SUSTAINABILITY 2023-2024

COMMUNICATION ON ENGAGEMENT (COE)

2 ZERO HUNGER

PROJECTS AND RESEARCH ON ZERO HUNGER

In the past two years, several significant research projects have been conducted. Karam et al. (2024) surveyed the use of unmanned aerial vehicles in smart agriculture, focusing on types and modeling perspectives to enhance agricultural practices. Doumat et al. (2024) reviewed the factors affecting food insecurity among refugee children in the MENA region, identifying barriers to food relief and lessons learned. Additionally, studies explored the health benefits of Zhourat tea, antibiotic use among Lebanese dairy veterinarians, pet food safety in Lebanon and the UAE, mycotoxins in Lebanese cornflakes, and the microbiological quality of meat in traditional butcher shops. These projects collectively contribute to improving health, food safety, and agricultural practices in the region.

RESEACH

1. Karam, K., Mansour, A., Khaldi, M.R., Clement, B., & Ammad, M. (2024). **A Survey for Unmanned Aerial Vehicles in Smart Agriculture: Types and Modelling Perspectives.** In IEEE Advanced Information Technology, Electronic and Automation Control Conference (IAEAC).
2. Doumat, G., Choudhury, S., Idriss, A., Doumat, N., & Sacca, L. (2024). **Assessing Physical, Mental, and Social Factors Associated with Refugee Children Food Insecurity, Food Relief Barriers, and Lessons Learned in the Middle East and North Africa (MENA) Region: A Scoping Review.** Journal of Hunger and Environmental Nutrition.

NUTRITIONAL SCIENCES PROJECTS

1. **Zhourat Project (2024):** This project explores the health potential of Zhourat, a Middle Eastern herbal tea, highlighting its benefits and uses. The study is detailed in the Reference Series in Phytochemistry.
2. **Post-doc Project on Antibiotic Use (2023):** This research examines the attitudes and practices regarding antibiotic use among Lebanese dairy veterinarians, addressing emerging threats and providing insights from a developing country context. The findings are published in Frontiers in Veterinary Science.
3. **Pet Food Safety Project in Lebanon and UAE (2024):** This project investigates food safety knowledge and practices among pet owners in Lebanon, marking a first-of-its-kind study in the Arab region. It also includes a microbial assessment of commercial pet foods in the UAE. The results are published in Scientific Reports and Frontiers in Veterinary Science.

4. **Breakfast Cereals Project (2023):** This study assesses the presence of mycotoxins in cornflakes marketed in Lebanon, with findings published in Scientific Reports.
5. **Meat Project (2024):** This research evaluates the hygienic sanitary risks and microbiological quality of meat and meat-contact surfaces in traditional butcher shops and retail establishments in a developing country. The study is published in the International Journal of Environmental Health Research

TRANSFORMATIVE ROUND TABLE DISCUSSION ON AGRICULTURE

The Career Services Center at the University of Balamand, in collaboration with MENA Food Safety Associates (MEFOSA), organized a Round Table Discussion on November 13, 2023, at its Beino Akkar campus. Attended by key figures from academia, agriculture, and local organizations, the event focused on addressing critical issues in Akkar's agriculture sector. Through a SWOT analysis, participants identified challenges such as water pollution and high irrigation costs, while also highlighting opportunities like GIS mapping and advanced agricultural technologies. Success stories from local entrepreneurs underscored the potential of Akkar's agricultural products. The discussion concluded with recommendations for creating an agricultural calendar and leveraging machine learning, emphasizing a collaborative approach involving the Ministry of Agriculture, NGOs, and universities to drive positive change in the region's agrifood industry.

COLLABORATION FOR AGRICULTURAL EMPOWERMENT

The University has signed a grant agreement with the Lebanon Agriculture and Rural Empowerment Program (ARE) to support the LIVAK (LIVestock AKkar) project. This project, overseen by the Agricultural Value Chain Development Center (AVCDC), aims to assist 250 small ruminant farmers and 275 bovine farmers in Akkar. The farmers will receive technical support, training sessions on feed and nutrition, good farming practices, health and hygiene, and vaccinations against common diseases. The initiative's positive impact on the agricultural sector, highlighting the university's commitment to fostering growth and ensuring food security.

COLLABORATION FOR AGRICULTURAL EMPOWERMENT

Agriculture, one of humanity's oldest and most vital activities, is crucial for sustaining populations. At UOB, modern agriculture is emphasized through new technologies like the Internet of Things (IoT) and sensor nodes to monitor fields and ensure optimal conditions. Traditional irrigation systems often lead to uneven water distribution, but IoT devices at the university collect data on temperature, water levels, soil moisture, light intensity, and humidity, transmitting it to a cloud-based platform for analysis. This digital transformation in agriculture promises improved crop yields, water conservation, cost savings, and enhanced environmental sustainability through continuous, low-cost monitoring and data-driven strategies.