

WELCOME TO OUR

MBUST Insights

Contributors of this Newsletter Issue:

Dr. Sabina Shrestha and the students



The university welcomed the November 2025 Cohort students

NOVEMBER 2025 COHORT

On 23 November 2025, our university welcomed a new intake of the November 2025 Cohort for the Organic Agriculture, Forest Biomaterials Science & Engineering, and Sustainable & Resilient Infrastructure programs.

Quick Stories



A seminar with Prof. Dr. Tofazzal Islam from Gazipur Agricultural University, Bangladesh, on rapid blast detection kit development & genome editing. Rice genome editing and blast detection methods development remain active projects at MBUST, currently supervised by Dr. Sarbesh Das Dangol, undertaken by master's students Birendra Mahara & Pawan Kathayat. Dr. Anupama Shrestha hosted the event at MBUST, while Dr. Giri Raj Tripathi, Prof. Dr. Krishna Das Manandhar, Dr. Jarina Joshi, & Dr. Sarbesh co-hosted at Tribhuvan University.



Dr. Sarbesh Das Dangol has been awarded a competitive research grant from UNESCO–The World Academy of Sciences (TWAS) to advance transformation experiments in millet. An inception meeting with UNESCO–TWAS has been successfully completed.

Welcoming November 2025 Cohort

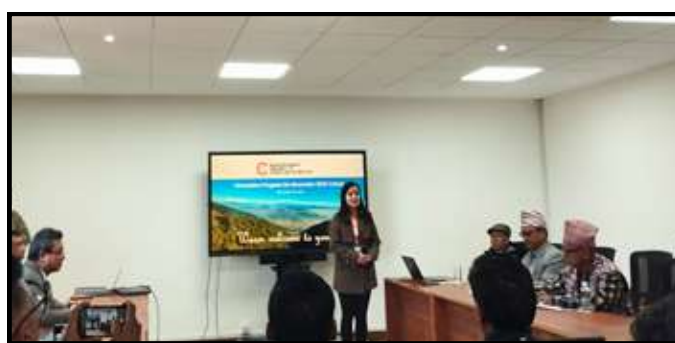
Embarking on a Journey of Innovation and Discovery

By- Dr. Sabina Shrestha

On November 23, 2025, MBUST welcomed a new intake of the November 2025 batch of Organic Agriculture, Forest Biomaterials Science and Engineering, and Sustainable & Resilient Infrastructure programs. The event was coordinated by Dr. Sudip Pandey. Prof. Dr. Sanjay Khanal, Academic Affairs Advisor, delivered the welcome address, warmly greeting the students and expressing his heartfelt happiness to see them embark on this new academic journey. On behalf of the students, Ms. Sabnam Subedi welcomed the gathering and shared her experience during the last two years and wished newcomers a wonderful beginning. Furthermore, Ms. Srijana Dangi expressed in her speech the expectations and inquiries of new students. She emphasized that despite their diverse backgrounds, they are united in the pursuit of new knowledge and discovery. She expressed the need for discipline and honest effort in materializing the vision of MBUST with impactful research and moving forward the journey with confidence and humility, along with guidance from seniors and professors.



Prof. Dr. Sanjay Nath Khanal delivering welcome address



Ms. Sabnam Subedi welcome speech

Dr. Kirti Kusum Joshi, Director of the Institute of Applied Sciences, highlighted the importance of choosing the right path in life and making the best of it. He provided a brief introduction to the establishment and governance system of MBUST, along with an overview of the university's programs, courses, and examination systems. Dr. Joshi emphasized the critical role of science, technology, and innovation in competing across emerging fields and stressed the need for industrial collaboration to reach markets and create tangible socio-economic impact.



Ms. Srijana Dangi expectation and inquiries as November 2025 Cohort student

Further, Associate Prof. Padma Sunder Joshi, Vice President of MBUST, addressed the gathering with heartfelt happiness. He reminded students to understand the concept of the tragedy of the commons and emphasized the necessity of changing behaviors for the greater good. He encouraged students to strive to achieve their dreams while collaboratively solving problems and recognizing limiting factors. Vice President Joshi expressed optimism over the addition of 28 new research projects, viewing them as new challenges and opportunities in the pursuit of those dreams.



The highlight of the program was the presence of Poet Byakul Maila (Pradeep Kumar Rai), the composer of Nepal's national anthem. He expressed his joy at being in the enchanting surroundings of Chitlang and praised the establishment of MBUST as a research-oriented university. He reminded the audience that while researchers from around the world come to Nepal for studies, we ourselves are ignoring what we have. He emphasized the need to generate knowledge and create opportunities. He also extended his best wishes for uplifting nation and presented the MBUST song in Nepali to President Rajendra Dhoj Joshi.

Another distinguished guest of the program was Dr. Jit Baral, Senior Plant Breeder at Enza Zaden Research, USA, and author of *Beyond the Bread: Two Worlds, One Witness*. He shared candidly about the challenges he faced during his student life and how perseverance led to his success. Dr. Baral encouraged students to face challenges and work with determination to succeed. He expressed his joy at witnessing the students' energy and enthusiasm, urged them to chase their dreams and make them meaningful. He emphasized the importance of contributing through thoughts, words, and actions toward societal upliftment and extended his best wishes for their future endeavors.



Dr. Kirti Kusum Joshi addressing the welcome program



Associate Prof. Padma Sunder Joshi, Vice President of MBUST, addressing the welcome program

President Prof. Dr. Rajendra Dhoj Joshi delivered the closing remarks by projecting on the developmental journeys of various Asian countries and contrasting them with Nepal's slower progress over the past half-century. He highlighted how research, innovation, and patents have played vital roles in transforming nations by alleviating poverty and fostering prosperity. Prof. Dr. Joshi reminded everyone of the immense responsibility to drive change and emphasized that we are accountable to the era we live in. He acknowledged the challenges ahead and stressed the urgent need to develop technologies that create useful materials for humanity through applied science. Expressing hope and optimism, he applauded the aspirations of the new generation and called upon them to identify and choose the right path for Nepal's future.



Poet Byakul Maila present MBUST song in Nepali to the president Prof. Rajendra Dhoj Joshi



Dr. Jit Baral, Distinguished Scientist delivering speech



President Prof. Rajendra Dhoj Joshi delivering the closing remarks





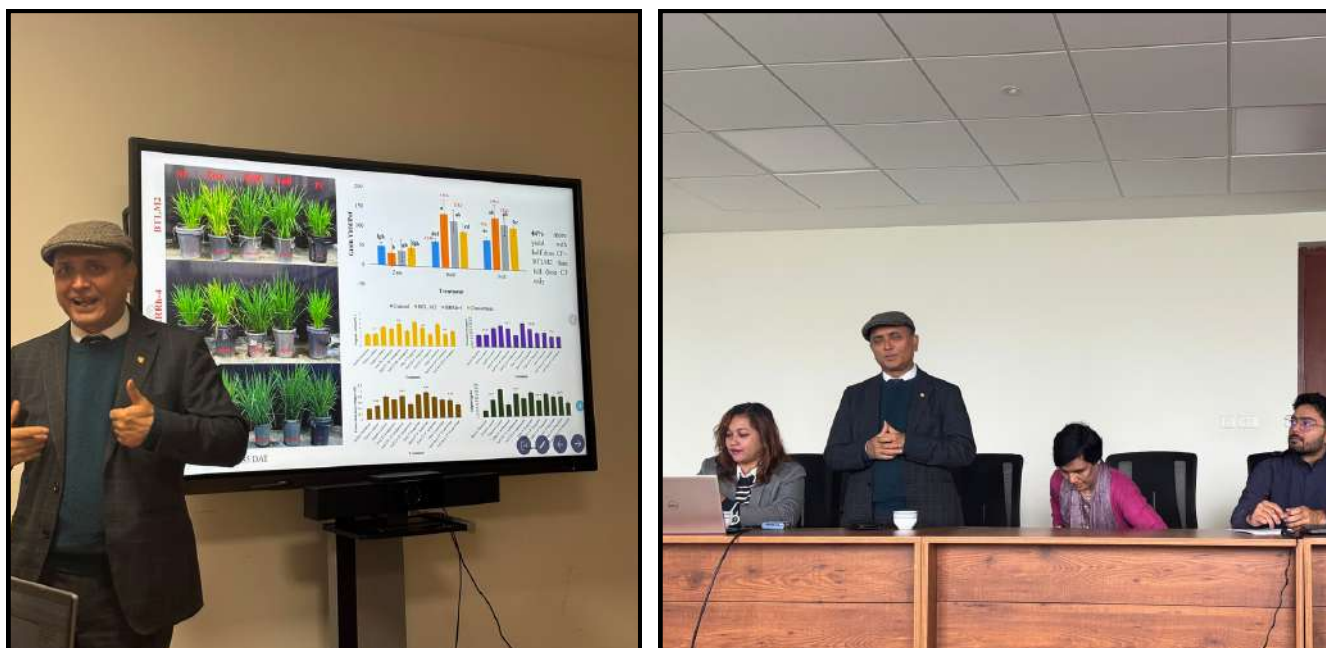
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From Lab to Field

Prof. Islam Shares Cutting-Edge Solutions for Food Security

By- Aakriti Poudel

On 31st October, 2025, Professor Md Tofazzal Islam, Professor and founding director of the Institute of Biotechnology and Genetic Engineering (IBGE) at Gazipur Agricultural University, delivered a guest lecture to the students at MBUST. He has secured more than \$10 million in internationally competitive grants and was a pioneer in the establishment of the IBGE with cutting-edge laboratories for innovative research. Using field pathogenomics and open research principles, Dr. Tofazzal investigated and addressed the 2016 wheat blast outbreak in Bangladesh.



Dr. Tofazzal introducing himself and presenting an overview of his research work.

He discussed two of his major works: "Commercialization of Agricultural Biotechnology Innovations for Food and Nutritional Security of Bangladesh" and "Fighting Wheat Blast: Genomic Innovations and Nanobiotechnology as Solutions for Global Food Security Challenges". While sharing with us his works on Wheat Blast research, he highlighted several advanced approaches to enhance disease control strategies. His research illustrated how integrating biocontrols, nanofungicides, and CRISPR-based tools can lead to more sustainable and effective management of plant pathogens. Another exciting innovation of his team was a rapid, specific, and convenient method for detection of wheat blast in seed lots, and asymptomatic plants. As he mentioned, the kit can detect the wheat blast fungus within just 30 minutes, using a PCRD strip method.

While sharing his experiences, Professor Tofazzal also presented photographs of his experimental results, which helped us visualize his interesting works. His detailed explanations, along with the visual evidence, provided valuable clarity on the application of these advanced technologies. For newly emerging researchers like us, this exposure was particularly insightful, as it offered a deeper understanding of both the scientific process and the real-world impact of innovative plant disease management tools.



As MBUST has been frequently organizing such guest lectures, it has helped us gain more exposure to cutting-edge research and scientific advancements. We are grateful to the university and especially to Dr. Anupama Shrestha and organic agriculture team for coordinating this particular session and providing us with the opportunity to learn directly from distinguished expert in the field.



Dr. Anupama Shrestha expressed her gratitude to Dr. Toffazzal by presenting a small bouquet made from flowers grown in the MBUST gardens.



A group photo with Prof. Dr. Toffazzal Islam.

From Orchard to Candy Jar

Value Addition of Kiwi Fruit at Horticulture Research Laboratory

By- Saugat R.C.

Something truly exciting happened recently in the Horticulture Research Laboratory at our university!

Ms. Ankita Nepal, a Master's student, has been conducting her thesis research on the harvesting and post-harvest analysis of kiwi fruit cultivated in the university's kiwi orchard. During the current harvest season, she successfully completed the field harvesting and laboratory analysis as part of her academic research.



Photo of the kiwi candy placed on aluminium foil, with Dr. Bhushan Shrestha enjoying it and expressing his delight.

Utilizing the remaining harvested kiwi fruits, Ms. Nepal undertook an initiative to process the produce into value-added products in the form of kiwi candies. This activity reflects the practical application of post-harvest technology and demonstrates the scope of processing-based entrepreneurship in horticultural science.

The kiwi candies were shared with members of MBUST for sensory evaluation and informal feedback. The product received highly positive responses for its taste, quality, and presentation. Several faculty members, staff, and students appreciated the initiative, and feedback included recommendations and requests for further production.

This wonderful initiative not only showcased creativity and innovation but also highlighted the potential of value addition in horticultural products. It stands as an inspiring example of how research can go beyond data and reports: creating real, tasty impact.

Congratulations to Ms. Ankita Nepal on turning research into something truly sweet!



Field Insights from Western Nepal

Search for Relict Herbal Materials

By- Srijana Dangi

A comprehensive field visit was conducted in Salyan from 8-12 October to collect and document potential herbal materials of commercial possibilities. The research centers visited included the Ginger Research Programme, Kapurkot, Nepal Agricultural Research Council (NARC), and the Herbal Research Center located in Salyan. Kapurkot research center of NARC has a commendable collection of varieties of ginger and turmeric. The research center houses 91 ginger germplasms (80 indigenous and 11 exotic) and 86 turmeric germplasms. Among varieties being tested at the research center, ginger variety ZI 1302 is known for the highest yield (19.85 mt/ha), and turmeric variety CI 9803 is known for the highest yield (49.99 mt/ha). Further, multiple localities, including Mathiloo, Kavra, Salyan, and Tatke in an altitudinal range of 1000 to 1400 m asl, were visited for gathering medicinal plant materials, including Ashwagandha, Bhakiamilo, and Sugandhakokila. The Herbal Research Center of Mulpani, Salyan, has made commendable efforts by distributing 35,000 herbal saplings to farmers across Salyan, Dang, Rolpa, Rukum, Jajarkot, and Dailekh districts. This initiative supports the promotion of medicinal plant cultivation and contributes to the sustainable development and economic upliftment of these regions.

A field survey was conducted during 18-20 October in the Chillikot area of Dang. The observation was focused on the natural habitat of Sugandhakokila (*Cinnamomum glaucescens*) and its economic potential. It was observed that rather than selling raw materials to brokers establishment of a value chain with awareness, training, and local processing facilities to ensure sustainable cultivation and greater economic benefit for farmers are needed.

These visits provided an opportunity to study environmental conditions, cultivation practices, and the diversity of medicinal and economically important plants in the region.



Ginger Research Programme, Kapurkot



Ginger plant



Herbal materials collection



Consulting village seniors, the narrators of herbal knowledge and healing traditions

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Tumalo and Natural Flavor Science

New Opportunities in Beauty and Aroma Industries

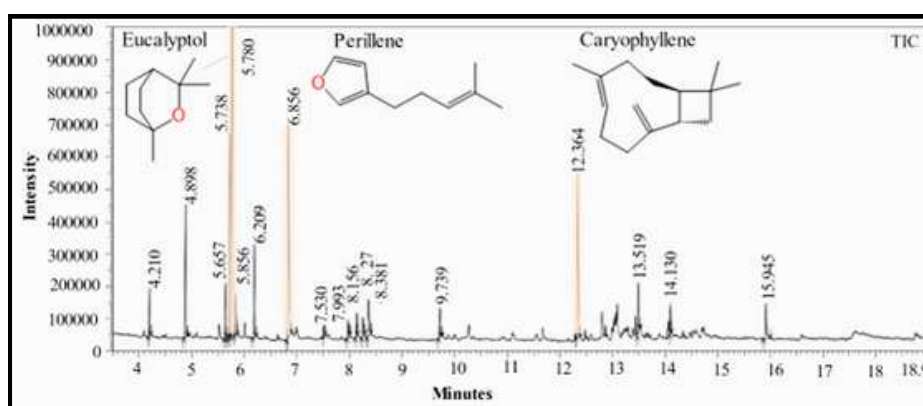
By- Nawaraj Pandey and Dr. Sabina Shrestha

Research conducted at the Natural Products Laboratory of MBUST has identified the presence of FDA-recognized natural flavor compounds in *Elsholtzia fruticosa*. It is locally known as Tumalo. The plant material was collected from Kalikot, Karnali at an elevation of 2,600 msl. *E. fruticosa* seeds are used as a condiment for flavoring food. It is used traditionally for the treatment of fever, headaches, and stomach problems. The GC-MS/MS analysis confirmed the presence of eucalyptol as a major constituent (56.74%) followed by perillene (8.09%), β -caryophyllene (6.12 %), β -pinene (4.44 %), and α -pinene (1.47%). The compounds are recognized by the U.S. Food and Drug Administration (FDA) as approved flavoring substances and listed in the FDA "Substances Added to Food" inventory. Eucalyptol is also evaluated by the European Food Safety Authority (EFSA) and considered safe for food use under established flavoring guidelines.

The plant is an untapped, wild edible species with potential for developing flavor and cosmetic products, which can ultimately enhance rural economies and spark entrepreneurial opportunities.



Shrubby mint *Elsholtzia fruticosa* (Tumalo), including inflorescence (A), different stages of fruit formation in spike (B), and fully matured fruits (C) collected from Kalikot district during the 2025 field survey.



Total Ion Chromatogram (TIC) obtained from the GC-MS/MS analysis of *Elsholtzia fruticosa* seed powder



Chandragiri Forest at a Glance

Biodiversity and Conservation Insights

By-Manushi Sigdel, Nawaraj Pandey, Sadikshya Chaulagain, Sanju Sah, Saugat R.C. and Uttam Syangtan

November 28, 2025 a brief exploration was conducted in Chandragiri Community Forest. The forest is a vibrant sanctuary renowned for its rich biodiversity, with over 30 mammal species, nearly 200 bird species, 34 herpetofauna species, and 77 butterfly species, including several threatened and endemic ones. Our initial warm-up exploration unveiled an extraordinary blend of wilderness and diversity nurtured by the forest's mixed subtropical to temperate climate. The lush vegetation includes oaks, rhododendrons, pines, and many native tree species that creating a complex and thriving ecosystem.

As we traversed natural landscape, we encountered the serene beauty of unspoiled nature with fruiting Mahelo (*Viburnum mullaha*) and Puwale (*Ilex excelsa*) alongside the inspiring presence of wildlife (pugmarks and rooting created by wild boars in search of food) reinforcing the vital importance of conserving such natural treasures. The experience deepened our appreciation of Chandragiri's ecological wealth and illuminated its vast potential as a center for research, education, and sustainable ecotourism.

The exploration team included the 2025 November batch members Manushi Sigdel, Sadikshya Chaulagain, Sanju Sah, and Uttam Syangtan, along with November 2024 batch members Saugat Rokaya Chhetri (Organic Agriculture) and Nawaraj Pandey (Forest Biomaterials Science and Engineering), led by Dr. Sabina Shrestha and supported by MBUST staff Pradeep Jimba. This initial expedition marks a committed beginning for ongoing efforts to understand and protect this precious forest ecosystem and its valuable biomaterials.



Some glimpse of herbarium material collection and field visit



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Any Questions?

info@mbust.edu.np

9840088016, 9849848053

Chitlang, Thaha Municipality-9,
Makawanpur,
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www.mbust.edu.np

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