

WELCOME TO OUR

MBUST Insights

Contributors of this Newsletter Issue:

Dr. Sarbesh Das Dangol, Dr. Rameshwar Shrestha, Dr. Anupama Shrestha, and MBUST students

FEDERAL PARLIAMENT MEMBERS AT MBUST

Honorable Visitors Express Admiration for the
Institution's Infrastructure and Research

By Dr. Sarbesh Das Dangol



Glimpse of the visit by the esteemed guests to MBUST

On May 30 and 31, 2025, honorable Members of the Federal Parliament, House of Representatives, leading the Education, Science and Information Technology Committee, visited MBUST. On the first day, the distinguished guests visited the kiwi farm and greenhouse site, then gathered with the MBUST team for a photo session, followed by visits to the laboratories and interactions with faculty members and students.

The honorable committee members, along with university staff and students, met in the Board Room for a brief introduction, presentations on academic programs, students' presentations on their ongoing thesis work, a progress report by University President Prof. Dr. Rajendra Dhoj Joshi, and concluding remarks from the committee Chair Amar Bahadur Thapa.

On the second day, the University President delivered a talk advocating policy support for MBUST, followed by a discussion session and a closing address by the honorable committee Chair. The honorable guests were impressed by the achievements made by the university in a short period of time and offered encouraging remarks.

MBUST Goes Global

A MILESTONE CONFERENCE

By Saugat Rokaya Chhetrii

On May 4, 2025, Madan Bhandari University of Science and Technology (MBUST) successfully organized international conference at Hotel Radisson with the theme “First Step Towards World-Class.” The hybrid event brought together international and national speakers, fostering global academic collaboration. A significant highlight was the signing of an MoU between MBUST and Ares Mushroom Farm, marking a new chapter in research and innovation.

The conference featured a compelling panel discussion on “World-Class University: The Power of Stakeholder Engagement,” and a special address by the President of Nepal. A keynote speech was delivered by Prof. Seeram Ramakrishna, FREng, Everest Chair at the National University of Singapore, a global leader in interdisciplinary research. Mr. Padma Sunder Joshi, Vice President of Administration and Finance, shared MBUST’s ambitious financing plan.

Trustees, donors, international speakers (both online and in person), public and private stakeholders, as well as academic and administrative staff of MBUST, along with students and interns attended the event, making it a truly inclusive gathering. Research was a key focus, with poster presentations by various MBUST laboratories and students, highlighting innovations from Master’s and PhD scholars. The event also featured Prof. Dr. Suresh Manandhar, Honorary Chair of AI, sharing his inspiring journey from the University of York to MBUST. President Dr. Joshi concluded with a heartfelt message of gratitude, marking a shared milestone in MBUST’s journey toward global excellence.



Conference participants and the speakers

Enhancing Fruit Quality and Yield Through Artificial Pollination

- RESEARCH SPOTLIGHT: KIWIFRUIT ORCHARD AT MBUST

By Ankita Nepal, Ashmita Rai, Sushil Rai, Rameshwar Rai

As part of a comprehensive research project at MBUST, Master's student Ankita Nepal conducted an in-depth study on pollination techniques in kiwifruit orchards. The research focused on four female cultivars: Alison, Bruno, Abbott, and Hayward, all of which were pollinated using the Tomori male variety.

To evaluate the efficiency and impact of different pollination methods on fruit quality, both artificial (hand) and natural pollination techniques were employed. Artificial pollination was performed twice for consistency, while natural pollination, relying on wind and insect activity, was conducted once. The study emphasized the timing of pollination by targeting early, mid, and late anthesis stages to assess their effects on fruit development. Key quality parameters, such as fruit length, size, nutritional content, and shelf life, will be analyzed to determine the most effective practices for improving yield and marketability.

This research aims to provide valuable insights into optimizing pollination practices for enhanced kiwifruit production in Nepal's mid-hill regions.



Bagging of pollination flowers



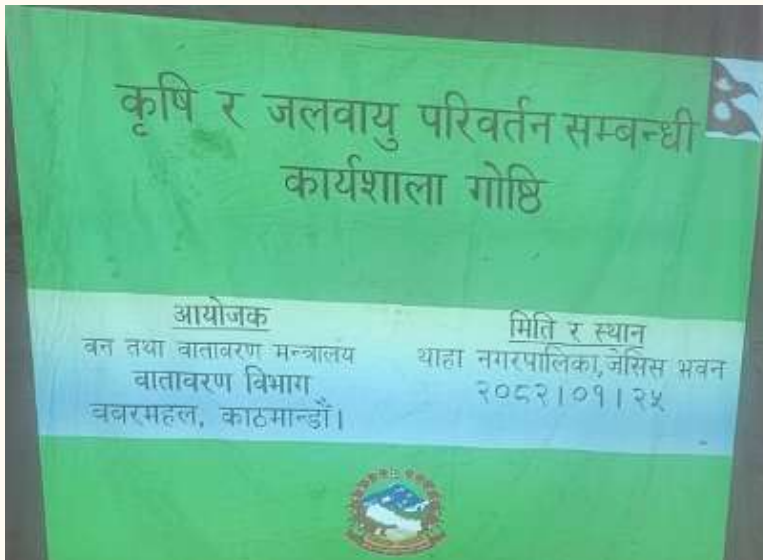
Fruit set stage of kiwifruit as well as pollination carried out by bee

Participation of PPBC

INTERACTION PROGRAM ON AGRICULTURE AND ENVIRONMENT

By Dr. Anupama Shrestha

The Ministry of Forests and Environment, Environment Department, organized a one-day interaction and training program in Palung on May 8 (Baishak 25) focusing on Agriculture and Environment. The event aimed to raise awareness about the environmental hazards of agricultural waste and practices and discuss mitigation strategies. Over 50 participants, including farmers, agro-vets, and agricultural technicians, attended the session. Key topics included; The use of pesticides and ways to minimize their application. The impact of pesticide use on climate change. During the program, Dr. Anupama Shrestha presented on Integrated Pest Management (IPM), emphasizing organic practices for plant disease management and the use of bio-fertilizers to enhance plant, soil, and human health. She also briefly introduced MBUST and its research activities. Other presenters from Environment department, Agriculture department of Thaha Municipality also presented on different topic related to agriculture and climate change. The session-helped attendees understand how pesticide use and agricultural burning contribute to climate change, as well as the effects of climate change on agriculture.



Glimpses of the event

Knowing Plant Disease

ROOT KNOT NEMATODE OF KIWIFRUIT

By Sushil Rai and Dr. Anupama Shrestha

Introduction

Root knot nematodes are microscopic roundworms that infect plant roots, causing significant economic losses across a range of crops, including kiwifruits. The disease is caused primarily by species of the *Meloidogyne* genus, with *Meloidogyne incognita* being a common culprit. Root knot nematodes induce characteristic root galls, severely impacting water and nutrient uptake, leading to overall plant decline.

Symptoms

1. Root Galls: Swellings or knots on the roots caused by nematode feeding and egg-laying activities.
2. Wilting and Stunting: Plants exhibit wilting even under adequate moisture and show stunted growth.
3. Yellowing of Leaves: Nutrient and water uptake impairment results in chlorosis (yellowing) of leaves.
4. Poor Fruit Development: Infected plants often produce smaller, misshapen, or fewer fruits, reducing overall yield.

Management

1. Organic Amendments: Apply well-decomposed organic matter like compost or green manure to boost soil microbial diversity and suppress nematode activity.
2. Soil Solarization: Cover moist soil with clear plastic sheets during hot months to trap solar heat and kill nematodes present in the upper soil layers.
3. Resistant Rootstocks: Use kiwifruit rootstocks that show resistance or tolerance to root knot nematodes where available.
4. Biological Control:
 - *Paecilomyces lilacinus*: A fungal parasite of nematode eggs that can reduce nematode populations.
 - *Bacillus firmus*: Beneficial bacteria that colonize plant roots and inhibit nematode penetration.
 - Application of neem cake and mustard cake also help to control nematodes.
 - Nematicidal Plants: Incorporate nematicidal crops like marigold (*Tagetes* spp.) in rotations or intercropping systems to naturally suppress nematodes.
 - Chemical Control (as last resort): Application of registered nematicides following all safety and environmental regulations if non-chemical options are insufficient.



Kiwifruit plant infected by root knot nematode



Root knot nematode of Kiwifruit (Compound microscope 400x view)

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