CIHEAM
BARI

Master Courses
2025-26

Master in
MEDITERRANEAN ORGANIC AGRICULTURE

Academic Year 2025 - 2026

DESCRIPTION

The one-year Master of Science Programme offers unique opportunities for motivated students to become the next generation of professionals and researchers in organic farming and food systems able to support further development of the sector in the Euro-Mediterranean countries and worldwide. The programme considers organic food production as a system approach from primary production to consumption with a view to achieving the objective of the farm-to-fork strategy of at least 25% of the EU's agricultural land under organic farming by 2030 and in transition to fair, healthy and environmentally friendly food systems.
The master programme proposes a system-oriented approach in organic agriculture as a complex and dynamic process that requires careful management to ensure long-term sustainability and resilience. It integrates knowledge and methods from multiple disciplines to create sustainable organic food systems that match the needs of local communities and territories in a range of bio-physical and socio-economic contexts. Learning and teaching strategies are combined to advance students' technical and analytical skills together with the important soft skills of communication, collaboration, creativity and critical thinking. At the end of the course, MOA students will be able to promote processes for the development of organic agriculture aimed at agroecological transition and sustainable food systems development.

After the MOA master students will:

- Master the principles and practices of organic agriculture, encompassing areas such as crop management, soil health, and pest and disease control;
- Develop strategies for planning and advocating the transition to organic agriculture, while embracing a holistic view and sustainable of the entire value chain;
- Evaluate organic farming and food production from environmental, social, and economic perspectives;
- Gain a comprehensive understanding of the policy and regulatory frameworks governing organic agriculture at local, national, and international levels;
- Employ innovative solutions to enhance the sustainability and resilience of organic farming and food systems;
- Cultivate collaborative problem-solving skills and adopt a system thinking approach to tackle intricate challenges within the realm of organic agriculture.

The programme involves CIHEAM Bari staff and international scientists and practitioners who have made exceptional contributions to the organic sector. The first year of MOA programme is composed of eight thematic units followed by an applied project. The teaching methods are hands-on and experiential, involving peer education, field trips, technical visits, and active participation in learning activities. Students will engage in various practical tasks and assignments to enhance their abilities and expertise. They will also apply a cooperative problem-solving method and systems thinking to tackle intricate issues in the field of organic agriculture. The master's program fosters strong partnerships with diverse enterprises, effectively connecting the worlds of academia and industry. This connection enriches students' educational journey, providing them with a comprehensive learning experience and bolstering their professional opportunities.

The first year of the MSc programme is composed of seven thematic units and an applied project with 60 ECTS credits.

Units	Credits	Responsible	Dates
Unit I - Organic Agriculture and Agroecology: Principles, History, and Social Transformation (on-line)	4	Jenny CALABRESE	1 -10 October 2025
Unit II - Organic Food Systems - Sustainability, Resilience and Policy Frameworks (on-line)	2	Hamid EL BILALI	13 – 24 October 2025
Unit III – Organic Certification, Traceability and Frameworks	6	Ramez MOHAMAD	03 - 21 November 2025
Unit IV- Soil Management and Fertility	6	Lea PISCITELLI	01 – 19 December 2025
Unit V – Pests and Diseases Management	6	Vincenzo VERRASTRO	05 - 23 January 2026
Unit VI – Sustainable Farm Management and Agribusiness	6	Gianluigi CARDONE	2 – 220 February 2026
Unit VII - Organic food value chain	6	Ivana CAVOSKI	02 - 27 March 2026
Unit VIII – Policy, Advocacy and Territorial Development	6	Gianluigi CARDONE	7 - 24 Aprile 2026
IX: Digital Innovations in Organic Food and Farming Systems	4	Vincenzo VERRASTRO and Maria Luisa VITALE	27 Aprile - 8 May 2026
X: Regenerative Organic Agriculture and Circular Food Systems	4	Ivana CAVOSKI	11 -22 May 2026
Applied Project: Collaborative problem solving and system thinking	10	Ivana CAVOSKI and Ramez MOHAMAD	24 – 28 November 2025, 26 – 30 January, 23 – 27 February 2026, 30 March – 3 April 2026 25 May - 19 June 2026

UNIT I: ORGANIC AGRICULTURE: PRINCIPLES, HISTORY, AGROECOLOGICAL TRANSITION AND SOCIAL TRANSFORMATION

This foundational unit introduces students to the philosophical, historical, and practical foundations of organic agriculture, exploring its evolution as both an agricultural system and a social movement. Students examine how organic agriculture has transformed from early pioneers' vision (Organic 1.0) through certification-driven growth (Organic 2.0) to today's regenerative, values-based approach (Organic 3.0). The unit situates organic agriculture within broader movements for food sovereignty, environmental justice, and sustainable development. The course explores the four pillars of organic agriculture established by IFOAM - health, ecology, fairness, and care - demonstrating how these principles translate into practical farming systems and policy frameworks. Interactive seminars with organic pioneers and practitioners provide firsthand insights into the movement's evolution. This unit will introduce agroecology and its principles as a system approach to sustainable farming. It describes the function of system thinking concept in agroecology and its application to agroecological practices. It will describe also the agroecological transition features and the interconnections with organic agriculture.

AIMS

This unit aims to:

- Introduce organic agriculture with an overview of its principles, concepts and development of the sector.
- Introduce agroecology and its principles

LEARNING OUTCOMES

Students will be able to:

- ✓ Explain the foundational principles and key concepts of organic agriculture
- ✓ Understand the historical and ideological roots of the organic movement
- ✓ Analyze the societal role of organics in building equitable, community-based food systems
- ✓ Compare organic development trajectories in different regional contexts
- ✓ Address agroecological principles and practices for agroecological transition at both farm and territorial levels

UNIT II: ORGANIC FOOD SYSTEMS - SUSTAINABILITY, RESILIENCE AND POLICY FRAMEWORKS

This unit provides comprehensive theoretical and practical foundations for understanding sustainability and resilience within organic food systems. Students explore how global environmental, economic, and social challenges impact agri-food systems and how organic approaches can drive transformative responses. The unit addresses urgent sustainability challenges facing agriculture and food today and examines how policy frameworks support transitions toward more sustainable and resilient agri-food systems.

AIMS

- Explain the concepts of sustainability, sustainable development and resilience, and the way of applying them to agriculture and food systems.
- Introduce policies for the food system, the policy cycle and the policy instruments that impact the sustainability of food systems.
- Explore policies, strategies and initiatives to foster transition towards sustainability in agriculture and food systems.

LEARNING OUTCOMES

Students will be able to:

- ✓ Apply sustainability and resilience concepts to organic food systems.
- ✓ Navigate EU and global policy frameworks supporting sustainable agriculture and food systems.
- ✓ Design transition strategies towards resilient organic food systems.

UNIT III: ORGANIC CERTIFICATION, TRACEABILITY AND FRAMEWORKS

Organic agriculture is a production system based on specific principles and objectives that rely upon environmentally friendly practices and inputs. Regulations with general and specific rules govern this sector and apply to products (unprocessed, food and feed) originating from agriculture including aquaculture and beekeeping. They also govern certification, official controls and trade of organic products with third countries. Based on these regulations and strict control systems the organic products are certified and labelled.

UNIT DESCRIPTION

This unit provides comprehensive understanding of how organic integrity is maintained through certification systems, advanced traceability technologies, and consumer-facing transparency strategies. Students explore the complete regulatory framework governing organic certification and learn to navigate the complex requirements of EU Organic Regulation 2018/848. The unit covers emerging technologies including blockchain and digital certification that enhance transparency and prevent fraud throughout the organic value chain. Students gain practical experience with inspection and audit procedures, learning protocols, documentation requirements, and risk-based approaches that ensure organic compliance. The unit addresses international trade requirements, equivalency agreements, and challenges of maintaining organic integrity in global supply chains.

AIMS

This unit aims to:

- ❖ Illustrate EU organic regulation with an emphasis on production rules, control systems, labeling of organic products and trade with third countries.
- ❖ Train students in the certification process, its requirements, and how to conduct inspection.

LEARNING OUTCOMES

At the end of the unit, students will:

- ✓ Use organic regulations, with reference to the EU one, as the main tool for compliance verification and certification issuance.
- ✓ Interpret and apply EU organic regulations in real certification contexts
- ✓ Plan and conduct on-site inspection audits
- ✓ Use available digital tools to implement traceability and prevent fraud.

UNIT IV- SOIL MANAGEMENT AND FERTILITY

Knowledge of sustainable soil management as a non-renewable resource is of utmost importance in organic farming. This unit will cover the basic principles of soil management and fertility using environmentally sustainable practices that aim to maintain or improve soil health and ensure production quantity and quality. The unit will explore the main physical, chemical, and biological principles that regulate the functioning of the soil as a living system and whose understanding is fundamental for managing soil fertility in different environmental and climatic conditions. Organic farming practices for soil fertility management will be described in detail and will be addressed within the framework of a comprehensive and strategic approach. A comprehensive and systemic perspective will be provided about the concepts of organic soil management and fertility as a potential self-sustaining system rather than one exclusively based on external inputs. Extra-cattedra lessons will be sustained by alternative teaching techniques, field visits and practical activities. Moreover, time for sharing and discussing real-case issues with farmers will be included.

AIMS

This unit aims to:

- ❖ Describe main soil components and their functions (biological, chemical and physical).
- ❖ Defining soil fertility under the framework of organic production.
- ❖ Describe main agronomic practices for sustainable soil management.
- ❖ Observe critically soil parameters.
- ❖ Illustrate some farm examples of soil management.

LEARNING OUTCOMES

Students will be able to:

- ✓ Gain insight into the soil system and the significance of soil organic carbon.
- ✓ Appreciate the critical role of soil fertility and distinguish between fertilizers and soil amendments.

- ✓ Enhance the understanding of agricultural practices related to soil.
- ✓ Develop the ability to create agronomic plans.

UNIT V – PESTS AND DISEASES MANAGEMENT

Disease and pest management in organic farming is a challenge, especially considering the strict limitations on chemical control and the delicate balance between external inputs and ecosystem services on which management should be based. The unit covers the description of (a) the main plant pests and pathogens affecting Mediterranean agriculture (b) the basic principles of disease and pest control in organic farming; (c) plant protection products allowed in organic farming and prospects for alternatives to contentious inputs; (d) meaning and practical application of biological control measures and interaction of beneficials with organic plant protection products; (d) description and management of vector-borne plant pathogens in organic agriculture. Emphasis will be placed on Mediterranean crops of economic/ecological/historical importance.

AIMS

This unit aims to:

- ❖ Illustrate the main plant pests and pathogens affecting Mediterranean agriculture
- ❖ Introduce principles for disease and pest control in organic agriculture
- ❖ Explain the main plant protection products allowed in organic agriculture, their mode of action and novel active ingredients for pest control
- ❖ Illustrate biological control strategies and rearing beneficial insects
- ❖ Describe potential and use of novel techniques for control of vectors of diseases in Euro-Mediterranean countries.

LEARNING OUTCOMES

Students will be able to:

- ✓ Approach pest and disease control in organic farming.
- ✓ Select and apply products for pest and disease control.
- ✓ Exploit natural enemies at farm level.
- ✓ Design control strategies in accordance with EU regulations on organic farming.

UNIT VI – SUSTAINABLE FARM MANAGEMENT AND AGRIBUSINESS

The organic farm is viewed as part of the agroecosystem and placed on the broader agrifood system, describing methods for performance analysis as tools to drive farmers towards competitiveness and business while respecting the environmental, economic and social contexts. The unit will introduce sustainable farm management as a decision-making process concerning allocating scarce resources and inputs for agricultural production and in line with multiple management goals. A sustainable farm must be managed holistically as an integrated system. Topics are addressed by exploring theoretical models, monitoring methodologies and real-life

cases and developing strategies and possible future scenarios for sustainability improvement. As for the practical activities, students will learn how to analyse, assess and compare the sustainability performance of organic and non-organic agri-food enterprises.

AIMS

This unit aims to:

- Introduce principles of farm economics with an agri-environmental perspective, particularly farm management, accounting and budgeting, economic analysis, business planning.
- Assess environmental, economic and social sustainability of an eco-friendly enterprise according to analytical methods and schemes for calculation and analysis.
- Provide tools to organize and manage an enterprise, within the sustainable agri-food system.

LEARNING OUTCOMES

Students will be able to:

- ✓ Select and apply indicators for the assessment of environmental, economic and social sustainability.
- ✓ Make decisions for managing organic businesses in alignment with sustainability principles.
- ✓ Employ decision-making processes to enhance the competitiveness and profitability of organic enterprises operating within sustainable value chains.
- ✓ Create business plans aimed at realizing sustainable farming objectives.

UNIT VII – ORGANIC FOOD VALUE CHAIN

Nowadays, organic food value chains are run in an ever more complex and dynamic environment, characterised by new consumer demands, new technologies and solutions, changing structures and modes of cooperation. Strategic alliances among stakeholders contribute to providing high-quality and differentiated food products and distributing the rewards equitably across the chain. Marketing plays a crucial role in linking organic agrifood chains to the market. Overall, this unit aims to teach how organic agrifood chains face the challenge of continuously improving their competitiveness and profitability by producing sustainable food. The unit provides knowledge and methods to enter the organic market with a multi-stakeholder and supply chain perspective. A range of approaches to developing more inclusive, equitable, transparent and sustainable organic value chains will be experienced. Moreover, innovative solutions able to add value along the value chain will be exploited.

AIMS

This unit aims to:

- Provide knowledge about value chain concept and functioning, its components, stages, actors and services.
- Explain the holistic concepts for the assessment of organic food quality.
- Address advanced technologies for organic food processing, post-harvesting and packaging.

- Analyse trends and drivers of organic food markets and consumption.

LEARNING OUTCOMES

Students will be able to:

- ✓ Apply the organic food value chain development approach and perform its analysis.
- ✓ Understand the values of organic food.
- ✓ Identify technologies that create additional value and reduce the losses along the entire value chain.
- ✓ Assess the market and analyze consumer behavior.

UNIT VIII – POLICIES AND RURAL DEVELOPMENT

Nowadays organic agriculture is considered as key element to mitigate territorial and global concerns. Therefore, organic agriculture is becoming a consistent successful model for sustainable rural development. It contributes to protecting natural resources and to support socio-economic and cultural features of well-being of local communities. Understanding the features of socio-economic, cultural and social capitals of local territories is of a high importance for improving and strengthening the quality of life. Additionally, comprehensive exploration of both national and international policy frameworks is essential in shaping the growth and development of organic agriculture.

AIMS

This unit aims to:

- Provide students with a comprehensive understanding of national and international policy frameworks and local development opportunities in organic agriculture.
- Explore the role of policies and multi-actor involvement in shaping the organic sector and agricultural policy for the future, with focus on the AGENDA 2030 and the European Green Deal.
- Emphasize the connections between territorial and socio-economic factors and highlight the significance of community participation and stakeholder networks for sustainable development.
- Define a range of policy measures in support of the development of the organic sector, to meet the needs of the sector and policymakers, reflecting the broader interests of society and citizens, in the framework of an organic action plan.
- Illustrate successful case studies and best practices at the local level.

LEARNING OUTCOMES

Students will be able to:

- ✓ Demonstrate a comprehensive understanding of policy and local development opportunities.
- ✓ Understand the impact of policies and multi-actor collaborations on the organic sector and

agricultural policy in the context of future developments.

- ✓ Examine the intricate relationships between territorial and socio-economic factors and assess the importance of community participation and stakeholder networks in shaping sustainable development.
- ✓ Apply acquired knowledge to propose informed strategies and solutions for advancing organic agriculture and local development within the context of evolving policy frameworks.
- ✓ Draft an organic action plan for the development of organic agriculture.

Unit IX: DIGITAL INNOVATIONS IN ORGANIC FOOD AND FARMING SYSTEMS

This unit explores how digital technologies are reshaping the entire organic food and farming value chain while respecting organic principles and ecological values. Students examine how emerging technologies including artificial intelligence (AI), precision farming, sensor technologies, and smart logistics can improve efficiency, decision-making, sustainability, and transparency in organic systems. The unit addresses unique challenges and opportunities of integrating digital solutions within organic frameworks that prioritize ecological integrity and social equity. It also considers the social, environmental, and ethical implications of digitalization in agriculture. Through real-world case studies, field visits, and design exercises, students will develop core sustainability competences such as systems thinking, digital literacy, strategic action, and adaptability, in line with the GreenComp and DigComp frameworks.

AIMS

This unit aims to:

- ❖ Equip students with the knowledge and practical skills to integrate emerging digital technologies (such as AI, precision farming, sensor systems, and smart logistics) into organic farming systems
- ❖ Foster a deep understanding of how digital tools can be used to enhance the sustainability of organic farming without compromising ecological integrity or social equity
- ❖ Encourage students to think critically about the complex relationships between technology, agriculture, society, and the environment, especially in a new perspective of digital agriculture as a engine for rural development

LEARNING OUTCOMES

- ✓ Understand the potential of digital technologies within organic food and farming systems as a productive means
- ✓ Identify and evaluate how digital solutions can contribute to improve sustainability, efficiency, and communication across the organic value chain
- ✓ Apply systems thinking to assess how technological innovation interacts with environmental, economic, and social dimensions
- ✓ Develop strategies for integrating digital tools in organic systems while respecting ecological

principles and local contexts

- ✓ Reflect on the ethical, cultural, and organizational challenges related to digital transformation in agriculture

Unit X: ORGANIC REGENERATIVE AGRICULTURE AND CIRCULAR FOOD SYSTEMS

This unit explores integration of regenerative agriculture and circular economy principles within organic food and farming systems to minimize environmental impact and restore ecological balance. Students examine strategies to prevent waste, regenerate natural resources, and close nutrients, energy, and material loops throughout the organic value chain. The course focuses on transforming waste into valuable resources through innovative practices including composting, by-product reuse, and circular system design that enhance both farm productivity and environmental sustainability. Students gain comprehensive understanding of regenerative agriculture practices that go beyond sustainability to actively restore soil health, biodiversity, and ecosystem services. The unit covers renewable energy solutions specifically suited for organic farms, including solar energy, biogas production from organic waste, and biochar applications.

AIMS

This unit aims to:

- ❖ Equip students with a comprehensive understanding of organic regenerative agriculture principles
- ❖ Provide students with knowledge about the certification requirements and procedures of organic regenerative agriculture
- ❖ Teach students how to design and implement circular food systems that close the loops of nutrient, energy, and material flows in organic farming
- ❖ Provide students with hands-on experience and real-world case studies to develop practical strategies for integrating renewable energy solutions

LEARNING OUTCOMES

- ✓ Understand and apply regenerative and circular principles in organic food systems
- ✓ Design waste reduction and by-product reuse strategies aligned with organic values
- ✓ Evaluate the integration of renewable energy in organic farming operations
- ✓ Analyze opportunities for circular innovation across the organic value chain
- ✓ Propose system-level solutions that enhance sustainability, resource efficiency, and resilience

APPLIED PROJECT: COLLABORATIVE PROBLEM SOLVING AND SYSTEM THINKING

Understanding the activities and problems of organic enterprises is crucial to address the different challenges along the value chain. Students will have the opportunity to participate in activities addressing the main issues of the organic sector. The activities are designed to develop the student's capacity to observe, analyze and propose solutions to complex phenomenon by applying combined approaches gained throughout the course. Understanding a phenomenon within the context of a larger whole to understand things systemically and holistically literally means putting them into a context and establish the nature of their relationships. This unit

develops the collaborative problem-solving competencies of students to effectively engage in a process to solve a problem by sharing the understanding, pooling their knowledge and effort required to come to a solution. There is a paramount need for collaboration between disciplines, communities, practitioners, students, and researchers which could help better to achieve sustainable solutions. A collaborative learning process aims at addressing 'real world' problems and gives the opportunity for diverse actors to come together to resolve problematic situations beyond individual possibilities. Addressing these problems and finding relevant solutions are key issues of transdisciplinary research that are needed in organic food and farming systems.

AIMS

This unit aims to:

- Explore the case studies focusing on main problems and understanding the local context of organic enterprises.
- Engage stakeholders in a problem-solving approach.
- Learn how to put knowledge into practice in addressing 'real world' problems.
- Improve the quality of knowledge and reasoning by integrating disciplinary content.

LEARNING OUTCOMES

Students will be able to:

- ✓ Provide practical solutions to practical problems.
- ✓ Apply methods for dialogues, discovery and apply new knowledge.
- ✓ Identify relationships between parts of a system and/or design a system to express the connections between parts.
- ✓ Gain insights into co-opting ideas and methods from various disciplines and working together across disciplines.