



Mediterranean Organic Agriculture

Organized by

Mediterranean Agronomic Institute of Bari

Mediterranean Organic Agriculture

MAI coordinator: **Dr. Maurizio Raeli**

- Objectives** The Master Programme in Mediterranean Organic Agriculture is designed to train graduated agronomists and agricultural engineers for future professional careers in the domain of Organic Agriculture. Within this framework, further goals are:
- to develop agronomic skills related to practices and techniques of Mediterranean Organic Agriculture production and management;
 - to develop skills related to legislation, inspection, certification and labeling of organically-produced food and fibres;
 - to build capacity in socio-economic analysis and market strategy for organic agriculture;
 - to provide 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

Post graduate specialization programme

The programme is organized in 9 Course Sections (60 ECTS).

- Section I INTRODUCTORY DISCIPLINES**
English language course, Elements of statistics, Scenarios of shared knowledge, research techniques and technology, Criteria for bibliographic research.
- Section II INTRODUCTION TO ORGANIC AGRICULTURE**
Basic principles associated to technical options for typical agriculture constraints; sustainability in O.A.; agro-ecosystem concept; ecological function, biodiversity and methods to improve biodiversity in agriculture and landscape management.
- Section III SOIL FERTILITY MANAGEMENT**
Soil, abiotic and biotic components; organic matter evolution and balance; the main chemical parameters for soil fertility estimation; field sampling and practical laboratory; composting and biomass recycling; impact of fertilization and crop rotation on soil properties and crop growth; the role of ruminants in animal-soil-plant system.
- Section IV PEST, DISEASE AND WEED MANAGEMENT**
The concept and philosophy of pest and disease prevention and control in organic agriculture; techniques for direct control of insects and diseases. Organic weeds management.
- Section V QUALITY, SAFETY AND POST-HARVEST HANDLING OF ORGANIC CROPS**
International quality award systems, cost-effective quality management, quality improvement, ISO 9000, environmental management system, food safety and Hazard Analysis Critical Control Points (HACCP). Technologies applied to organic products in the post-harvest phases: storage, processing, cold storage, transportation and packaging. Re-use of organic by-products.
- Section VI ORGANIC STANDARDS AND LEGISLATION**
Legislation in the world: International standards and guidelines: IFOAM basic standards, organic regulation in Northern countries (EU, USA, Japan); organic regulation in developing countries (Tunisia) Certification and accreditation schemes; Mandatory and voluntary regulatory systems; procedures of organic product importation in the EU. Auditing in organic inspection: audit planning and conduct
- Section VII GLOBAL MARKETS AND MARKETING FOR ORGANIC AGRO-FOOD PRODUCTS**
Principles of agro-enterprise; linking organic farmers to global market; marketing of agro-food products and organic products; emerging social economic issues in organic agriculture trade

- Section VIII **ASSESSING POLICY AND SOCIO-ECONOMIC IMPACTS OF ORGANIC FARMING****
Agricultural Policies: specific focus on Organic farming support policies in developed and developing countries. Socio-economic aspects of organic farming: multiple linkages between organic farming and rural/local development.
- Section IX **FARM ECONOMICS AND MANAGEMENT****
Principles of farm economics and management: planning and management of whole farms: economic and environmental accounting of gains and losses of different cultivation options, access to production factors, organic pasture management and forage conservation, farm economics and livelihoods.
- Section X **ORGANIC MEDITERRANEAN COMMODITIES PRODUCTION****
Main Mediterranean crops: olive groves, vegetable crops, fruits trees, viticulture in terms of production, management, protection and processing.
- Section XI **PROJECT****

TRAINING SEQUENCE

Section I
(2 ECTS)
03-15 Nov.'08

INTRODUCTORY DISCIPLINES

MOA.I1 - English language course.

MOA.I2 - Element of statistics; Introduction to scenarios of shared knowledge, research techniques and technology; Criteria for bibliographic search.

Section II
(6 ECTS)
from
17 November to
06 December'08

INTRODUCTION TO ORGANIC AGRICULTURE

MOA.II1 - Concepts of agroecology and sustainability (2 ECTS)

MOA.II2 - Principles of organic agriculture (2 ECTS)

MOA.II3 - Biodiversity (2 ECTS)

Section III
(8 ECTS)
from 9
December to 17
January'09

SOIL FERTILITY MANAGEMENT

MOA.III1 - The soil: biotic and abiotic components (2ECTS)

MOA.III2 - Composting and biomass recycling (2ECTS)

MOA.III3 - Impact of fertilization and crop rotation on soil properties and crop growth (2ECTS)

MOA.III4 - The role of ruminants in animal-soil-plant system (2ECTS)

Section IV
(6 ECTS)
from 19 January
to 7 February'09

PEST, DISEASE AND WEED MANAGEMENT

MOA.IV1 -Organic pest and disease management (2ECTS)

MOA.IV2 -Biological control (2ECTS)

MOA.IV3 -Weed control (2ECTS)

Section V
(4 ECTS)
from 9 February
to
21 February'09

QUALITY, SAFETY AND POST-HARVEST HANDLING OF ORGANIC CROPS

MOA.V1 - Food quality and safety (2 ECTS)

MOA.V2 - Processing and packaging of organic agro-food products (2 ECTS)

Section VI
(6 ECTS)
from 23
February to 21
March'09

ORGANIC STANDARDS AND LEGISLATION

MOA.VI1 -Certification and accreditation schemes (2 ECTS)

MOA.VI2 -Mandatory and voluntary regulatory systems (2 ECTS)

MOA.VI3 – Auditing in organic agriculture (2 ECTS)

Section VII
(6 ECTS)
From 23 March
to 11 April '09

GLOBAL MARKETS AND MARKETING FOR ORGANIC AGRO-FOOD PRODUCTS

MOA.VII1 - Principles of agro-enterprise (2ECTS)

MOA.VII2 - Linking organic farmers to global market (2 ECTS)

MOA.VII3 - Marketing of agro-food products (2 ECTS)

Section VIII
(4 ECTS)
from 14 to 25
April'09

ASSESSING POLICY AND SOCIO-ECONOMIC IMPACTS OF ORGANIC FARMING

MOA.VIII1 -Support policies for organic farming (2 ECTS)

MOA.VIII2 -Assessing Policy and socio-economic impacts of organic farming (2 ECTS)

Section IX
(4 ECTS)
from 11 to 23
May'09

FARM ECONOMICS AND MANAGEMENT

MOA.IX1 - Principles of farm economics (2 ECTS)

MOA.IX2 - Whole farm planning, design and management (2 ECTS)

Section X **ORGANIC MEDITERRANEAN COMMODITIES PRODUCTION**
(8 ECTS) MOA.X1 - Vegetable crops (2 ECTS)
from 25 May to MOA.X2 - Fruit trees (2 ECTS)
20 June'09 MOA.X3 - Olive growing (2 ECTS)
 MOA.X4 - Viticulture (2 ECTS)

Section XI **PROJECT**
(6 ECTS) December to June

From 22 to 30 **FINAL EXAM**
June'09

Examinations

Participants take a written examination at the end of each Unit. Examinations are in the form of written exams in classroom, including problems sets of questions, or exercises, or multiple choice questions.

To evaluate Section X, participants prepare a written report and expose a power point presentation about their working group project.

Participants may retake failed exams once, and up to 9 ECTS credits.

At the end of the course, participants take a comprehensive oral examination before an international jury.

Language of instruction: ENGLISH

Analytical syllabus

Section I INTRODUCTORY DISCIPLINES

MOA.I1- English Language Course

Grammar: Review of tenses ,Present simple, Present continuous, Future forms, Present perfect, Past perfect ; Articles ; Conditionals : 1st, 2nd, 3rd and zero ; Passive voice : Instructions and imperatives ; Comparisons and superlatives : Modal verbs for obligation, prohibition and advice. **Writing :** Levels of formality ; The academic writing process ; The language of definition ; Generalisations, facts and academic honesty ; Abstracts

MOA.I2-Element of statistics

General aspects: research's problem; science method and experiment; steps in experimentation; the analysis of variance and experimental design; Completely randomised block design; the Latin square design; the split plot design; linear correlation and regression.

Introduction to scenarios of shared knowledge, research techniques and technology and criteria for bibliographic search

Practical activities on: Multimedia Approach (Object processing, Editors, Structuring); Internet (the evolution of the network, Worldwide Web environment; Surfing activities, use of search engines, search strategies for information available on the web); distance learning.

Criteria for bibliographic search and the art of scientific writing. Organization of the MAIB Documentation Centre; Methods of bibliographic search; On-line data bank and strategies of bibliographic search at different hosts; Drawing up of the individual project and Master thesis.

Section II INTRODUCTION TO ORGANIC AGRICULTURE

MOA.II1 - Concepts of agroecology and sustainability

History of evolution of humanity and agriculture, consequences of the excessive use of inputs on the environment, development of sustainable agriculture, definition of agro ecology and Ecology, ecosystem and Agro ecosystem, structure and functioning of ecosystems, difference between ecosystem and agro ecosystem, the environmental complex, Agro ecology and sustainability, ecological principles and processes, diversification in agro ecosystem, Making the transition to sustainability, concepts in community and community supported agriculture.

MOA.II2 - Principles of organic agriculture

Organic agriculture: past and present; principles of O.A.; definition of alternative farming systems: GAP; EUREPGAP; definition of basic concepts of O.A.:

holistic approach; agroecosystem health;

socio-economic balance of the farm; disturbance of soil; agricultural landscape; energy-use (source and saving); long distance transfer of nutrients; economic viability; social issues: IFOAM Social Standards.

Balance between animal and plant production: self sufficiency on a mixed farm; pollution prevention; Soil fertility. 4 principles of organic farming: environmental, health, care.

Fairness, transition period to O.A.;

Reasons for transition; technical factors, problems and major mistakes in transition; Intensification of organic production; technical analysis of the farm; disadvantages & advantages in organic farming especially in Mediterranean countries

MOA.II3 - Biodiversity

Importance and quality of biodiversity in agriculture. Definition of biodiversity and agrobiodiversity and their differences. The three level of analysis of biodiversity.

Why and how to maintain high level of biodiversity. Center of biodiversity, hot spots, link between vegetation animal and human biodiversity. Germplasm conservation *in situ* and *ex situ* ; Soil biodiversity: macro, meso and micro fauna; role of different organisms in agricultural soils. Organic agriculture and soil biodiversity; farm biodiversity : planned and associated biodiversity, their important influence on agroecosystems homeostasis. Planned biodiversity and organic agriculture; associated biodiversity and their value. How to monitor biodiversity. Economic evaluation.

Section III SOIL FERTILITY MANAGEMENT

MOA.III1 - The soil: biotic and abiotic components

The soil: concepts and definitions. Soil genesis and evolution. Profile and horizons. Soil in natural ecosystems. Hydrological cycle. Mineral components. Particle size distribution. Tenure and porosity. Specific surface and surface charge. Non silicate minerals (carbonates, phosphates, oxides and hydroxides, etc.). Silicates and phyllosilicates. Tetrahedron, octahedron, planes, sheets, layers and crystals. Soil phyllosilicates properties and relationships with soil fertility and quality. Organic components. Inputs and outputs. Soil organic matter classification. Carbon cycle. Organic Matter transformation processes in soil: mineralization and humifications. Properties and functions of organic matter and humus in soils and in the environment. Integration of soil organic fertility. Agronomical aspects of organic matter cycling. Field sampling and practical laboratory. Theory of sampling; subsampling. Soil sampling and sample preparation. Moisture content. Particle size analysis and texture determination. Organic carbon analysis. pH analysis. Electrical Conductivity (EC). Nitrogen determination: Kjeldhal procedure. Available Phosphorous. Exchangeable cations. Total carbonate.

MOA.III2 - Composting and biomass recycling

A short essay on soil fertility evaluation; Soil organic matter balance; Soil fertility management according to the EC rule 2092/91

Cover crops: benefits and disadvantages; Recycle of not treated farm residues: effects on soil fertility; Recommended conditions for the composting; Raw materials and their main features; Composting process: active composting time, curing phase; Parameters of composting process

Stability and maturity tests on finished compost; Quality compost; Compost tea: production, main features and application

Uses of compost; Home, on farm and industrial composting

MOA.III3 - Impact of fertilization and crop rotation on soil properties and crop growth

Soil biological activity. Impact of fertilization on soil properties: Fertilization, why and how? Objectives of fertilization, short overview on available fertilizers, biodynamic aspects of fertilization, soil organic matter, humus and soil organisms; functions of soil life; effects of different fertilizer types; soil physical parameters; nutrient turnover and supply; the problem of synchronisation and competition. Impact of crop rotations on soil properties and crop growth: General functions of crop rotation; rotation systems with annual/perennial crops; nitrogen management in crop rotations.

MOA.III4 - The role of ruminant in animal-soil-plant system

General basic principles of an ecosystem: mineral cycle; water cycle; energy flow and community dynamics; Ruminants behaviour and feeding in organic animal husbandry; Physiology basic; Practical techniques; Organic breeding and the characteristics of the chains of the animal husbandry products; Guidelines for the sanitary management of organic livestock farming in compliance with EEC Reg. 1804/99.

Section IV PEST, DISEASE AND WEED MANAGEMENT

MOA.IV1 - Organic pest and disease management

Biological Control of Insect Pests; Scope and significance. Classic Biological Control. Conservation Biological; Control. Augmentative Biological Control. Integrated pest management; Current situation on Biological Control. Critical evaluation of Augmentative Biological Control.

Insect Parasitoids and Ecological Infrastructures: Environmental management to enhance Biological Control in Agroecosystem. Life history of insect parasitoids. Chemical ecology of insect parasitoids.; Generalist vs specialists. Functional biodiversity.

Pathogens as a Biological Control for Insect Pests: Introduction. Virus. Bacteria. Fungi. Nematodes. *Bacillus thuringiensis* in Biological Control. Current usage and prospective. Future utility of different pathogen types.

MOA.IV2 - Biological control

Methods and tools for organic pest management: Generalities on pest management in organic farming; rules and products for plant protection permitted in European organic farming. Phytophagous groups and their management in organic farms: crop practices and possible interventions.

Pest management in Mediterranean organic crops: Pest control in citrus orchards (scale insects, Mediterranean fruit fly, whiteflies, aphids, ants, lepidoptera, thrips, mites and their predators); pest control in olive growing (*Bactrocera oleae*, *Saissetia oleae*, *Euphyllura olivina*, *Prays oleae*, *Palpita unionalis*, *Otiorrhynchus cribricollis*, *Zeuzera pyrina*); control of aphids and whiteflies in melon fields.

Case studies: Control of olive fruit fly in Sicilian organic olive groves, Spontaneous flora and predators of mites, Biological control of *Phyllocnistis citrella* by parasitoids in Sicily.

MOA.IV3 - Weed control

The importance of weed management in organic agriculture. The approach to weed management in organic agriculture. Conceptual differences between conventional and organic systems as related to the effects of agricultural practices on weed population/community dynamics, Integrated Weed Management Systems (IWMS); Essential knowledge of weed biology and ecology: biological and ecophysiological groups, ecophysiology of weed germination, emergence/early growth, reproduction and dispersion; Essential knowledge of crop/weed interactions in Mediterranean agroecosystems: competition for nutrients and water, allelopathy, parasitism; Preventive weed management: soil tillage and false seedbed technique, Cover crops: dead mulches and green manure, Soil solarisation: effect on weeds; Cultural weed management: Crop genotype choice; Crop spatial arrangement; Cover crops: living mulches, Other types of mulching; Overview of direct non-chemical weed control methods; Mechanical weed control in small grain crops: the spring-tine harrow. Intra-row mechanical weed control in row crops: hoes, split-hoe. In-row mechanical weed control in row crops: finger weeders, torsion weeder, brush weeders, etc.

Thermal weed control: flame-weeding and soil steaming. "Holistic" weed management in organic agriculture: a case study. Positive functions of weeds in agroecosystems. On-field weed scouting: planning and data analysis.

Section V QUALITY, SAFETY AND POST-HARVEST HANDLING OF ORGANIC CROPS

MOA.V1 - Food quality and safety

Food quality control: physicochemical analysis; sensory analysis food quality systems (ISO 9001:2000); food safety issues: implementation of HACCP; related legislation; materials in contact with food (list of materials, acceptable limits; for metals, monomers, oligomers, migration problems; allergens; contaminants; additives; animal drugs and residues; pesticides, herbicides; heavy metals traceability: fundamentals of traceability systems; purposes of introduction of traceability systems and important; considerations; recording and storing of information at each stage/mechanism for food identification; internal inspection and third-party inspection.

Implementation of ISO 22000; food crisis management

Case studies: dioxins, acrylamide, sudan red 1, pesticides, BSE

MOA.V2 - Processing and packaging of organic agro-food products

Novel technologies (presentation, advantages and disadvantages): high pressure; high pulses; irradiation (X-rays); ohmic heating; Hurdle technology; Aseptic Packaging; Active Packaging; classical technologies: canning; freezing; cooling; pasteurisation; sterilization. Plant Waste Treatment Technologies.

Section VI ORGANIC STANDARDS AND LEGISLATION

MOA.VI1 - Certification and accreditation schemes

Introduction to objectives, patterns, trends, and options for regulatory frameworks from local to global scales; organic principles, practices, and sustainability in the context of organic standards; processes for setting standards; rationale and need for accreditation and related achievement of credibility in different markets; common and essential aspects of all organic standards for crops, livestock, and processed goods; overview of the certification and inspection process; working with existing programs versus development of new programs; alternative certification programs such as fair trade and participatory guarantee systems; use of real-world examples of certification and accreditation program requirements; market access through certification and accreditation; use of real-world case examples to illustrate standards compliance and challenges faced by certifiers and operators.

MOA.VI2 - Mandatory and voluntary regulatory systems

Mandatory and voluntary norms, Quality definition and needs; certification; product/process certification; quality management system certification (standard ISO 9001:2000; environment management system certification (standards ISO 14001:2004); Personnel certification (Conformity Assessment Bodies CAB); organic farming = product certification; certification system: organizational structure of a certification board and features of a subcontractor. Certification of a processing unit and evaluation of specific: accreditation of product, certification bodies requirements; technical competence of certification bodies; professional ethics of CB; incompatibility between certification and advice services; mandatory basis in council regulation (EEC) 2092/91; procedures of organic product importation in the EU.

MOA.VI3- Auditing in Organic agriculture

Organic regulations in developing countries.

International, Community, national and regional standards on organic agriculture; Requirements and objective evidences in the Community Regulation n° 2092/91; Introduction to the audit: Audit conduct, Audit planning; Interpretation and utilisation of check-lists; The Auditor's figure System management standards (UNI EN ISO 9000) and UNI EN 45011 (Iso guide 65). Analysis of the self-inspection plan; Collection, classification and recording of non-compliances through the analysis of farm cases; drawing of the audit report.

Section VII

GLOBAL MARKETS AND MARKETING FOR ORGANIC AGRO-FOOD PRODUCTS

MOA.VII1 - Principles of agro-enterprise

Economic behavior of consumers and producers and market interaction; organic supply chain structures, growth and conventionalisation; marketing principles and organisations; management and finance principles for organic agribusiness; the social and environmental context for organic agribusiness; the economics of organic conversion.

MOA.VII2 - Linking organic farmers to global market

Basics of developing country value chain and marketing issues; Essential skills of organic business and marketing; Accessing global markets: Targeting global markets and shift in marketing requirements; Producer capacity: limitations and opportunities; Marketing mechanisms: role of standards and certification; Policy and the domestic market: role of public institutions and private sector; Domestic markets: different approaches.

MOA.VII3 - Marketing of agro-food products

Marketing and agri-food marketing; Marketing strategy; Consumer behaviour; Market segmentation, Targeting and positioning strategies; Consumer and positioning of organic food; Product policy; Distribution policy (Place); Promotion an marketing communication policy; Price policy; SWOT analysis.

Section VIII

ASSESSING POLICY AND SOCIO-ECONOMIC IMPACTS OF ORGANIC FARMING

MOA.VIII1 - Support policies for organic farming

Motivations for public intervention, unsatisfactory growth, farming systems, conditions for development. Stakeholders, purposes, typologies of policies. Structural policies: access to land, agricultural credit and land reforms. Labor policies for independent producers and hired workers. Research innovations and agricultural extension. Market policies, state intervention and price control. From agriculture to rural development. The World Bank Strategy. Strategic communications for empowering stakeholders

MOA.VIII2 – Assessing Policy and Socio-economic impacts of organic farming

History of changes in the public perception of organic farming; Micro level (of the community and extension) Example of Zambia; The macro level of agricultural policy; The potential of Organic Farming for Poverty reduction micro level and macro level of the farm strategies; Dangers and pitfalls in the current development of organic farming in a globalize context; Standards not always adapted to local conditions, Organic farming without social standards; The power of certification; The production of luxury items for rich countries.

Section IX FARM ECONOMICS AND MANAGEMENT

MOA.IX1 - Principles of farm economics

The farm management: theory and evolution; direct and indirect production factors: land, farm capital, labor etc.; tasks of the decision maker; decision-making process and information collection; depreciation of fixed capital; farm Balance sheet: quantification of net worth (or net asset, or equity); models of economic calculations: farm income; cost analysis; return on investments; break-even point; calculations of partial budgeting (crop and livestock productions); income statement: format analysis; cash flow analysis; debt repayment capacity, ROI, ROE, etc.; calculations of break-even point; sales analysis; farm investment, investment opportunities, ROI, ROE etc.; cost of machinery operation; return on investments.

MOA.IX2 - Whole farm planning, design and management

Agroecological basis for whole farm planning, design and management. Ecological crisis of modern agriculture; review of concepts and principles of agroecology; soil ecology and management; biological control of insect and pests; agroecological basis of conversion; biodiversity and pest management; methods and considerations in whole farm analysis and planning; indicators of sustainability; design principles for habitat management; landscape ecology: farm planning at a more regional level and agroecosystem analysis; agroecology and sustainable rural development.

Section X ORGANIC MEDITERRANEAN COMMODITIES PRODUCTION

MOA.X1 - Vegetable crops

Importance of vegetable crops in relation to diversification, cropping systems and biodiversity; organic protected cultivation under low tunnels and greenhouses: structure and plastic films; physiological aspects of vegetables: growth, flowering (temperature and photoperiod effects) and fruit development, of tuber and bulb formation; Planning and establishing an organic vegetable farm; Seed production and nursery management in organic vegetables; fertilization and mineral nutrition in organic vegetables; pest and disease control in organic vegetables: preventive and curative measures; weed control in organic vegetables: preventive and curative measures; cultural practices in organic vegetables: irrigation, mulching, fruit setting, pruning; crop rotation in organic vegetables; growth, development and growing SECTION of some organic vegetables: onion, potato, tomato, pepper, cucurbits, strawberry, artichoke and asparagus.

MOA.X2 - Fruit trees

Botany, morphology and growth of fruit Trees; temperate fruit trees; subtropical fruit trees; cultivars and rootstocks: propagation and orchard establishment; orchard design and establishment. Biological control of tree growth; irrigation and water requirement. Organic fertilization; animal manure; compost; organic fertilizers; mineral fertilizers; orchard floor management; cultivation; cover crops; mulching; soil fertility and tree nutrition; nitrogen; potassium; phosphorus; calcium; orchard health management; organic pest control; organic disease control; weed management.

MOA.X3 - Olive growing

The need for organic olive production, an agroecological analysis; olive orchard as an agroecosystem: elements and processes. Designing and disseminating organic olive production systems; planning and establishing organic olive orchards; regulation of olive tree size in organic olive orchards. Diversity in the organic olive orchards; ecological infrastructure in organic olive orchards. indicators of sustainability and diversity in olive orchards; management of the grove floor. Cover cropping in organic olive orchards; root characteristics and physiology; mineral nutrient availability and nutrient uptake in organic olive orchards; olive tree nutrition in organic olive orchards. Fertilisation in organic olive orchards; plant protection in organic olive orchards; water management in organic olive orchards; harvesting and processing organic olives; quality in organic olive production; inputs and input efficiency in organic olive orchards. Life section analysis in organic olive orchards.

MOA.X4 - Viticulture

Botanical classification, essentials of grapevine anatomy and physiology - the vineyard agroecosystem (vocational aspects, climate and soil systems) naturalness elements – criteria for the choice of rootstocks and of table and wine varieties - soil preparation – establishing the vineyard - training systems - propagation – rootstocks – nursery activities – greenhouse industry – winter and green pruning – soil tillage – pollution-induced disorders – fertility management – cover crops – green manuring – organic matter – crop residues – cover cropping – types of cover cropping – species used – water resources management – biocoenosis (pests, beneficial insects, alternatives and beneficial plants). Insects (European grapevine moth – thrips – phylloxera – otiorrhynchus – mites – mealybugs – bostrichidae). Fungi (downy mildew – powdery mildew- grey mold- Phomopsis cane and leaf spot (dead arm disease in American literature; excoorse in Europe) –armillaria – eutypa dieback – black and white rot – Verticillium wilt – esca disease). Bacteria. Virus diseases (fanleaf, leafroll, rugose wood complex, fleck, vein necrosis, bushy stunt). Damages by technical means allowed by Reg. EC 2098 Annex II. Genetic disorders.

Section XI

PROJECT

Throughout the Course, participants carry out supervised group project on different topics of organic management introducing the approach to research in organic farming. This project enables participants to:

- (i) Understand the effects of agro-ecological designs on experimental research;
- (ii) Apply the theoretical concepts learned during the formal instruction (Organic principles, Soil fertility management, plant protection...etc);
- (iii) Develop skills on data monitoring, collection and processing;
- (iv) Improve report writing and oral communication skills;
develop group potentialities by stimulating individual skills.

Topic available for practical activities:

The effects of cover crops alone or in mixtures under different fertilization regimes on weed suppression
Estimating the critical weed competition period in Fava bean
Effects of mulching on soil moisture and crop yields
Soil management and crop resiliency to drought

Part 2

The Master of science program

Project (12 months duration, 60 ECTS)

Research activities: topics generally available for Master of Science theses

- Agro ecosystem management and organic cropping systems;
- Energy balance of agricultural production;
- Biodiversity protection, enhancement and preservation;
- Soil fertility management and evaluation of application of compost and compost tea in organic agriculture;
- Isolating and identifying the new biological control agents to be used in olive and grapevine production;
- Organic farm performance analysis;
- Consumer research and supply chain analysis;
- Organic policy analysis.

INDICATIVE MASTER THESES REALIZED WITHIN THE AREA

Title: Effect of Annual Self-reseeding Legumes on Subsequent Crops (Particularly Durum Wheat) into a long-term Rotation Program under Organic Farming

Author: Elias Wehbe, Agronomist , Lebanon (2005)

Place of Realization: Experimental farm & Soil Lab of IAM-Bari

Thesis director: Fabio Caporali and Lina Al-Bitar

Title: Influence of new socio-political forces on land use, and on farm and landscape biodiversity in Bosnia and Herzegovina (study areas: Banja Luka and Derventa) Motivations towards farming in Lebanon: a Comparison between organic and conventional farmers

Author: Markovic Dimitrije, Agronomist, Bosnia- Herzegovina , (2005)

Place of Realization: IAM-Bari

Thesis director: Concetta Vazzana and Jenny Calabrese

Title: Presence of predators and parasitoids of *Lobesia botrana* Den. & Schiff. (Lepidoptera: Tortricidae), in the Mediterranean vineyard

Author: Amira Ben Mosbah, Agronomist, Tunisia (2005)

Place of Realization: Insectarium of IAM-Bari

Thesis director: Teodoro Moleas and Vito Simeone

Title: Organic agriculture in Algeria: recent development and future prospects in a changing institutional setting

Author: Hadjira Houria ABDELLAOUI, Agronomist, Algeria (2006)

Place of Realization: IAM-Bari

Thesis director: Omar Beassoud and Patrizia Pugliese

Title: Different organic fertilization effects on organically cultivated broccoli (*Brassica oleracea var. italica*)

Author: Mohamed Hewidy, Agronomist, Egypt (2006)

Place of Realization: Experimental field of IAM-Bari

Thesis director: Mohammed Ben Khedher and Claudio Cocozza

Title: Agronomic performance of annual self-reseeding legumes under Mediterranean climate in Southern Italy
Author: Fady ABOU FAYAD, Agronomist, Lebanon (2006)
Place of Realization: Experimental field of IAM-Bari
Thesis director: Fabio Caporali, Lina Al Bitar and Nouredin Driouech

Title: Efficiency in the conversion of productive factors and energy consumption on organic farms
Author: Suzy ROUPHAEL, Agronomist, Lebanon (2006)
Place of Realization: IAM-Bari
Thesis director: Concetta Vazzana and Jenny Calabrese

Title: Screening and Identification of new biocontrol agents (BCAs) against grapevine powdery mildew
Author: Haya ABOU ASSAF, Agronomist, SYRIA (2006)
Place of Realization: Experimental field of IAM-Bari
Thesis director: Ilaria Pertot and Vito Simeone

Title: Feasibility study on the introduction of organic agriculture in the oasis systems: case of Drâa Valley in South East Morocco
Author: Hind AIT BATHAR, Agronomist, MOROCCO (2006)
Place of Realization: IAVCH Agadir- MOROCCO
Thesis director: Lahcen Kenny and Annarita Antonelli

Title: Effects of compost tea on Potato and Zucchini crops
Author: Meriem MRAD, Agronomist, TUNISIA (2006)
Place of Realization: CTAB-Chott Mariem-TUNISIA
Thesis director: Mohammed Ben Khedher and Vincenzo Verrastro

Title: The use of antagonistic microorganisms and natural compound in the grapevine powdery mildew
Author: Erjon MAMOCI (ALBANIA, Agronomist, ALBANIA (2007)
Place of Realization: IAM of Bari -ITALY
Thesis director: Ilaria Pertot and Vito Simeone

Title: Influence of compost water ratio, extraction time, storage duration and storage temperature on compost tea quality
Author: Kamrul ISLAM MD, Agronomist, BANGLADESH (2007)
Place of Realization: IAM of Bari -ITALY
Thesis director: Mohamed Benkhedher , V. Verrastro and Claudio Coccozza

Title: Integration of annual self-reseeding legumes into a rotation programme under Mediterranean organic cropping systems
Author: Ala'a GHANEM (JORDAN, Agronomist, JORDAN (2007)
Place of Realization: IAM of Bari -ITALY
Thesis director: Fabio Caporali , Nouredin Driouech and Lina Al-Bitar

Title: Institutions and policy development for organic agriculture in Western Balkans countries. A comparative analysis
Author: Kanj Trad HAMADE , Agronomist (LEBANON) (2007)
Place of Realization: IAM of Bari -ITALY
Thesis director: Peter Midmore and Patrizia Pugliese

Title: Organic market development in the Republic of Macedonia
Author: Iva MILENKOVIC ,Agronomist (MACEDONIA) (2007)
Place of Realization: IAM of Bari -ITALY
Thesis director: Raffaele Zanolì and Roberta Callieris

Title: Effects of different soil building crops and different fertilization programs on potato in Mediterranean Organic farming system: Tunisian case

Author: Mahmoud EL SHOKARY , Agronomist (EGYPT) (2007)

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Title: Effects of seaweed extracts on citrus growth, yield and pests

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Title: Effect of rotation and soil building crops on Tomato crop and soil fertility

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Title: Effect of rotation and fertilization on Tomato in the Mediterranean organic farming system: case of Turkey

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