Mediterranean Organic Agriculture

Course Coordinator: Lina Al Bitar

- **Aims**

The Programme aims at preparing the participants to produce innovation in Mediterranean organic agriculture, creating and maintaining sustainability in the farming system, assisting and contributing to national development of organic legislations and regulatory framework.

- **Objectives**

The main objective of the Programme is to train graduates, young researchers ad professionals for future professional careers in the domain of Organic Agriculture. Within this framework, the general learning outcomes are:

- developing agronomic skills related to practices and techniques of Mediterranean Organic Agriculture production and management;
- developing skills related to legislation, inspection, certification and labelling of organically-produced food and fibres;
- building capacity in socio-economic analysis and market strategy for organic agriculture;
- providing trainees with the necessary tools and expertise to assess the agricultural, environmental, and socio-economic opportunities and constraints of organic agriculture in different Mediterranean areas.

Part 1 - The Master Programme

The programme is organized in **11 Units (63 ECTS)**
Duration: **9 months, from October 2019 to June 2020**

30 September – 11 October 2019

UNIT 1 – INTRODUCTORY COURSES (4ECTS)

Content:

Introduction to the general principles of the thematic areas of great interest for agriculture:

- ✓ Information and Communication Technologies
- ✓ Criteria for bibliographic and technology of search
- ✓ Climate change and agriculture
- ✓ Biodiversity & crops
- ✓ Transboundary pests & diseases
- ✓ Communication skills
- ✓ High technologies for agriculture and natural resources management: Geographical Information Systems (GIS), Remote Sensing and Information Technology
- ✓ English language

Learning outcomes:

Students learn how to develop familiarity and search through Internet, use excel, and develop the ability to search for, collect, process, read and interpret research results. Students also learn in-depth information on relevant issues and topics that have a great impact on agriculture. Biodiversity and crops will be discussed more in detail in Unit 2.

Evaluation procedure: written examination

14 - 31 October 2019

UNIT 2 – INTRODUCTION TO ORGANIC AGRICULTURE, AGROECOLOGY AND BIODIVERSITY (4 ECTS)

Content:

- ✓ Principles of organic agriculture and agroecology
- ✓ Biodiversity and crops

Learning outcomes:
Students should become knowledgeable on sustainable farming practices and conversion to organic agriculture and ways and means to enhance the quality of agroecosystems and biodiversity protection. They would be able to plan for an assessment of biodiversity from the field level to landscape level through farm level.

Evaluation procedure: written exams and practical work (exercises, assignments)

4 - 29 November 2019

UNIT 3 - SOIL FERTILITY MANAGEMENT IN ORGANIC FARMING (8ECTS)

Content:

- ✓ The soil: biotic and abiotic components
- ✓ Cover crops, fertilizers and biomasses recycling for managing the soil fertility in organic farming
- ✓ Organic ruminants farming
- ✓ Plant nutrients management in organic farming

Learning outcomes:
Students will learn to evaluate the environmental and agronomical importance of specific interactions among soil constituents, nutrients and pollutants, underlining sustainable strategies to maintain and increase soil fertility in organic agriculture. They will also learn how soil biological parameters react on organic fertilization and how soil microorganisms and humus formulation can be enhanced by farmyard manure (FYM) and other organic fertilizers.They acquire the competence about principal feedstuffs for ruminants and the different feeding.

Evaluation procedure: written exams and practical work (exercises, assignments)

2 -20December 2019

UNIT 4 - INSECT, DISEASE AND WEED MANAGEMENT (6ECTS)

Content:

- ✓ Organic weeds management
- ✓ Plant protection against diseases in organic production
- ✓ Organic insect management

Learning outcomes:
Students learn how to organize plant protection in organic production and to select the best tools to combat pathogens. They gain skills on main biological control practices as a method of pest control. Students become knowledgeable on weed biology and ecology, and learn how to manage weeds in organic farming and the positive function of weeds.

Evaluation procedure: written exams and practical work (exercises, assignments, group presentations)

2 – 31 January 2020

UNIT 5 - GLOBAL MARKETS AND MARKETING FOR ORGANIC AGRO-FOOD PRODUCTS (4 ECTS)

Content:

- ✓ Appraisal and assessment of local food systems through participatory methods: exploring the potential of organic farming
- ✓ Principles of farm economics
- ✓ Marketing of agro-food products
- ✓ Sustainable supply chain
- ✓ Consumer and Organic Value Chain: Analysis and Research

Learning outcomes:
Participants understand business performance through evaluation of productivity, efficiency and profitability. Students acquire knowledge of tasks and approaches in marketing to be enabled to independently develop a marketing concept for an organic company. Students will get practical insights into the overall trade policy issues that affect the outcomes for farming communities and the adoption of organics. They learn the multiple linkages between organic farming and rural development, especially from the perspective of resilience and risk management.

Evaluation procedure: written exams and practical work (exercises, assignments)

3 - 14 February 2020

UNIT 6 - ORGANIC FARMING ECONOMICS, POLICY DEVELOPMENT AND SOCIAL ASPECTS (4ECTS)

Content:

- ✓ Support policies for organic agro-food systems
- ✓ National Action Plan for organic agriculture

Learning outcomes:

Trainees understand business performance through evaluation of productivity, efficiency and profitability, to identify strengths and weaknesses of business choices. They acquire some basic knowledge/terminology about several tools and procedures of agricultural policies, with special reference to organic food productions. Students become familiar with basic concepts of farm development and would be able to relate the development of organic farming in their countries to global trends.

Evaluation procedure: written exams and practical work (exercises, assignments)

17February–6 March 2020

UNIT 7 - ORGANIC STANDARDS AND LEGISLATION (4ECTS)

Content:

- ✓ Organic regulation in the EU and Mediterranean countries
- ✓ Accreditation, certification and inspection in organic system

Learning outcomes:

Students gain a direct understanding of the knowledge and skills needed to work in an organic certification agency. Students get familiar with the European regulation on organic standards and how to implement it for certifying organic products or production processes and they also learn the importing rules.

Evaluation procedure: written exams and practical work (exercises, assignments); student project design and presentation in a written and oral format.

9 March– 3 April 2020

UNIT 8 - QUALITY, SAFETY AND POST-HARVEST HANDLING OF ORGANIC CROPS (8 ECTS)

Content:

- ✓ Organic food quality and safety
- ✓ Post-harvest techniques
- ✓ Food Hygiene Regulations: rules and new requirements
- ✓ Food quality and safety certification schemes
- ✓ Sustainable food systems

Learning outcomes:

Students become knowledgeable on the implementation of food quality and safety systemson farm according to the main internationally recognized standards. They learn principles of voluntary and compulsory regulations of food safety and food quality in the EU, principles to realize a risk analysis, methods to lead external/internal audits. They also learn the post-harvest handling of fresh produce and how to retain the quality of the products and extend market life.

Evaluation procedure: written exams and reports

6 April– 8 May 2020

UNIT 9- ORGANIC MEDITERRANEAN COMMODITIES PRODUCTION (8 ECTS)

Content:

- ✓ Organic horticulture growing
- ✓ Organic grapevine growing
- ✓ Organic olive growing

Learning outcomes:

Students become knowledgeable of the main agronomic practices, soil fertility management, advantages and disadvantages of compost and organic fertilizers utilization and the main regulatory aspects related to organic horticulture and growing media production in organic vegetable production. Students learn how to design a soil fertility and crop nutrition plan and pest management plan based on the basic principles of organic farming. They acquire a detailed knowledge of all aspects of organic olive production systems and learn how to

manage vineyards under organic conditions (choice of rootstock, the most suitable form of training, soil management with particular attention to fertilization, phytosanitary protection, etc.).

Evaluation procedure: written exams and practical work (exercises, assignments), case-study presentation.

11 May – 12 June 2020

UNIT 10 – Concepts in sustainable development (6ECTS)

Content:

- ✓ The role of the technical advisor in designing and managing a sustainable organic farm
- ✓ Regulations and procedures for the authorization to the use of organic pesticides and fertilizers
- ✓ Organic Production and Sustainable Development: Frameworks and Strategies
- ✓ Economic Feasibility of Small Scale Organic Production and Risk Management Strategies

Learning outcomes:

Students understand how the Principles of Organic Agriculture are translated into regulatory frameworks. Students become knowledgeable on the 3-tiered system of oversight in current use within the organic trade.They learn about legislations, elements of toxicology and document preparation in relation to the preparation of a dossier for the authorization to the use of organic fertilisers and pesticides.

Evaluation procedure: written exam and practical work (exercises, assignments)

October 2018 - June 2020

UNIT 11 - PROJECT (7ECTS)

Content:

The project is an "Action learning for preparing operators of Sustainable Agriculture". It focuses on the following activities:

1- Sustainable Agriculture Project (SAP): the training involves an action-based learning and envisages working on Sustainable Agriculture Projects (SAPs). Students form small groups (3/4 students each group

max) and they work on a SAP in a multi-disciplinary and inter-sectoral way through the direct interaction with stakeholders related to the subjects at the core of SAPs. These stakeholders, also defined as Active Actors (AA), and representing a farm, company, institution, cooperative, etc., are assigned to each SAP, together with a learning facilitator (CIHEAM academic staff, expert in the field of the specific SAP sector). SAPs will be implemented through several phases, based on observation, dialogue and reflection, leading the students to experience an action base and oriented learning. SAPs phases are connecting, planning, acting and observing, restitution and sharing.

2- Classroom activities: The SAP activities are supported by classroom sessions during which key topics for SAP implementation are presented and discussed, and or group activities and exercises functional to SAP are implemented.
3- Practical days: for each group for sustaining the implementation of the 4 SAP phases. Through the practical days students approach real-life contexts, visiting stakeholders, setting up meetings, collecting information and observing, surveying fields and other key places, etc.
4- Workshops: involving all the groups, SAPs active actors and learning facilitators, will be organized. The first workshop at the beginning of the master courses and for adjusting and the second workshop for sharing SAPs results.

Learning outcomes:

Action Learning is an experiential and collective learning process that has shown to be an efficient approach for "transforming learners" and driving changes towards sustainability of agriculture. Students work at a collective real project, interacting with key stakeholders (researchers, farmers, policy makers, etc.) undertaking practical activities, and challenging one another to question their assumptions as they reflect on their experiences.

The training is oriented to create a set of soft skills and technical competencies in future operators of Sustainable Agriculture. This is based on the acknowledgement that the complexity of real-life contexts requires professionals (teachers, researchers, practitioners, operators, etc.) who can offer a wide range of skills and competencies that allow them to work using multidisciplinary and cross-sectorial approaches so that they can interact with a multitude of stakeholders, thus facilitating dialogue, mobilization, participation, engagement.

Evaluation procedure:
Final written report and presentation.

15– 19 June 2020
FINAL EXAMS

Master Course organization

EXAMINATIONS
Participants take an examination at the end of each subunit. Examinations are in the form of oral or written exams (i.e. sets of questions, exercises, multiple-choice). Questions can also cover seminars topics, field lectures and technical visits. Evaluation is made by the lecturers or by the scientific tutor of the course. Participants may retake failed exams only once and up to 8 ECTS.

At the end of the course, participants have to pass a final comprehensive oral exam before an international Examination Board.

WORKING LANGUAGE: English

ACADEMIC STAFF
Master courses are given by MAIB scientific staff and international prestigious visiting professors (from universities, higher institutions, research centres, international organizations); field lectures are also given by MOA experts from the private sector.

Part 2 - The Master of Science Programme

The Master of Science Programme is organized in two parts: Preparatory research methodologies and supervised research work: thesis and defence (60 ECTS).
Duration: **12 months, from November 2019 to October 2020**

MASTER OF SCIENCE ORGANIZATION

PREPARATORY RESEARCH METHODOLOGIES (10 ECTS)
Content:
Scientific English and writing. Bibliographic research and thesis writing. Research methodology in organic agriculture. Advanced statistics.

Learning outcomes:
Basic and technical knowledge on how to set up a research project, define methodology, collect and analyse data, care about content and style in thesis writing.

RESEARCH WORK (50 ECTS)
Content:
Conducting a research activity in the field of organic agriculture and elaborate an original thesis, related to agronomic, legal or social and economic aspects of Mediterranean organic agriculture. The MSc thesis is mainly carried out at CIHEAM Bari or at research Institutions of the student's country of origin under the supervision of CIHEAM Bari researchers and external professors.
Topics of MSc theses are chosen among the following research lines:

- ✓Evaluating the impact of agricultural innovation in cropping systems and soil fertility management
- ✓ Innovative biocontrol preventive and curative strategies of new and emerging pests in Mediterranean climates
- ✓ Quality valorization of organic food through novel food product
- ✓ Sustainability of agricultural and natural systems
- ✓ Economic and market research
- ✓ Socio-economic impacts and impacts of support policies

Learning outcomes:
Acquiring knowledge and ability in:

- ✓ Conducting a research work
- ✓ Writing an experimental thesis
- ✓ Delivering seminars
- ✓ Preparing scientific paper to announce at National and International Conferences and/or published in scientific journals
- ✓ Elaborating strategies for managing pests and soil fertility
- ✓ Developing action plans and legislations for organic agriculture
- ✓ Conducting surveys and developing questionnaires for consumer and market analysis
- ✓ Organic food processing and safety

MASTER OF SCIENCE EVALUATION

Theoretical lectures: Students take an examination at the end of each topic. Examinations are in the form of oral or written exams (i.e. sets of questions, exercises, multiple-choice). Evaluation is made by lecturers.

Seminars: Students present the progress of their research work in front of a national committee twice during the academic year.

Supervised research work: the research work carried as well as the student attitude and dedication are assessed by the Supervising Team.

Final exam and thesis evaluation: At the end of the programme, they submita thesis and pass a final comprehensive oral exam in front of an international Examination Board.

WORKING LANGUAGE: English

ACADEMIC STAFF
In the Master of Science Programme, students' research theses are mainly supervised by CIHEAM Bari researchers; specific research topics are supervised by external professors in collaboration with CIHEAM Bari researchers.

Indicative Master of Science theses realized within the area

I.

- ✓ Title: Comparison of organic and conventional farms/wineries in Batroun region - Lebanon: sustainability case study. – 108 p.
- ✓ Author: SKAF Ludmila (Lebanon)
- ✓ Place of realization: IAMB - ITALY
- ✓ Thesis directors: G. Calabrese and S. Rouphael

II.

- ✓ Title: Development of strategies for biocontrol of the invasive pest *Drosophila suzukii* in Italy by means of Hymenopteran parasitoids – 87 p.
- ✓ Author: PANEL Aurore, Danièle, Claudine (France)
- ✓ Place of realization: IAMB - ITALY
- ✓ Thesis directors: N. Baser and G. Anfora

III.

- ✓ Title: Exploitation of organic palm date (*Phoenix dactylifera* L. cultivar Siwi) fruitscollected from Bahariya Oasis (Egypt) through bioprocessing technology. – 56 p
- ✓ Author: HASSAN Bahaaaldin Mamdouh Mohamed Hassanin (Egypt)
- ✓ Place of realization:IAMB – ITALY
- ✓ Thesis directors: I. Cavoski and R. Di Cagno

IV.

- ✓ Title: A new framework law on organic agriculture in Egypt: a proposal. - 262 p.
- ✓ Author:IBRAHIM Mahmoud Mohamed Said Mohamed (Egypt)
- ✓ Place of realization: IAMB – ITALY
- ✓ Thesis directors: L. Guarrera and A. Abdelaziz

Further detailed information is available on: www.iamb.ciheam.org