

## **Educational Trip Report: ICAR National Dairy Research Institute and IIWBR (Karnal, Haryana) on 11-12 November 2024**

The trip began early on November 11, 2024, at 8:30 a.m. from the JUIT campus. Students had the chance to participate and set expectations for the visit during this enlightening trip to NDRI Karnal. The National Dairy Research Institute (NDRI) in Karnal, Haryana, established in 1923, is a leading institute under ICAR focused on dairy research and education. It supports India's dairy industry through research in animal genetics, dairy processing, and biotechnology, while also offering programs to train professionals in dairy science. After a six-hour travel, we reached our objective at Karnal (NDRI).

### **Day 1:**

#### **Arrival**

Upon our arrival at NDRI in Karnal, we were warmly welcomed by a staff member who gave us an informative introduction to the institute. They shared insights into NDRI's, notable achievements, and contributions to the field of dairy research. It also covered current projects underway, with a focus on advancements in dairy science and technology, as well as the diverse educational programs and specialized courses offered to train future professionals in the dairy industry. This overview provided a comprehensive understanding of NDRI's impact and ongoing efforts in dairy research and education. Following the introduction, we were provided with accommodation at *Kishan Bhavan*, allowing us to settle in comfortably for the duration of our visit.



### **Day 2:**

#### **NDRI-ICAR**

On the second day 12<sup>th</sup> November, we were first shown a video that provided a detailed description of NDRI, its history, and its contributions to the dairy industry. Following the video, we were taken on a tour of the institute's museum, which featured intricately crafted cow models and a variety of scientific posters. These exhibits elegantly displayed key aspects of dairy science, research advancements, and NDRI's significant contributions to the



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industry. The museum provided a fascinating glimpse into the scientific and technological progress that has shaped the dairy sector over the years

### **Model Dairy Plant:**

We were divided into two groups and taken on a guided tour of the Model Dairy Plant at NDRI, Karnal. During the tour, we received a detailed introduction to the production processes for dairy products like ghee, milk and kulfi. The staff explained each stage, from initial processing to quality assurance, and demonstrated the laboratory tests performed to ensure product safety and quality before items are marketed. After processing and quality testing at the Model Dairy Plant, these products are sent to various partner companies for distribution, ensuring that NDRI's high standards are maintained as they reach a wider consumer base.



### **Animal Biotechnology Centre**

The following day, we were taken to the Animal Biotechnology Centre at NDRI, where we were introduced to the advanced research and technologies in animal genetics, breeding, and biotechnology. The staff explained various ongoing projects focused on improving dairy production through genetic enhancement, disease resistance, and reproductive efficiency in livestock. We were also given a tour of the lab, where we observed instruments used in molecular biology techniques and biotechnology applications being used to enhance dairy farming practices, it provided a valuable insight into how modern scientific approaches are being applied to improve livestock health and productivity.



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### **ICAR-IIWBR.**

After visiting NDRI, we proceeded to ICAR-IIWBR (Indian Council of Agricultural Research - Indian Institute of Wheat and Barley Research). There, we were first given a tour of their museum, which showcased various samples related to wheat and barley research, including different varieties and scientific aspect of crop development. The museum provided a valuable insight into the advancements in crop research.

After the museum tour, we visited the various laboratories at IIWBR. At first, we visited the Quality Assurance Lab, After the Quality Assurance Lab, we proceeded to the Plant Tissue Culture Lab, where we learned about cloning and genome editing techniques used to enhance crop traits, such as disease resistance and yield. Finally, we visited another lab where the staff provided a brief overview of the final products. Here, they explained how the results from their research and quality assessments translate into improved end-products for consumers, emphasizing IIWBR's focus on developing high-quality, nutritionally rich wheat varieties.



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The trip concluded with a conference meeting, where we were addressed by Dr. Ratan Tiwari, the Director of IIWBR. In his motivational speech, he shared insights into the institute's past innovations, including the development of the open glasshouse rooftop technology, which allows for controlled-environment research on crop varieties. His words highlighted the importance of continued agricultural innovation and inspired us to contribute to advancements in the field of science and Biotechnology.

