



Oct. 30  
to 3 Nov.  
2022

7th

Marrakech (Morocco)

# INTERNATIONAL WORKSHOP FOR FARMING SYSTEMS DESIGN

Designing Climate Smart Agricultural Systems  
for a Sustainable Transformation  
in the Agri-food Systems of the Dry Areas



Agricultural systems  
by design





# THE MEDITERRANEAN AGRONOMIC INSTITUTE OF MONTPELLIER



One of the four Institutes of the CIHEAM, international intergovernmental organisation founded under the aegis of the OECD in 1962, which gathers thirteen Member States around Mediterranean

Tree main mission: Education, Research and cooperation.

CIHEAM Montpellier welcomes 70 Mediterranean Master students per year... with a full scholarship.

A doctoral platform with 20 PhD students as an average per year.

Support decision-making for resilient and sustainable agri-food systems in the context of agro-ecological transition in the Mediterranean:

- à Co-design household farming systems
- à Characterizing territorial systems to support agricultural and rural policies
- à Coordination, governance, strategies of actors and organizations in agri-food chains

Hatem Belhouchette



# Mohammed VI Polytechnic University - UM6P Université Mohammed VI Polytechnique

Moroccan non-profit private research university. Its main campus in Ben Guerir (70K North of Marrakesh)

Originally established by the charitable foundation of the state-owned OCP Group (Phosphate rock miner and fertilizer )

First cohort of students in 2013, officially inaugurated on January 12, 2017 (currently > 3,500 students)

Prioritises research and innovation relevant to Morocco and Africa: industrialization, management, food security, sustainable development, mining, behavioural and social sciences...



MOHAMMED VI  
POLYTECHNIC  
UNIVERSITY

Bruno Gérard



1972 – 2022 About 17.000 graduates



6

Schools



2066



400

year 2020

Agronomy  
Halieutic



Veterinary  
Sciences



Geomatic  
Mapping



Rural  
Engineering



Food Sciences  
Industry



Horticulture



(Horticultural  
Campus of Agadir)

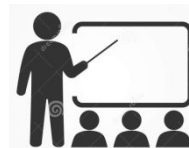
Doctoral school

Masters

MBA



180

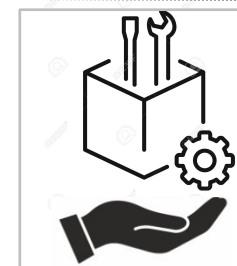


Lecturers and researchers

315



Technical et Administratif  
staff



Departments

22



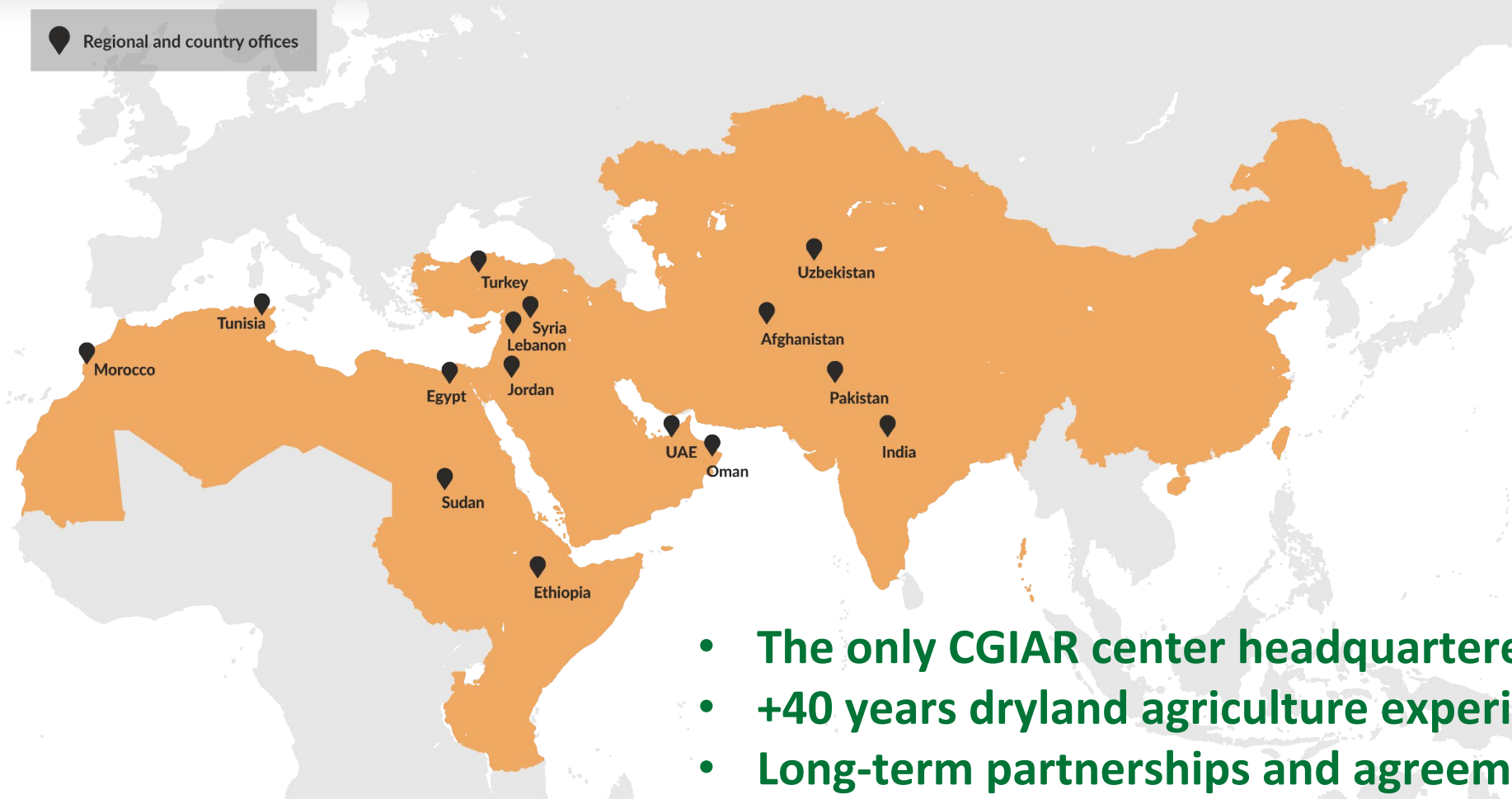
Laboratories of  
research and  
services



Experimental  
greenhouses



Veterinary  
hospital  
services



Michael Baum

- The only CGIAR center headquartered in WANA region
- +40 years dryland agriculture experience
- Long-term partnerships and agreements with countries, government, NARS, private sector, and farmers
- Widely-adopted people-centered farming solutions
- A long history of work in fragile states

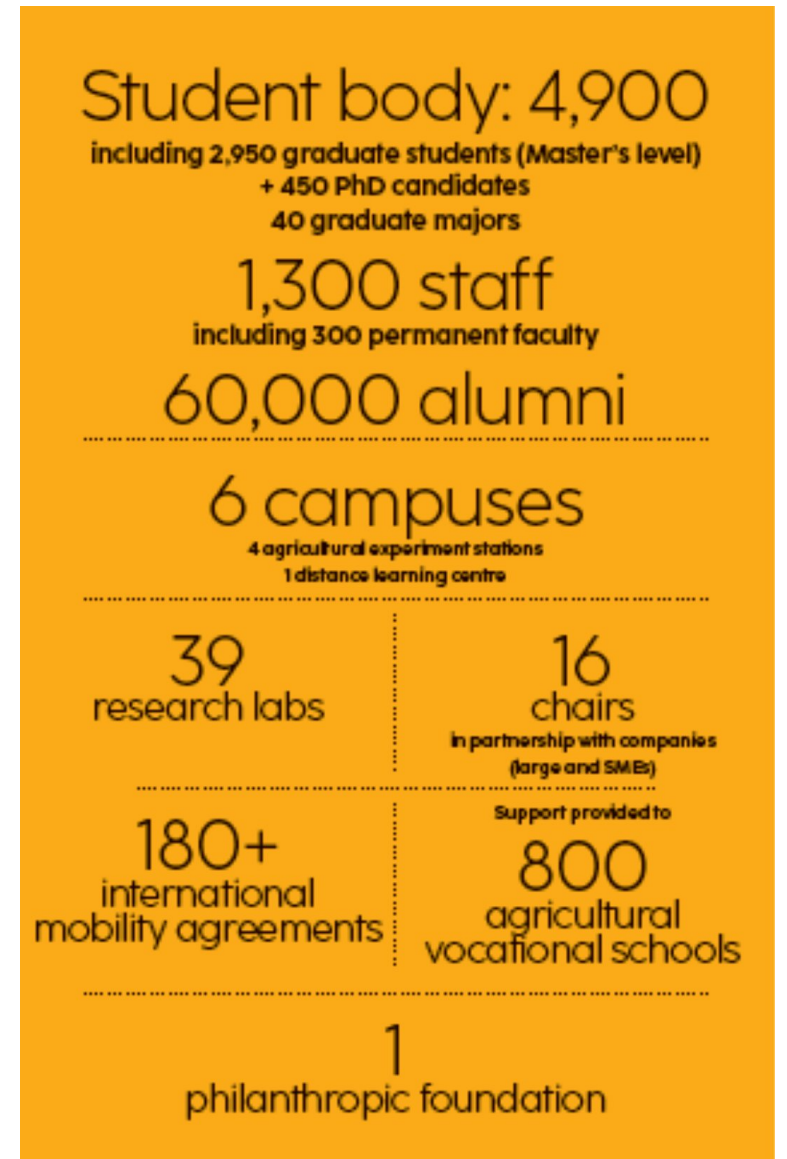


## Research focus: Drylands

- Crops: Wheat, barley, faba bean, chickpea, lentil, grass pea
  - Genetic resources: conservation and utilization (e.g. pre-breeding)
  - Breeding: yield, quality, abiotic (drought, heat) and biotic (rusts, insects, weeds) stress
  - Seed delivery systems: formal and/or informal
- Livestock: Small ruminants (sheep and goats)
  - Characterization focusing on adaptive traits
  - Community-based breeding programs (local breeds)
  - Value chain transformation through market-driven business opportunities
  - Integration with crop/range/forage production
- Integrated water and land management
  - Watershed management and modeling, supplementary irrigation, rainwater harvesting,
  - Developing and disseminating practical, low-cost options for ecosystem restoration (reverse soil degradation, reducing salinity in drylands, ..)



Prof. Jacques Wery  
Head of Science & Partnerships





Agricultural systems  
by design

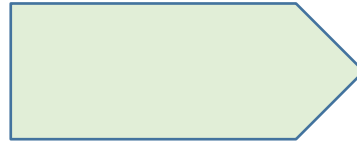
# FSD in a nutshell

- FSD is an informal interdisciplinary **scientific community of practice**. The overall objective of FSD is to promote research and capacity building on **methodologies for the analysis and design of Agricultural Systems** on a worldwide level.
- **The core is science:** The research focus of this FSD community is the **farm system** level, the interactions and feedbacks at lower and higher **levels of integration** and the tools and methods required for understanding and implementing multi-functional farming systems expressing good trade-offs between agricultural production and ecosystems services.





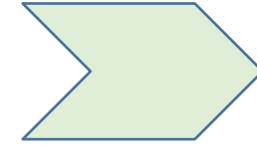
Catania 2007



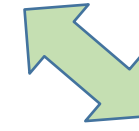
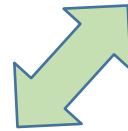
Webinars  
2021



Marrakech  
2022



Agricultural systems  
by design



Challenge-oriented

Science-based


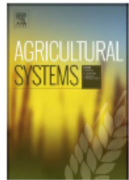

Agricultural Systems 157 (2017) 269

Contents lists available at ScienceDirect

**Agricultural Systems**

journal homepage: [www.elsevier.com/locate/agsy](http://www.elsevier.com/locate/agsy)

Introduction to the Farming Systems Design Special Issue



<https://fsd7.sciencesconf.org/>

# https://fsd7.sciencesconf.org/

Fichier Édition Affichage Historique Marque-pages Outils Aide

1.PROGRAMME - Fichiers - CLO X FSD7\_2022\_Workshop\_Program X 7th International Workshop for X

← → ↻ <https://fsd7.sciencesconf.org/resource/page/id/7> ☆

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## [FSD 6 - 2019 : Agricultural Systems Designs Sustained by Nature](#)



Agricultural systems by design

6<sup>th</sup> International Symposium for Farming Systems Design

18<sup>th</sup> - 21<sup>th</sup> August 2019

Radisson MONTPELLIER VICTORIA PLAZA HOTEL

## [FSD 5 - 2015 : Multi-functional Farming Systems in a Changing World](#)



Agricultural systems by design

5<sup>th</sup> International Symposium for Farming Systems Design

SEPTEMBER 7-10, 2015 MONTPELLIER France



Oct. 30 to 3 Nov. 2022

7<sup>th</sup> INTERNATIONAL WORKSHOP FOR FARMING SYSTEMS DESIGN

Marrakech (Morocco)

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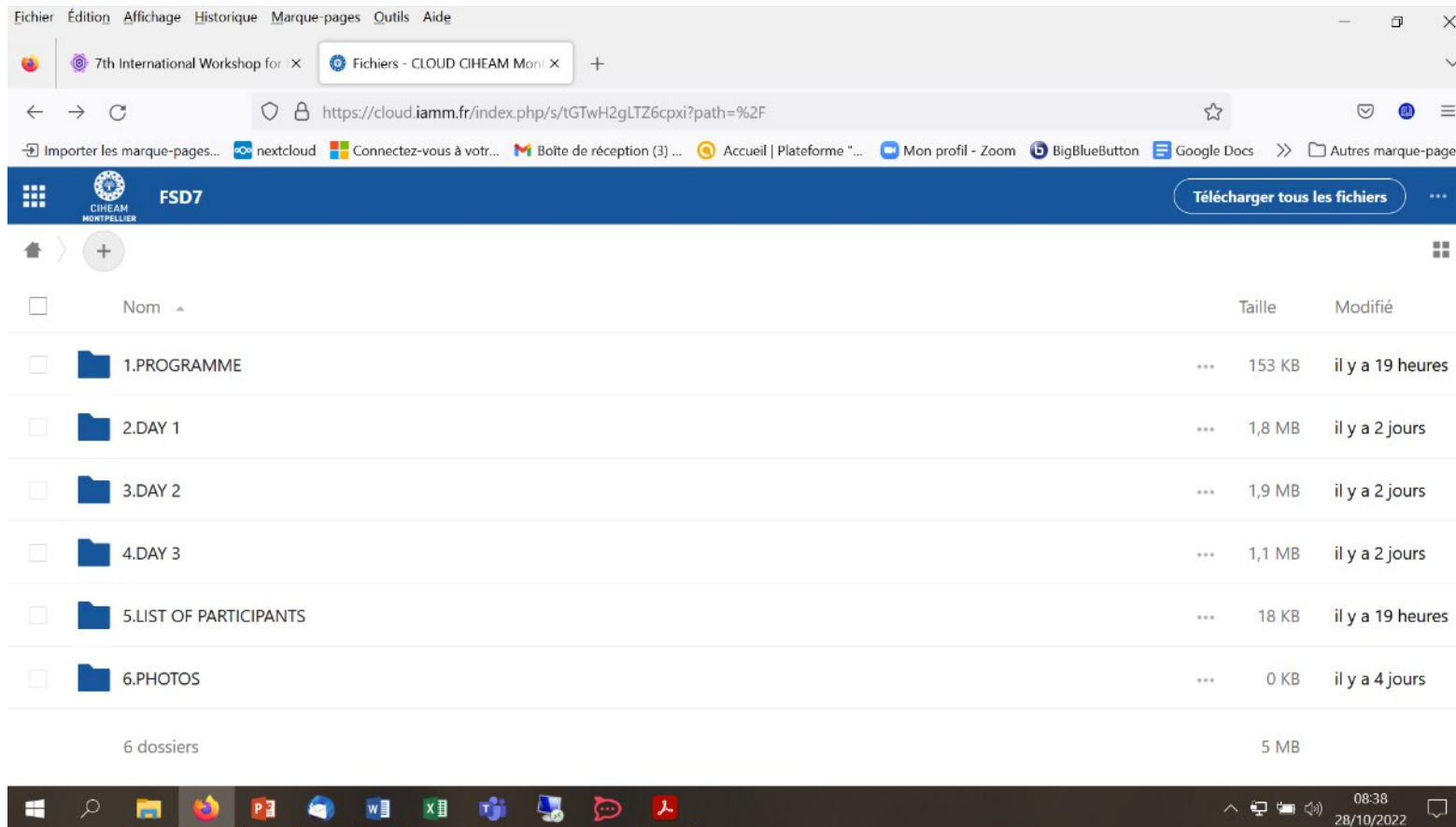
Logos: CREAM MONTPELLIER, L'INSTITUT agro, UNIVERSITÉ DE MONTPELLIER, ICARDA





An exciting program – open for discussions – looking forward

Still need session rapporteurs from session 10 to 14 !



- Watch daily
- Download
- Upload

<https://cloud.iamm.fr/index.php/s/tGTwH2gLTZ6cpxi?path=%2F>



# Thank you for this day



- Moroccan Biodiversity and Livelihood organization (<https://www.mblaassociation.org/>)
- AlMoutmir (<https://www.almoutmir.ma/>)
- UM6P (<https://um6p.ma/>)
- CIHEAM Montpellier (<https://www.iamm.ciheam.org/fr/>)



## Monday 31 October – FSD7 Workshop –Day 1

- **9.45 – 10.45 : Session 1** (chair Jacques Wery ; rapporteur : Bruno Gérard): **challenges of farming systems design in the drylands of Africa and Asia** : discussion based on short presentations of expected outcome of new projects.
- **10.45 . 11.00** : break
- **11.00 -12.30 : Session 2** (chair Marie-Helène Jeuffroy, ; rapporteur : Laure Hossard): **What's new in co-design methods and tools for agrifood systems ?**
- **12.30 – 14.00** : lunch

- **14.00 – 15.30 : Session 3** (chair Bruno Gerard ; rapporteur : Hatem Belhouchette : **Designing/Promoting/Scaling agro-ecologically based farming systems in the MENA region:** can we manage the complex trade-offs between food/ nutrition security and the preservation of natural resources under climate change and water scarcity ?
- **15.30 – 15.45** : break
- **15h45 – 17.00 : Session 4** (chair Jacques Wery ; rapporteur An Nottenbaert) : **Capacity Building in AgriFood systems analysis and design : International collaboration on methods, tools and curriculae.**
- **17.00 – 18.00 : Special Session to prepare students day** (chair Bruno Gérard, UM6P)
- **18.00 – 21.00 : free visit of town and dinner.**



## Open to the academic and student community in Morocco interested in systems research

Participants from :

- IAV Rabat
- ENA Meknes
- UM6P Ben Guerir
- The FSD community

**INVITATION**

**INTERNATIONAL WORKSHOP FOR FARMING SYSTEM DESIGN**

**UM6P DAY**

THURSDAY, NOVEMBER 3rd, 2022

New AgroBioSciences Building

**RSVP mandatory**  
<https://forms.office.com/r/xpY6Ek96hp>





## Sharing outcome of the FSD7 workshop

**9.15 - 11.30:** A series of **short presentations** by FSD7 participants, related to farming systems design organized in three topics :

- what is agri-food systems analysis and design ? (coord. : Hatem)
- what is the impact of this research ? (coord. : Bruno)
- how to learn and teach it ? (coord. : Jacques)

## Preparing youth engagement

- **14.00 – 15.30 : Round table discussions** with students (parallel)
- **15.30 – 16.45 : Plenary discussion and conclusion**

# To do until wednesday

Think of key messages and questions to students and teachers

1. What is agri-food systems analysis and design ? (coord. : Hatem)
2. What is the impact of this research ? (coord. : Bruno)
3. How to learn and teach it ? (coord. : Jacques)

# To do this afternoon (special session) (open to all)

Split in three groups and organize presentations

# To do on wednesday (special session)

Special session **to present and discuss the key messages** of the workshop for the student day (chair Bruno Gerard (UM6P))