International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM)

Mediterranean Agronomic Institute of Chania

Academic Year *2018 - 19*

M.Sc. in Sustainable Agriculture (120 ECTS)

The postgraduate on Sustainable Agriculture is a two-year programme for graduates holding a university Bachelor degree in Agriculture or other related sciences leading to a Master of Science degree (120 ECTS).

In the first year participants follow the programme to: i) be introduced to agroecology, environmental indicators of integrated crop management and organic farming systems; ii) familiarize themselves with the certification systems of environmentally friendly and sustainable agricultural production; iii) present the latest advances in the management of soil, water and genetic resources in agriculture; iv) be exposed to a thorough background of crop protection; v) get acquainted with automation and modern recycled soilless greenhouse production methods; and vi) understand innova-tion and communication for sustainable farming.

The qualified first-year graduates are entitled to pursue their research in an environment fully equipped with the most updated facilities.

In the second year, students who have successfully completed the first year according to the CIHEAM/MAICh specific regulations develop a thesis based on research work.

The Master of MAICh (60ECTS) is awarded to those students who successfully complete the first year requirements but do not satisfy the additional required conditions which allow them to be accepted into the second year of the M.Sc. programme (120 ECTS) as stated in the CIHEAM/MAICh specific academic regulations.

The scientific results of graduate studies are usually announced in International Conferences and/or published in world-renowned journals.

Scholarships

Qualified candidates may be eligible for scholarship covering fully or partly: tuition, teaching material, board, lodging, health insurance and compensation.

Requirements

Applicants must have the academic level that qualifies them to undertake postgraduate level studies in their home country or equivalent to a minimum of four years undergraduate studies. Their degree must also be in a discipline compatible with the area of specialization requested. Additional conditions may be required for certain programmes.

The working language of MAICh is English. Selection is made on the basis of the files submitted by applicants – priority being given to applicants from CIHEAM member countries, and takes account of their academic results, professional experience acquired in the chosen field of specialization, reference letters and their competence in English.

The documentation required by MAICh includes:

1. Academic records and transcripts
2. Graduation degree
3. Proof of english language competence
4. Two letters of recommendation.

Research Activities

- Evaluation of compost use as a substrate in hydroponic systems and plant mutrition
- Study of mediterranean insect pests activity and their bio-ecological characteristics
- Host-virus interactions essential for virus replication and resistance
- Genetic basis of weeds resistance to herbicides
- Comparison of nutrient and energy budgets of conventional and organic farming systems as environmental indicators

How to Apply

Applications to study at MAICh must be made through the online application form that can be accessed by this link:

https://www.iamc.ciheam.org/education/admissions

Information

For more information, visit our website at: https://goo.gl/k3ozpS or send inquiries to livieratos@maich.gr

Educational Sequence

The programme is organized in 9 Units (60 ECTS)

Semester I

October 2018 — February 2019

SAG520.11512.0 - INTRODUCTION TO SUSTAINABILITY (15 ECTS)

Content: Agroecosystems and Population Dynamics
Agro-Environmental Impact Assessment and Farm Management
Ecotoxicology
Quality Assurance & Good Agriculture Practices

SAG530.1712.0 - NATURAL RESOURCES MANAGEMENT (7 ECTS)

Content: Water Management
Composting Technology
Nutrient Management and Soil Fertility Improvement

SAG540.1810.0 - ASSESSMENT OF GENETIC RESOURCES (8 ECTS)

Content: Seed Production and Quality Management
Plant Breeding
Agro-Biodiversity Assessment and Management

Semester II

February 2019 — June 2019

SAG550.11510.0 - CROP PROTECTION (14 ECTS)

Content: IPM
Fungal and Bacterial Disease Management
Detection and Epidemiology of Plant Virus Diseases
Insect Management
Weed Management

SAG560.1612.0 - GREENHOUSE MANAGEMENT (6 ECTS)

Content: Greenhouse Technologies & Climate Control
Soilless Cultivation

SAG560.2813.0 - POSTHARVEST MANAGEMENT (2 ECTS)

Content: Postharvest Management

SAG510.1312.0 - BIOMETRICS (3 ECTS)

Content: Crop experimentation

SAG572.1312.1 - INNOVATION AND COMMUNICATION IN SUSTAINABLE FARMING (2 ECTS)

SAG500.1312.0 - EXTENDED ESSAY (3 ECTS)

Part 2 - The Master of Science Program (Project - 9 months duration, 60 ECTS)

Independently of the thesis thematic area, students acquire standard common competencies such as literature reviewing, hypothesis formulation and experimental design, sampling and collection of data, statistical analysis of acquired measurements, scientific writing and critical interpretation of results. Linked to the thematic area of their research work, students gain specific competencies that might fall in different groups: molecular biology techniques, soil and leaves lab analytical methods, sugars and antioxidants measurements in fruits, chlorophyll and carotenoids analysis in leaves, operation of fully automated hydroponics system

Recent Publications

Chatzigianni, M., Alkhaled, B., Livieratos, I., Stamatakis, A., Ntatsi, G. & Savvas, D. (2017). Impact of nitrogen source and supply level on growth, yield and nutritional value of two contrasting ecotypes of Cichorium spinosum L. grown hydroponically. J. Sci. Food Agriculture doi: 10.1002/jsfa.8636. [Epub ahead of print]

Blazhevski, S., A.P. Kalaitzaki and A.E. Tsagkarakis (*in press*). Nitrogen, not Potassium, Fertilization, affects the Biology of the Tomato Leaf miner Tuta absoluta (Lepidoptera: Gelechiidae). Entomologia Generalis.

Owen, C. A., Moukarzel, R., Huang X., Kassem, M. A., Eliasco, E., Aranda, M. A., Coutts, R. H. A., & Livieratos, I. C. (2016). *In vitro* synthesized RNA generated from cDNA clones of both genomic components of *Cucurbit yellow stunting disorder virus* replicates in cucumber protoplasts. Viruses 8(6), 170.

Gkisakis, V. D., Kollaros, D., Barberi, P., Livieratos, I. C. & Kabourakis, E. M. (2015). Soil arthropod diversity in organic, integrated and conventional olive orchards and different agroecological zones in Crete, Greece. Agroecology & Sustainable Food Systems 39, 276-294.

Mathioudakis, M. M., Moreno Rodriguez, L. M., Sempere, R. N., Aranda, M. A. & Livieratos I. (2014). Multifaceted capsid proteins: Multiple interactions suggest multiple roles for *Pepino mosaic virus* capsid protein. Molecular Plant-Microbe Interactions 27, 1356-1369.

Abdelrahman, M.M., Stamatakis, A. & Keramidas, V. (2013), Anionic resin extractable phosphorus as an index of phosphorus availability in calcareous soils of crete amended or non - amended with pig manure compost. Communications in soil science and plant analysis, Vol. 44, p. 1-12.

Nol, N., Livieratos, I.C. and Giannopolitis, C.N. (2012). Reduced susceptibility to glyphosate of *Conyza canadensis* plants from a conventional citrus orchard in Crete (Greece) and early detection of resistance with the shikimate leaf disc assay. Weed Research 52, 233–241.

CIHEAM MAI CHANIA

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