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An **e-newsletter**

DAIRY OUTLOOK

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Smart Engineering.
Stronger Dairy.

MD Speaks

Welcome to the second edition of The Dairy Outlook.

India's dairy sector has achieved a remarkable milestone, emerging as the world's largest milk producer and contributing nearly 25% of global milk production. As the industry enters its next phase of growth, the focus is shifting from increasing volumes to improving productivity, quality, sustainability and value creation across the dairy value chain.

The future of dairy will be shaped by smarter farms, better nutrition and intelligent engineering. With challenges such as rising feed costs, climate variability, productivity gaps and evolving consumer expectations, technology will play a critical role in building a more efficient and resilient dairy ecosystem.

At Schnel Enginering Pvt. Ltd., we believe progress in dairy is not only about expanding capacity-it is about developing solutions that enhance process efficiency, ensure consistent quality, optimise resources and create sustainable value for our customers and partners.

Globally, advancements in AI, automation, precision nutrition and sustainable production practices are transforming dairy operations. These innovations offer valuable opportunities for India as we move towards White Revolution 2.0, where improving animal health, milk quality and farmer profitability will be key priorities.

Through The Dairy Outlook, we aim to create a platform for sharing industry insights, technology trends, market developments and engineering innovations that are shaping the future of dairy. This edition highlights the global advancements and emerging opportunities that can help accelerate India's journey towards a smarter and more sustainable dairy sector.

We remain committed to partnering with the dairy industry by delivering engineering solutions that support efficiency, innovation and long-term growth.

I invite you to explore this edition of The Dairy Outlook and join us as we continue to discover the trends and technologies defining tomorrow's dairy industry.

Together, let us build the future of dairy processing.

Warm Regards,

Vimlesh Raulji
Managing Director

REDUCING IMPORT DEPENDENCY: BUILDING COST-EFFECTIVE DAIRY PROJECTS WITH INDIAN EXPERTISE.

B. P. Rao

Large-scale dairy and food processing projects involve multiple stages, global supply chains and specialised equipment. In today's uncertain environment, factors such as geopolitical instability, shipping disruptions and raw material price fluctuations are increasingly impacting project timelines and budgets.

Recent instability in the **Strait of Hormuz,** a key global trade route, has highlighted the vulnerability of international supply chains. Delays in shipping, increased freight costs and extended delivery timelines for imported equipment and components can lead to project schedule overruns, higher financing costs and delayed commercial operations.

For dairy projects, where equipment such as processing systems, automation packages, refrigeration solutions and specialised components are often sourced globally, even a delay in one critical package can impact the entire project commissioning schedule.

Keeping Projects on Track and Within Budget

To minimise cost escalation and execution delays, dairy companies can adopt a more resilient project strategy:

- **Plan procurement early:** Identify long-lead items during the initial project phase and freeze specifications well in advance.
- **Increase local sourcing:** Adopt **Make in India** solutions wherever technically feasible to reduce dependency on imports, minimise logistics risks and improve cost control.
- **Develop reliable domestic partners:** Working with experienced Indian engineering companies can provide faster response, better service support and improved life cycle value.
- **Optimise project design:** Standardised designs, modular solutions and value engineering can help reduce unnecessary costs without compromising quality.
- **Strengthen project monitoring:** Real-time tracking of engineering, procurement and execution activities helps identify risks early and prevent delays.

The Role of Indian Engineering Capability

India today has strong engineering capabilities across dairy processing, automation, fabrication and food manufacturing technologies. Leveraging domestic expertise can help companies achieve better cost predictability, shorter execution cycles and greater flexibility.

We believe that the future of dairy infrastructure lies in combining global technology standards with **Indian engineering excellence.** By focusing on local manufacturing, efficient project execution and innovative engineering solutions, the industry can build more resilient dairy plants while controlling investment costs.

In a rapidly changing global environment, **smart planning, stronger local partnerships and a commitment to Make in India will be key drivers for successful dairy projects.**

INDIA'S NEXT DAIRY GROWTH STORY WILL BE BUILT ON SMARTER FARMS, BETTER NUTRITION AND INTELLIGENT ENGINEERING

India's dairy industry has long been a symbol of rural prosperity, but its next chapter will be defined not by the number of animals we own, but by how efficiently we nourish, manage and support them. The country's remarkable journey, from milk shortages in the 1970s to becoming the world's largest milk producer- now enters a new era where productivity, quality and sustainability will determine future success.

The numbers tell an exciting story. India today contributes **nearly one-fourth of the world's milk production,** producing around **240 million tonnes of milk annually.** More importantly, the dairy sector supports the livelihoods of over **80 million rural households,** making it one of the largest sources of rural income and women's employment in the country.

Yet, the challenge ahead is equally significant. While India has the world's largest bovine population, **average milk yield per animal remains well below global benchmarks.** As demand for milk, cheese, yoghurt, paneer and other value-added dairy products continues to rise, increasing herd size alone is no longer the answer. The future lies in **doing more with every animal**-through scientific feeding, precision farm management, improved genetics and engineering-led innovations.

The Government's **White Revolution 2.0** reflects this shift in focus. The initiative aims to increase milk procurement by dairy cooperatives by **50% over the next five years** while creating **75,000 new dairy cooperative societies,** strengthening market access and improving farmer incomes.

Industry indicators also point towards a strong growth trajectory. According to CRISIL Ratings, India's organised dairy sector is expected to record **13–15% revenue growth** this fiscal, driven by sustained consumer demand and rapid growth in value-added dairy products. However, rising feed costs, climate variability and pressure on milk productivity mean that efficiency across the dairy value chain has never been more important.

This is where technology becomes the real differentiator.

From precision feed processing and automated batching systems to intelligent material handling, quality assurance and digital farm management, engineering is helping transform dairy operations into more productive, sustainable and profitable enterprises. Better feed quality leads to healthier animals. Healthier animals produce better-quality milk. Better-quality milk creates stronger value chains and higher returns for farmers.

At **Schnel Enginering,** we believe the future of dairy begins long before milk reaches the processing plant- it starts with smarter feed, reliable engineering and technologies that empower every stakeholder across the value chain.

In this second edition of **Dairy Outlook,** we explore the innovations reshaping India's dairy landscape, the role of feed technology in improving productivity, and the engineering solutions enabling the next generation of efficient, sustainable dairy farming.

Because India's next White Revolution won't simply be measured in litres of milk-it will be measured in **efficiency, quality, sustainability and the intelligent use of technology.**

~25%
Share of world milk production

80M+
Rural households supported

50%
Target rise in procurement

GLOBAL DAIRY 4.0: WHAT INDIA CAN LEARN FROM THE WORLD'S SMARTEST DAIRY FARMS

India has already won the race in milk production. The next challenge is winning the race in **productivity, quality, sustainability and profitability.**

Today, India contributes nearly **25% of the world's milk production,** yet the average milk yield per animal remains significantly lower than countries such as Israel, the United States and the Netherlands. The opportunity, therefore, is not merely to produce more milk, but to produce **more milk from fewer resources** while improving quality and farmer incomes.

Around the world, the dairy industry is embracing Artificial Intelligence (AI), automation, robotics, precision nutrition and digital engineering to transform every stage of milk production-from feed manufacturing to herd management and processing. The question for India is no longer whether these technologies work, but how quickly they can be adapted to Indian farming systems.

Israel: Producing More Milk with Data

Israel consistently records one of the world's highest average milk yields per cow, exceeding 12,000 kg annually, nearly three to four times higher than the average productivity of Indian dairy animals.

The country's success is built on precision. Every cow is digitally monitored for feed intake, rumination, body temperature, fertility, milk conductivity and activity levels. AI-powered software analyses millions of data points daily, allowing farmers to detect health issues before visible symptoms appear, optimise feeding programmes and improve breeding decisions.

The result is healthier animals, longer productive lifespans and consistently high-quality milk. For India, where preventive healthcare often gives way to reactive treatment, this data-driven approach offers tremendous potential.

The Netherlands: Engineering Meets Animal Welfare

Dutch dairy farms have demonstrated that automation is not about replacing people - it is about improving consistency.

Companies such as Lely, headquartered in the Netherlands, have transformed dairy operations through robotic milking, automated feed pushing, barn cleaning robots and digital herd management systems. Farms using integrated automation report significant labour savings while allowing farmers to spend more time on animal health and management rather than repetitive tasks.

Automation also enables cows to choose their own milking schedules, reducing stress and improving overall welfare - an increasingly important factor influencing both milk yield and milk quality.

Sweden's DeLaval: AI that Predicts Disease Before It Happens

Sweden-based DeLaval, one of the world's leading dairy technology companies, is taking AI beyond automation.

Its latest AI platform analyses data collected from milking robots and farm sensors to predict diseases such as mastitis and ketosis before clinical symptoms appear. Farmers receive real-time alerts, enabling early intervention that improves animal health while reducing unnecessary antibiotic use.

The company has also introduced milk cell analysis sensors that continuously monitor udder health during milking, helping improve milk quality and support responsible antibiotic stewardship. For Indian dairies, where mastitis remains one of the biggest causes of production losses, predictive AI could significantly improve milk quality while reducing treatment costs.

Precision Feeding: Every Kilogram of Feed Matters

Feed accounts for nearly 60–70% of the total cost of milk production, making nutrition the single biggest determinant of dairy profitability.

Globally, precision feeding systems automatically measure feed intake, adjust rations based on milk production and stage of lactation, and minimise wastage. Instead of feeding every animal the same ration, AI creates customised nutrition plans for each cow. The benefits include:

- **Higher milk yield**
- **Better reproductive performance**
- **Lower feed wastage**
- **Reduced methane emissions**
- **Improved feed conversion efficiency**

In countries facing rising feed costs, precision nutrition has become one of the fastest-return investments on dairy farms.

Artificial Intelligence is Helping Reduce Emissions

AI is also accelerating sustainability. Recent research across commercial dairy farms in Israel demonstrated that AI models could accurately predict the effectiveness of methane-reducing feed additives, helping farmers reduce enteric methane emissions by nearly 10% on average, with some farms achieving reductions of almost 20%.

Rather than applying the same nutritional solution everywhere, AI identifies which feed interventions work best for specific herds, improving both productivity and environmental performance. This personalised approach could become particularly valuable in India as the dairy industry works towards climate-smart agriculture.

Automation Beyond Milking

When people think of dairy automation, they often imagine robotic milking. Globally, however, automation now extends much further. Modern dairy farms employ:

- **Automated feed mixing and delivery**
- **Robotic feed pushers**
- **AI-based calf monitoring**
- **Computer vision systems for body condition scoring**
- **Smart ventilation systems**
- **Automated manure management**
- **Digital milk quality monitoring**
- **Cloud-based farm management platforms**

Each innovation may appear incremental, but together they create farms that are more productive, resilient and easier to manage.

The Feed Factory is Becoming Intelligent

Innovation does not begin in the cowshed-it begins in the feed mill.

Across Europe and North America, feed plants increasingly use automation for ingredient handling, batching, grinding, mixing and traceability. Every batch is digitally recorded, ensuring consistency in nutrient composition while reducing human error.

Advanced quality control systems also monitor moisture, particle size and contamination risks such as mycotoxins before feed reaches the farm. For Indian dairy producers, investing in intelligent feed processing can have a multiplier effect: healthier animals, higher milk yields and better-quality milk.

What This Means for India

India does not need to replicate Western dairy systems. Our production model-built on millions of smallholder farmers is unique. But the technologies driving global dairy success can be adapted to Indian conditions.

Affordable AI-based herd management, sensor-enabled animal health monitoring, automated feed plants, precision nutrition, digital quality assurance and sustainable engineering can dramatically improve productivity without increasing herd size.

The future of Indian dairy lies in making every kilogram of feed, every litre of water and every animal more productive.

The Schnel Perspective

At **Schnel Enginering,** we believe the next White Revolution will be driven not only by genetics or larger herds, but by **engineering intelligence.**

The convergence of **AI, automation, precision feed processing, sustainable manufacturing and data-driven decision-making** is redefining dairy worldwide. For India, adopting these technologies is no longer a matter of staying ahead, it is becoming essential to remain competitive.

Tomorrow's dairy leaders will not simply produce more milk. They will produce better milk, with fewer resources, lower emissions and greater value for every farmer.

CURRENT NEWS

News Update

Amul to Build World's Largest Curd Manufacturing Plant in West Bengal.

In a major boost to India's dairy sector, Amul has commenced construction of the world's largest curd manufacturing plant at the Howrah Food Park in West Bengal. The ₹700-crore project, inaugurated by Union Home Minister Amit Shah, is a significant step towards the Government's White Revolution 2.0 initiative.

Once fully operational, the integrated dairy facility will process 30 lakh litres of milk per day, producing 10 lakh kilograms of curd and cultured dairy products daily, along with packaged milk, UHT milk, ice cream, paneer, ghee, sweets and flavoured milk.

The first phase alone will process 10 lakh litres of milk daily, directly benefiting around 1.2 lakh dairy farmers across the state through better procurement, value addition and market access.

The project is expected to strengthen dairy cooperatives, expand cold-chain infrastructure, generate rural employment and provide farmers with a transparent and stable market for their milk. Plans are also underway to improve milk productivity through breed improvement programmes, including the establishment of a Sex-Sorted Semen facility in West Bengal.

With its scale and focus on value-added dairy products, the Amul Bengal Dairy Project is set to become a landmark development in India's evolving dairy ecosystem, reinforcing the role of cooperatives, modern infrastructure and technology in driving the country's next phase of dairy growth.

News Update

CRISIL Projects Milk Production Growth at 4% in FY27, Below Government's 6% Projection.

A recent CRISIL Ratings report suggests that India's raw milk production is likely to grow by 4% in FY27, significantly below the government's projection of 6% growth and lower than the ~5% CAGR recorded between FY20 and FY25. The moderation is expected due to challenges including climatic stress, rising feed and fodder costs, and productivity pressures at the farm level.

Despite slower milk production growth, the organised dairy sector is expected to maintain strong momentum, with revenue growth projected at 13-14% in FY27, supported by 8-10% volume growth and calibrated price increases. Milk procurement prices are expected to rise by 4-5%, which may translate into a 5–6% increase in retail dairy prices across categories.

CRISIL highlights that value-added dairy products (VADPs) will remain a key growth driver. Categories such as protein-rich and probiotic dairy products, while currently contributing less than 5% of the market, are expected to grow at over 20% in the coming years as consumers increasingly seek healthier, branded and convenient dairy options.

The report underlines the importance of improving animal productivity, scientific nutrition, climate-resilient farming practices and modern dairy technologies to bridge the gap between production ambitions and on-ground realities, ensuring sustainable growth for India's dairy sector.

News Update

Indian Dairy Sector Shifts Towards High-Margin Products

India's organised dairy industry is accelerating its shift from liquid milk to value-added dairy products (VADPs), which now account for over 35% of the sector's revenue despite consuming only around 20% of the total milk processed. Products such as cheese, yoghurt, curd, paneer, butter, ice cream and flavoured milk are delivering significantly higher margins and are driving the next phase of growth. I India Today

The value-added dairy segment is projected to grow at a compound annual growth rate (CAGR) of 16–18%, outpacing conventional liquid milk. Rising urbanisation, increasing disposable incomes, changing dietary preferences and growing demand for protein-rich and convenience foods are encouraging dairy companies to expand their premium product portfolios and invest in advanced processing, automation and cold-chain infrastructure.

For the dairy industry, this transition underscores the importance of consistent milk quality, scientific feeding practices and modern processing technologies. As processors focus on extracting greater value from every litre of milk, investments in quality assurance, automation and efficient dairy engineering will play a pivotal role in supporting India's evolving dairy value chain.

Global News

UK Heatwaves Cut Milk Production by 18.5 Million Litres

Extreme summer heat has disrupted Great Britain's dairy sector, with consecutive heatwaves reducing milk production by an estimated 18.5 million litres in 2026, according to the Agriculture and Horticulture Development Board (AHDB).

Temperatures soared to 35.1°C in May and a record 37.7°C on 26 June, causing heat stress that reduced feed intake, rumination and milk yields. The May heatwave alone resulted in an estimated 5.8 million-litre decline in production, while the June event led to a further 12.7 million-litre loss.

The reduced milk supply has pushed spot milk prices up by around 10 pence per litre, with prices reaching 38-48 pence per litre, while bulk cream prices have also strengthened due to tighter milk availability.

The report highlights the growing need for heat-stress mitigation, improved housing, cooling systems and climate-resilient dairy management as extreme weather events become more frequent, reinforcing the importance of sustainable dairy farming practices worldwide.

Global News

GDT Prices Fall 4.9% as Global Dairy Market Enters Correction Phase

The Global Dairy Trade (GDT) Event 407, held on 7 July 2026, recorded its sharpest decline of the year, with the GDT Price Index falling 4.9% and the average winning price dropping to USD 3,793/MT. A total of 26,316 MT of dairy products were sold, reflecting cautious buying amid improving global milk supplies.

Among key commodities, Whole Milk Powder (WMP) fell 4.4% to USD 3,425/MT, while Skim Milk Powder (SMP) declined 7.0% to USD 3,135/MT. Butter dropped 5.0% to USD 5,336/MT, and Anhydrous Milk Fat (AMF) slipped 3.9% to USD 6,341/MT. The steepest fall was seen in Cheddar, down 12.3% to USD 3,900/MT, whereas Mozzarella bucked the trend, rising 3.8% to USD 3,897/MT.

The correction reflects improving milk production in major exporting regions and more cautious purchasing by global buyers. While international dairy prices are expected to remain under pressure in the coming months, demand from Southeast Asia, the Middle East and Africa continues to provide stability to the global market.

THE FUTURE OF DAIRY PROCESSING IN INDIA: FROM MILK TO INTELLIGENT VALUE CREATION

India's dairy industry is entering an exciting phase of transformation. Through our interactions with large dairy organisations, medium-sized processors, emerging startups, consultants, and investors, we see a clear shift- from conventional milk processing toward integrated, value-added, and technology-driven dairy plants.

At the same time, global uncertainty, supply-chain challenges, rising operating costs, and intense competition across large, medium, and emerging dairy businesses are influencing investment decisions. Yet, these challenges are also creating opportunities for process optimisation and value creation.

The industry is increasingly exploring ghee, processed cheese, paneer, SMP, WMP, whey powder, WPC, nutritional and functional dairy ingredients.

One significant opportunity is paneer and cheese whey valorisation. What was traditionally considered a by-product and handling challenge can potentially be converted into a valuable product stream through an integrated process involving

The success of such projects depends not only on equipment selection, but on feed characteristics, process integration, membrane performance, energy consumption, CAPEX, OPEX, product quality, and market economics.

At the same time, new entrepreneurs are investing in focused dairy plants, while larger investors are exploring integrated facilities. The future will increasingly depend on hygienic process design, CIP automation, PLC/SCADA, energy efficiency, water optimisation, powder handling, scalable engineering, and turnkey project execution.

The Indian dairy industry has benefited significantly from established global technology and engineering companies. As the industry continues to grow, there is also an opportunity for capable Indian engineering companies to demonstrate their technical expertise, innovation, execution capabilities, and ability to deliver reliable, integrated, and cost-effective solutions.

- Niyaz Ahmed

Whey Collection → Clarification → Fat Separation → Pasteurisation → Membrane Filtration (UF/NF/RO) → Concentration → Evaporation → Spray Drying → Powder Handling & Packaging

MY FIRST TREKKING EXPERIENCE AT SAPUTARA (DEEPA PATEL)

My first trekking experience at Saputara was one of the most memorable adventures of my life. Until this trip, I had never imagined that I could complete a trek. It was a challenge that pushed me out of my comfort zone and taught me the importance of believing in myself.

The journey was not easy. There were steep climbs, rocky paths, and moments when I felt tired and wanted to stop. However, the beautiful mountains, fresh air, lush greenery, and breathtaking views gave me the strength to keep going. Every step brought a new and beautiful scene that made the effort worthwhile.

One of the most special parts of this trip was meeting new people. Although many of them were complete strangers at the beginning, they soon became wonderful companions. Everyone was friendly, cheerful, supportive, and full of positive energy. We encouraged each other throughout the trek, shared laughter, and enjoyed every moment together.

This experience also gave me an opportunity to observe different personalities, attitudes, and human nature. I saw how kindness, teamwork, and a helping attitude can make even a difficult journey enjoyable. It reminded me that good people can make any experience more meaningful, no matter where they come from.

This trek taught me valuable life lessons. I realized that success comes one step at a time, and with determination and patience, we can overcome any challenge. Standing at the top of the hill filled me with a sense of achievement, confidence, and happiness. It was a proud moment that reminded me that nothing is impossible if we are willing to try.

This first trekking experience at Saputara has inspired me to explore more places, take on new adventures, and continue stepping outside my comfort zone. It also taught me that sometimes the best memories are created with people we have just met. This journey will always remain one of the happiest, most inspiring, and unforgettable experiences of my life.

AUTOMATION TEAM WORK AT SITE FNPL 2026

Teamwork in Action
Excellence in Execution

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