



SDG 2: Zero Hunger

END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

IIT Gandhinagar (IITGN) implements multiple strategies to enhance food security and promote better nutrition within the community, with a particular focus on its students. The institute is in the process of expanding its organic farming area to maintain a balance between the demand for and supply of organic produce on campus. Furthermore, IITGN's Innovation and Entrepreneurship Centre (IIEC), a technology-focused business incubator, operates with the mission of nurturing technological entrepreneurship and actively supports startups in the agriculture and food sectors, turning innovative concepts into reality. Additionally, several research projects at the institute are currently exploring various aspects of food and nutrition.

RESEARCH

About 15 researchers at the institute have their research focus on food security and hunger. 15 articles were published in reputed journals covering topics related to hydroclimatic variables, vegetation growth, Global Agricultural and Nonagricultural Regions, famines, megadroughts, undernutrition, efficient irrigation, etc. in the years 2021 and 2022.

IITGN faculty is constantly engaging in discourse and exploring the dimensions of nutrition and hunger. For instance, research by IIT Gn Professor M Subramaniam in her paper titled “Community-level women’s education and undernutrition among Indian adolescents: A multilevel analysis of a national survey” highlighted that addressing contextual determinants of adolescent undernutrition might be the missing link in India’s adolescent anemia and undernutrition prevention efforts, which are currently focused heavily on individual-level biomedical determinants of the problem.

In another she argues that while women’s autonomy could reduce the risk of child undernutrition, focusing on men’s attitudes towards gender equity also holds promise for reducing undernutrition. Her findings not only underscore how patriarchy is embodied in undernourished children, but also suggest programmatic interventions to address this deep-rooted scourge in India.

Research by Prof Vimal Mishra has shown that despite the projected decline in the likelihood of the summer monsoon megadroughts under the warming climate, megadroughts in the future can have considerable implications for India's food production and water availability. It points towards the efforts needed to be taken to ensure food security.

EDUCATION

Some of the courses offered at the Institute focuses on food security, nutrition, etc., which are mentioned below:

CE 631: Irrigation Engineering and Hydraulic Structures is a course offered by the Civil Engineering discipline to graduate students for understanding water requirement of crops, different types of irrigation, groundwater flow equations, river training works, structures for silt control, etc.

CE 605: Remote Sensing of Land and Water Resources is another course that provides an overview of remote sensing, image classification, remote sensing data collection, geometric correction, image enhancement, interpretation and classification, thermal infrared remote sensing, change detection, monitoring of land and water resources, remote sensing of soil, vegetation, water, and urban areas, object-oriented classification, and spectral indices, all of which are helpful in studies and research related to the agriculture sector.

OPERATIONS

Sustainable Agriculture and Food-Tech Startups: IIEC, with its mission to foster technological entrepreneurship, supports startups that focus on digital transformation in agriculture, reducing food wastage, risk analysis in agriculture and water sectors. Among these startups, Agrocast Analytics, an agrarian forecasting and analytics company, offers consulting services in agriculture and water. They employ machine learning, AI, and agroclimatic analytics to generate reports that aid farmers, crop insurers, solar park companies, and others in decision-making. They monitor crop health, soil moisture, and assess climate change-related risks to provide solutions.

InfyU Labs, an agritech company, uses IoT-based products to assure the quality of fruits and vegetables. They've developed a non-invasive handheld device based on spectroscopy and AI algorithms for quantifying chemical compositions. Their technology benefits quality managers, food processors, retailers, marketers, wholesalers, and e-commerce agents, significantly reducing food wastage.

AgroGenie, an agritech startup, offers online and on-farm management services to help farmers improve productivity. They address challenges such as knowledge gaps in quality production and low acceptance of organic farming. The startup provides solutions like personalized field support, crop-specific schedules, and real-time crop management based on soil, water, crop condition, and weather, aiming to reduce cultivation costs and elevate farmers' living standards.

Krsikx, another agritech startup, focuses on enhancing the accessibility of cold storage for farmers. They introduce portable, solar-powered preservatives to extend the shelf life of fruits and vegetables, addressing issues related to wastage and transportation costs. The startup received recognition from the Ministry of Youth Affairs and Sports for its outstanding work and was selected among the top 10 entries by the United Nations Development Programme for its innovative approach to enhancing the food processing industry.

Food kiosks: Food kiosks and dining establishments serve as convenient sources of nourishment, offering a range of food choices to cater to the needs of students and staff, operating around the clock to ensure accessibility to meals at any time." These food outlets are strategically placed across the campus, providing a diverse selection of snacks, meals, and beverages to accommodate the varied schedules of students and staff, ensuring that hunger can be satisfied at any hour.

Tracking of food waste: The mess committee regularly conducts awareness programmes to reduce food wastage. A notice board outside both the dining halls displays the amount of daily food wastage to create a sense of responsibility among the community. In order to curb food wastage, competitions are held regularly among the messes. The students dining in the mess with minimum food wastage are rewarded with additional sweets/ desserts. Food waste (wasted food, peels of fruits and vegetables etc.) of mess is sent to the biogas plant. Excess if any is used in compost pits for the preparation of compost. **Food waste challenge:** Organic waste is measured for the entire institute. The first-year BTech students at IITGN took up a challenge to reduce food wastage by their batch to less than 10 Kgs in a single day to create awareness among students to not take more food than what they can eat. The students achieved the target successfully as the total food wasted by the entire BTech 2019 batch was 2 Kg 160g.

Eat right Campus Award: Continuing its commitment to ensuring food safety and promoting healthy eating, the Indian Institute of Technology Gandhinagar (IITGN) has once again bagged the Eat Right Campus Award with a five-star rating from the Food Safety and Standards Authority of India (FSSAI), creating a hat-trick by winning the prestigious award for the third consecutive time.

FSSAI has certified IITGN as the 'Eat Right Campus' with a five-star rating for a period of two years, i.e. till November 2024. The certificate is awarded after third-party auditing of all its messes and eateries. The audit is done based on a checklist of the following five parameters: a) Compliance to food safety and hygiene; b) Healthy diets; c) Food waste management; d) Promotion of local and seasonal foods on campus; and e) Promotion and awareness on food safety and healthy diets in and around campus.

IITGN was one of the First Educational Institutes in India to receive the Eat Right Campus Award with a five-star rating, when it was first introduced in 2019. The Institute ensures strict compliance with all food standards and safety guidelines in each of its mess, food joints and canteens on the campus. Both student mess and all the food joints on campus are licensed by FSSAI, and their food handlers are trained periodically by the Food Safety Awareness and Training Organization (FSATO), an empanelled training partner of FSSAI.

Sustainable Food Practice: The institute encourages sustainable food practices. The mess contractors responsible for serving food in the two dining halls are directed to have appropriate Food Safety License, Registration/Ghumastadhara, Commercial Tax License, and other license/permits mandated/required by

the government and local authorities. The Institute focuses on healthy food habits; the menu served in the mess is tailored every month by the student mess council for a balanced diet that provides the body with essential nutrition. All the food establishments use fortified foods (+F) such as double fortified salt, rice, wheat flour, oil, and milk, to further enhance food nutrition. The IITGN organic farm grows several varieties of vegetables, such as cabbage, cauliflower, tomato, brinjal, potato, cucumber, bottle-gourd, ladyfinger, spinach, fenugreek, carrot, beetroot, cluster beans, long beans, chillies, green garlic, green tuvar and coriander, etc. It also cultivates special vegetables like broccoli, kale, zucchini, lettuce, pumpkin, etc. Farm activities are being expanded by growing millets and wheat. It uses only completely organic fertilizers for growing various crops. Community members participate in the volunteer programme and contribute to the organic farm activities. The organic farm produce is sold to the community.

COMMUNITY OUTREACH

Provision of Essential Supplies by a Volunteer Group during the COVID-19 Pandemic: The institute established the 'Special Volunteer Force,' which consisted of students, staff, and faculty who willingly united to support the local community during challenging circumstances. The group assumed various roles, including liaising with external suppliers to deliver fruits, vegetables, and groceries to the institute, ensuring compliance with safety guidelines. They also maintained regular check-ins on the well-being of guests in the institute's guest house and housing blocks, provided meals to COVID-positive patients within the housing blocks, and responded to urgent medical requirements beyond the campus."

The Indian Institute of Technology Gandhinagar (IITGN) organized a talk by Dr. Khader Vali, "the Millet Man of India," who highlighted the environmental and health benefits of millets, emphasizing their minimal water requirements and their potential to combat modern diseases. He criticized the overconsumption of wheat, rice, and sugar and urged the reintroduction of millets into diets. IITGN has also promoted millet use in its mess menu and organized student competitions to raise awareness about the advantages of millets.