REPORT OF INDUSTRIAL VISIT AGRICULTURAL ENGINEERING ACADEMIC SESSION 2024-25

1st Day Visit: IARI Delhi

The Department of Agricultural Engineering, DEI Agra organized an industrial visit to the Indian Agricultural Research Institute (IARI), New Delhi, on 22/02/2025, for B.Tech 2nd-year students. A total of 44 students, accompanied by 5 staff (Dr. Madhuri Dubey, Dr. Priyanka Gunjan, Er. Mukesh Kumar Seetpal, and Mr. Sonu Kumar), participated in this educational visit. The objective was to provide students with practical exposure to advanced agricultural research, innovative farming technologies, and modern equipment used in agricultural engineering.

The Indian Agricultural Research Institute (IARI), commonly known as the Pusa Institute, is India's premier national institute for agricultural research, education, and extension. Established in 1905, it has played a significant role in the Green Revolution, leading to advancements in crop improvement, soil science, and agricultural engineering. The institute is affiliated with the Indian Council of Agricultural Research (ICAR) and offers postgraduate and doctoral programs in various agricultural sciences.

Departments and Facilities Explored

During the visit, students had the opportunity to explore the Krishi Mela, Water and Technology Centre, and Centre for Protected Cultivation Technology.

Water Technology Centre

The Water Technology Centre (WTC) is dedicated to water resource management, irrigation technology, and climate-resilient agriculture. Established to address challenges in sustainable water use, the center focuses on (i) Efficient irrigation methods like drip, sprinkler, and microirrigation, (ii) Water conservation strategies for sustainable farming, (iii) Use of modern technologies such as remote sensing, GIS, and AI in agriculture.

Centre for Protected Cultivation Technology

CPCT is a renowned center that specializes in research and development related to protected cultivation, greenhouse farming, and climate-resilient agriculture. The CPCT was established in 1998-99 as a demonstration farm under the Indo-Israel project and later redesigned as CPCT in 2004. It serves as a nodal center for research, development, training, and dissemination of protected cultivation technologies aimed at improving horticultural productivity and sustainability

Krishi Vigyan Mela 2025

The Pusa Krishi Vigyan Mela (PKVM) 2025, organized by ICAR-Indian Agricultural Research Institute, was held from February 22nd to 24th, 2025. This year's mela focused on the theme 'Unnat Krishi—Viksit Bharat', highlighting advancements in agriculture for a developed India. The event catalyzed promoting agricultural transformation, fostering innovation, and strengthening resilience in the farming sector. A total of 245 stalls of ICAR

institutes, agricultural universities, public and private institutes, and farm entrepreneurs were showcased. The top highlights of the Mela were the demonstrations of cutting-edge varieties and technologies developed by IARI. Exhibitions featured innovative technologies, products, and services from IARI, ICAR Institutes, Agricultural Universities, KVKs, FPOs, entrepreneurs, start-ups, and both public and private companies.

Through this visit, students gained:

- Practical knowledge about modern irrigation systems and their real-world applications.
- Understanding of water-saving technologies and sustainable farming practices.
- Exposure to research methodologies and innovative agricultural solutions.
- Awareness of career opportunities in water resource management and precision agriculture.
- Practical knowledge about controlled environment agriculture and its applications.
- Understanding of soilless cultivation and hydroponic farming techniques.
- Exposure to high-tech farming innovations for sustainable agriculture.
- A comprehensive understanding of protected cultivation technologies.
- Practical knowledge about innovative farming techniques suitable for peri-urban areas.



2nd Day visit: Nav Bharath Industries and Singhal Cold Storage

On 24th February 2025, a group of second year B. Tech Agricultural Engineering students (comprising 29 boys and 15 girls) accompanied by staff members (Dr. Ashok Yadav, Dr. Anjitha Krishna and Mr. Shivam Kumar) embarked on an educational visit to Nav Bharath Industries and Singhal Cold Storage located at Foundry Nagar, Agra.

Nav Bharath Industries

Popularly known as Prakash Thresher, Nav Bharath Industries established in 1969, are renowned as the leading manufacturers and suppliers of various agricultural equipment. Their product line includes Multicrop thresher, Mini Tokri thresher, Mini combine basket thresher Tokri model, Paddy 6 fan thresher, Wheat thresher, Maize sheller, Groundnut thresher, Rotavator (Mild steel), Cultivators, Seed Drill machine, Tractor operated Chaff cutter, Thresher blades and more. The main outcomes of the visit are as follows:

- Gained insights into the work flow of manufacturing process of agricultural threshers
- Familiarized with advanced techniques including CNC machine and Laser cutting
- Explored the domestic and international demand for agricultural threshers



Fig. 1. Students and staff (B. Tech Agrl Engg, DEI) at the Nav Bharat Industries **Singhal Cold Storage**

The industry is located at Foundry Nagar, Agra and boasts a storage capacity of about 175 metric tons. During the visit, students have explored the critical components of the cold storage plant including condenser, receiver and compressor located in the machine room. They also observed the loading and storage process of potatoes in the refrigerated space featuring the evaporator. The outcomes of the visit are as follows:

- Acquired real time understanding of components and working principle of cold storage facility
- Gained exposure to engineering interventions during transportation and storage of agricultural produces, particularly potato
- Learned the significance of post-harvest interventions in optimizing the market value of the produces at the right time