



MASTER OF SCIENCE PROGRAMME IN “INTEGRATED PEST MANAGEMENT OF MEDITERRANEAN FRUIT TREE SPECIES”

ACADEMIC YEAR 2011 - 2012

Objectives

The Master of Science Programme in IPM of Mediterranean Fruit Tree Species has been designed to train graduate agronomists and biologists in modern and sustainable integrated management of economically important pests affecting citrus, grapevine, olive, palm, pome and stone fruits in the Mediterranean basin.

In order to prevent pests from reaching unacceptable levels, or to reduce existing pest populations to acceptable levels, emphasis is placed on all suitable techniques in a total management system for a lasting preservation of the environment and of natural resources.

The main objective of the Course is to prepare experts in IPM able to apply and transfer:

- ❖ The basic principles of IPM with emphasis on the bio-intensive strategy for an effective management of undesirable pests present in the Mediterranean;
- ❖ The monitoring and control of quarantine pests;
- ❖ The use of certified propagating material, produced in the framework of clonal and sanitary selection, as a compulsory proactive IPM strategy for the improvement of Mediterranean fruit trees;
- ❖ The monitoring and identification of key pests of fruit trees present in the Mediterranean;
- ❖ The sound management of key pests through the application of environmentally-friendly means of control;
- ❖ The application of the IPM strategy to each specific Mediterranean fruit tree species.

During the second year, students who have successfully completed the first year and have met all the pre-requirements set by the Institute carry out an experimental research work to draw up a thesis on one of the topics covered during the first part of the MSc programme. The aim is to promote the transfer of knowledge to and between the Mediterranean countries.

The scientific outcome of the research work is usually announced on the occasion of International Conferences and/or published in scientific journals.

ORGANIZATION

First Year: 60 ECTS

- ❖ Ten Units 56 ECTS
- ❖ Individual Project 4 ECTS

Diploma: “Post Graduate Specialization”

Second Year: 60 ECTS

- ❖ One Unit 10 ECTS
- ❖ ‘Master of Science’ thesis 50 ECTS

Diploma: “Master of Science” of CIHEAM

ACCESS TO FURTHER STUDIES

Students who have been awarded the CIHEAM ‘Master of Science’ Degree have access to PhD studies in Italian, European and American universities.

Some PhD programmes are carried out in the framework of a fruitful collaboration between several Italian/foreign Universities and MAIB.

ADMISSION

Selection of students is based on the evaluation of application documents.
Required level: High School Degree + 4 years (or an academic level qualifying the applicant to undertake postgraduate studies in his country), in the fields of Agricultural sciences, Biology and Biotechnology (with basic background on plant pathology).

Deadline for receiving applications: **June 30, 2011**

Registration fees amount to 230,00€/year. Tuition fees amount to 500,00€/month (without including travel, accommodation and insurance expenses).

BENEFICIARIES & SCHOLARSHIPS

MSc programmes are open to candidates of any nationality. In particular, courses are addressed to:

- ❖ managers of national research centres or public administrations in agriculture-related fields;
- ❖ researchers or assistants from Academic institutions;
- ❖ officers of agricultural extension service bodies;
- ❖ graduate students not yet involved in production or research activities;
- ❖ professionals and farm managers.

A few scholarships are granted every year. Priority is given to applicants from Southern and Eastern Mediterranean and Middle Eastern Countries. Candidates should directly send their applications to MAIB before June 30, 2011 (for further details: <http://www.iamb.it>).

LANGUAGE OF INSTRUCTION

English



Postgraduate Specialisation Programme, 60 ECTS

(November 2011 – June 2012)

Unit I: Introductory Disciplines

Scenarios of shared knowledge, techniques and technology of search. English language and IPM general concepts.

Unit II: Identification and Control of Pathogens

Introduction to the study of bacteria, fungi, viruses, virus-like agents, nematodes. Morphology, physiology, life cycle, multiplication, taxonomy, diagnosis/ identification of pathogens using classical and molecular methods. Pest risk analysis. Conventional and non conventional control techniques. Plant tolerance and resistance to pathogens.

Unit III: Identification and control of pests, weeds and abiotic disorders

Introduction to the study of insects, mites, weeds and physiological disorders. Morphology, physiology, life cycle, multiplication, taxonomy, diagnosis of pests using classical and molecular methods, Weeds classification and ecology. Identification of physiological disorders. Pest risk analysis. Conventional and non conventional control techniques. Plant tolerance and resistance to pests and abiotic disorders.

Unit IV: Quality and Safety

International quality award systems, cost-effective quality management, quality improvement, environmental management system, food safety and Hazard Analysis Critical Control Points (HACCP). European regulations on plant protection products, the significance and definition of maximum residue allowed and minimum safety interval. Official guidelines on IPM. Systems for the quality certification in the agri-food sector.

CROP LIFE DIPLOMING COURSE

Training model; approaches to training; circle of competence; learning theory; key processing styles; brain power; key learning styles; facilitating rainbow; facilitating feedback; audiovisual support; flip tips; performance; body language; preparation to train; seating patterns; spot checks; evaluation; follow-up; training administration.

Unit V, VI, VII, VIII, IX: Integrated Pest Management of Olive, Citrus, Pome & Stone Fruits, Grapevine, Palm Tree Species

Morphological, ecological, epidemiological characteristics of key pests and pathogens affecting the species included in each unit. Pest/pathogen monitoring, identification and IPM control in accordance with the specific regulations.

Unit X: Application of IPM procedures, Quarantine & Certification Programmes

Application of IPM guidelines in commercial orchards of each fruit tree species. Quarantine principles and international regulations of plant pests. Main quarantine pests affecting fruit tree species of Mediterranean importance and control programs. Principles and international regulations of clonal and sanitary selection and certification of propagating material.

Unit XI: Individual Project

Drafting of a document and presentation of project work on the historical review of a specific phytosanitary problem affecting the fruit tree species under study.

Master of Science Programme, 60 ECTS

(November 2010 - October 2011)

Unit I – Preparatory Research Methodology

Supervised Research work (Master's thesis)

Topics generally available for Master of Science theses:

- ❖ **Viruses, viroids, phytoplasmas and virus-like agents** of Mediterranean fruit tree species: characterization (biological, physico-chemical and molecular), epidemiology, diagnosis (biological, serological and molecular), distribution and incidence in Mediterranean countries, sanitation.
- ❖ **Fungal and bacterial diseases** of Mediterranean fruit tree species: characterization, epidemiology, diagnosis (biological, serological and molecular). Prevention and biological control. Toxins of fungal origin. Assessing damage and losses.
- ❖ **Nematodes and insects;** Surveys, Characterization (biological, and molecular). Damage. Epidemiology, role in virus transmission in Mediterranean fruit tree species.

Course Coordinator

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