Report on

Hands-on Training for Bio-fertilizers and Biogas as Clean Energy

Date: 07 May 2024 – 15 May 2024
Venue: C306,C Block, School of Agricultural Sciences (SOAS), K.R. Mangalam University
Event Type: Hands-on Training
Mode of Activity: Offline
Target Group: Students of Semester II and IV, School of Agricultural Sciences (with indirect benefits to rural farming communities)
Chief Instructor and Organizer: Dr. Neha Sharma
Co-instructor and Coordinator: Dr. Rabiya Basri
Organized by: School of Agricultural Sciences, K.R. Mangalam University
Number of Participants: 33

Introduction:

The School of Agricultural Sciences at K.R. Mangalam University organized a 7-day hands-on training program on "Bio-fertilizers and Biogas as Clean Energy" from 7th to 15th May 2024. The workshop equipped students with practical skills in mass production of bio-fertilizers and biogas technology, aimed at strengthening sustainable farming systems and supporting clean energy adoption in rural areas.

This training not only enhanced student capacity but also created a pool of trained youth who can transfer these skills to local farmers and communities, thereby amplifying its real-world impact.

Objectives:

- To train students in the production of bio-fertilizers using *Trichoderma harzianum*.
- To raise awareness on biogas as a renewable and clean energy source in agriculture.
- To promote eco-friendly, low-cost, and sustainable farming practices for rural livelihoods.
- To build technical capacity that can be extended to community-level energy transition initiatives.

Content:

The training followed a structured combination of theory and field-based learning:

- Day 1–3: Introduction to *Trichoderma harzianum* and its role in sustainable agriculture. Students learned substrate selection, inoculation techniques, and fermentation processes. Emphasis was placed on converting agricultural waste into energy through biogas technology, aligning with circular economy principles.
- Day 4–5: Quality control, viability testing, packaging of bio-fertilizers, and live demonstrations of biogas generation from organic residues. Students gained insight into how such systems can lower carbon emissions and reduce energy costs for farmers.
- Day 6–7: Application techniques such as seed treatment, soil drenching, and foliar spray were practiced. Students explored real-world biogas applications in rural households, including cooking energy and small-scale power generation.

This hands-on approach not only strengthened technical skills but also prepared students to serve as change agents for clean energy adoption in rural farming communities.

Event Outcome:

- 33 students trained in sustainable bio-fertilizer production and biogas technology.
- Skills and knowledge transferred to local farmers and communities through student outreach.
- Promoted clean energy applications in agriculture, reducing fossil fuel dependency.

- Strengthened capacity for waste-to-energy conversion and circular resource management.
- Supported SDG 7 (Affordable and Clean Energy), SDG 2 (Zero Hunger), and SDG 13 (Climate Action).
- Reinforced the university's role as an enabler of community-focused clean energy solutions.

Conclusion:

The training effectively merged agricultural science with renewable energy solutions, empowering 33 students to promote sustainable farming and energy efficiency. By enabling participants to understand and apply bio-fertilizer and biogas technologies, the program supported community-oriented clean energy transition and contributed to climate-resilient agricultural models.

Students receiving hands-on training in laboratory techniques for bio-fertilizer production, building practical skills to support sustainable and clean energy solution

Bio-fertilizer granules prepared during the training session, showcasing practical applications of sustainable agricultural inputs.