A Brief Report on
Technical Sessions

Technical Session-2: Animal Husbandry Innovations

The session was chaired by Dr. Inderjeet Singh, Vice Chancellor, Bihar Animal Sciences University (BASU) accompanied by Dr. Geeta Patel, CEC Member, IDA as co-chairman. Dr. Kajal Sankar Roy worked as the rapporteur.

Dr. Nilesh Nayee from NDDB talked on the topic - "Gau Chip and Mahish Chip for genomic selection in the country". NDDB in collaboration with BAIF, NIAB and NBAGR has developed "Gau Chip" for Indian cattle and "Mahish Chip" for buffalo breeds for enabling farmers to do genomic selection of cattle and buffaloes in the country with higher productivity. Genotype data generated using these genotyping chips not only helps in estimation of Genomic Breeding Value (GBV) but also helps in estimation of breed composition, parentage testing and testing for various genetic conditions. A state-of-the-art laboratory at NDDB CALF Ltd. helps farmers to avail these services at cost enabling farmers to select animals even at birth for faster improvement of their herds.

Dr. Amit Vyas, MD, Amul Dairy, Anand talked on "Sustainability, carbon footprint and digitization". His presentation explored the complex relationship between technological advancements in the digital sphere (digitization) and its potential to both reduce carbon footprint, contributing to sustainability goals. Digitalization help reduce physical infrastructure, replacing paper documents with digital systems, optimized operations, utilizing data analytics to streamline processes, reduce energy consumption, and improve resource allocation in manufacturing and logistics. Digital tools enabling remote work, reducing transportation emissions related to commuting. Digital cattle health tracking system, Amul-i-kisan, digital document management platforms and AI based decision making and monitoring systems were explained by Dr. Vyas.

Dr. Sohanvir Singh from NDRI talked on "Climate change and livestock: Impacts and adaptation strategies". The productive performance of livestock is affected due to the thermal stress. Climate change will further influence the livestock production in future. Improvement of management strategies for reducing methane emission from livestock should be a multidisciplinary approach. It involves nutritional approach, breeding policy, housing, health etc. Selection of heat tolerant breed within breeds for breeding is essential. The innovative research, development of new technologies and transfer of technologies should be top priority. A holistic approach is essential for achieving this goal. Genetic adaptation of livestock to changed climate scenario may be an important factor to meet the challenges in future. Faster genetic gains of these traits can be achieved with new technologies, including genomic selection and advanced reproductive technologies. **Dr. Umesh Singh** from BASU talked on "Dairy dynamics: Scope and limitations in India and beyond". The dairy sector worldwide faces not only challenges such as fluctuating demand, climate change, and trade policies, but also opportunities through technological advancements and increasing consumer awareness of nutrition. India remains a global leader in milk production, providing significant employment and contributing to the national economy. However, it faces challenges like inadequate infrastructure, quality control, and the need for modernization.

Technical Session-3: Dairy, Nutrition & Health

The session was Chaired by Dr. G.S. Rajorhia, CEC Member, IDA and co-chaired by Dr. Rajan Sharma, Joint Director (Research), NDRI, Karnal. Dr. Sanjay Kumar, Registrar, BASU acted as the rapporteur.

In this session there were total

five presentations. **Dr. P. Narendra Raju**, from NDRI, Karnal elaborated on innovative utilization of whey and its uses in wine production. **Dr. J.B. Prajapati**, Chairman, IDA (WZ) highlighted the supremacy of milk and dairy products in health and disease management. He presented large scale scientific studies, which confirmed the consumption of milk helps in reducing type 2 diabetes, hypertension and obesity. Consumption of dahi is more effective in reducing glycemic index as compared to milk. Overall mortality by any cause was observed to be significantly lower in population consuming milk products.

Shri D.K. Srivastava, Chairman, Bihar State Chapter & Ex-MD Mithila Milk Union gave valuable suggestion that milk has great role in Indian economy and India should also harness the diversity of Indian milk products for export purposes. **Dr. S. Karthikeyan**, College of Dairy Sciences & Food Technology, Raipur has suggested that more and more technology should be developed for developing dairy products blended with millets. Shri Pavan Kumar Marwah, GM, JMF Ranchi and suggested that health attributes of Ghee should be properly communicated to the general public vis-vis a refined vegetable oils.

Technical Session-4: Milk Production Management

Dr. T.K. Datta, Vice Chancellor, West Bengal University of Animal and Fishery Sciences (WBUAFS), Kolkata was the Chairman supported by Dr. Sanjeev Kumar, Registrar, BASU as the co-chairman. Dr. R.R.K Sinha from BASU was the Rapporteur.

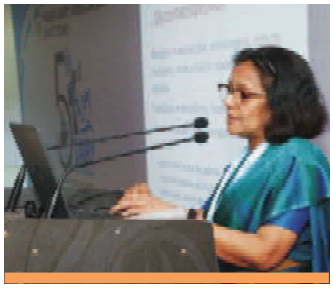
Dr. Rajesh Sharma from NDDB spoke on Current Feeding Pattern and Feed Resources Status in the Country. He elaborated on the existing feeding practices prevalent across different dairy farming systems in India. The lecture also covered the scope for alternative feed resources and efficient ration formulation to enhance productivity while maintaining cost-effectiveness. **Shri Harvir Singh**, Chief Editor, Rural Voice talked on Best Management Practices to Enhance Milk Production. He focused on practical and scientific management techniques that can significantly improve milk yield. Key areas discussed included animal health management, housing conditions, reproductive efficiency, and stress reduction measures. He stressed the role of proper nutrition, disease prevention, and effective breeding strategies in achieving higher productivity and economic sustainability for dairy farmers.

Shri Neeraj Kumar, MD, Delaval talked on Leveraging India's Buffaloes. He presented an in-depth analysis of the potential of India's buffalo population in contributing to the country's dairy sector. He underlined the genetic potential, adaptability, and resilience of buffaloes, emphasizing selective breeding programs and scientific management for improved milk yield. Additionally, he discussed innovative milking technologies and automation solutions tailored to buffalo farming for enhanced efficiency and quality. **Dr. Ravi Prakash** from ICAR-Central Institute of Post Harvest Engineering & Technology (CIPHET), Ludhiana talked on Indigenization of Smart Dairy Farming. He highlighted advancements in sensor-based monitoring, precision feeding, and automated milking systems that can revolutionize dairy farming in India. The lecture emphasized the role of data-driven decision-making in improving farm productivity, animal welfare, and overall sustainability.

Technical Session-5: Milk Processing Technology: Innovations & NPD

The session was chaired by Dr. R.R.B. Singh, Vice Chancellor, Dau Shri Vasudev Chandrakar Kamdhenu Vishwavidyalaya (DSVCKV), Durg, Chhattisgarh and co-chaired by Dr. B.C. Ghosh, CEC Member IDA & former PS, ICAR-NDRI, Bengaluru. Dr A.K. Thakur, Sanjay Gandhi Institute of Dairy Technology (SGIDT), Patna acted as the rapporteur.

Dr. Latha Sabikhi from NDRI discussed the status and prospects of minor milk molecules. Many new processing technologies are now available



to extract minor constituents from milk with greater functionality and also develop products which have higher nutrient retention. These need to be scaled up to make these technologies commercially viable.

Dr. Subrota Hati from SMC College of Dairy Science, Anand elaborated on bioactive compounds in non-bovine milk and associated challenges. Bioactives from milk such as bio peptides, GOS, lactoferrin etc. are finding increasing application in pharmaceuticals and functional foods which are growing at a CAGR of nearly 9%. These area needs to be commercially exploited to help dairy industry realize greater returns to the dairy farmers. Non bovine milk particularly goat, sheep and camel milk are endowed with myriad bioactive molecular which have multiple health benefits. Efforts need to be made to make public aware of their virtue so that the inherent strength of non-bovine milk can be harnessed for making rearing these animals sustainable.

Dr. J. Badshah from SGIDT highlighted sustainable innovations in dairy processing. **Dr. S.N. Rajakumar**, Chairman, IDA Kerala State Chapter presented novel dairy processing technologies. The session provided valuable insights into emerging trends and innovations aimed at enhancing the efficiency, sustainability, and nutritional value of dairy products.

Technical Session-6: Sustainability- Carbon footprint, digitalization

Shri B.V.K. Reddy, CEO Dodla Dairy Ltd., Hyderabad chaired the session. Dr. Sanjeev Sinha, Chief Account Officer, PDP, Patna was the co-chairman. Dr. Lalit M. Bal, SGIDT, Patna was the rapporteur.

Dr. Vikram Jani from Amul Dairy elaborated use of homeopathic medicine offers a natural, safe, and cost-effective approach to livestock care, treating ailments like mastitis, digestive issues, and respiratory infections. Its residue-free nature supports organic farming, making homeopathy a promising alternative in animal healthcare. **Shri Niranjan Karade** from NDDB spoke on sustainability and circularity in the dairy sector with a focus on waste reduction, resource efficiency, and eco-friendly practices. Recycling by-products, using renewable energy, and efficient manure management help lower environmental impact. Adopting sustainable methods ensures long-term productivity, profitability, and food security while reducing the sector's carbon footprint.

Dr. Chetan Arun Narake, Director, Gokul Dairy, Kolhapur & CEO Chandrangan Group spoke about AI-driven digitization. He said that this is transforming the dairy industry by enhancing efficiency, productivity, and quality control using Smart sensors, automated milking systems. AI-powered analytics optimize herd health, milk yield, and supply chain management. AI-driven predictive maintenance and precision feeding improve sustainability, reducing costs and waste while ensuring higher profitability and productivity.

Technical Session -7: Research & Education in the Dairy Industry

Dr. Bimlesh Mann, ADG, ICAR, New Delhi chaired the session while Dr. S.K. Bag, Dean, Dairy Science College, West Bengal acted as co-chairman. Dr Tarun Verma, BHU Varanasi worked as rapporteur.

Dr. Bimlesh Mann discussed ICAR's policies aimed at attracting more students to higher education in agricultural and allied sciences, with a strong focus on NEP-2020. The restructuring of curricula, skill-based learning, and digital advancements were emphasized as key strategies to strengthen dairy education. **Dr. Satender Arya**, CEO of Agriculture Skill Council of India highlighted the importance of skill development, particularly in agricultural sciences, through hands-on training alongside traditional classroom education. He emphasized the role of structured apprenticeship programs in improving employability and bridging skill gaps in the dairy sector.

Shri Raj Patel from Vidya Dairy presented the experiential learning model of Vidya Dairy, demonstrating how hands-on training helps dairy graduates meet industry demands. He reinforced the need for integrating real-world exposure with academic learning to develop industry-ready professionals. **Dr. A.K. Makwana** from SMC college of Dairy Science, Anand provided an overview of the current state of dairy education infrastructure, citing the role of State Agricultural Universities (SAUs), ICAR institutions, and training facilities. He stressed the importance of upgrading laboratories, modernizing teaching methodologies, and establishing a robust regulatory framework for standardizing dairy education in India.

Technical Session -8: Quality, Safety & Standards

Shri Ajay Kumar Khosla, Vice President, IDA, New Delhi chaired the session while Dr. Satish Kulkarni, Chairman, IDA (South Zone) acted as co-chairman. Dr. Pradip Behare, ICAR-NDRI worked as rapporteur.

Dr. K.D. Aparnathi, former Head, Dairy Chemistry, SMC College Anand highlighted the necessity of testing purity of milk fat (triglycerides) at national level. In particular, GC based analysis of triglycerides in milk fat suggested as highly effective, most reliable and irreplaceable analytical tool to tackle adulteration. This would certainly verify the authenticity of milk fat which other methods cannot do efficiently. It was suggested that there is need to establish S-value of Indian milk fat considering the effect of species, breed, feed, season and region.

Dr. Aditya Jain from NDDB, Anand talked on the regulatory framework for dairy product. In India multiple regulations are now combined to bring out single regulation (FSSAI) to harmonize the standards for dairy food. Although, draft regulations are provided time to time, we all should be attentive to identify lacunas if any and highlight to the regulators. Speaker emphasized the need for the involvement of dairy industry while standards are being framed for each dairy food categories.

Dr. J.V. Parekh, Parekh Consultancy Services, Mumbai and Vice Chairman, IDA (WZ) talked on novel machines for clean milk production. He presented advancements in technology aimed at improving milk quality. A range of machines, including milking machines, instant/solar milk coolers, and bulk coolers, which help preserve milk quality were presented. He also mentioned that Rapid MBRT testing of raw and pasteurized milk is available which gives milk quality information in 2-3 min. Such novel machines should be adopted by dairy industries to ensure the quality and safety of milk and milk products.

Dr. Rajesh Nair, NDDB CALF, Anand presented the methods available for Antibiotics, pesticides, mycotoxin testing for dairy products. Analysis of these compounds in dairy products become inevitable as per the regulatory requirement. The challenges in selecting analytical method was discussed. It was suggested that LC-MS based methods are more precise and can be used as confirmatory. Dr. Nair highlighted the lack of harmonization in testing methods across the industry and called for standardization to ensure consistency and reliability in results.

Technical Session -9: Packaging

Shri R.K. Chugh, former Chief General Manager, Haryana Dairy Development Cooperative Federation Ltd. chaired the session and Shri Rajesh Lele, CEC Member, IDA co-chaired the session. Dr. Suryamani Kumar, SGIDT Patna was the Rapporteur.

Dr. Sunil Khatkar from Dairy Science College, Ludhiana spoke on Milk proteins as attractive candidates for food packaging. He recommended to use casein as biopolymer for sustainable & recyclable packaging material. **Shri Pankaj Jain** from SIG explained the different innovative technologies used to design advanced food packaging film for the dairy industry. **Ms Ruchi Gandhi** from Tetrapak explained about the recyclable system adopted in Tetrapack for reducing

the waste of packaging material. She further explained the developed technology of Tetrapack in reusing the packaging material. **Shri Sachin Achintalwar**, Regulatory Advisor from Bengaluru spoke on regulatory affairrs on relabeller of food business owness and he displayed the procedures, rules and regulations for filling the form of FSSAI.

Technical Session -10: Marketing

The session was chaired by Shri Arun Patil, Vice President, IDA and co-chaired by Shri Ashok Rao, Secretary, NGA and Vice Chairman, IDA (NZ). Dr. S. Subhash, Sr. Scientist, ICAR-NDRI Bengaluru worked as the rapporteur.

Shri Srinivas Sajja, MD, NCDFI gave his presentation on "Revolutionising Dairy Trade: Redefining Bulk Sales and Procurement". He said that NCDFI is offering various e-marketing services of the better services of stakeholder's especially Dairy cooperatives.

Ms. Richie Agrawal, RA Consulting, Pune spoke on "Selling Milk in 2025: What Works, What Doesn't & What's Next". In her presentation, she said that building transparency and product description, etc. are key to the decision-making of consumers.

Dr. R.S. Pundir, Dean, IABMI, AAU, Anand deliberated on "Demand supply predictions for milk". Dr. Pundir said that leveraging the technological advancement is key for growth in dairy sector marketing.

Shri Vipan Kumar Kakkar, Consultant, spoke on "International Business Global Market opportunities for Indian Dairy products". Shri Kakkar said that the projected milk supply in 2036 is 327-486 MT against the demand of 267-327 MT of milk. Hence our milk export should reach a target of 10% of world market. We must focus on 3C's of market consistency in quality, supply and price competitiveness to export our surplus milk. Policy for supporting exports, open new markets and creation of dairy export platform is very critical.

Shri Bijitesh Mallik, Founder & CEO, Brand Vac, Bengaluru deliberated on "Branding of Dairy Products for advantage India". Shari Mallik said that creation of brand value for our milk products through communicating our strength is very crucial for marketing.

Technical Session -11: Financial Inclusions, Start-ups

Dr. D.C. Rai, Vice Chancellor, BBA Bihar University, Muzaffarpur chaired the session and Shri Pavan Kumar Marwah, GM, JMF Ranchi co-chaired the session. Shri Ashok Kumar, Member SEC, IDA Bihar State Chapter was the Rapporteur.

Dr. A.V.R. Ramchandra Kumar, NDDB, Anand deliberated on ICT and ERP implementation in dairy. **Shri Ajith Kumar K**, Assistant Commissioner (DD), DAHD spoke on Empowering Indian Dairy Sector: The Role of Animal Husbandry Credit. **Shri Narayan Majumder**, MD, Red Cow Dairy gave a presentation on "How to lead the Dairy by a Start-up".

Dr. Sanjeev Kumar, Head (DT), SGIDT, BASU, Patna spoke on "Entrepreneurship development through value addition to milk". **Shri Sudhanshu Shekhar**, Assistant Commissioner (DD), DAHD presented the Dairy development initiatives of the Government of India.

(A brief report on 'CEO Panel Discussion' held under the Technical Session -1, has already been published in the April 2025 Issue on page 74.)