

SDG 2 ZERO HUNGER



ANNUAL REPORT 2024-25

2 ZERO
HUNGER



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SDG 2: Zero Hunger

Ending hunger through innovation, sustainable agriculture, and community partnerships.

Overview

This annual report documents Brainware University's integrated efforts to advance the United Nations **Sustainable Development Goal 2 - Zero Hunger**, which calls for the elimination of hunger, achievement of food security, improved nutrition, and promotion of sustainable agriculture.

For the academic year 2024-25, the university prioritized research in **agriculture, biotechnology, and health sciences**, alongside field-level interventions through the **Unnat Bharat Abhiyan (UBA)**, **MSME innovation grants**, and **community outreach programmes**.

Brainware's commitment reflects the institutional philosophy: **"Education for Empowerment - Research for Resilience."**

During 2024-25, Brainware University addressed food security through an ecosystem of **research, innovation, field training, and international collaboration**:

Focus Area	Key Outcomes 2024-25
UBA Village Projects	5 projects on bio-fertilizer, kitchen-waste gardening, and water management
Govt-Funded R&D	₹ 24.75 lakh DSTBT project on water quality; ₹ 11.59 lakh WBPCB citizen science project
MSME Agro Innovation	8 student projects (₹ 10 - 12 lakh each) on bio-insecticides & organic fibers
MoU Partnerships	INTA (Argentina), Kasama University (Zambia), Sejong & Hanyang (Korea) for sustainable food research
Patents & Designs	10 + patents in agriculture, biotech and nutrition

The year saw **₹ 1.5 crore worth of project activity** and over **25 faculty and student innovations** linked to SDG 2.

Understanding SDG 2 and the University's Role

SDG 2 targets the eradication of hunger and malnutrition by 2030 through sustainable agriculture, resilient food systems, and improved nutrition. India still faces high levels of food insecurity (14.8 percent population undernourished, FAO 2024). Universities serve as innovation anchors for bridging research and rural action.

Brainware University's School of Agriculture and Biotechnology undertakes multi-disciplinary research on **crop productivity, waste-to-value technology, bio-fertilizers, and rural health nutrition**.

Through UBA, the university has adopted five villages (Faldi, Dugaria, Chaturia, Chak Barbaria, and Panshila) to demonstrate agricultural best practices and build food resilience at the grassroots level.

The University's Strategic Plan (2023-2028) aligns its academic and research priorities with SDG 2 objectives:

- **Food Innovation Mission:** Development of low-cost nutrient-rich products and bio-agricultural solutions.
- **Research Integration:** Mandatory SDG component in faculty research proposal review for Seed and Govt Grants.
- **Rural Skill Training:** Workshops on organic manure, mushroom cultivation, and waste recycling.
- **Health & Nutrition Curriculum:** Modules on malnutrition, community health, and food policy for AHS and Nursing students.
- **International Partnerships:** MoUs with INTA and Kasama University for joint research on crop sustainability.

COMMUNITY OUTREACH

UBA and NSS Initiatives 2024-25

Project	Location	Focus	Funding
Bio-Insecticide from Lantana Camara Extract	Faldi Village	Eco-friendly pest control	MoE UBA - ₹ 1 L
Organic Manure from Water Hyacinth	Dugaria Village	Soil fertility & waste management	MoE UBA - ₹ 1 L

Kitchen Waste to Garden Project	Faldi	Nutrition & school gardening	MoE UBA - ₹ 1 L
Portable Water Filtration from Kitchen Waste	Faldi - Chaturia Cluster	Access to clean water	MoE UBA - ₹ 1 L

Together, these programmes directly advanced SDG 2 targets 2.1 and 2.4 – ensuring safe, nutritious food and promoting sustainable agriculture.

RESEARCH AND PUBLICATIONS

Representative Research (2024-25)

- **“Formulation of Potent Killing Agent of Mycobacterium Smegmatis”** - Dr. Sayantan Ghosh (Biotechnology) - process patent July 2024.
- **“Method and System for Producing Bioplastic from Waste Peels of Elephant Foot Yam”** - eco-friendly innovation in agro-waste utilization.
- **“Sustainable Food Packaging Using PLA/Chitosan Blend”** - Dr. Anusuya Debnath - seed grant project (₹ 0.75 L).
- **“Livestock Feed Safety and Formaldehyde Reduction”** - Hospital Management Department research on nutritional security.
- **“Bio-Pigments from Lignocellulosic Waste”** - Dr. Indrani Paul - ₹ 2.5 L project promoting value addition in agro-industry.

These initiatives collectively enhance nutritional quality, reduce waste, and advance SDG 2 research outcomes.

PATENTS AND INNOVATIONS

Patents Linked to SDG 2 (2024-25)

Title	Department	Filed	Focus
Automated Compact Robot for Urban Vegetable Gardening	Agriculture	Aug 2024	Urban food production
AI-Based Farm Environment Monitoring Device	CSE	Sep 2024	Precision agriculture
Fruit & Vegetable Assessment Sensor	Agriculture	Jul 2024	Post-harvest quality

Low-Cost Insect Trapper for Crop Protection	Mechanical	Apr 2025	Crop loss prevention
AI Model for Soil Health Monitoring	CSS	Apr 2025	Smart farming
AI Decision Support for Fertilizer Optimization	CSE	Jun 2025	Precision yield planning

These patents demonstrate Brainware's capacity to translate research into tangible tools that strengthen agricultural efficiency and reduce hunger.

COLLABORATIONS AND PROJECT FUNDING

Key Collaborations and Funding

Partner	Nature of Collaboration	Domain
INTA (Argentina)	Joint research on agro-biotech and sustainability	Biotechnology
Kasama University (Zambia)	Curriculum development and rural health research	Public Health
Sejong & Hanyang Universities (Korea)	Analytical instrument sharing & food analysis	Biotech
MSME Govt of India	10 projects on bio-insecticide, okra fiber, farm waste recycling	Sustainable Agriculture

These alliances expanded research capacity and enabled international knowledge exchange for sustainable food systems.

SCHOLARSHIPS AND EDUCATION ACCESS

Student Support Initiatives

Brainware University offers a range of scholarships and training support aligned with food security and rural development programmes:

- **West Bengal State Scholarships:** Swami Vivekananda Merit-cum-Means Scheme and Kanyashree Prakalpa.
- **Nabanna Relief Fund:** Targeted support for students from farming communities affected by economic hardship.

- **Brainware Merit Scholarships:** Full tuition waiver for agriculture and biotech students with top academic performance.
- **Skill and Internship Grants:** Financial stipends for students participating in UBA field research and MSME projects.

These schemes directly align with SDG 2.3 by enhancing agricultural productivity and access to education for the rural poor.

Brainware University's initiatives during the academic year 2024-25 reaffirm its conviction that **education, innovation, and empathy** are the most powerful instruments to eradicate hunger and promote sustainable food systems. Across the five adopted villages and multiple institutional research projects, the university has built a model that connects **laboratory discovery with local livelihood**.

From the **bioplastic and bio-pigment innovations** in the Biotechnology Department to **AI-enabled soil monitoring systems** and **organic waste-to-fertilizer prototypes**, each outcome addresses a dimension of SDG 2 – affordability, sustainability, and nutritional equity. The UBA and NSS teams have ensured that this research reaches the field, engaging rural communities through demonstration, training, and self-help initiatives.

Scholarship schemes and state partnerships have allowed hundreds of students from farming and economically vulnerable families to pursue higher education without financial distress. In parallel, collaboration with global partners such as **INTA (Argentina)**, **Kasama University (Zambia)**, and **Sejong University (Korea)** has broadened the university's exposure to international best practices in food science and sustainable agriculture.

The measurable impacts – improved awareness among rural households, expansion of women's participation, new green patents, and strengthened research output – all signify Brainware's commitment to inclusive growth. The SDG 2 framework is not seen merely as a development agenda but as a **living responsibility** embedded in every teaching, research, and extension activity of the institution.

Looking forward to 2025-27, Brainware University aims to:

- Establish an **AI-driven Agricultural Data Hub** to monitor soil health, irrigation, and yield patterns in real time.

- Develop **community-based agri-entrepreneurship programmes** for rural youth, emphasizing food processing, organic input production, and digital marketing.
- Integrate **nutrition education modules** across all Allied Health and Agriculture curricula.
- Continue expanding scholarship coverage and partnerships for sustainable agriculture research.

By uniting **knowledge with compassion**, Brainware University is cultivating a generation of researchers, farmers, and policymakers capable of feeding both people and the planet – sustainably. The university stands as a beacon for SDG 2 in eastern India, demonstrating that hunger can be defeated not only through policy, but through purposeful education, innovation, and shared humanity.