



Synergies between research and training in front of the challenges of climate change: The example of Montpellier Sup Agro – INRA

5th Israeli wine convention in Rosh-Pina
25th of May 2014



patrice.lallemand@supagro.inra.fr

AGROPOLIS
INTERNATIONAL

Montpellier's research network

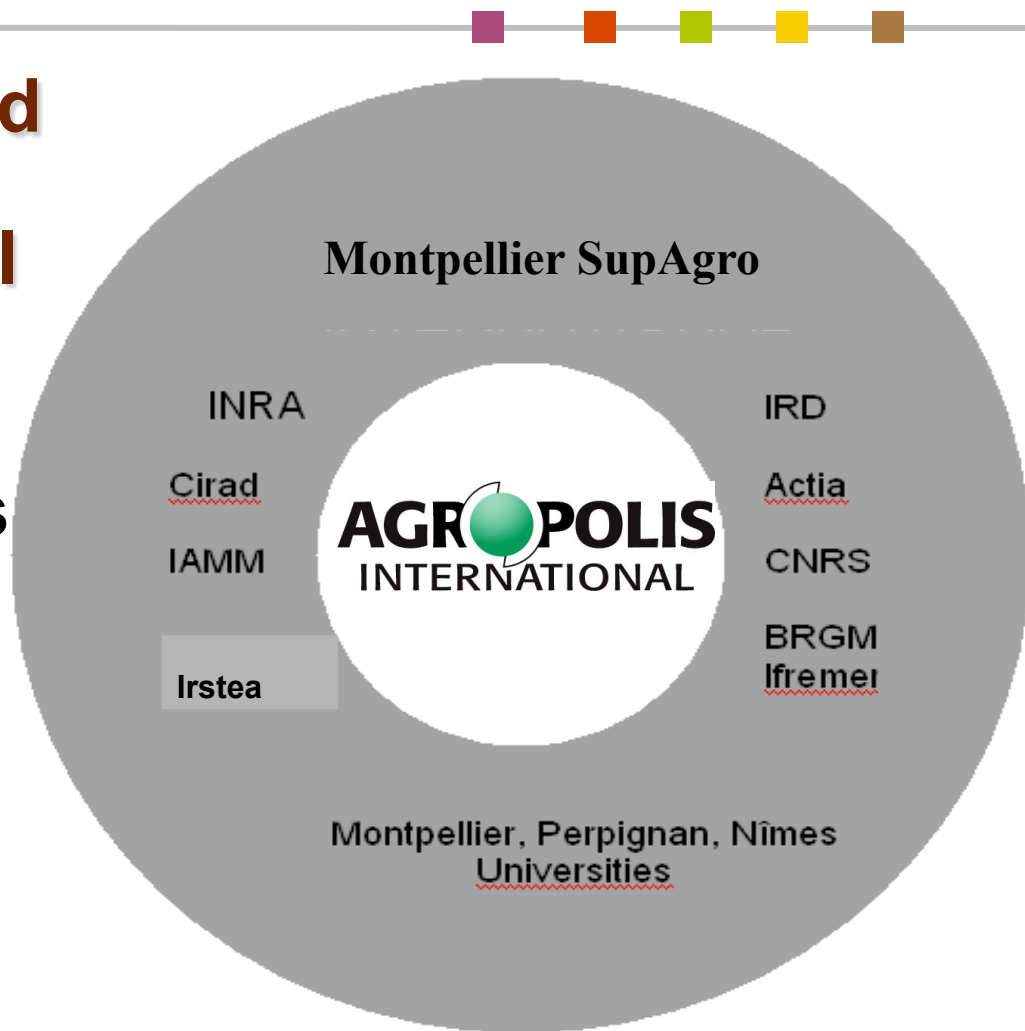
One of the most important centers in Agronomy in the world

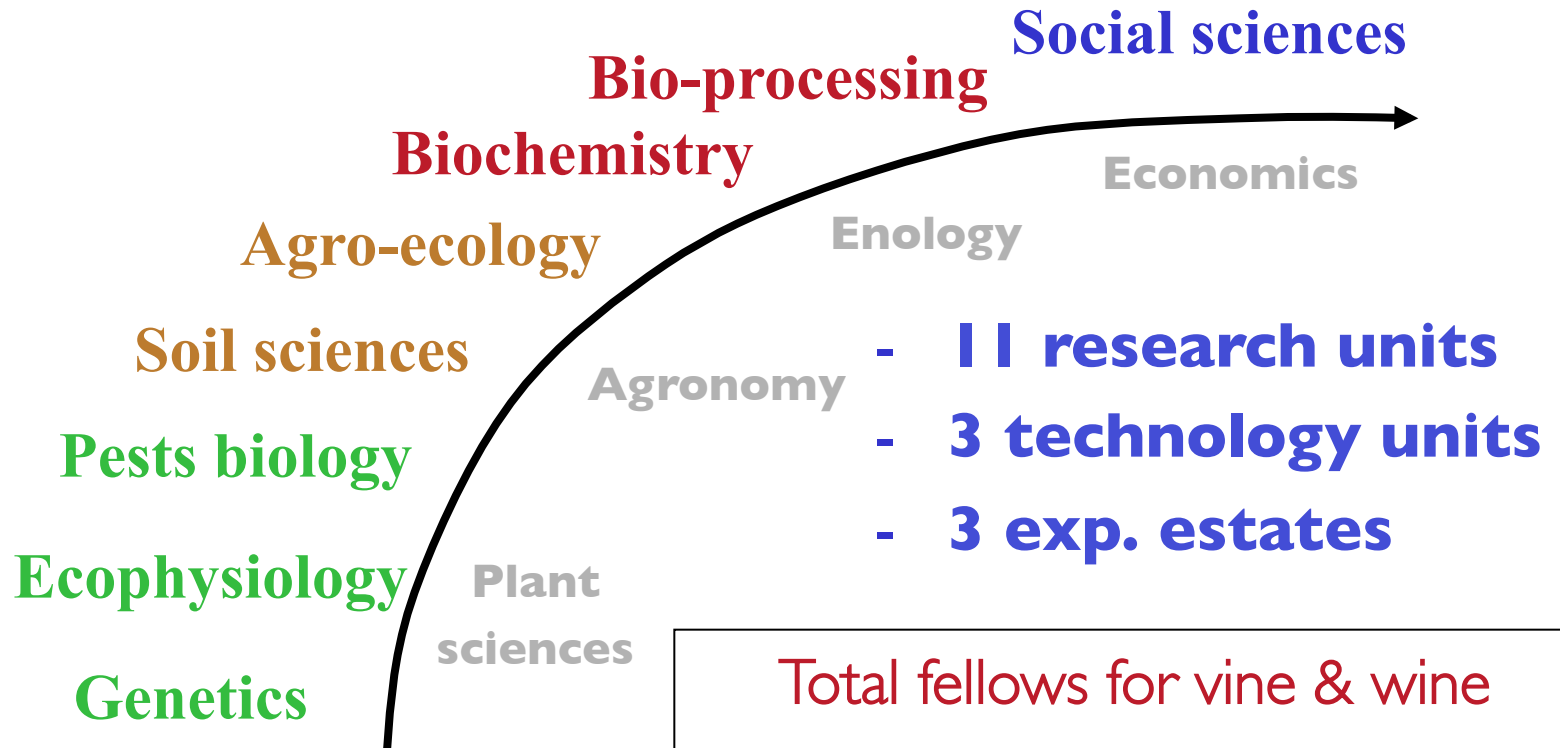


Agriculture, food, biodiversity, ecology, environment

A cluster of research and higher education institutes in agricultural sciences...

- ❑ 2300 scientific fellows
- ❑ 1263 PhD students
- ❑ 80 research units





Total fellows for vine & wine
 Researchers = 102
 Ph. D = 25

LACCAVE : Metaproject 2012-2015 :

23 French Research Units

7 Work packages :

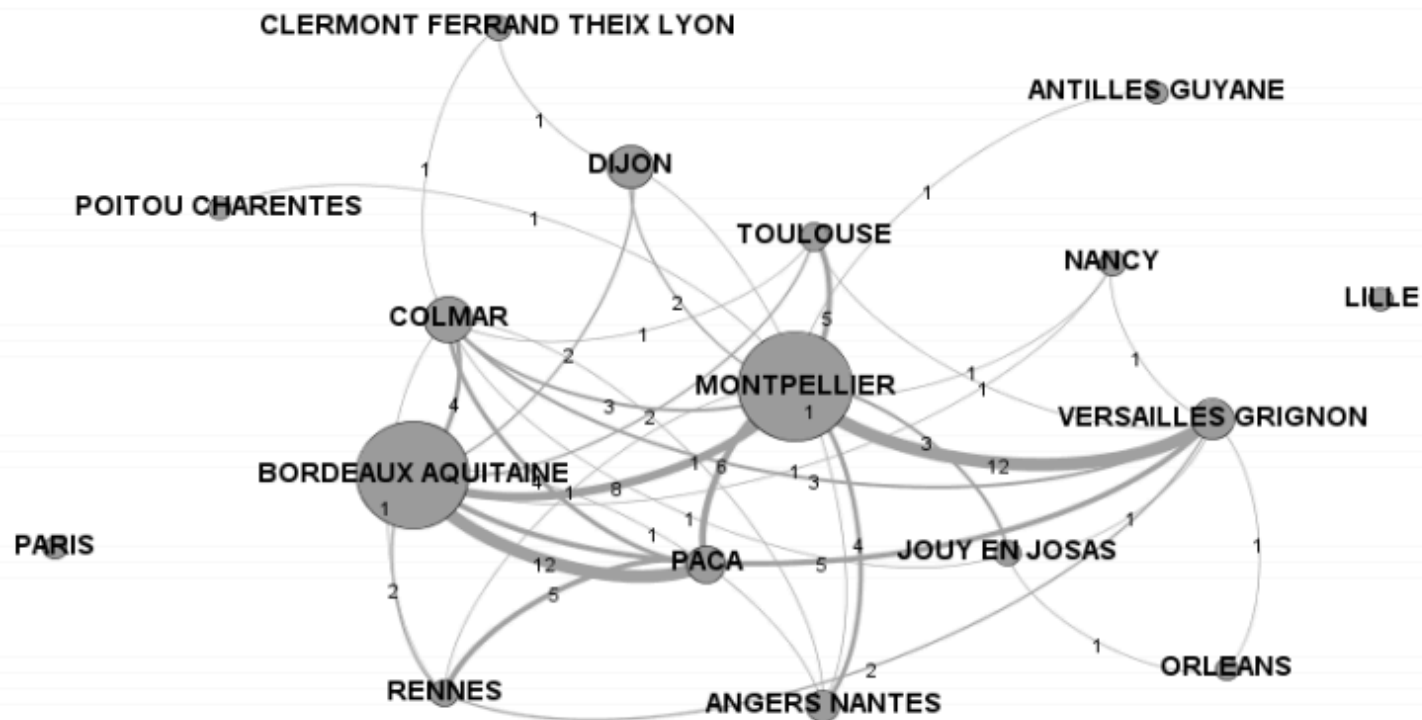
- Literature review
- Eco-physiology
- Innovation
- Local strategies
- Economic strategies
- Database
- Prospective

Séminaire Laccave
20 - 21 mars 2014
Montpellier



LACCAVE : Metaproject 2012-2015 : Literature review : 564 articles

Copublications V&V entre centres INRA 2008 à 2012



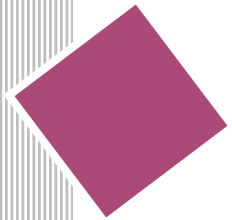
Données WoS[®] Thomson Reuters – 564 publications V&V Inra 2008-2012 - Traitement Inra DV-IST (octobre 2013)

Réseau des co-publications entre centres Inra, réalisé avec Gephi, algorithme de spatialisation Force Atlas 2, classement : nombre de publications V&V de chaque centre



Montpellier SupAgro

International Center for Higher
Education in Agricultural Sciences





Biology, Ecology & Biodiversity

Agronomy & Crop Production

Animal Sciences

Water Sciences

Environment

Agricultural & Environmental Economy

Social Sciences

Agribusiness Management

Food Sciences & Technologies

Environmental Technologies

Computing, Bio-Statistic & Precision Farming

Vine & Wine

**1600 students
(including 220 PhD
students), 90
teacher-researchers
and 320 staff
members.**



IHEV

Institute for Higher Education in Vine and Wine



IHEV : Missions

Founded in 2004, (on a base of 150 years!)
IHEV includes all courses offered within
Montpellier SupAgro in the areas of Vine and
Wine

(Staff: 8 - Teachers-Researchers: 30 people)

Actions

- Training courses
- Support and promotion of research activities
- Transfer of scientific knowledge and technology



IHEV supports and promotes research activities



The Institute works in cooperation with :

- **11 research units** (Agap, CBGP, Diade, Eco&Sols, Innovation, Itap, Lapse, Lisah, Moisa, SPO, System)
- **3 technology units** (consortium : Research Units and French Institute of Wine and Vine) : GENO-VIGNE, QUALINNOV & ECOTECH-VITI
- **3 experimental vineyard estates** (Domaine du Chapitre, EU Pech Rouge, Domaine de Vassal)

to coordinate research activities and transfer of scientific knowledge to professionals



Transfer of scientific knowledge and technology



The IHEV plays an important role and leads various activities in close cooperation with :

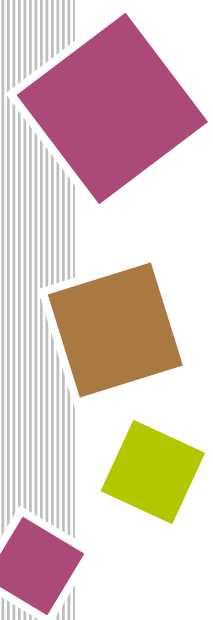
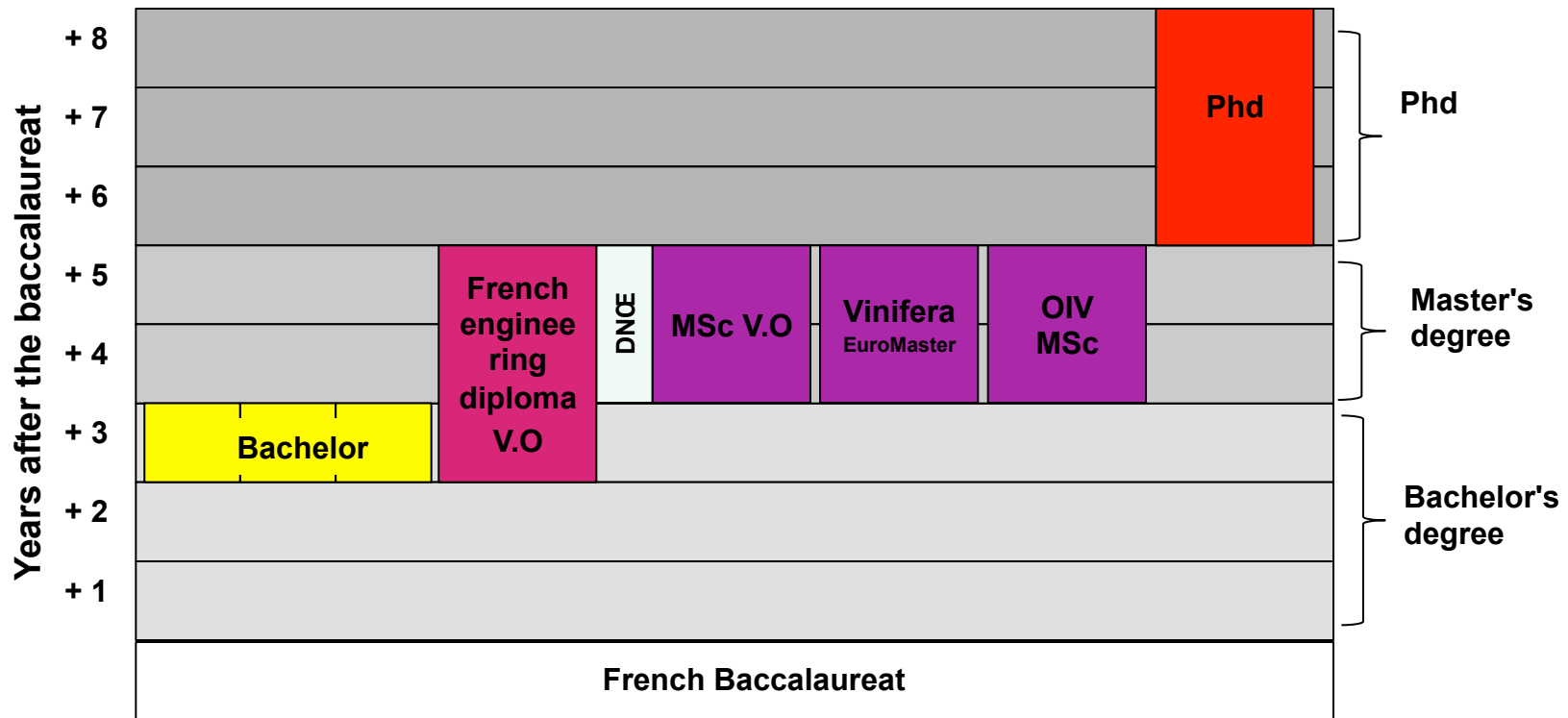
- international organizations (OIV, AUIV, GiESCO ...)
- national organizations (FranceAgrimer. ..)

- local authorities
- professional organizations (international, national and regional)

And a specific action in « foresight and strategy » for the wine sector (in link with UMR Moisa)



IHEV : Training programmes (LMD)



Master of Sciences (M. Sc.) of Viticulture & Enology

2007-2009 (P1)

2008-2010 (P2)

2009-2011 (P3)

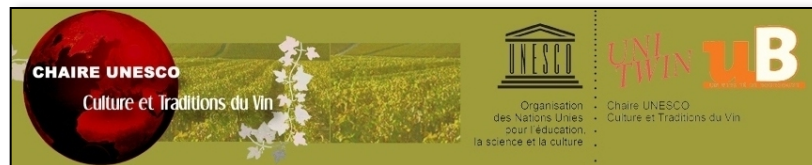
2010-2012 (P4): Noam Resheef

2011-2013 (P5): Omri Ram

2012-2014 (Pinot Noir): Shaul Barkali

2013-2015 (Blanc de Noir) : 33 students, 23 countries: Dor Amsalen

2014-2016: Kosto Noga



EM **a** VE



**A consortium
developing
higher educational
programs
at international
level ?**

**Lisbonne
Porto**

**Montpellier
Bordeaux**

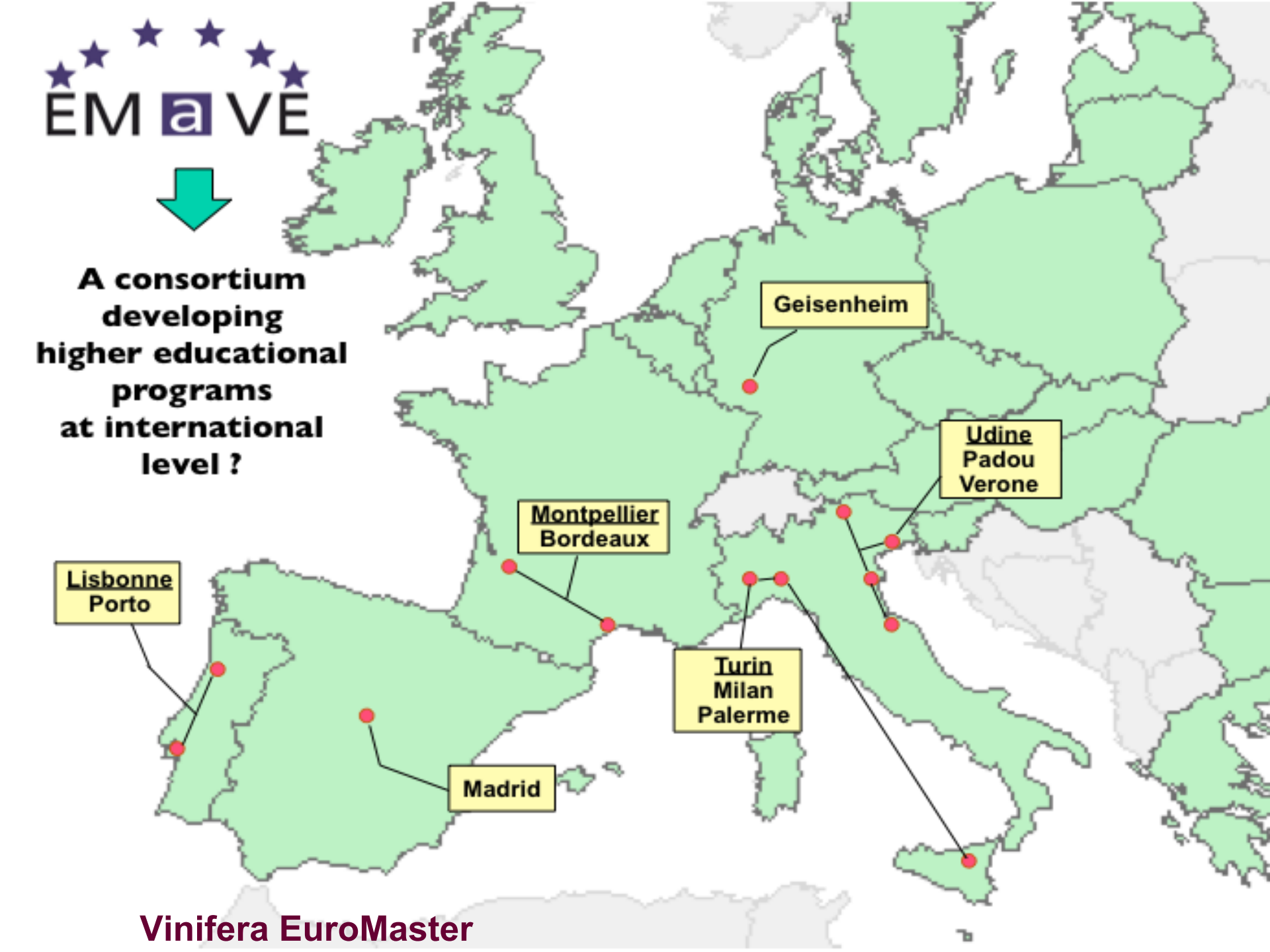
Madrid

Geisenheim

**Turin
Milan
Palerme**

**Udine
Padou
Verone**

Vinifera EuroMaster





Master of Science OF VITICULTURE & OENOLOGY

University of Stellenbosch, South Africa
University of Cuyo, Mendoza, Argentina
INTA de Mendoza, Argentina
University of California, Davis, USA
University of Cornell, USA
Michigan State University, USA
State University of Fresno, USA
Institut National d'Agronomie de Tunis, Tunisia
Charles Sturt University, Wagga Wagga, Australia
University of Gyöngyös, Hungary
University of NWAUFU, China
Horticulture Research Center of Marlborough, New Zealand
Brock University of St Catharines, Ontario, Canada
Embrapa Bento Gonçalves, Brazil
Ecole d'ingénieur de Changins de Nyon, Swiss
Unité Expérimentale INRA Pech Rouge, France

> Extended partnership



Master of Science OF VITICULTURE & OENOLOGY

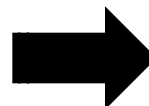
1. Full program



Master 1 - 60 ECTS – Common Core

M1 in France (English lessons)

- **Montpellier SupAgro**
- **Bordeaux Sciences Agro**



* Optional Master Thesis abroad (30 ECTS)

- North America, Asia, South America, Australia, Africa
- Under the supervision of one of the 12 associate partner

2. Direct M2 admission



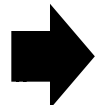
Master 2 - 60 ECTS* – Countries' choice

M2 in Germany (English lessons)

M2 in Portugal (English lessons)

M2 in Italy: Udine or Turino (English lessons)

M2 in Spain (Spanish lessons)



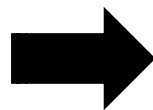
1. Full program



Master 1 - 60 ECTS – Common Core

M1 in France (English lessons)

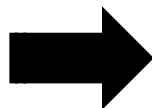
- Montpellier SupAgro
- Bordeaux Sciences Agro



- « Cultural Intelligence »: how to find synergies between people with different backgrounds - think global / act local
- Ecophysiology: impact of climate change on grapevine, genetic improvement
- Viticulture: pruning, canopy system, harvest selection, irrigation, reduction of radiation...
- Enology: yeast selection, desalcoholisation, control of temperature...
- Integrative study case: terroir auditing

2. Direct M2 admission

Master 2 - 60 ECTS* – Countries' choice



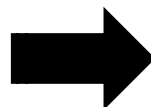
- M2 in **Germany**: Cold climate viticulture, Climate change research unit (Prof. Hans Schultz)
- M2 in **Portugal** (Viticulture in tropical conditions / EMBRAPA Brazil)
- M2 in **Italy**: Udine (economic impact of climate change) or Torino (canopy management, innovation in viticulture)
- M2 in **Spain** (viticulture in dry conditions, innovation in enology)

2. Master Thesis:

1 semester M2 Germany,
Italy, Spain, Portugal or ...

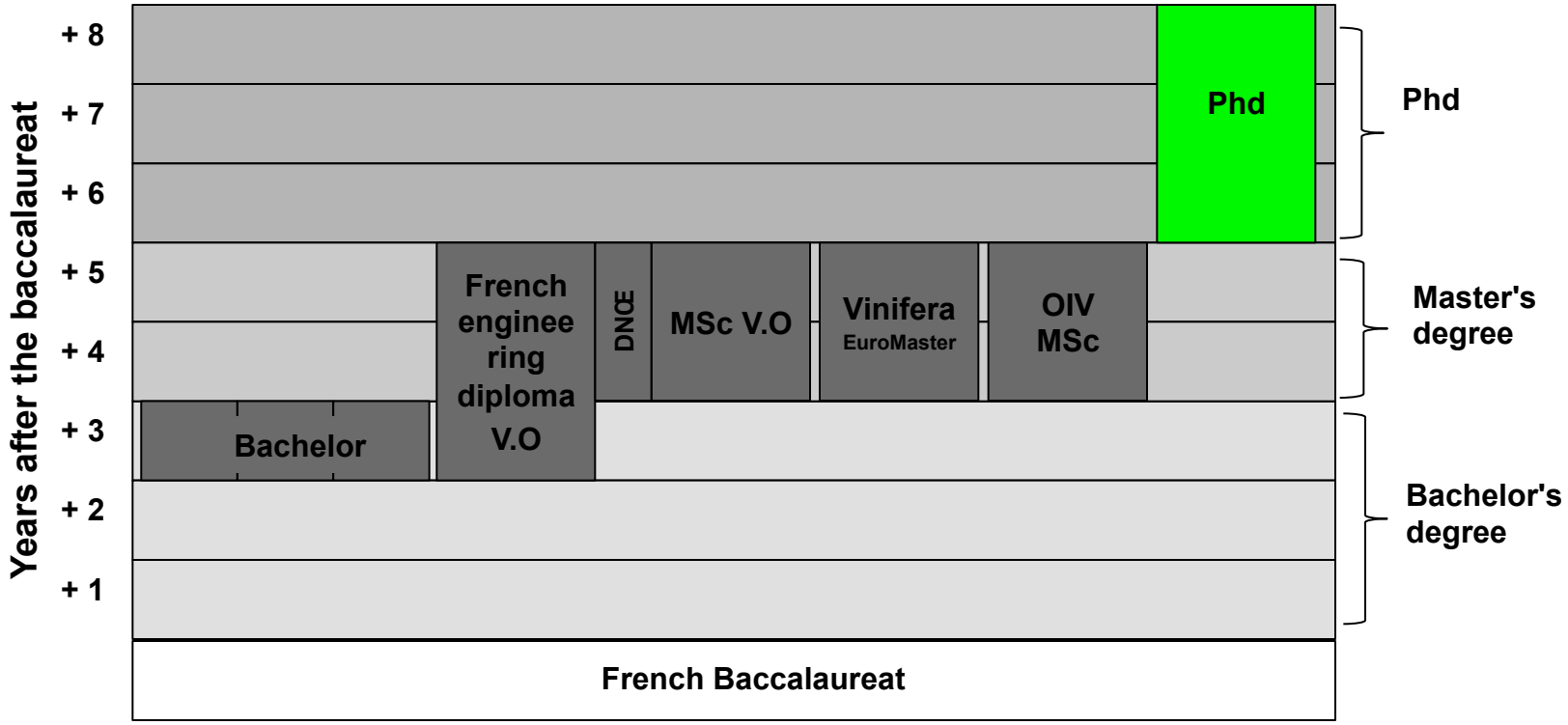
* Optional Master Thesis abroad
(30 ECTS)

- North America, Asia, South America, Australia, Africa
- Under the supervision of one of the 12 associate partner



- Relationship between climate indices, Phenology and **berry composition** of Touriga nacional in the Dao Wine region
- [The assessment of water stress for irrigation management in Tempranillo grown in Southern Oregon](#)
- Effect of **irrigation on berry quality** and skin cell wall composition in the grape varieties Touriga Nacional and Trincadeira
- [Influence of the row orientation on the berry temperature and the berry compounds](#)
- [Managing carbohydrate balance during berry development to optimise berry composition and wine quality in a changing climate](#)
- Alcohol Management - **Reducing the Alcohol Content of Wine**
- Evaluation of Nanofiltration membranes for the production of a **de-alcoholized beverage**
- [Influence of climate change on cost structure of two simulated wineries in Germany](#)

IHEV : PhD



PhD study at Montpellier SupAgro



**SupAgro is : approx. 220 PhD students,
attached to 4 schools/centres
in 21 Research Units (UMR)**

Ecoles doctorales

SIBAGHE systèmes intégrés en biologie, agronomie, géosciences, hydrosciences, environnement

TTSD territoires, temps, sociétés et développement

SP-SA Sciences des Procédés - Sciences des Aliments

EDEG Economie Gestion

PhD study and climate change



- Noam Resheef (Vinifera graduates 2012):

rootstock-scion interaction in grapevine, the impact on the berry's developmental processes and final chemical composition in dried semi-arid climate (University of the Negev)

- Markus Rienht (Vinifera graduates 2012):

impact of temperature on berry development and physiology (Montpellier SupAgro)

- James Boyer

The role of the research and the innovation in the competitiveness of the French vineyards and their adaptation to climate change (Montpellier SupAgro)

Opportunities of collaboration between UE and Israel

- i) Context: European Commission Programme for Research and innovation *Horizon 2020*
- ii) Budget: 80 billion euros for ITN (initial training network) projects, fellowships, specific call for research project ...
- iii) Duration: 2014-2020

One of the main focus is Climate Change as a Societal challenge

Israel is eligible as Associate country



<http://ec.europa.eu/programmes/horizon2020/en>

Opportunities of collaboration between UE and Israel

i) Context European Educational Programme Key Action 2: Cooperation and innovation for good practices

ii) For who? Universities, public or private institution, association, companies ... from UE or other countries (Israel included)

iii) Budget 14,7 billion euros, for strategic project, scholarships for students and scholars ...

iv) Duration 2014-2020

v) Main activities:

- Strengthened cross-sectoral cooperation between organisations for exchanges of practice
- Development, testing and/or implementation of innovative practices in the field of education and training



FORMATION, RECHERCHE, EXPERTISE,
PREPARER L'AVENIR DE LA FILIERE VIGNE ET VIN

Montpellier
SupAgro
Institut des Hautes Etudes
de la Vigne et du Vin

We are pleased to welcome you to IHEV



patrice.lallemand@supagro.inra.fr,
michel.calleja@supagro.inra.fr