

INDUSTRIAL VISIT REPORT



Date of Industrial Visit: 17 October 2026

Faculty Mentors: Dr. G Siva Reddy-Assistant Professor

Dr. Uday Turaga - Assistant Professor

Dr. B Navyatha-Assistant Professor

1. Introduction: An industrial visit was organized by the Department of Biotechnology, Koneru Lakshmaiah Education Foundation (KLEF), Vaddeswaram, to Sangam Dairy, Vadlamudi, Guntur District, Andhra Pradesh, on 17 October 2026 for B.Tech Biotechnology students. The purpose of the visit was to expose students to industrial-scale dairy processing operations, milk quality assessment, food safety practices, and the applications of biotechnology in the dairy industry. Industrial visits provide valuable opportunities for students to understand how theoretical concepts learned in classrooms are applied in real-world industrial environments. The visit also helped students appreciate the importance of quality assurance, hygienic processing, and sustainable dairy production.

2. Visit Details

- **Date of Visit:** 17 October 2026 (Saturday)
- **Industry Visited:** Sangam Dairy, Vadlamudi, Guntur District, Andhra Pradesh
- **Department:** Biotechnology
- **Institution:** Koneru Lakshmaiah Education Foundation (KLEF), Vaddeswaram
- **Number of Students:** 52
- **Faculty Coordinators:**
 - Dr. G. Siva Reddy – Assistant Professor
 - Dr. T Uday- Assistant Professor
 - Dr. B Navyatha- Assistant Professor
 - Mrs. K Bindhu- Lab Technician
 - Mrs. Y Naga Lakshmi- Lab Technician

3. Objectives of the Visit: The industrial visit was organized with the following objectives:

- To introduce students to the functioning of a commercial dairy processing industry.
- To understand the major stages involved in milk reception, quality testing, processing, storage, and distribution.
- To familiarize students with the principles of pasteurization, homogenization, refrigeration, and hygienic processing.

- To understand the importance of microbiological testing and quality assurance in dairy production.
- To create awareness of food safety standards and sanitation practices followed in the dairy industry.
- To correlate theoretical knowledge of biotechnology, microbiology, and bioprocess engineering with industrial applications.
- To encourage students to explore career opportunities in dairy technology, food biotechnology, industrial microbiology, and quality control.

4. About Sangam Dairy, Vadlamudi

Sangam Dairy, located at Vadlamudi in Guntur District, Andhra Pradesh, is associated with the dairy and milk-processing sector. Dairy processing industries play an important role in collecting milk from producers and processing and distributing dairy products to consumers.

The dairy industry integrates several scientific and technological disciplines, including food technology, microbiology, biochemistry, process engineering, refrigeration, and quality assurance.

The major areas relevant to dairy processing include:

- Milk procurement and reception.
- Raw milk quality assessment.
- Milk processing and heat treatment.
- Dairy product manufacturing.
- Packaging and cold storage.
- Quality control and food safety.
- Sanitation and hygienic processing.
- Management of dairy by-products and processing waste.

5. Activities During the Visit

5.1 Orientation and Introduction: The visit provided students with an opportunity to become familiar with the industrial environment of a dairy processing facility. Students gained an understanding of the importance of organized milk collection, hygienic handling, quality maintenance, and efficient processing in the dairy sector. The visit also helped students

recognize the role of dairy industries in supporting milk producers and supplying quality dairy products to consumers.

5.2 Observation of Dairy Processing Operations: Students gained exposure to the major operational stages generally involved in dairy processing, including:

- Reception and preliminary assessment of raw milk.
- Filtration and clarification of milk.
- Heat treatment and pasteurization.
- Homogenization, where applicable.
- Cooling and temperature-controlled storage.
- Packaging and distribution of dairy products.

These operations demonstrate the importance of process control, equipment efficiency, and hygienic conditions in dairy production.

5.3 Milk Quality Assessment and Quality Control: Students learned about the importance of assessing milk quality before processing and maintaining appropriate quality standards throughout production.

Common dairy quality assessment parameters include:

- Fat and solids-not-fat (SNF) content.
- Acidity and pH.
- Milk temperature.
- Adulteration screening.
- Microbiological quality, where applicable.

The discussion of these parameters helped students understand how quality assessment supports product consistency, consumer safety, and regulatory compliance.

5.4 Hygiene and Food Safety Practices: The visit highlighted the importance of hygiene and contamination prevention in the dairy industry. Students gained awareness of the role of equipment cleaning, personnel hygiene, sanitation, temperature control, and appropriate handling practices in maintaining dairy product quality. These practices are essential for minimizing contamination risks and ensuring the safety of milk and milk products.

5.5 Applications of Biotechnology in Dairy Processing: The visit helped students connect

biotechnology concepts with dairy industry operations. Important applications include:

- Microbiological testing for evaluating product quality.
- Use of beneficial microorganisms in fermented dairy products.
- Enzyme applications in dairy product development.
- Biochemical analysis of milk and dairy products.
- Wastewater treatment and biological waste management.
- Value addition and utilization of dairy by-products.

These applications demonstrate how biotechnology contributes to product development, quality assurance, and sustainable industrial practices.

6. Learning Outcomes

The industrial visit enabled students to:

- Understand the general workflow of a dairy processing industry.
- Identify the importance of milk quality assessment and process monitoring.
- Relate pasteurization and refrigeration principles to microbial control.
- Recognize the importance of sanitation, hygiene, and food safety.
- Understand the relevance of biotechnology and microbiology in dairy production.
- Appreciate the role of industrial processing technologies in maintaining product quality.
- Develop awareness of career opportunities in dairy technology, food processing, and industrial biotechnology.
- Recognize the importance of responsible resource utilization and sustainable waste management.

7. Alignment with Sustainable Development Goals (SDGs)

The industrial visit to Sangam Dairy supports awareness of the following United Nations Sustainable Development Goals.

SDG Number	SDG Goal	Relevance to the Visit
SDG 2	Zero Hunger	Dairy production contributes to the availability of milk and dairy products as sources of nutrition and supports food security.
SDG 4	Quality Education	The visit promotes experiential learning by

		connecting classroom concepts with industrial practices.
SDG 8	Decent Work and Economic Growth	The dairy sector supports employment, livelihoods, and economic activity across milk production and processing.
SDG 9	Industry, Innovation and Infrastructure	Exposure to industrial processing systems and quality management promotes understanding of technological innovation.
SDG 12	Responsible Consumption and Production	Efficient resource utilization, waste minimization, and responsible management of dairy by-products are relevant to sustainable production.

8. Programme Outcome (PO) Mapping: The industrial visit supports the following Programme Outcomes for Biotechnology students. The final mapping should be verified against the approved curriculum applicable to the participating batch.

PO	Programme Outcome	Contribution of the Visit
PO1	Engineering Knowledge	Application of biotechnology, microbiology, and engineering principles to dairy processing.
PO2	Problem Analysis	Understanding quality assessment, contamination risks, and process control requirements.
PO3	Design/Development of Solutions	Awareness of processing methods and quality management approaches used to produce safe dairy products.
PO5	Engineering Tool Usage	Familiarization with industrial processing equipment and quality testing instruments, where demonstrated.
PO6	The Engineer and the World	Understanding the relationship between dairy production, public health, industry, and society.
PO7	Ethics and Sustainability	Awareness of food safety, hygiene, resource utilization, and environmental responsibility.

9. Conclusion: The industrial visit to Sangam Dairy, Vadlamudi, Guntur District, Andhra Pradesh, organized by the Department of Biotechnology, KLEF, on 17 October 2026, provided students with an opportunity to understand the industrial relevance of biotechnology in dairy processing. The visit was intended to strengthen students' understanding of milk processing, quality assessment, hygienic practices, food safety, and industrial biotechnology applications. It also

helped connect theoretical knowledge from biotechnology and bioprocess engineering courses with practical industrial applications. Such industrial visits play an important role in promoting experiential learning, professional awareness, and understanding of sustainable industrial practices among biotechnology students. The Department of Biotechnology, KLEF, sincerely thanks the management and staff of Sangam Dairy, Vadlamudi, for their cooperation and support in facilitating this academic visit.

11. Photographic Evidence

