



Master 3A

Master in Sciences and Technologies, "Agronomy and Agro-food"

HORTIMET specialization

Option : Mediterranean and Tropical Horticulture



### Professional skills

The Mediterranean and Tropical Horticulture option (Hortimet specialization) responds to a need to train high level managers in the horticulture sector in Southern countries. The development of efficient and structured horticultural chains is required for both exportation and local markets. This is a key challenge for fruits and vegetables, which are a source of revenue (high value crops) and contribute to the nutrition, health, and well being of people. The need is strong in peri-urban areas where horticulture is a source of wealth and job opportunities. The aim is also to enhance training and research capacities in the countries involved.

Future executives need to develop multi-disciplinary skills, involving product life cycles, value chains, and the design and implementation of sustainable cropping and production systems with limited environmental impacts. Hortimet considers horticultural sectors at different scales of time and space and proposes projects for sector improvement that may include the improvement of varieties, seed and plant quality, production and its components (including product and environmental quality), storage, distribution and/or processing. The programme requires an understanding of horticultural systems operations, horticulture markets and their governance (regulations and norms), and the implementation of a systemic approach.

### Admission requirements

#### Initial training

For M1, graduates of a three year degree programme (equivalent to bac+3 - a certificate or BSc) in the fields of biology or agronomy. For M2, graduates of a four year degree programme (equivalent of bac+4) or higher in the same fields.

#### Continuing education

Hortimet is open to individuals working in the fields of agricultural production and consulting within the framework of their companies training programme or on an individual training sabbatical. The validation of skills gained through experience and the organisation of the training course in cumulative units enables individualized training pathways adapted to different situations. The training can be spread out over time when needed.

#### Admissions

Applications must be submitted before June 15 to the Direction de l'Enseignement et de la Vie Etudiante Montpellier SupAgro (Office of Education and Student Life, see link below). Admissions are based on applications and depend on place availability.

### Career Prospects

The reduction of horticulture training programmes poses grave consequences for Southern countries, for example in Africa. National malnutrition prevention and environmental protection programmes require advanced technologies, skills, knowledge and experience based on solid academic training, both disciplinary (agronomy, ecology, ecophysiology, genetics, crop protection, engineering sciences, etc) and inter-disciplinary (agro-ecological engineering, crop effluents and waste management, maintenance of product health and nutrition quality). Priority thus is given to training highly skilled horticulture managers with a background in system agronomy, integrated crop protection and chain economics.

The proposed course aims to respond to the need on the one hand to train young research scientists destined to work in the fields of new variety selection, agro-ecological engineering, bio-aggressor control, product development and local sector economics, and, on the other, to train teachers, production managers, and heads of experimentation and extension services working with professional organisations and private horticulture companies.

### Course structure and partner organisations

Hortimet is a joint training programme of Montpellier SupAgro and AgroCampus Ouest Centre of Angers, combining their respective academic capacities. The programme is organized in cooperation with CIRAD and INRA, organisations involved in horticultural research and development programmes in tropical and Mediterranean countries. The research teams working in Avignon-Montpellier and Angers-Rennes-Nantes will work closely with the programme. Hortimet is supported furthermore by the Global Horticulture Initiative (GlobalHort) and its associated international research network. Professionals from the horticultural sectors also will participate in the training (visits, field studies).

The M1 course, shared by the different Agronomy and Agro-Food Master programme specializations, combines the upgrading of skills and a work placement on a farm or in a small business with an analysis of agricultural systems, training in scientific reasoning, and a bibliographic synthesis. The second semester of M1 is composed of a series of optional teaching units (TUs) put together by each student with the help of his (her) supervisor.

The actual Mediterranean and Tropical Horticulture course (M2) is composed of 10 TUs and ongoing activities (individual project) leading to a synthesis presented to a multi-disciplinary jury. Introductory lectures present the stakes of sustainable development in the agricultural sector and the challenges facing technological and organisational innovation in this context.

Teaching, mainly given in the French language, is divided between Montpellier SupAgro and AgroCampus Ouest, Centre of Angers. The M2 course includes 170 hours of biotechnical sciences (agronomy, genetics, crop protection), 120 hours of engineering sciences (biometrics, technologies), and 120 hours of economic and social sciences (individual project work not included). The programme ends with a six-month internship (in France or overseas) in a professional organisation, horticultural firm, or research unit, leading to a Master thesis defended before a jury.





### Course Programme

The M2 training programme takes place over one university academic year.

#### Description of Semester 9 (30 ECTS)

The semester is composed of 10 teaching units (TU 1 to 9) and one TU project:

- /// TU 1 : Statistics, data processing and spatial representation (3 ECTS)
- /// TU 2 : National and international context and challenges facing horticultural sectors (2 ECTS)
- /// TU 3 : Integrated crop protection in tropical horticulture (3 ECTS)
- /// TU 4 : Analysis of horticultural cropping and production systems (1st part): agro-ecological approach to sustainability (3 ECTS)
- /// TU 5 : Conservation and processing of tropical and Mediterranean fruits and vegetables (3 ECTS)
- /// TU 6 : Genetic diversity, selection and plant breeding (3 ECTS)
- /// TU 7 : Analysis of horticultural cropping and production systems (2nd part): peri-urban systems and sheltered crops (3 ECTS)
- /// TU 8a : Seeds and transplants for tropical and Mediterranean horticultural production (3 ECTS)
- /// TU 8b : Seed and plant pathology (2 ECTS)
- /// TU 9 : Development, assessment and valorisation of fruit and vegetable quality (3 ECTS)
- /// TU 10 Project : Organisation of a tropical and Mediterranean horticultural chain. (3 ECTS)

### Semester 10 (30 ECTS)

A six-month internship concludes the Master programme. The objective of this internship is to valorise the knowledge and work methods acquired through the training during semesters 7, 8, and 9, and to acquire skills and experience in a field in which students wish to work.

The internship is based on an agreement between the school and the structure receiving the student.

The choice of internship, methodology, and work plan are defined by the intern with his (her) internship supervisor after receiving the approval of the training programme.

The internship concludes with the public defence of a Master thesis.

Coursework will take place at Montpellier SupAgro and AgroCampus Ouest Centre of Angers. A detailed description of the TUs is available upon request.

### Contact and information:

Additional information and application forms are available through the websites of Montpellier SupAgro: [www.supagro.fr](http://www.supagro.fr), and AgroCampus Ouest Centre of Angers: [www.agrocampus-ouest.fr](http://www.agrocampus-ouest.fr)

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