IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 3, April 2025
Impact Factor: 7.67

The Role of AI in Production Operation of Dairy Industry

Shivjeet Avinash Jadhav[1], Nihal Himanshubhai Kachhia[2], Dr. Vaishali Shah[3]
MBA Student[1], MBA Student[2], Assistant Professor[3],
Parul Institute of Engineering & Technology,
Faculty of Management Studies, Parul University Vadodara- 391760, India.
shivjeetjadhav27@gmail.com

Abstract: *The dairy industry, traditionally characterized by labour-intensive processes and variable production outcomes, is undergoing a significant transformation with the adoption of Artificial Intelligence (AI) technologies. This research paper provides an in-depth analysis of the role AI plays in enhancing production operations within the dairy sector. AI-powered solutions are being increasingly utilized to optimize herd management, automate milking processes, and improve milk quality control. Through the deployment of machine learning algorithms and advanced data analytics, farmers can monitor animal health in real time, predict diseases before they escalate, and implement precision feeding strategies that align with individual animal needs. Automated milking systems integrated with AI enhance efficiency by ensuring consistent milking schedules and maintaining hygiene standards, leading to improved milk yields and quality.Moreover, AI applications extend to supply chain management, where predictive analytics help forecast demand, manage inventory, and streamline distribution networks, reducing waste and ensuring timely delivery of dairy products. Predictive maintenance of machinery further minimizes downtime and extends equipment lifespan, while computer vision systems aid in detecting anomalies in milk quality and packaging processes. Despite these advancements, the paper also addresses prevailing challenges, such as the high initial costs of AI integration, data security and privacy issues, and the need for skilled labour to manage and interpret complex AI systems.*

Keywords: Artificial Intelligence, Dairy Production, Industry 4.0, Cost Reduction, Quality Control, Operational Efficiency

DOI: 10.48175/IJARSCT-25056