



Methods for Irrigation and Agriculture
لتطوير أساليب الري والزراعة

NEWSLETTER

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JORDAN'S AGRICULTURAL SECTOR

faces increasing pressure due to:

Water scarcity

Rising production costs

Climate variability

While agricultural technologies offer promising solutions to improve efficiency and productivity, their adoption among small and medium-scale farmers in Jordan remains limited. Many technologies are developed (or imported) without sufficient understanding of farmers' real needs or local farming conditions, creating a gap between innovation and practical application.



To address this challenge, MIRRA is establishing the **AgriTech Field Lab** in the Jordan Valley, a collaborative platform designed to test and validate agricultural technologies under real farming conditions. The initiative aims to bridge the gap between farmers, AgriTech startups, and researchers by creating an environment where innovative solutions can be demonstrated, evaluated, and improved based on direct farmer feedback.

The project is implemented by MIRRA in collaboration with the AgriTech Innovation Hub at the German Jordanian University, and within the framework of the GAIN initiative implemented by the German development agency GIZ. While GJU contributes innovation and startup engagement through its AgriTech Innovation Hub, GIZ supports the broader development framework and ensures alignment with international development standards and project management practices.

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



الجامعة الألمانية الأردنية
German Jordanian University

The scope of the project includes several key activities



First, MIRRA will conduct a comprehensive AgriTech needs assessment involving approximately **100** farmers across two agro-ecological zones in Jordan:

- Jordan Valley
- Mafraq–Azraq highlands

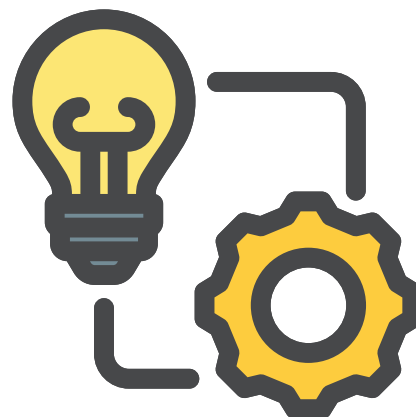
This assessment will identify key production challenges, technology gaps, and barriers to technology adoption, guiding the selection of AgriTech solutions for testing within the Field Lab.

Following this phase, an open call will be launched to select up to four AgriTech SMEs to participate in the initiative. Selected companies will pilot their technologies through on-farm trials conducted at the MIRRA AgriTech Field Lab and partner farms. These trials will allow technologies to be evaluated under real agricultural conditions while generating practical agronomic and economic evidence.



To strengthen collaboration and knowledge exchange, the project will organize farmer–SME roundtable discussions, validation workshops, and demonstration visits to the Field Lab. These activities will enable farmers to observe technologies in operation, provide feedback, and discuss practical aspects related to costs, maintenance, and usability.

The project will be implemented through a phased timeline starting with needs assessment and SME selection, followed by field trials, farmer demonstrations, and continuous monitoring and evaluation. The results will contribute to strengthening Jordan’s AgriTech ecosystem and supporting the development of locally adapted, farmer-centered agricultural innovations.





Picture 1: Eng. Ammar Namarneh (MIRRA), on the left, conducting a direct visit to a vegetable retail shop to assess postharvest handling, product display conditions, and market-related factors influencing food loss and waste.

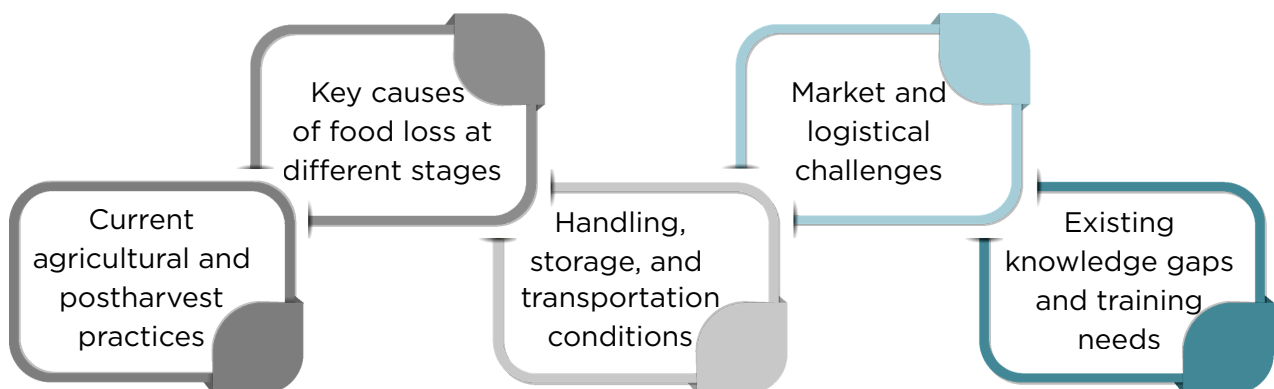
Food loss and waste (FLW) remains one of the most pressing challenges affecting food security, environmental sustainability, and economic efficiency across the Mediterranean region. Within the FUSION project, understanding where and why these losses occur is a critical first step toward developing effective, scalable solutions.

A Structured Approach to Understanding Food Loss

The survey, developed by project partners, was designed to capture detailed and representative information across the entire food value chain — from pre-harvest practices to postharvest handling, transportation, retail, and consumption.

It focused on identifying:

Picture 2: Pepper plants growing inside a greenhouse under controlled cultivation conditions, Der Allah, JV.



This comprehensive approach ensures that the collected data reflects real conditions on the ground and provides a solid foundation for developing targeted interventions.

Engaging Stakeholders Across the Value Chain

MIRRA conducted the surveys through direct field engagement, targeting 25 farmers and key stakeholders involved in the vegetable sector in Jordan.

Participants included:



Farmers



Traders and market actors



Transport and logistics



Value chain operators



Consumers

Through face-to-face interviews and field visits, the team ensured accurate data collection while also fostering dialogue with stakeholders about the importance of reducing food loss and improving practices.

Key Insights from the Field

The survey implementation highlighted several critical challenges across the tomato and pepper value chains, including:

- Losses occurring during harvesting due to improper timing and handling
- Mechanical damage during transportation and packaging
- Inadequate storage conditions and limited access to cold chain solutions
- Market-related losses linked to price fluctuations and quality standards
- Gaps in technical knowledge and training among value chain actors



Picture 3: Eng. Ammar Namarneh (MIRRA), on the left, in discussion with a farmer growing pepper inside a greenhouse in the Jordan Valley.

These findings confirm the complexity of FLW and the need for integrated solutions that combine technology, good practices, and capacity building.



Picture 4: Pepper cultivation in an open field, showing harvesting and packing activities at the farm level, Wadi Al-Rayan, Jordan Valley.

Raising Awareness While Collecting Data

Beyond data collection, the survey process itself served as an important awareness activity. During field interactions, stakeholders were introduced to key concepts related to food loss and waste, its impacts, and potential reduction strategies.

This dual approach — combining data collection with awareness raising — strengthens stakeholder engagement and supports long-term behavioral change within the agricultural sector.

Looking Ahead

The successful completion of survey activities in Jordan marks an important step forward in the FUSION project. As the project progresses, these insights will feed into the development of

Training content **Demonstration activities** **Innovative solutions**



aimed at reducing food loss and improving efficiency across the Mediterranean agri-food system.



Picture 5: Ali Abo Alrob, a farmer from Wadi Al-Rayan, Jordan Valley, filling out the survey questionnaire during field data collection activities. He owns three citrus farms with a total area of approximately 90 donums.

By grounding its work in real field data and stakeholder engagement, FUSION continues to move toward its goal of building a more sustainable, resilient, and efficient food value chain.

FACT SHEET

Faba Bean: Reviving a Traditional Crop for a Resilient Future

Overview

Faba bean (*Vicia faba*) is a traditional legume crop that is regaining importance as a climate-smart solution for sustainable agriculture. Well adapted to Mediterranean and semi-arid regions, it thrives under rainfed conditions and supports resilient food systems. Within the NUSTALGIC project, faba bean is promoted as a key Neglected and Underutilized Species (NUS), combining traditional knowledge with modern agricultural practices.

Why It Matters

- Rich in plant-based protein, fiber, and essential minerals
- Provides an affordable, locally available food source
- Supports food security and reduces reliance on imported protein
- Deeply rooted in traditional diets and cultural heritage



Environmental Benefits

- Naturally fixes nitrogen, reducing the need for chemical fertilizers
- Improves soil fertility, structure, and overall soil health
- Enhances biodiversity in diversified farming systems
- Improves water-use efficiency and adapts to low-moderate rainfall
- Contributes to reduced greenhouse gas emissions

Quick Facts



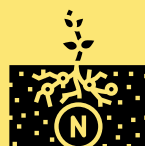
Crop type

Legume



Water needs

Low-moderate
(approx. 300-600 mm
annual rainfall)



Key feature

Nitrogen fixation



Farming system

Rainfed and semi-arid areas



NUSTALGIC Approach

Crop Innovation & Research

- Testing drought-tolerant and improved varieties
- Enhancing resistance to environmental stresses
- Improving productivity under harsh conditions

Sustainable Farming Practices

- Promoting legume-cereal rotations and intercropping
- Supporting soil-friendly practices and efficient resource use
- Introducing appropriate small-scale machinery

Value Chain Development

- Developing new products from faba bean
- Supporting local enterprises and circular economy models
- Expanding market opportunities

Role in Sustainable Agriculture

- Ideal for crop rotation and intercropping systems (especially with cereals)
- Supports conservation agriculture practices such as minimum tillage
- Enhances productivity of subsequent crops

Socio-Economic Impact

- Supports smallholder farmers and rural livelihoods
- Empowers women in agriculture
- Creates new income opportunities through value chains
- Opens market potential for food, feed, and by-products

Challenges

- Susceptibility to pests and diseases
- Limited market visibility compared to major crops
- Need for improved post-harvest handling and processing

Key Message

Faba bean represents a bridge between tradition and innovation—offering a sustainable, nutritious, and climate-resilient solution at the heart of the NUSTALGIC project.



Thank You

We would like to extend our sincere appreciation to our intern, Elizabeth McGillen, for her valuable contributions and dedication throughout her training period with us. Her enthusiasm, commitment, and positive attitude have been truly appreciated by the team.

We wish her all the best in her future endeavors and continued success in her professional journey.





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