰਣ ਪ੍ਰਜਨਣ ਕ੍ਰਿਆ ਤੇ ਅਸਰ ਪੈਂਦਾ ਹੈ। ਜੇ ਤਣਾਅ (ਅੰਦਰੂਨੀ / ਬਾਹਰੀ) ਜਲਦੀ ਨਾਂ ਕਾਬੂ ਕੀਤੇ ਗਏ ਤਾਂ ਕੋਈ ਵੀ ਅਣਹੋਣੀ ਹੋ ਸਕਦੀ ਹੈ। ਤਣਾਅ ਕੋਈ ਵੀ ਹੋਵੇ, ਜਲਦੀ ਤੋਂ ਜਲਦੀ ਦੂਰ ਕਰਨ ਦਾ ਯਤਨ ਕਰਨਾ ਚਾਹੀਦਾ ਹੈ ਤੇ ਲੋੜ ਅਨੁਸਾਰ ਖ਼ੁਰਾਕੀ ਤਬਦੀਲੀਆਂ ਕਰਕੇ ਨੁਕਸਾਨ ਦਾ ਅਸਰ ਘਟਾਇਆ ਜਾ ਸਕਦਾ ਹੈ।

TECHNA

Smart Feed & Good Health

Independent health and nutrition expert group

FEED ADDITIVES

Micro-encapsulated Essential Oils

NOVATAN

Protein Efficiency

BY PASS PROTEIN	MILK YIELD	SNF
+ 20%	+ 1 KG	+ 3%

ELENSIS

Energy Efficiency

MILK YIELD	FAT CONTENT	METHANE
+ 1.3 KG	+ 4%	- 5%

Our solutions dedicated to feed mills & cooperatives

EXPERTISE

Precision Nutrition
Formulation
Breeding Techniques
Lab Expertise
NIR Calibration

SOFTWARE

Raw Material
& Forage Matrix Calculation
TMR & Customized Feeding

Made in France

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ਸ਼ੈੱਡ ਅੰਦਰ ਸਾਫ ਸੁਥਰੇ ਪੀਣ ਵਾਲੇ ਪਾਣੀ ਦੀ ਵਿਵਸਥਾ ਹੋਣੀ ਚਾਹੀਦੀ ਹੈ। ਦਸ ਪਸ਼ੂਆ ਲਈ 8 ਫੁੱਟ ਲੰਬੀ ਅਤੇ 3 ਫੁੱਟ ਚੌੜੀ ਪਾਣੀ ਦੀ ਕੁੰਡ ਕਾਫੀ ਹੈ। ਇਸ ਦੀਆ ਕੰਧਾ ਉੱਤੇ ਕਲੀ ਦਾ ਲੇਪ ਜਰੂਰ ਕਰੋ। ਅਜਿਹਾ ਕਰਨ ਨਾਲ ਕੰਧਾ ਉੱਤੇ ਹਰਿਆਲੀ (ਕਾਈ) ਨਹੀਂ ਜੰਮਦੀ । ਹਰ ਹਫਤੇ ਪਾਣੀ 'ਚ ਪਾਈ ਕਲੀ ਬਦਲ ਦਿਓ। ਪਾਣੀ ਵਾਲੀ ਮੋਟਰ ਹਰ 2-3 ਘੰਟਿਆਂ ਬਾਅਦ ਚਲਾਉ ਤਾਂ ਕਿ ਪਾਣੀ ਤਾਜਾ ਤੇ ਸਰਦੀਆਂ ਵਿੱਚ ਨਿੱਘਾ ਅਤੇ ਗਰਮੀਆਂ ਵਿੱਚ ਠੰਡਾ ਮਿਲੇ। ਪੱਕੇ ਸ਼ੈਡਾਂ ਵਿੱਚ ਪੱਖਿਆਂ ਅਤੇ ਫੁਆਰਿਆਂ ਦਾ ਪ੍ਰਬੰਧ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ। ਵਿਉਂਤਬੰਦੀ ਨਾਲ ਬਣੇ ਸ਼ੈੱਡ 'ਚ ਪਸ਼ੂ ਬੜੇ ਆਰਾਮਦਾਇਕ ਵਾਤਾਵਰਣ ਅੰਦਰ ਰਹਿੰਦੇ ਹਨ ਅਤੇ ਵਧੇਰੇ ਦੁੱਧ ਪੈਦਾ ਕਰ ਸਕਦੇ ਹਨ। ਆਰਾਮਦਾਇਕ ਵਾਤਾਵਰਣ ਮਿਲਣ ਨਾਲ ਲਵੇਰਿਆਂ ਨੂੰ ਬਿਮਾਰੀਆਂ ਵੀ ਘੱਟ ਲੱਗਦੀਆਂ ਹਨ।

ਜਦ ਗਰਮੀ ਕਾਰਣ ਇਕ ਲਵੇਰਾ ਖੁਰਾਕ ਘੱਟ ਖਾ ਰਿਹਾ ਹੈ ਤਾਂ ਸਾਡੇ ਯਤਨ ਉਸ ਨੂੰ ਵੱਧ ਤੋਂ ਵੱਧ ਖੁਆਉਣ ਦੇ ਹੋਣੇ ਚਾਹੀਦੇ ਹਨ। ਲਵੇਰੇ ਦੀ ਪਹਿਲੀ ਪੰਸਦ ਹਰਾ ਚਾਰਾ ਹੁੰਦਾ ਹੈ, ਜੇ ਰੱਜਵੇਂ ਦੀ ਗਲ਼ ਕਰੀਏ ਤਾਂ ਘੱਟੋ ਘੱਟ 30-35 ਕਿਲੋ ਪ੍ਰਤੀ ਦਿਨ ਮਿਲਣਾ ਚਾਹੀਦਾ ਹੈ। ਇਹ ਮਿਲਣਾ ਮੁਸ਼ਕਲ ਹੈ ਕਿਉਂਕਿ ਇਸ ਲਈ 6-7 ਲਵੇਰਿਆਂ ਲਈ ਇਕ ਕਿਸਾਨ ਕੋਲ ਇਕ ਕਿਲਾ ਚਾਰਿਆਂ ਹੇਠ ਹੋਣਾ ਚਾਹੀਦਾ ਹੈ। ਹਰੇ ਚਾਰੇ ਦੀ ਖ਼ੁਰਾਕੀ ਗੁਣਵੰਤਾ ਉਸ ਦੀ ਕਟਾਈ ਤੇ ਨਿਰਭਰ ਕਰਦੀ ਹੈ। ਜੇ ਪਹਿਲਾਂ ਵੱਢ ਲਿਆਂ ਤਾਂ ਚਾਰਾ ਵੱਧ ਗਿਲਾ ਹੋਊ, ਮੋਕ ਲਗਣ ਦਾ ਖਤਰਾ, ਜੇ ਬਾਅਦ'ਚ ਕੱਟਿਆ ਤਾਂ ਕੈੜਾ ਹੋਜੂ, ਨਹੀ ਖਾਣਾ। ਥੋੜਾ ਚਿਰ ਵੀ ਕਟਾਈ'ਚ ਦੇਰੀ ਹੋਈ ਤਾਂ ਨਾ ਪੱਚਣ ਵਾਲਾ ਰੇਸ਼ਾ ਵੱਧ ਜਾਂਦਾ ਹੈ ਤੇ ਇਸਦਾ ਅਸਰ ਦੁੱਧ ਤੇ ਪੈਂਦਾ ਹੈ। ਅੱਜਕਲ ਸਿਆਣੇ ਡੇਅਰੀ ਪਾਲਕ ਇਸ ਹਰੇ ਦੀ ਰੋਜ ਰੋਜ ਤਬਦੀਲੀ ਤੋਂ ਬਚਣ ਲਈ ਹਰੇ ਦਾ ਅਚਾਰ ਬਣਾਉਂਦੇ ਹਨ। ਇਕ ਵਾਰ ਲਵੇਰੇ ਗਿੱਝ ਗਏ ਫਿਰ ਖਾਣ ਦੀ ਸਮਸਿਆ ਤੋਂ ਬੱਚਿਆ ਜਾ ਸਕਦਾ ਹੈ। ਕੋਸ਼ਿਸ਼ ਕਰੋ ਕਿ ਜਿਹੜਾ ਵੀ ਹਰਾ ਚਾਰਾ ਹੈ ਉਸ ਦੇ ਕੁਤਰੇ ਦਾ ਆਕਾਰ ਛੋਟਾ ਹੋਏ ਤਾਂ ਕਿ ਪਸ਼ੂ ਵੱਧ ਖਾਏ। ਹਰੇ ਦੀ ਘਾਟ ਕਾਰਣ ਇਕ ਕਿਸਾਨ ਨੂੰ ਤੂੜੀ/ਪਰਾਲੀ ਦਾ ਸਹਾਰਾ ਲੈਣਾਂ ਪੈਂਦਾ ਹੈ। ਇਹ ਸਿਰਫ ਢਿੱਡ ਭਰ ਸਕਦੇ ਹਨ, ਗੋਹਾ ਲੈਣ ਲਈ। ਦੁੱਧ ਲਈ ਤਾਂ ਹਰਾ ਹੀ ਰੀੜ ਦੀ ਹੱਡੀ ਮੰਨਿਆ ਜਾਂਦਾ ਹੈ। ਗਰਮੀਆਂ'ਚ ਸਵੇਰ ਦੀ ਖ਼ੁਰਾਕ ਜਲਦੀ ਅਤੇ ਸ਼ਾਮ ਦੀ ਖ਼ੁਰਾਕ ਥੋੜੀ ਦੇਰ ਬਾਅਦ ਦੇਣ ਨਾਲ ਵੀ ਲਵੇਰਿਆਂ ਦੀ ਭੁੱਖ ਵਧਾਈ ਜਾ ਸਕਦੀ ਹੈ । ਜੇ ਕਰ ਲਵੇਰਿਆਂ ਦੀ ਸੁੱਕਾ ਮਾਦਾ ਖਾਣ ਦੀ ਪੂਰਤੀ ਹੋ ਰਹੀ ਹੈ ਤਾਂ ਉਸ ਤੇ ਗਰਮੀ ਦਾ ਅਸਰ ਘੱਟ ਹੋਏਗਾ ।

ਆਮ ਹਲਾਤਾਂ ਵਿੱਚ 20 ਲਿਟਰ ਦੁੱਧ ਦੇਣ ਵਾਲੀ ਗਾਂ ਇਕ ਦਿਨ ਦਾ 8 ਕਿਲੋ ਵੰਡ ਖਾ ਸਕਦੀ ਹੈ। ਪਰ ਗਰਮੀਆਂ ਵਿੱਚ 6 ਕਿਲੋ ਤੋਂ ਵਧ ਵੰਡ ਖਾਣਾ ਮੁਸ਼ਕਲ ਹੋ ਸਕਦਾ ਹੈ। ਇਸ ਲਈ 8 ਕਿਲੋ ਵਾਲੇ ਤੱਤ ਸਾਨੂੰ ਹੁਣ 6 ਕਿਲੋ ਤੋਂ ਪੂਰੇ ਕਰਨੇ ਪੈਣੇ ਹਨ। ਹਮੇਸ਼ਾਂ ਯਾਦ ਰੱਖੋ ਕਿ ਖੁਰਾਕੀ ਤੱਤ ਜਰੂਰੀ ਹਨ ਨਾ ਕਿ ਜਿਣਸਾਂ। ਘੱਟ ਮਾਤਰਾ ਵਾਲੀ ਫੀਡ ਮਹਿੰਗੀ ਬਣੂ, ਕੁਆਲਿਟੀ ਵਾਲੀ ਬਣੂ। ਅਜਕਲ ਮੱਕੀ ਕੁਝ ਜਿਆਦਾ ਹੀ ਵਰਤੀ ਜਾਂਦੀ ਹੈ, ਜੇ ਕੁਆਲਿਟੀ ਵਾਲੀ ਮਿਲਦੀ ਹੈ ਤਾਂ ਇਸਤੇਮਾਲ ਕਰੋ। ਜੌਂ ਵੀ ਉਪਲੱਭਦ ਹਨ, ਇਨ੍ਹਾਂ ਦਾ ਉਪਯੋਗ ਗਰਮੀ ਤੋਂ ਬਚਾਏਗਾ। ਜੇ ਟੋਟਾ ਕਣਕ ਮਿਲਦੀ ਹੈ ਤਾਂ ਇਹ ਵੀ ਗੁਣਕਾਰੀ ਸਿੱਧ ਹੋਏਗੀ, 2-4 ਕਿਲੋ ਪ੍ਰਤੀ ਕੁਇੰਟਲ ਗੁੱਲੀ ਡੰਡਾ ਵੀ ਵਰਤਿਆ ਜਾ ਸਕਦਾ ਹੈ। ਸ਼ੀਰਾ ਸੱਸਤਾ ਹੈ, ਇਸ ਵਿਚਲੇ ਪੋਟਾਸ਼ੀਅਮ ਸਦਕਾ ਗਰਮੀ ਤੋਂ ਰਾਹਤ ਮਿਲੇਗੀ। ਵੜੇਵੇਂ ਜਾਂ ਵੜੇਵਿਆਂ ਦੀ ਖ਼ਲ ਮੰਹਿਗੀ ਹੋਣ ਸਦਕਾ, ਘੱਟ ਪਾਉਣਾ ਬਹਿਤਰੀ ਹੈ। ਜੇ ਕਿਧਰੇ ਸੂਰਜਮੁਖੀ ਦੀ ਖ਼ਲ ਮਿਲ ਜਾਏ ਤਾਂ ਬਹੁਤ ਵੱਧੀਆ। ਜੇ ਕਰ ਆਪਣੇ ਲਵੇਰੇ ਗੁਆਰ ਕੋਰਮੇ ਤੇ ਗਿਝਾਏ ਹੋਏ ਹਨ ਤਾਂ ਇਹ ਇਕ ਬਹੁਤ ਸੱਸਤਾ ਬਾਈਪਾਸ ਪ੍ਰੋਟੀਨ ਦਾ ਸੋਮਾ ਹੈ।

ਜਦ ਵੀ ਕੋਈ ਚੀਜ਼ ਸਵਾਦ ਬਣਾਉਣੀ ਹੋਏ ਤਾਂ ਅਕਸਰ ਘਿਓ ਦਾ ਇਸਤੇਮਾਲ ਹੰਦਾ ਹੈ। ਗਰਮੀਆਂ ਵਿੱਚ ਇਕ ਲਵੇਰੇ ਨੂੰ ਵੱਧ ਖੁਆਉਣ ਲਈ ਤੇਲ ਦਾ ਇਸਤੇਮਾਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ। ਰਾਈਸ ਪਾਲਿਸ਼ ਅਜਕਲ ਵੱਧੀਆ ਨਹੀ ਮਿਲ ਰਹੀ, ਜਦ ਤੱਕ ਸ਼ੈਲਰ ਚਲ ਰਹੇ ਹਨ, ਇਸਤੇਮਾਲ ਕਰੋ। ਤੇਲ ਦੀ ਪੂਰਤੀ ਲਈ ਫੁਲ ਫੈਟ ਸੋਇਆ, ਸਰ੍ਹੋਂ ਦੀ ਖ਼ਲ ਅਤੇ ਬਾਈਪਾਸ ਫੈਟ ਦੀ ਵਰਤੋਂ ਕੀਤੀ ਜਾ ਸਕਦੀ ਹੈ। ਬਾਈਪਾਸ ਫੈਟ ਅੱਧਾ ਕਿਲੋ ਤੋਂ ਲੈ ਕੇ ਇਕ ਕਿਲੋ ਪ੍ਰਤੀ ਕੁਇੰਟਲ ਵਰਤੀ ਜਾ ਸਕਦੀ ਹੈ। ਸੱਜਰ ਲਵੇਰੀਆਂ ਲਈ 3-4 ਕਿਲੋ ਵੀ ਵਰਤ ਸਕਦੇ ਹਾਂ।

ਯੀਸਟ ਤੇ ਬਫਰ ਦੀ ਵਰਤੋਂ ਕਰਨ ਨਾਲ ਵੀ ਲਵੇਰਿਆਂ ਦੀ ਭੁੱਖ ਵੱਧਦੀ ਹੈ, ਜਾਨਵਰ ਗਰਮੀ ਘੱਟ ਮੰਨਦਾ ਹੈ, ਤੇਜਾਬੀਪਣ ਤੋਂ ਬੱਚਿਆ ਰਹਿੰਦਾ ਹੈ, ਦੁੱਧ ਵੀ ਵੱਧਦਾ ਹੈ। ਅਜਕਲ ਬਾਜਾਰ ਵਿੱਚ ਇਲੈਕਟਰੋਲਾਈਟ ਵੀ ਮਿਲਦੇ ਹਨ ਜਿਨ੍ਹਾਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗਾਂ/ਮੱਝ ਤੇ ਗਰਮੀ ਦਾ ਅਸਰ ਘੱਟ ਹੰਦਾ ਹੈ।

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ਖ਼ੁਰਾਕ ਵਿੱਚ ਕੈਲਸ਼ੀਅਮ ਦੀ ਮਾਤਰਾ ਵਧਾਉਣ ਨਾਲ ਦੁੱਧ ਵਿਚਲੀ ਗਿਰਾਵਟ ਘੱਟ ਆਂਉਦੀ ਹੈ। ਗਰਮੀਆਂ ਵਿੱਚ ਹਰਾ ਘੱਟ ਹੁੰਦਾ ਹੈ, ਇਸ ਕਰਕੇ ਜੇ ਵਿਟਾਮਿਨ ਦਾ ਇਸਤੇਮਾਲ ਕੀਤਾ ਜਾਏ ਤਾਂ ਜਾਨਵਰ ਬਿਮਾਰ ਘੱਟ ਹੁੰਦੇ ਹਨ, ਪ੍ਰਜਨਣ ਸੰਬਧੀ ਮੁਸ਼ਕਲਾਂ ਘੱਟਦੀਆਂ ਹਨ।

ਸਰਦੀਆਂ ਸਮੇਂ ਹਰੇ ਚਾਰੇ ਵਿੱਚਲੀ ਵੱਧ ਨਮੀ ਕਾਰਣ, ਕਟਾਈ ਤੋਂ ਬਾਅਦ ਖੇਤ ਵਿੱਚ ਹੀ ਧੁੱਪੇ ਕੁੱਝ ਘੰਟੇ ਸੁਕਾਉਣਾ ਚਾਹੀਦਾ ਹੈ। ਅਕਸਰ ਧੁੱਪਾਂ ਕੋਹਰੇ ਕਰਕੇ ਚੜਦੀਆਂ ਹੀ ਨਹੀਂ ਤੇ ਡੇਅਰੀ ਕਿਸਾਨਾਂ ਨੂੰ ਨਮੀ ਘਟਾਉਣ ਲਈ ਸੁੱਕੇ ਭਾਵ ਤੂੜੀ/ਪਰਾਲੀ ਦਾ ਸਹਾਰਾ ਲੈਣਾਂ ਪੈਂਦਾ ਹੈ। ਪਰ ਵਧੇਰੇ ਤੂੜੀ/ਪਰਾਲੀ ਸੱਦਕਾ ਉਲੀ ਲਗਣ ਦਾ ਖੱਤਰਾ ਵੀ ਵੱਧ ਹੁੰਦਾ ਹੈ ਇਸ ਕਰਕੇ ਖ਼ੁਰਾਕ ਵਿੱਚ ਟਾਕਸਿਨ ਬਾਂਈਡਰ ਦਾ ਇਸਤੇਮਾਲ ਜਰੂਰ ਕੀਤਾ ਜਾਏ। ਸਰਦੀਆਂ ਸਮੇਂ ਫੀਡ ਜਾਂ ਵੰਡ ਗਿਲੀ ਨਾ ਕਰੋ। ਜੇ ਕਰ ਲਵੇਰਿਆਂ ਦੀ ਸੁੱਕਾ ਮਾਦਾ ਖਾਣ ਦੀ ਪੂਰਤੀ ਹੋ ਰਹੀ ਹੈ ਤਾਂ ਉਸ ਤੇ ਸਰਦੀ ਦਾ ਅਸਰ ਘੱਟ ਹੋਏਗਾ। ਸਰਦੀਆਂ ਸਮੇਂ ਖੁਰਾਕ ਵੱਧ ਖਾਣ ਕਰਕੇ, ਵੰਡ ਵਿਚਲੀ ਪ੍ਰੋਟੀਨ ਘਟਾਈ ਜਾ ਸਕਦੀ ਹੈ, ਜਿਸ ਕਰਕੇ ਸਰਦੀਆਂ ਵਿੱਚ ਖ਼ੱਲਾਂ ਦੀ ਮਾਤਰਾ ਘਟਓ।

ਇੱਸ ਲਈ ਸਰਦੀਆਂ ਵਿੱਚ ਵੰਡ ਹਮੇਸ਼ਾਂ ਸੱਸਤਾ ਬਣਦਾ ਹੈ ਪਰ ਲਵੇਰਿਆਂ ਨੂੰ ਜ਼ਿਆਦਾ ਚਾਹੀਦਾ ਹੈ। ਡੇਅਰੀ ਪਾਲਕ ਉਹੀ ਮਿਕਦਾਰ ਪਾਈ ਜਾਂਦੇ ਹਨ, ਨਤੀਜਾ ਦੁੱਧ ਘੱਟਣਾ ਸ਼ੁਰੂ ਹੋ ਜਾਂਦਾ ਹੈ ਕਿਉਂਕਿ ਲਵੇਰੇ ਨੇ ਬਹੁਤੀ ਊਰਜਾ ਆਪਣੇ ਸਰੀਰਕ ਤਾਪਮਾਨ ਨੂੰ ਬਰਕਰਾਰ ਰਖਣ ਲਈ ਵਰਤਣੀ ਹੈ ਤੇ ਵੱਧ ਪ੍ਰੋਟੀਨ ਸਦਕਾ ਅੰਦਰੂਨੀ ਯੂਰੀਆ ਵੱਧ ਜਾਂਦਾ ਹੈ।

ਤਣਾਅ ਕਾਰਣ ਸਭ ਤੋਂ ਵੱਧ ਊਰਜਾ ਦੀ ਲੋੜ ਵੱਧ ਜਾਂਦੀ ਹੈ, ਇਸ ਕਰਕੇ ਸਭ ਤੋਂ ਪਹਿਲਾਂ ਵੰਡ/ਮਿਸ਼ਰਤ ਖ਼ੁਰਕ'ਚ ਊਰਜਾ ਵਧਾਓ । ਊਰਜਾ ਅਤੇ ਪ੍ਰੋਟੀਨ ਦਾ ਅਨੁਪਾਤ ਸਹੀ ਰਖਣ ਲਈ ਪ੍ਰੋਟੀਨ ਵੀ ਵੱਧਾਉਣਾ ਪਏਗਾ । ਇੱਸ ਦੇ ਨਾਲ ਨਾਲ ਖਣਿਜ ਪਦਾਰਥ ਅਤੇ ਵਿਟਾਮਿਨ ਦੀ ਮਿਕਦਾਰ ਵੀ ਸਹੀ ਰੱਖਣੀ ਚਾਹੀਦੀ ਹੈ । ਵੱਖ ਵੱਖ ਤਣਾਅ ਸਦਕਾ, ਖੁਰਾਕ ਸੰਬਧੀ ਕੁੱਝ ਨੁਕਤੇ ਅਪਣਾਏ ਜਾ ਸਕਦੇ ਹਨ:

- ਖ਼ੁਰਾਕੀ ਮਿਕਦਾਰ ਅਨੁਸਾਰ ਊਰਜਾ ਅਤੇ ਪ੍ਰੋਟੀਨ ਦੀ ਮਾਤਰਾ ਤੈਅ ਕਰੋ
- ਵੱਧ ਪ੍ਰੋਟੀਨ ਲਈ ਖ਼ਲਾਂ ਦੀ ਬਜਾਏ ਬਾਜਾਰੀ ਲਾਈਸਿਨ ਅਤੇ ਮਿਥਾਇਓਨੀਨ ਵਰਤੋ; ਤਣਾਅ ਜਲਦੀ ਘਟੇਗਾ
- ਕੈਲਸ਼ੀਅਮ ਅਤੇ ਫਾਸਫੋਰਸ ਦਾ ਅਨੁਪਾਤ ਵੀ ਸਹੀ ਰੱਖੋ
- ਵਿਟਾਮਿਨ ਸੀ ਤਣਾਅ ਘੱਟਾਉਂਦਾ ਹੈ
- ਤਣਾਅ ਕਰਕੇ ਵਿਟਮਿਨ ਏ, ਡੀ, ਈ ਅਤੇ ਕੇ ਦੀਆਂ ਲੋੜਾਂ ਵੱਧ ਜਾਂਦੀਆਂ ਹਨ । ਇਹ ਸੂਖਮ ਤੱਤਾਂ ਦੀ ਟੁੱਟ ਭੱਜ, ਥਨੇਲਾ ਰੋਗ ਅਤੇ ਹੋਰ ਬਿਮਾਰੀਆਂ ਤੋਂ ਬਚਾਅ ਕਰਦੇ ਹਨ
- ਮੈਸ਼ ਦੇ ਮੁਕਾਬਲੇ ਗੋਲੀਆਂ ਵਾਲੀ ਫ਼ੀਡ ਵਰਤੋਂ, ਸਹੀ ਬਣੀ ਗੋਲੀ ਕ੍ਰਿਮ ਰਹਿਤ ਹੁੰਦੀ ਹੈ, ਹਜਮ ਵੱਧ ਹੰਦੀ ਹੈ, ਲੰਬੇ ਸਮੇਂ ਲਈ ਬਣਾਈ ਜਾ ਸਕਦੀ ਹੈ
- ਬਾਇਉਟੀਨ, ਬਫਰ, ਇਲੈਕਟ੍ਰੋਲਾਈਟ ਆਦਿ ਵੀ ਇੱਕ ਲਵੇਰੀ ਨੂੰ ਤਣਾਅ ਮੁਕਤ ਰਖਣ'ਚ ਸਹਾਈ ਹੰਦੇ ਹਨ
- ਜੇ ਕਰ, ਤਣਾਅ ਪੂਰਨ ਖਾਸ ਹਾਲਾਤਾਂ ਲਈ ਵੰਡ ਵਿੱਚ ਤਬਦੀਲੀ ਲਿਆਈ ਜਾਂਦੀ ਹੈ ਤਾਂ ਇਹ ਬਦਲਾਅ 10–15 ਦਿਨ ਤੋਂ ਵੱਧ ਨਾ ਵਰਤੋ, ਸਗੋਂ ਤਣਾਅ ਤੋਂ ਨਜਿੱਠਣ ਦੇ ਯਤਨ ਨਿਰੰਤਤਰ ਜਾਰੀ ਰਹਿਣੇ ਚਾਹੀਦੇ ਹਨ

डायमंड

- प्रति दिन 30 लीटर तक दूध देने वाली गायों के लिए उत्कृष्ट तैयार पोषण।
- खनिजों और विटामिनों से युक्त, बेहतर उत्पादकता और रोग प्रतिरोधक क्षमता के लिए।
- बेहतर दूध उत्पादन, वसा (फैट) और एस.एन.एफ के लिए।

AFLATOXIN CONTROLLED FEED | 4mm पैलेट साइज | 1 किलो फीड प्रति 2.5 लीटर दूध उत्पादन के लिए। | NABL Accredited ISO 17025 • World Class R&D Lab Facility

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बेहतर इम्युनिटी
एफ्लाटॉक्सिन कंट्रोल्ड

उत्पादन
अधिक दूध उत्पादन
अधिक फैट और एस.एन.एफ

लाभप्रदता
बेहतर R.O.I
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Happy Cow Better Milk:
How Welfare Practices Affect Dairy Production

Dairy cow welfare directly affects milk output, sustainability, and quality. Healthier cows and greater yields are a result of ethical care, good diet, cozy housing, and stress management. Better welfare measures have been linked to higher productivity, better milk composition, and higher farm profitability, according to research. Evidence suggests that ethical farming practices not only benefit cow health but also boost farm profitability and consumer trust. The paper underscores the importance of adopting science-backed welfare standards to ensure sustainable dairy production. Ultimately, prioritizing cow well-being aligns with economic, ethical, and nutritional goals in the dairy industry. The study draws on case comparisons, farm audits, and production data to quantify outcomes linked to welfare-focused farming. Results indicate a positive correlation between ethical treatment and both productivity and sustainability. Challenges such as cost and scalability are addressed through policy suggestions and industry innovation.

Dr. Brijpal Singh[1*], Dr. Anshu Kumar[1], Dr. Harsh D. Patel[2], Dr. Priyanka Kumari[2], and Dr. M. M. Islam[3]

Introduction

A vital component of world agriculture, dairy farming produces milk, cheese, yogurt, and other necessities. But the industry is coming under more and more fire for its treatment of animals. Studies show that enhanced welfare practices result in higher-quality milk and increased farm efficiency, and consumers and regulators require that dairy cows be treatedethically (Von Keyserlingk *etal.,*2013).Stress-free, well-cared-for cow yield more and better milk, according to the "Happy Cow, Better Milk" theory. These improvements are not only ethically sound but also lead to measurable benefits in milk yield, composition, and farm productivity. The impact of welfare practices on dairy output is examined in this article, including appropriate housing, nutrition, health management, and humane handling.Welfare is a state of complete mental and physical health, where the animal is in harmony with its environment (Hughes, 1976).

The Link Between Cow Welfare and Milk Production

Dairy cows under stress produce less milk and lower-quality products. Stressors include poor housing, inadequate nutrition, disease, and rough handling (Rushen *et al.,* 2007). Cortisol, a stress hormone, can reduce milk yield and alter milk composition (Mormedeet *al.,* 2007).

- **Comfortable Housing and Resting Conditions**

Cows spend up to 14 hours per day lying down, making comfortable resting areas essential. Poor bedding or overcrowding leads to:

- Lameness and hoof disorders (Whay *et al.,* 2003):Lameness in dairy cows, often caused by hoof lesions, leads to pain, reduced mobility, and decreased productivity.
- Reduced rumination and feed efficiency (Haley *et al.,* 2000):Impaired rumination due to stress or illness lowers nutrient absorption, increasing feed costs and reducing overall health.
- Lower milk production:Health issues like lameness or metabolic disorders directly reduce milk yield, impacting farm profitability and animal welfare.

- **Best practices for housing:**
  - Soft, dry bedding (sand or rubber mats) reduces injuries:Comfortable, well-cushioned bedding helps prevent hoof lesions, joint stress, and pressure sores, reducing lameness risks. Sand offers excellent support and drainage, while rubber mats provide durability and ease of cleaning, both enhancing cow comfort and longevity.
  - Adequate space (at least one stall per cow) prevents competition:Overcrowding leads to aggressive behaviour and stress, as cows compete for resting areas, feed, or water. Ensuring one stall per cow allows for proper rest, reduces injuries, and supports natural lying behaviour, improving overall herd health and productivity.
  - Proper ventilation minimizes heat stress, which can increase milk yield by 10-25%: Heat stress reduces feed intake, rumination efficiency, and milk synthesis in dairy cows. Effective ventilation, combined with shade and cooling systems, maintains a comfortable barn environment, preserving milk production and cow well-being during hot weather.

- **Nutrition and Feed Management**

A balanced diet directly affects milk yield and cow health. Key factors include:

- High-quality forage (alfalfa, clover) improves rumen function:Nutrient-rich forages support healthy microbial activity in the rumen, enhancing digestion and nutrient absorption. This leads to better feed efficiency and higher milk production.
- Protein and energy balance prevents metabolic disorders like ketosis:Proper dietary ratios of protein and energy ensure cows meet their metabolic demands, reducing risks of ketosis, fatty liver, and other metabolic diseases.
- Access to clean water (cows drink 30-50 gallons per day):Adequate water intake is essential for digestion, milk synthesis, and thermoregulation. Restricted or poor-quality water reduces feed intake and milk yield.

Effects of poor nutrition:

- Lower milk fat and protein content (Eastridge, 2006):Poor nutrition disrupts rumen fermentation, decreasing milk fat and protein levels. This lowers milk quality and market value.
- Increased risk of mastitis (a costly udder infection): Nutritional deficiencies weaken the immune system, making cows more susceptible to infections like mastitis, which reduces milk yield and increases treatment costs.

Health Management and Disease Prevention

Healthy cows produce more milk. Key welfare-related health issues include:

- **Mastitis and Udder Health**
  - Cause: Bacterial infections from dirty bedding or milking equipment.
  - Impact: Reduces milk yield by 10-20% and increases somatic cell count (SCC), lowering milk quality (Ruegg, 2017).
  - Prevention:
    - Proper milking hygiene (teat dipping, clean equipment)
    - Regular SCC testing

- **Lameness and Hoof Care**
  - Cause: Wet floors, poor trimming, or long-standing times.
  - Impact: Lame cows produce 15-20% less milk (Bicalho *et al.,* 2007).
  - Prevention:
    - Regular hoof trimming
    - Soft flooring in barns

Behavioural and Psychological Welfare

Cows are social, intelligent animals with strong herd instincts. Stress from unnatural conditions reduces productivity.

- **Social Stress and Group Dynamics**
  - Overcrowding increases aggression and reduces feed access:Limited space leads to competition, stress, and fighting among cows, disrupting herd hierarchy. Restricted access to feed bunks also lowers dry matter intake, reducing milk production and overall health.
  - Isolation (e.g., separating calves too early) causes distress (Flower & Weary, 2003):Early separation triggers vocalizations and anxiety in both calves and dams, impairing welfare. This stress can weaken immune function and negatively impact growth and future productivity.
- **Human-Animal Interaction**
  - Gentle handling reduces fear and cortisol levels (Hemsworth *et al.,* 2000):Calm and patient interactions with cow's lower stress hormones like cortisol, promoting better welfare and productivity. Trust-building handling also improves ease of movement and cooperation during milking or veterinary procedures.
  - Negative interactions (shouting, hitting) decrease milk let-down:Aggressive behaviour induces stress, inhibiting oxytocin release and disrupting the milk ejection reflex. This leads to incomplete milking, lower yields, and potential udder health issues over time.

Economic and Market Benefits of Improved Welfare

While some farmers worry about costs, better welfare leads to:

- Higher milk yields (5-15% increase) (Bach *et al.,* 2020):Reduced stress and improved cow comfort enhance metabolic efficiency, directly boosting milk production. Healthier, happier cows also have better feed conversion rates, maximizing output.
- Premium pricing for welfare-certified milk (Clark *et al.,* 2016):Ethically conscious consumers pay more for milk from high-welfare farms, creating a profitable niche market. Certifications like "pasture-raised" or "humane" strengthen brand value and customer loyalty.
- Lower vet costs due to fewer illnesses: Proactive welfare measures (e.g., clean housing, balanced nutrition) reduce disease incidence, cutting treatment expenses. Fewer metabolic disorders and infections also mean less antibiotic use and lower long-term healthcare costs.

  Case Study: Organic and pasture-based farms often report:
- Higher milk fat content (due to natural grazing):Pasture-based diets rich in fresh forage enhance rumen health and fatty acid profiles, naturally increasing milk fat levels and improving milk quality.
- Stronger consumer trust and brand loyalty:Ethical and transparent farming practices resonate with health-conscious buyers, fostering long-term trust and willingness to pay premium prices for organic, pasture-raised dairy products.

Conclusion

The evidence is clear: happy cows produce better milk. By prioritizing welfare—through comfortable housing, proper nutrition, health care, and humane handling—farmers can enhance milk quality, increase yields, and meet consumer expectations. Sustainable and ethical dairy farming is not just a moral obligation but also a smart business strategy. Ethical treatment of cows not only aligns with animal rights but also boosts farm profitability and consumer confidence. Scientific evidence supports that healthier, happier cows produce superior milk with beneficial compositional traits. As demand for ethically sourced dairy grows, adopting higher welfare standards becomes essential for long-term industry success. Policymakers, farmers, and consumers must collaborate to prioritize animal well-being, ensuring a more humane and productive future for dairy farming.

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उत्तरी भारत के गंगा के मैदानों में सर्वाधिक लोकप्रिय दोहरे उद्देश्य वाली हरियाना नस्ल की विशेषताएं, दूध उत्पादकता, कृषि उपयोगिता और संस्कृति महत्व

हरियाना एक दोहरे उद्देश्य वाली मवेशी नस्ल है जिसे हिसार, हांसी और हरियाणवी नामों से भी जाना जाता है । इसकी नामकरण उत्तर भारत के हरियाना राज्य के नाम पर हुआ और उत्पत्तिरोहतक, हिसार, जींद और गुड़गांव से हुई थी।हरियाना मवेशियों की उत्पत्ति हिसार और हांसी प्रजातियों से हुई है, जिनकानामराज्य के दो प्रसिद्ध शहरों के नाम पर रखागया था। यह नस्ल इंडो गंगा के मैदानों में व्यापक रूप से पाई जाती है। भारत में, मवेशी देश के उत्तरी और दक्षिणी भागों जैसे उड़ीसा, तमिलनाडु और आंध्र प्रदेश में भी पाई जाती हैं।

***डॉ. प्रतीक राव[1] और डॉ. निष्ठा यादव[2]**

हरियाना नस्ल की सामान्य विशेषताएँ

- सफेद रंग, लंबा और संकीर्ण चेहरा, सिर के बीच में चिह्नित हड्डीदार उभार और छोटे सींग इसकी प्रमुख विशेषताएं हैं।
- हरियाना नस्ल उत्तर भारत की एक प्रमुख दोहरे उद्देश्य वाली मवेशी नस्ल है।
- इसे मुख्य रूप से बैलों के लिए पाला जाता है।
- जानवर सफेद या हल्के भूरे रंग के होते हैं। बैलों में आगे और पीछे के हिस्से के बीच का रंग अपेक्षाकृत गहरा या गहरा भूरा होता है।
- इस नस्ल के बैलों में कार्य करने की उच्च क्षमता होती है, इसलिए नर बछड़ों के प्रबंधन पर अधिक ध्यान दिया जाता है।
- हरियाना मवेशियों के सींग आकार में छोटे, धनुषाकार, ऊपर की ओर पतले होते हैं।
- हरियाना एक मध्यम आकार की मवेशी नस्ल है। हरियाना नस्ल के जनवारो की औसत शारीरिक लंबाई 139.2 सेमी, ऊंचाई 136.1 सेमी और परिधि 169.8 सेमी होती है।
- बैलों की औसत ऊंचाई 132 से 155 सेमी और गायों की 127 से 140 सेमी के बीच होती है।
- वयस्क बैलों का औसत शारिरिक वजन लगभग 430 किलोग्राम होता है। और वयस्क गायों का औसत वजन लगभग 310 किलोग्राम होता है।
- गायें काफी अच्छी दूध देने वाली होती हैं ।
- गायें एक ब्यांत में 1700 लीटर तक दूध दे सकती हैं, जबकि नस्ल का प्रति ब्यांत औसत दूध उत्पादन लगभग 997 लीटर (693 से 1745 लीटर के बीच) है।
- इस नस्ल के पशु प्रतिदिन लगभग 10 से 15 लीटर दूध दे सकते हैं, हालांकि होल्स्टीन फरीजियन मवेशियों (एचएस) के साथ क्रॉस–ब्रेड करने पर 8.9 लीटर दूध दे सकते हैं।
- पहली बार ब्याने की औसत आयु 1,566 दिन, दुग्धकाल अवधि 276 दिन और अंतर–ब्याने की अवधि 527 दिन है।
- अनुकूली लक्षणप्ररूप विविधताएं:बैलोंमें सिर, गर्दन, कूबड़ और क्वार्टर गहरे भूरे रंग के होते हैं। बधियाकरण के बाद यह रंग सफेद हो जाता है।

हरियाना के मवेशियों से प्राप्त दूध के आर्थिक और स्वास्थ्य लाभ

- दुग्धउत्पादकता:– हरियाना नस्ल की गाय का दूध इष्टतम आहार और प्रबंधन स्थितियों के तहत प्रतिदिन 8 से 10 लीटर (उचित प्रबन्धन द्वारा10 से 15 लीटर)के बीच दूध दे सकती है।दुग्ध घी और दही जैसे डेयरी उत्पादों के उत्पादन के लिए आदर्श माना जाता है।
- दुग्धकी गुणवत्ता: हरियानानस्लकी गायों का दूध अपने पोषण संबंधी लाभों और समृद्धि के लिए अत्यधिक प्रसिद्ध है। औसतन 4: से 5: वसा की मात्रा होती है, जो इसे घी, मक्खन और दही के उत्पादन के लिए आदर्श बनाती है। दूध में संतुलित प्रोटीन प्रोफाइल भी होती है, जो इसे उपभोक्ताओं के लिए एक स्वस्थ विकल्प बनाती है। यह उच्च गुणवत्ता वाला दूध स्थानीय और शहरी दोनों बाजारों में लगातार मांग सुनिश्चित करता है।
- दुग्ध प्रसंस्करण और संरक्षण: लंबे शेल्फ लाइफ के कारण, हरियानानस्ल की गाय का दूध सीमित प्रशीतन वाले क्षेत्रों में विशेष रूप से उपयोगी है। दूध की बेहतर गुणवत्ता सुनिश्चित करती है कि यह डेयरी उत्पादों के लिए एक लोकप्रिय विकल्प बना रहे, जिससे विभिन्न बाजारों में इसकी उच्च मांग में योगदान मिलता है।
- सौंदर्य प्रसाधनमें लाभकारी महत्व:हरियाना गाय की नस्ल केदुग्धउप–उत्पाद जैसे घी और दही त्वचा के स्वास्थ्य के लिए उपयोगी है । इन उत्पादों का व्यापक रूप से पारंपरिक त्वचा देखभाल उपचारों में उपयोग किया जाता है, जो त्वचा को पोषण और नमी प्रदान करते हैं। दूध त्वचा को नमी और पोषण देता है, जिससे यह घरेलू त्वचा देखभाल उपचारों में एक लोकप्रिय घटक है।
- दूध की कीमत:– हरियानानस्ल कादूध अपनी बेहतर गुणवत्ता और समृद्ध स्वाद के कारण अत्यधिक मांग में है, जो इसे शहरी और ग्रामीण दोनों बाजारों के लिए एक आकर्षक विकल्प बनाता है। भारत में हरियाना गाय की नस्ल के दूध की कीमत आमतौर पर क्षेत्र और बाजार की मांग के आधार पर ₹ 40 से ₹ 60 के बीच होती है। ग्रामीण क्षेत्रों में, कीमत ₹ 40 से ₹ 50 प्रति लीटर के बीच होती है, जबकि शहरी क्षेत्रों में, यह ₹ 60 प्रति लीटर तक जा सकती है। प्रीमियम मूल्य निर्धारण उच्च वसा और प्रोटीन सामग्री के द्वारा होता है, जो इसे किसानों और डेयरी सहकारी समितियों के लिए एक आकर्षक विकल्प बनाता है। गाय के दूध से बने मक्खन और घी जैसे उत्पादों के प्रभावी मूल्य इस नस्ल की लाभप्रदता को और बढ़ाते है।

- नस्ल द्वारा उत्पादित दूध के स्वास्थ्य लाभः दूध कैल्शियम, पोटेशियम और विटामिन डी जैसे आवश्यक पोषक तत्वों से भरपूर होता है, जो हड्डियों के स्वास्थ्य और ऊर्जा के स्तर को बनाए रखने में सहायक है। जो इसे आहार के प्रति जागरूक लोगों के लिए आदर्श बनाता है।

नस्ल की बेहतर रोग प्रतिरोधक क्षमताजैसी अनुकूली विशेषताएं

हरियाना गाय की नस्लों के रोगों के प्रमुख लाभों में से एक रोगों के प्रति इसकी प्रबल प्रतिरोधक क्षमता है। इसमें खुरपका–मुंहपका रोग, स्तनदाह और तपेदिक के प्रति उनकी प्रतिरोधक क्षमता शामिल है, जो उन्हें अन्य मवेशियों की तुलना में अपेक्षाकृत कम रखरखाव वाली बनाती है।अन्य नस्लों की तुलना में हरियाना गायें सूखे या गर्मी के दौरान भी स्थिर दुग्ध उत्पादन बनाए रखती हैं, जोनस्लकी किसानों के आर्थिक लाभ के लिए लगातार दूध उत्पादन की स्थायी क्षमता को दर्शाता है।

नस्ल की आवासीयएवंजलवायु संबंधित अनुकूलता

मवेशियों के लिए अच्छी आवासीयव्यवस्था करना जरूरी है। अच्छी वेंटिलेशन के लियेपर्याप्त हवा और रोशनी का प्रवाह सुनिश्चित करनेकी आवश्यकता होती है।हरियाना की बदलती जलवायु परिस्थितियों के लिए हरियाना नस्ल अत्यधिक अनुकूलीत है। शुष्क और अर्ध–शुष्क क्षेत्रोंकी अत्यधिक गर्मियों और सर्दियों के तनाव के प्रति बेहतर अनुकूलन शीलता नस्ल को मजबूत और दीर्घायु बनाती है। अतः हरियाना नस्ल को उनके कम रखरखाव और लंबे जीवनकाल के लिए जाना जाता है।

नस्ल की आहारीय आवश्यकता एवं दक्षता

हरियाना नस्लकी गायों को आहार में अधिक हरा चारा और पर्याप्त पीने का पानी उपलब्ध कराने से उचित दुग्ध उत्पादन सुनिश्चित किया जा सकता है कराएँ। इस नस्ल के पशु सीमित संसाधनों के साथ भी अच्छे स्वास्थ्य को प्रदर्शित करते हैं। उचित पोषण और स्वच्छता के साथ, ये गायें 15–20 साल तक जीवित रह सकती हैं। उनकी लंबी उम्र किसानों को दूध उत्पादन और कृषि कार्य से निरंतर लाभ प्राप्त करने में सहायकहै।

हरियाना गायों का आर्थिक मूल्य, दान महत्ता और सांस्कृतिक पहलू

एक स्वस्थ हरियाना गाय की कीमत ₹30,000 से ₹50,000 के बीच होती है, जो उम्र, दूध की पैदावार और स्वास्थ्य की स्थिति जैसे कारकों पर निर्भर करती है।50000 से कम कीमत वाली हरियाना गाय की नस्लें किसानों के लिए एक किफायती और लाभदायक विकल्पहै।हरियाना गाय की नस्लों के दान की प्रथा ग्रामीण भारत में आम है। यह पहल ग्रामीण समुदायों को दूध और कृषि कार्य के माध्यम से आय का एक स्थायी स्रोत प्रदान करके उनके उत्थान में मदद करती है। इस तरह के दान को भारतीय संस्कृति में एक आध्यात्मिक कार्य भी माना जाता है, जो सामाजिक कल्याण को बढ़ावा देता है।

नस्ल की प्रजनन क्षमता

हरियाना नस्लके पशु बहुत अच्छे प्रजनक हैं। गायों और बैलों के प्रजनन समूह में, बैल मानवीय हस्तक्षेप के बिना आसानी से प्रजनन करने में सक्षम हैं।हरियाना गाय की नस्लें अन्य देशी गायों की नस्लों की तरह ही प्रजनन क्षमता आमतौर पर लगभग 280 दिनों तक चलती है। गायों में प्रजनन क्षमता बहुत अधिक होती है, और बछड़े पैदा करने के दौरान जटिलताएँ बहुत कम होती हैं। यह विशेषता किसानों के लिए मवेशियों का झुंडके आकार में स्थिर वृद्धि और लगातार दूध उत्पादन सुनिश्चित करती है।हरियाना गाय की नस्ल के बछड़े मजबूत और स्वस्थ होते हैं, जिनमें गायोंसे मिली एक मजबूत प्रतिरक्षा प्रणाली होती है। ये बछड़े जल्दी बढ़ते हैं और स्थानीय वातावरण के अनुकूल ढल जाते हैं, जिससे दूध उत्पादक या भारवाहक पशुओं के रूप में उपयोगी होते हैं। इस नस्ल की बेहतर मातृत्व क्षमता गायोंद्वाराबछड़ों को उचित पोषण और देखभाल सुनिश्चित करती है।

हरियाना नस्ल के संरक्षण के प्रयास

नस्ल के अच्छे गुणों के बारे में लोगों में जागरूकता पैदा करके मवेशियों को संरक्षित किया जा सकता है। सरकार को वीर्य आपूर्ति और पशुओं के उपचार के मामले में किसानों को प्रोत्साहन प्रदान करना चाहिए। समुदाय और पंचायत भूमि पर प्रजनन परीक्षण किए गए बैलों को पालने और चारागाहों के विकास की आवश्यकता है। सरकार या गैर सरकारी संगठनों को सक्रिय रूप से भाग लेना चाहिए और हरियाना मवेशियों के प्रचार और संरक्षण के लिए पंजीकृत समितियों को शुरू करने की आवश्यकता है।हरियाना नस्ल के लिए गोगामेड़ी पशु मेला, नोहर हनुमानगढ़, महाशिवरात्री पशु मेला, करौली , जसवंत प्रदर्शनी पशु मेला, भरतपुर का आयोजनराजस्थान में किया जाता है।

केंद्रीय सरकार की 'गोसंवर्धन और गोसंरक्षण'परियोजना में 77.90 करोड़ रुपये की लागत से देशी नस्लों जैसे हरियाना, साहीवाल और गिर के संरक्षण, उन्नयन और एकीकृत विकास का लक्ष्य है। इस परियोजना का मुख्य उद्देश्य कृत्रिम गर्भाधान सेवाओं की गुणवत्ता में सुधार करना और इसे किसानों के घर–घर तक पहुँचाना है, ताकि सभी प्रजनन योग्य गायों को कृत्रिम गर्भाधान या प्राकृतिक सेवा के माध्यम से संगठित प्रजनन के अंतर्गत लाया जा सके, जिसमें रोग–मुक्त उच्च आनुवंशिक योग्यता वाले सांडों का उपयोग किया जा सके (बिजनेस स्टैंडर्ड, 19 फरवरी 2015)। हरियाना सरकार भी देशी गायों (हरियाना, साहीवाल और बेलाही) के संरक्षण और विकास के लिए एक योजना (गोसंवर्धन) लागू कर रही है। इस योजना के दीर्घकालिक उद्देश्य दूध उत्पादन और उत्पादकता में वृद्धि और चयनात्मक प्रजनन के माध्यम से देशी जर्मप्लाज्म का उन्नयन करना है। मध्यम अवधि के उद्देश्यों में उच्च गुणवत्ता वाले जर्मप्लाज्म की पहचान और टिकाऊ आनुवंशिक सुधार के लिए गुणवत्ता वाले वीर्य से गर्भाधान, राज्यध्देश में आगे की आपूर्ति के लिए वंशावली युवा स्वदेशी बैलों की खरीद और किसानों को बेहतर उपज देने वाले पशुओं को पालने के लिए प्रोत्साहित करना शामिल है। हरियाना पशुओं की पहचान उनकी अधिकतम उपज के आधार पर की जाती है और दूध की उपज के आधार पर हरियाना मवेशियों के मालिकों को 10,000 से 20,000 रुपये तक की नकद प्रोत्साहन राशि प्रदान की जाती है।

निष्कर्षः हरियाना में हरियाना गाय की नस्लें भारतीय कृषि में परंपरा और उपयोगिता का एक आदर्श मिश्रण प्रस्तुत करती हैं। हरियाना नस्ल केपशु उष्ण कटिबंधीय क्षेत्रों की गर्म जलवायु कोसहन करनेके लिए अनुकुलित, उच्च रोग प्रतिरोधक क्षमता और A2 दूध उत्पादन करने के अलावा कम रखरखाव लागत जैसे प्रभावी लक्षणों वालेहोतेहैं।ये विशिष्टताएँ पशुधन कोकिसानों के लिए एक मूल्यवान संपत्ति बनाता है। हरियाना नस्ल 50000 से कम की किफायती कीमत के साथ दूध उत्पादन और कृषि कार्य के माध्यम से आय का एक विश्वसनीय स्रोत हैं। हरियाना गाय की नस्लकी दूध के लाभों से लेकर दान कार्यक्रमों के माध्यम से ग्रामीण अर्थव्यवस्थाओं को ऊपर उठाने में महत्वपूर्ण भूमिका है।इस नस्ल में निवेश करने वाले किसान लगातार रिटर्न और दीर्घकालिक लाभ की उम्मीद कर सकते हैं, जिससे उनके कृषि प्रयासों के लिए एक समृद्ध भविष्य सुनिश्चित होगा।

***डॉ. प्रतीक राव[1] और डॉ. निष्ठा यादव[2]**

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ARTICLE

Revolutionizing Livestock Farming with Artificial Intelligence: Sustainable Transformations and breakthrough in Animal Welfare

The rapid advancement in artificial intelligence (AI) and sensor technologies have opened up new possibilities across various sectors, including livestock farming, which is often overlooked in traditional discussions. Artificial intelligence offers farmers exceptional support by minimizing resource use enhancing sustainability of feeding practices and increasing overall farm productivity. It helps reduce the carbon footprint and improves efficiency while lowering the likelihood of human error, making it a valuable tool for boosting farm productivity and sustainability. The key is the integration of cutting technology with human expertise. While AI and sensors provide real time, comprehensive, and objective insights, it is the farmer's deep understaning of their livestock and environment that should guide the application of these technologies. Internet Of Things(IoT) and AI represent some of the most efficient and effective methods for modernizing livestock farming, playing crucial roles in managing farm operations, handling fields, and conducting research to improve production outcomes. This article explores how AI and sensor innovations can significantly enhance animal welfare in livestock farming causing on a human-centric approach.

Dr. Rutik Namdev Pawar[1*], Dr. Shipra Tiwari[1]

Introduction:

Artificial Intelligence and computer vision have transformed livestock management,these technologies enable automated animal identification using computer vision and RFID/QR codes, providing instant access to detailed records. Artificial Intelligence system monitor health, track growth and analyze feeding and reproductive behaviors, allowing early detection of issues and effective breeding management. Automation reduces labor and provides real-time insights, improving animal welfare and farm productivity. Artificial Intelligence process this data to provide insights that improve farmingpractices. By identifying the animal, the system can analyze the relationship between its weight and history, it streamlines quality assurance processes. AI can monitor animal health and welfare sound, activity patterns, feeding and water intake, radio frequency identification, and other precision livestock farming technology.

Artificial Intelligence processes this data, enabling farmers to detect these anomalies. Additionally, farmers can use the data to understand the relationship between specific foods and the weight and health of their livestock, making it a critical quality control tool.

Application of of Artificial Intelligence in Livestock Farming

Computer vision and machine learning algorithms can detect, categorize, and link these factors to specific health issue, automatically raising alerts when necessary. Technologies like cowmovement analysis enhance livestock farming by identifying behavior and activity, monitoring feed intake, and tracking rumination.

Monitoring Drinking and Feeding Habits:Internet of Things devices with computervision record livestock drinking and feeding patterns, providing farmers with valuable information. Sensors track consumption levels and rates both day and night, helping identify unusual eating habits that may signal behavioural or health issues. These patterns are vital for efficient quality control, as factors like daily activity levels, movement, and posture are significant indicators of animal health.

Monitoring Heat Stress:Sensors in AI-based systems collect temperature data, analyze its fluctuations, and link these changes to specific actions or behaviors. Machine learning models recognize patterns that increase the risk of heat exhaustion and send real-time alerts when temperatures reach dangerous levels.

Monitoring and Adjusting Conditions for Aquaculture and Sheds:Similar to animal excrement, livestock vocalizations provide important information,machine learningalgorithms trained on audio recordings can detect and categorize anomalies in vocalizations..This allows farmers to take immediate action to prevent the spread of such behaviors.

Monitoring and Adjusting Conditions for Aquaculture and Sheds:Minor adjustments in factors such as humidity, temperature, space, and brightness can significantly influence crucial processes like breeding productivity. By monitoring these conditions,AI helps ensure optimal environments for animal welfare and regulatory adherence.

Optimizing Feeding Schedules: By analyzing data collected from monitoring, AIcan help find the best feeding schedules to enhance productivity, product quality, and cost efficiency. Farmers can use advanced analytics to test various setups and identify the most effective feeding strategies, leading to overall improvements in farming productivity.

EnhancingHatcheries :AI can improve hatcheries by ensuring optimal condition for embryo develpment, connected to incubators and sensors, AI systems analyze data to detect any changes that could affect embryo growth, allowing farmers to make adjustments and maintain ideal incubation conditions, enhancing overallhatchery efficiency.

Early Detection of Non-Hatchable and Infertile eggs: Combining near-infrared hyperspectral imaging with machine learning allows for early identification of non-hatchable and infertile egg, reducing unneccesary cost and optimizing hatchery space. When paired with sensors, these systems offer insights into how environmental conditions affect embryo development, helping to prevent waste and maximize productivity.

Determining Sex with AI: AI can potentially end the controversial practice of killing male chicks by enabling sex determination within the first few days of incubation. By using magnetic resonance imaging (MRI) combined with AI models to analyze and categorize images, livestock producers can adopt a more ethical and efficient approach to sexing chicks.

Motion Sensor-Equipped Collars:Theycollect various data about cows, which is analyzed by AI in dairy automation systems. This data reveals information on heat stress, changes in feeding efficiency, and estrus cycles. During estrus, hormones affect the cow's behavior and movement—such as standing heat, where the cow may stop moving to allow others to mount her. AI compares recent movement data with historical data to predict ovulation, which typically starts 24 to

32 hours after standing heat. This allows farmers to prepare for artificial insemination at the optimal time.

Robotic Injection Systems:Modern dairy farms use robotic injection systems to administer vaccines and reproductive drugs efficiently, avoiding the need for significant labor and training investments. Integrated with dairy automationsystems, these robots read ear tags to access the cow's healthand vaccination history.

Facial recognition technology: It simplifies monitoring an entire herd by eliminating the need for device installation. It enables individualized monitoring of group behavior, early detection of lameness, and accurate recording of feeding habits, all with minimal human interaction.

Automatic milking machines: It bfeature sensor cups that attach individually to each teat. They can automatically clean and sanitize the teats and detect the milk's color, impurities, and quality. If the milk is deemed unfit for human consumption, it is diverted to a separate container.**Automatic Robot Feeder:** This device provides farm animals with a concentrated mixture of roughage tailored to their nutritional needs. Additionally, a scraper robot cleans slatted floors by pushing and scraping away slurry, navigating narrow spaces effectively to maintain clear, clean surfaces.

AI in Genomics and Gene Editing: AI is revolutionizing genomics, the study of an organism's complete set of genes. By enhancing DNA sequencing and analysis, AI systems make these processes faster, more affordable, and more accurate. This enables better decisions regarding care, disease susceptibility, and mutation-related risks. Successful applications include "editing out" disease-causing genes and "editing in" genes for high-yielding, disease-resistant animals.

AI for Predicting Breeding Values: Machine learning techniques like decision trees and artificial neutral networks (ANNs) are becoming increasingly popular in agriculture for their speed, power, and flexibility in handling classification and prediction tasks, particularlyin nonlinear systems. These methods are usedto detect mastitis, identify estrus, and understand selection criteria. They also analyze breastfeeding curves, interpret somatic cell count data, and assess reproductive management efficiency

Futuristic Applications of AI : While the full impact of AI on traditional family farms remains uncertain, the emergence of adaptable technology from new agritech companies suggests that the "digital farm" may be closer than anticipated. As consumer pressure shifts focus from environmental impact to animal welfare. Utilizing AI and new technologies will be crucial for optimizing livestock farming and enhancing animal welfare, which is increasingly important to consumers and essential for the sustainability and profitability of agriculture.

Conclusion: AI can significantly enhance efficiency in livestock farming by identifying and tracking animals, and predicting optimal feeding and breeding strategies. A proposed AI model outlines steps for implementation, addressing various challenges. AI models analyze data from sensor, imaging, and digital systems to provide insights into animal health, predict disease outbreaks, and offer early warnings of potential threats. The model should be customized to the farm's specific needs, encompassing data acquisition, model development, validation, deployment, and maintenance. Regular monitoring and updates are crucial to ensure continued accuracy and reliability

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EVENT CALENDER

AUGUST 2025
22-23 AUG. 2025 – CLFMA 58th AGM & 66th NATIONAL SYMPOSIUM 2025
Venue : Hyderabad at Taj Deccan, Road No.1, Banjara Hills, Hyderabad – 500034, India
Phone : 022 22026103
Email : admin@clfma.org
Web : www.clfma.org

AUGUST 2025
27-29 AUG. 2025 – LIVESTOCK MALAYSIA
Venue : Kuala Lumpur Convention Center, Kuala Lumpur, Malaysia
Phone : +60 3 9771 2688
Email : livestockmalaysia-my@informa.com
Web : www.livestockmalaysia.com

SEPTEMBER 2025
16-18 SEP. 2025 – SPACE
Venue : Rennes Expo-Park, France
Phone : +33 (0) 223482879
Email : c.berthier@space.fr | info@space.fr
Web : www.space.fr

SEPTEMBER 2025
30 SEP 04 OCT 2025 – World Dairy Expo, USA
Venue : Alliant Energy Center in Madison, Wisconsin, USA
Phone : 608-224-6455
Email : wde@wdexpo.com.
Web : www.worlddairyexpo.com

OCTOBER - NOVEMBER 2025
30 OCT. 01 NOV. 2025 – Ethio Poultry Expo, Africa Livestock Expo
Venue : Millennium Hall, Addis Ababa, Ethiopia
Phone : +249912273795
Email : simsim362002@yahoo.com
Web : www.ethiopoultryexpo.com

NOVEMBER 2025
19-21 NOVEMBER 2025 – ANSICON
Venue : C.V.Sc.& A.H., A.N.D.U.A.&T., Kumargaj, Ayodhya (U.P.), India
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ARTICLE

India needs to unlock productivity gains to regain milk momentum

Capt. (Dr.) A.Y. Rajendra
CEO- Animal and Aqua Feed Business, Godrej Agrovet

India scripted a remarkable turnaround to go from a milk deficit nation post-Independence to the largest producer of milk in the world today, but several systemic factors from low productivity to poor animal nutrition are threatening to undo the gains of the country's so-called White Revolution.

Milk production in India grew at a paltry 1.64 percent in the first decade after Independence, according to government data. The rate of growth slowed to just 1.15 percent in the 1960s. Milk consumption per capita, meanwhile, at 124 grams per day in 1950-51 declined to just 107 grams per day by 1970, well below the minimum recommended nutritional standards.

India's dairy industry was in shambles, producing less than 21 million tonnes of milk a year and dependent instead on costly imports.

Fast forward to today and the contrast is striking.

India today is the world's largest milk producer accounting for nearly a quarter of global supply. In 2021 the country produced 210 million tonnes of milk, over 10 times more than the 17 million it produced 1951.

Per capita consumption, meanwhile, has surged from the 107-gram-per-day low in 1970 to 427 grams per day per person in 2021, surpassing even the global average of 322 grams per day.[1]

Production slowdown

To be sure, the numbers prove that the White Revolution has been nothing short of a resounding success. But, the momentum it unleashed is losing steam, growth is tapering off and milk production is easing.

India's milk production has grown six percent a year on average over the last 10 years, outpacing the two percent global growth average. But, the rate of growth has been steadily moderating in recent years from 6.62 percent in FY2017-18 to 3.78 percent in FY2023-24.[2]

To put it simply, the original White Revolution has run its course. The dairy sector now needs a White Revolution 2.0 characterized by a more nuanced, scientific, technology-led, yet systemic, approach to regain its stride and win back its waning momentum.

Solving the productivity puzzle

India's problem lies in the productivity of its cattle. The country in absolutely numbers is the world's largest milk producer. It also has the largest cattle population. But, the country's milk yields per animal are among the lowest in the world.

Cows in India, for instance, yield 4.87 kg of milk a day per animal, two-thirds that of the global average of 7.18 kg per day per animal.[3]

There are also vast regional disparities. Cows in Punjab and Kerala — two states held up as poster children for milk production — produced 13.31 kg and 9.96 kg of milk per day per animal, respectively. At the other end of the spectrum, cows in states like Assam, Arunachal Pradesh and Meghalaya yielded just 1.49 kg, 1.67 kg and 1.73 kg of milk per animal per day, respectively.[3]

This underlines the scale of the productivity gains that India can unlock. To do so it needs to improve everything from animal nutrition, and genetics to cattle management, care and healthcare practices.

Production based pricing mechanism

One of the most pressing concerns is the lack of a Minimum Support Price (MSP) for milk. While milk is a staple produced by millions of farmers across the country, they are often left to navigate volatile market prices, which can lead to inconsistent incomes and financial instability. This lack of price assurance has left many farmers vulnerable, making it crucial for the government to introduce a production-based pricing mechanism. Such a system would provide farmers with a guaranteed income and ensure that they are not pushed into losses.

Similarly, it is important to acknowledge that a significant portion of the dairy sector – around 70% – is handled by women. These women play a crucial role in milk production and dairy farming, yet they too face economic challenges due to the absence of price guarantees. By introducing MSP specifically tailored for dairy, the government could uplift these women, ensuring a fair and consistent income, while simultaneously strengthening the dairy sector.

Systemic overhaul

Nutrition is the single biggest key to unlocking productivity gains. But India produces limited feed, just 7.5 million tonnes as opposed to its requirement of 70 million tonnes.[4]

A key reason is because fodder is scarce with the country facing significant shortages of both green and dry fodder. It thus needs to turn to silage. Silage can play an important role in ensuring animals get the right nutrition, so much so that the American USDA estimates that good quality silage can fulfill as much as half of a cow's energy needs.

The approach to nutrition also needs to be scientifically calibrated and tailored to the specific lactation stages so that the animal gets the right nutrients at the right time during the different lactation phases. Nutrition also needs to be fine-tuned to cater to the specific needs of individual breeds and local climatic conditions.

Genetics also have a crucial role to play in productivity. Crossbred cows yield more milk. In fact, a large part of Punjab's success with boosting productivity is down to increasing the share of crossbred animals in its livestock mix.

Modern, technology-led approaches like embryo transfer and the use of sex-sorted semen and artificial insemination can further improve breeding outcomes, enhance genetic stock and increase the likelihood of female calves, who can then go on to produce milk, being born.

Nutrition and breeding are fundamental to improving yield productivity. But, even as they lay the foundation for higher yields, proper animal care, management and access to modern veterinary medicine are key to delivering on their promise.

Regular veterinary care, vaccination and early disease treatment will result in a healthy more productive herd and mitigate production losses from disease like lumpy skin disease.

Prioritizing cattle comfort by maintaining well-kept surroundings, proper temperatures using cooling systems in the summers and heating systems in winters is vital to animal well-being, which in-turn is crucial to productivity.

Digitization, like in other aspects of agriculture also has a role to play. Digitization generates data. Data empowers. It empowers cattle farmers with vital information on animal nutrition, healthcare and wellbeing. This data can be harnessed and, using modern technology like predictive analytics or machine learning, can help farmers take proactive actions that can mitigate any yield losses from illness, a lack of nutrition or general animal neglect, before it is too late.

To be sure, the government has recognized acknowledged the need to boost per capita yields. The Rashtriya Gokul Mission (RGM) has made significant progress on the genetics front. The government's Rs. 15,000 crore dairy infrastructure fund, meanwhile, is placing an emphasis on sector modernization.

India's gains in the dairy sector have been hard won. It would be a shame to squander them. The White Revolution helped the dairy industry tap its vast potential and opened the floodgates for milk production in the country. It made us not just a self-sufficient milk producer but an export powerhouse. We now need to build on these gains. What we need is a second revolution to spark an even more transformative change.

[1] Milk Production in India
[2] India's Milk Production Increases By 4% To 239.3 Million Tonnes In 2023-24
[3] India's White Revolution: Achievements and the next phase
[4] Detailed project report on Cattle-feed unit

ARTICLE

Bacterial diseases affecting the respiratory tract of horses

Infections caused by diverse bacterial pathogens represent a significant health threat to equine populations, frequently resulting in considerable economic repercussions. Horses of all ages and breeds can be affected, with some diseases posing risks to humans as well. In equine infections, bacteria often act as secondary pathogens in the upper respiratory tract following primary viral infections; however, when bacterial infection occurs, it can lead to significant disease. Horses are susceptible to a range of both bacterial and viral pathogens. Bacterial diseases of the respiratory tract are clinically significant and warrant considerable concern. Respiratory tract infections can range from mild to severe pneumonia, significantly impacting horse's performance and overall well-being. By thoroughly understanding the most prevalent bacterial pathogens in horses like *Streptococcus equi* subsp. *equi*, *Echerichia coli*, *Streptococcus equi* subsp. *zooepidemicus*, *Pasteurella* spp., *Actinobacillus equuli*, *Pseudomonas aeurogenosa*, *Bacteroides* and *Fusobacterium*: their clinical presentations, transmission mechanisms, and effective prevention methods, equine caretakers can implement robust management and control protocols. These measures are essential for protecting equine health and minimizing economic losses caused by disease. The following are key bacterial diseases that affect the respiratory tract of horses:

Nawaabjeet Singh[1], Monu Karki[2] and Paviter Kaur[3]

1. Strangles: is a highly contagious and reportable disease of the upper respiratory tract of horses caused by *Streptococcus equi* subsp *equi*: a Gram positive bacterium. Clinical form of the disease is caused by the organism in horses, donkeys and mules. Animals in any age may contract the disease, although young and old animals are more susceptible. Transmission primarily occurs through direct contact with exudates such as nasal discharge or pus from infected horses or indirectly through fomites/ contaminated equipment like water, feed, or grooming tools. The bacteria typically enter the body of the animal through the nasal passages or mouth and then infect the tonsils and lymph nodes. In addition, overcrowding, common feeding and watering equipment predispose the animals to disease. Disease outbreaks can occur any time of the year, but mostly occurs in cold weather. Symptoms usually manifest between three and eight days post-infection. Usually within 3 days after initial exposure to the bacteria, first sign of the disease is high fever up to 106 °F. This is followed by thick mucoid to mucopurulent nasal discharge, swollen lymph nodes (especially around the jaw and neck) leading to abscess formation that may or may not be draining. Infected animals are lethargic, dull and depressed. There is lack of appetite with difficulty in swallowing. Infected animals' head and neck lymph nodes are affected, resulting in abscess formation that can compress airways, causing difficulty in breathing -hence the name "strangles". In chronic form of strangles known as "bastard strangles", abscess formation may occur in other areas of the body, such as the abdomen, lungs, and brain. When this occurs, animals can show signs of colic, neurological abnormalities like head pressing etc. If the abscesses rupture, it can have fatal consequences. Preliminary diagnosis relies on observation of clinical symptoms that may be indicative of strangles, but for definitive diagnosis, isolation of the organism or PCR on samples of nasal swabs, guttural pouch lavage, or abscess material can be carried out. For prevention and control, as the disease is highly contagious, horses suspected of the disease should be immediately quarantined. Nose to nose contact of animals in the barn should be avoided. Vaccination, appropriate cleaning/ disinfection of stalls and water troughs, isolating affected and freshly arrived animals, and proper wound care can help avoid the disease.

2. Rhodococcal pneumonia (in foals): is caused by gram-positive, facultative intracellular pathogen *Rhodococcus equi* and is a major source of illness in young foals. Disease susceptibility is more in foals, particularly those aged between 2 weeks to 6 months. Clinical disease occurs rarely in horses greater than 8 months of age. The organism is transmitted through inhalation or ingestion of contaminated dust or soil, particularly in stables with poor ventilation. Though the prevalence of disease varies from farm to farm but it has been suggested that the risk of infection is higher in large, high density breeding farms with frequent movement of animals on and off site. Clinical indications in the early course of disease are mild and non- specific but become more evident as the pneumonia progresses. Early signs include lethargy, mild fever, decreased exercise tolerance, slight cough and increased respiratory rate. As pneumonia progresses, symptoms include cough, nasal discharge, fever, and difficulty in breathing. Purulent nasal discharge is less common. It can also cause abscesses in the lungs. Extra pulmonary clinical symptoms of *R. equi* infection may be observed as a result of pulmonary illness or independently and they include pyrexia, depression, loss of appetite, weight loss, colic, and diarrhoea. Other most commonly observed extra pulmonary manifestations include osteomyelitis, polysynovitis (joint pain and swelling), and uveitis. Infected foals can shed the bacteria in their faeces causing the pathogen to persist endemically at the breeding farm. Infections by *R. equi* often resolve, but the prognosis worsens markedly when abdominal abscesses form in severely ill foals. Diagnosis relies on clinical signs, culture of the organism and identification by PCR from trans- tracheal wash samples. There are no commercially available vaccines that can provide complete protection against *R. equi* infections, so disease can be prevented by maintaining clean stables, avoiding overcrowding of foals in stables, improved ventilation, and reduced dust exposure. Dirt paddocks should be avoided. Any foal that appears unwell should be separated from others, and strict manure disposal protocols should be applied.

3. Pleuropneumonia: also known as shipping fever is a potentially fatal infection of the lungs and the pleura (space surrounding the lungs) caused most commonly by *Streptococcus equi* subsp. *zooepidemicus*. Other bacterial spp. involved include *Escherichia coli, Klebsiella pneumoniae, Actinobacillus, Pasteurella, Bacteroides, Fusobacterium* spp. *and Peptostreptococcus* spp. Anaerobic bacteria are commonly found in chronic or severe cases and may worsen the prognosis. Pleuropneumonia typically develops when an initial condition weakens the lungs' natural defenses, permitting a secondary bacterial invasion. Long distance transport, recent viral infections and strenuous exercises are common risk factors that predispose the animals to disease. Spread occurs by respiratory droplets, especially in crowded or poorly ventilated stables. Clinical signs of pleuropneumonia can be seen within seven days of transport but can develop in as less as 24 hrs. Symptoms include coughing, nasal discharge, elevated temperature, dyspnoea, anorexia, depression, and lethargy. Affected animals may exhibit exercise intolerance, diminished performance, coughing, or bilateral nasal discharge observed during or immediately following physical exertion. Clinical signs may not be obvious in early stages, but as the disease progresses they may include fever, anorexia, depression, bilateral nasal discharge that is typically mucopurulent though it may occasionally present as haemorrhagic, cough, weight loss, abnormally rapid and shallow breathing, and respiratory distress. Halitosis and an accompanying malodorous nasal discharge may be present. Pleuropneumonia is a life-threatening illness that carries a very high fatality rate in its most severe forms. Diagnosis is based on clinical signs, culture of the organisms and PCR. Preventive measures include isolating sick horses, maintaining good stable hygiene, and improved airflow in stables.

Effective prevention and control of bacterial respiratory diseases are vital for ensuring the health of individual animals and safeguarding the overall productivity and wellbeing of the herd. This can be achieved through the implementation of measures including strict hygiene maintenance and dryness in barns, feeding areas, and water sources. Ensure that all horses receive timely vaccinations, particularly against diseases such as strangles. Conduct regular health assessments and promptly isolate any animals exhibiting signs of illness to prevent the spread of infectious pathogens. As diseases can lead to both direct and indirect economic losses, it is advisable to implement biosecurity measures to minimize disease transmission and promote overall animal health.

*References available on request

Nawaabjeet Singh[1], Monu Karki[2] and Paviter Kaur[3]
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Haryana: India's first cloned desi Gir female calf, Ganga produced at NDRI

Amid the government push for increasing milk production, the National Dairy Research Institute (NDRI), Karnal has produced the country's first cloned female calf of the desi breed Gir which can produce more than 15 litres of milk per day.

"Under a project by National Dairy Research Institute, Karnal to work on cloning of indigenous cow breeds such as Gir and Sahiwal, India's first cloned Gir female calf named 'Ganga' weighing 32 kg was born and is growing well," the NDRI said in a release.

Indigenous cattle breeds such as Gir, Sahiwal, Tharparkar, and Red-Sindhi, play a pivotal role in milk production and the growth of the Indian dairy industry.

"We have cloned the calf from a cow of Gir breed which was giving 15-litre milk per day. As per Prime Minister Narendra Modi's directions to increase milk yield, we have started cloning the high-yield cows using the cloning technique," Vice Chancellor of GB Pant Agriculture university Dr Manmohan Singh Chauhan said

He was the head of the NDRI when it started work on cloning high-yield desi breeds like Gir, Red Sindhi and Sahiwal breeds at the NDRI in 2021. The programme was started by National Dairy Research Institute (NDRI), Karnal in collaboration with Uttarakhand Livestock Development Board (ULDB), Dehradun.

NDRI chief Dr Dheer Aibgh said Gir cattle are very hardy and well-known for their tolerance to conditions of stress and resistance to various tropical diseases.

"Gir cattle are also very popular and have been exported to Brazil, the United States, Mexico, and Venezuela for the development of zebu cows," he said.

A team of scientists comprising Dr Naresh Selokar, Manoj Kumar Singh, Ajay Aswal, SS Lathwal, Subhash Kumar, Ranjeet Verma, Kartikey Patel, and MS Chauhan have been working for over 2 years to develop an indigenous method to produce cloned cattle.

To clone the Gir, oocytes are isolated from live animals using ultrasound-guided needles, and then, matured for 24 hours under control conditions.

The somatic cells of elite cows are used as donor genomes, which are fused with OPU-derived enucleated oocytes. Following chemical activation and in-vitro culture, the developed blastocysts are transferred into recipient mothers to deliver the Gir calf.

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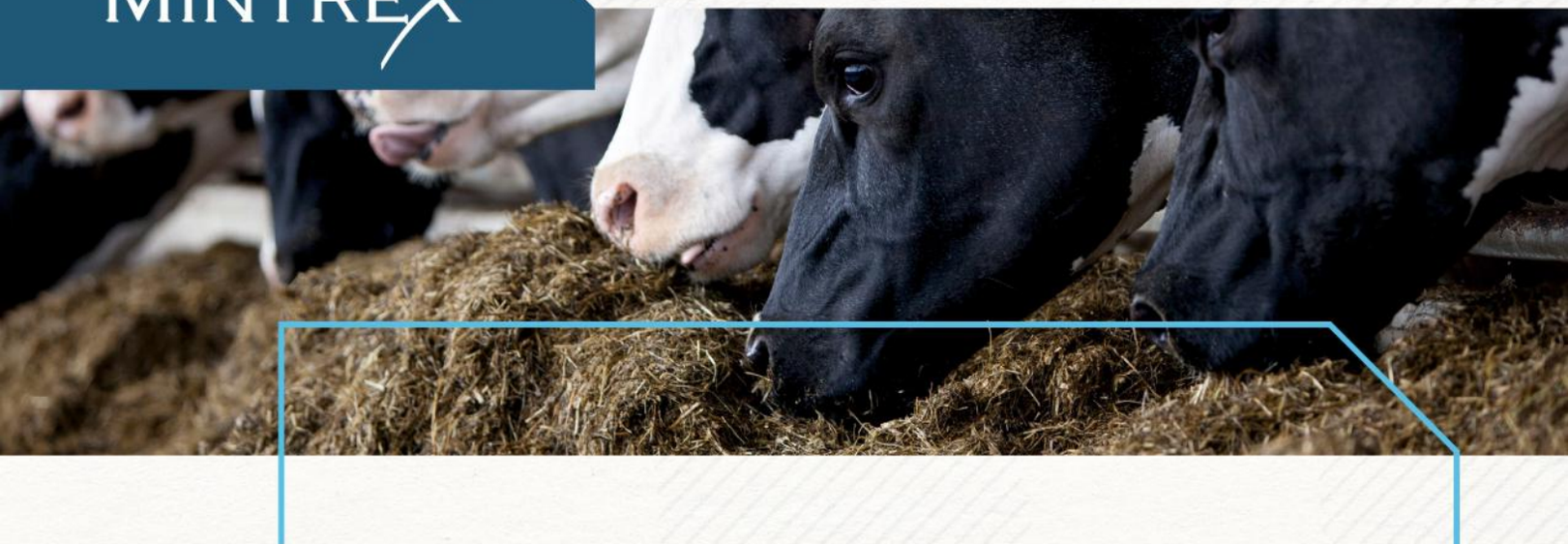

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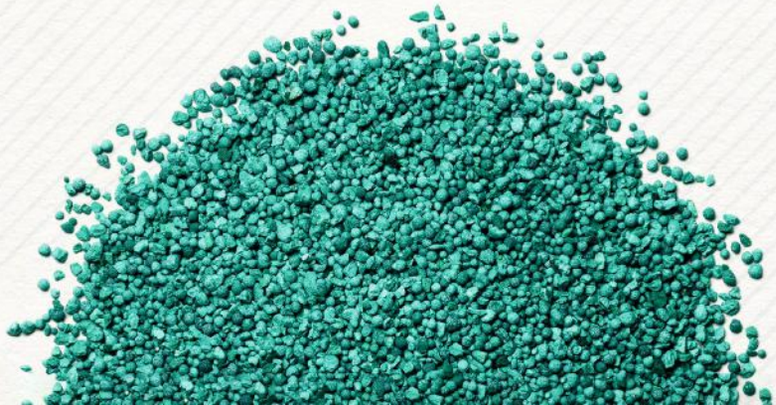

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