FSD7-2022 Workshop

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

30 October to 03 November 2022
Marrakech (Morocco)

Session 3: 31 October 2022
WHO WE ARE:

• MSc degree Majors:
  o Agricultural Economics
  o Animal Production and Range Management
  o Fruit Trees
  o Plant Sciences and Production Techniques
  o Plant Protection and Environment
  o Rural Development Engineering
  o Agroecology (Accredited recently )
Ecole Nationale d’Agriculture de Meknès

- **MSc in Agroecology**
  Support the GG strategy by filling the gap in managers and engineers to contribute to the acceleration of Morocco's agroecological transition.

- **Research Team (AGREE)**
  Innovate in agroecological practices and environmental education (stakeholders: farmers and sons of farmers, educational institutions, local authorities, associations and NGOs ...).

- **Outreach**
  Agroecology R&D Platform

- **Education**
  Agroecology Master degree Major

- **Research**
  Agroecology Research Team

- **AgroEcology R&D Platform**
  A research and demonstration site for promoting the agroecology as a sustainable way for production at both regional and national levels.
Both CSA & AGROECOLOGY aims to:

- Sustainably increase agricultural productivity;
- Adapt and build the resilience;
- Reduce greenhouse gas emissions.
Introducing agroecological practices in vegetables productions in small scale farming system in the Saïs region of Morocco

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Agroecology & Environment Research Team

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

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To promote agroecology as a climate smart set of practices for a resilient and sustainable agricultural production system;

To introduce agroecological practices in the agricultural production systems in the Saïs region.
"The Sais region of Morocco accounts for more than 50% of onion and potatoes production of Morocco."
The scale: The Fes–Meknes region in the Saïs Plateau

The Survey

The Experimental trials

The Dissemination
The two crops are mainly grown in conventional monoculture
Conventional tillage are used by 100% of the producers
Chemical pesticides are used by 100% of the producers
Biological control is unknown in the studied area;
90% of the farmers surveyed use mineral fertilization;

Agroforestry (72%)
Organic and chemical fertilization (93%)
Cover crops (75%)
Bio-protection (unused)
Intercropping remains unused in the sample surveyed.
OBJECTIVE: Test some agroecological practices identified based on the survey results

INTERCROPPING: An agroecological practice based on the simultaneous cultivation of several crops in the same plot, for at least one growing season, interacting with each other and with the agroecosystem.

- Main crops: Onion (*Allium cepa*) and Potatoes (*Solanum tuberosum*)
- Intercropped with:
  - Zucchini (*Cucurbita pepo*)
  - Faba bean (*Vicia faba major*)
  - Carrot (*Daucus Carota*)
  - Fennel (*Foeniculum vulgare Mill.*), et
  - Pepper (*Capsicum annuum*).
Intercropping impact on the soil quality traits

- The microbial load was abundant in the intercropping models compared to the monoculture crop;
- The Organic fertilization and intercropping increased the microbial load in terms of bacteria and fungi;
- The highest microbial biomass was recorded in the treatment combining onion and fennel with organic fertilization;
- The lowest microbial biomass was attributed to the treatment having onion in monoculture with mineral fertilizer;

Intercropping impact on the plant

- Onion intercropped with carrot, with an organic fertilizer amendment, recorded the highest onion’s yields;
- The associations using organic fertilization inhibited the growth of weeds compared to the control.
The dissemination took different forms

Students involvement (ENA, Universities (MSc, PhD))

National and international Seminars and workshops (Circular farming and Agroecology, RENO 2022)

Publications

Field days for students

Field days for farmers could not be held because of Covid 19 restrictions
The results need to be confirmed by continuing these crop associations’ trials in the future;

Economic studies should be done to show the economical and environmental gains that intercropping could bring to farmers;

Search for funding opportunities to keep on this path of promoting agroecology practices for resilient profitable and social accepted agricultural production systems;

Search for opportunities to upscale the results.
NATIONAL CENTER FOR INNOVATIONS AND RESEARCH IN AGROECOLOGY and ORGANIC AGRICULTURE OF MEKNES (CNIRAB)

TRAINING – ADVISING – RESEARCH
Ecole Nationale d’Agriculture de Meknès

The missions assigned to the center are in line with the national Generation Green strategy:

- **Stimulate innovation** in agroecological practices leading to profitable, resilient, eco-efficient and environmentally friendly production systems

- **Act as a resources center** to strengthen the capability of farmers, sons of farmers, agricultural advisers, public administration executives and private entities interested and/or involved in the issue of agroecology

- **Build an agro-ecology network** (researchers, public and private institutions (national and international), NGOs and Associations)

- **Support** the newly accredited Msc in Agroecology at ENA Meknes

- **Promote** agroecology at National and Regional Levels (MENA, Africa)
Thank you