







## **Erasmus+ Program**

Erasmus + is the European Union's program for education, training, youth and sport for the period 2014-2020. It offers many opportunities for students, teachers, staff and higher education institutions (HEIs) around the world.

> Website: http://ec.europa.eu/programmes/erasmus-plus/ facebook.com/EUErasmusPlusProgramme EUErasmusPlus

## **CLICHA Project**

CLImate CHange in Agriculture (CLICHA) is designed, under the general aim of capacity building in higher education, in order to modernize, to improve accessibility as well as internationalization of higher education in the Partner Countries. Those objectives will be released considering all necessary skills for sustainable agriculture, respect of the environment and climate change resilience.

Based on good practices used by the project partners, the project will contribute to improve educational programs and consequently skills of graduate students to cope with climate change, mainly mitigation, resilience and adaptation.

## Climate Change and livestock in Tunisia

Tunisia, as most areas bordering the Mediterranean basin, was classified as one of the primary "hot spots" for climate change. Main projected climate change in Tunisia will include an unequivocal rise of the annual average temperature and a probable decrease in annual precipitation with increasing frequency in extreme events as drought.

The main impacts of these changes will be in immediate term a significant decline in the country's water resources and arable cropland which would reduce both forage productivity and quality. Rangeland ecosystems sustainability are also exposed to imminent menaces. Animal production, reproduction and health will also be affected by water restriction and heat stress effects. The risk of livestock diseases associated to climate change could be increased.

In long term, with the increasing of the food demand pressure, the sustainability of livestock-based production systems are among the great threats for food security. Adaptation and mitigation measures are urgent to cope with this challenging situation in almost all Mediterranean countries.

















ISA-CM and University of Sousse organize a Business Forum



# Livestock Production In Arid and **Semi-arid Regions Facing Climate Change**

Tuesday, March 12th, 2019, ISA-CM, Sousse







#### **Organizing committee**

Dr Chokri THABET, ISA - CM Dr Rafik ALOULOU, ISA - CM Dr Yasser HACHANA, ISA - CM Dr Asma LASRAM, ISA-CM Dr Asma EL AMRI, ISA - CM Dr Sameh BOUKEF, ISA- CM Mr Adel REKIK, ISA – CM Mr Med Zied AMARA, US

#### **Program committee**

Dr Rajouene MAJDOUB, ISA-CM Dr Linda MAJDOUB, ISA-CM Dr Mounir MEKKI, ISA - CM Dr Haifa BOUDEGGA, ISA-CM



CLICHA

**CLImate CHange in Agriculture** 586273-EPP-1-EL-EPPKA2-CBHE-JP

# Speakers



Pr Mohamed BEN HAMOUDA,
Professor/Researcher at INRAT,
specialist in Animal Genetic
Improvement. He occupied several
positions as General Director of
Higher school of agriculture
Mateur (ESAM), General Director
at the Institution of Agricultural
Research and High Education
(IRESA), General Director of INRAT.



Pr Hichem BEN SALEM, professor in animal nutrition at INRA Tunisia. Since 2016, Prof. Ben Salem is General Director at the Institution of Agricultural Research and High Education (IRESA) of Tunisia. One of his research program addresses the response of small ruminants to stressors including water restriction and salinity.



Dr Panagioti KOUTSOULI,
Associate Professor at the
Agricultural University of Athens,
specialist in Animal Genetic
Improvement. She is involved in
several research programs focusing
on genetic of small-ruminants.



Pr Touhami KHORCHANI, a senior researcher in animal production, member and former Head of Livestock and Wildlife Laboratory at the Arid Zone Research Institute (IRA), Tunisia. He's expert in Camel and Goat production. His main research programs focus on valorization of agricultural by products in ruminant nutrition.



Dr Moufida ATIGUI, Associate professor/researcher in animal physiology at higher school of agriculture Mateur (ESAM), Tunisia. She's an expert in lactation physiology and machine milking of dairy animals.



Pr Daniele DE MENEGHI, Research scientist / Aggregate Professor at the University of Turin, Fac. Veterinary Medicine and Dept. His main research programs focus on Veterinary Sciences Tropical animal health; Veterinary Public Health (VPH) & One Health (OH); Health management at the livestock-wildlife interface.



Dr Salah BEN YOUSSEF, Associate Professor/Researcher at INRAT, member of Animal and Forage Production Laboratory. He's expert on forage crops and agronomy. He initiated a R&D program on forage mixtures and intercrops to cope with climate change impacts and protein deficiency in animal feed.



**Pr Mounir MEKKI**, Professor at ISA-CM, a specialist in Weed science and phytopharmacy. Dr MEKKI is a national and international consultant for Food and Agriculture Organization (FAO) in invasive alien plants (IAP) and pesticides.



Dr Najla SAYARI, Assistant professor at ISA-CM, specialist in weed science. Her research focuses specially on invasive alien plants (IAP) in Tunisia and integrated control methods.

For more details about CLICHA , see:
Website: www.clicha.eu
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Contact: Dr Rajouene Majdoub



## Agenda

#### 8:45-9:15: Welcome Speech

Pr Chokri Thabet: General Director of ISA-CM

Pr Ali Mtiraoui: President of the University of Sousse

Dr Rajouene Majdoub: Coordinator of CLICHA project at ISA-CM

#### 9:15-10:50: Livestock and climate change

Pr Mohamed Ben Hamouda (INRAT): Livestock and climate change: which genetic choices in arid and semi-arid regions?

9:45 Pr Hichem Ben Salem (IRESA): Response of sheep and goats to water and salt stress in the context of climate change in Tunisia

10:15 Dr Panagiota Koutsouli (Agricultural University of Athens): Measures to address climate change in livestock

10:35 Discussion

#### Coffee break and stand visit 10:50-11:20

#### 11:20-12:30: Camels and climate change

Mod: Pr Khemais Kraiem

Mod: Dr Linda Maidoub

11:20 Pr Toubami Khorchani (IRA-Medenine): Interactions between the dromedary and its environment in a context of climate change.

12:00 Dr MonfidaAtigui (ESA-Mateur): The dromedary: a dairy animal in a context of climate change.

12:20 Discussion

#### 12:30-13:30 : Animal health and climate change

Mod : Dr Mediha Haj Ayed

12:30 Pr Daniele De Meneghi (University of Torino, Italy): Case study on control of ticks and tick-borne diseases with acaricides in a traditional livestock system in Southern province of Zambia.

13:00 Pr Daniele De Meneghi (University of Torino, Italy): Climate change and transboundary diseases
- Rift Valley Fever: is there a risk of introduction in Countries of the Mediterranean basin?

13:20 Discussion

#### Lunch and stand visit 13:30-14:45

### 14:45-15:45 : Forage and pastoral production and climate change Mod :Dr Asma Lasram

14:45 Dr Salah Ben Youssef (INRAT): What forage crops under a changing climate?

15:15 Dr Najla Sayari & Pr Mounir Mekki (ISA CM): Impact of climate change on rangeland biodiversity in arid and semi-arid regions.

15:35 Discussion

# 15:45-16:30: Discussion & Recommendations for High Agricultural Education and Research

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