



## **THE UNIVERSITY OF NAIROBI**

### **OFFICE OF ASSOCIATE VICE-CHANCELLOR (RESEARCH, INNOVATION AND ENTERPRISE)**

#### **EWA-BELT**

#### **RESEARCH PROGRESS REPORT - FIRST NATIONAL STAKEHOLDERS ASSEMBLY KENYA HELD IN KENYA FROM 27<sup>TH</sup> TO 29<sup>TH</sup> 2021**

#### **Principal Investigator, UoN - Prof. Sheila Okoth**

It's a Project that is linking East and West African farming systems experience into a BELT of sustainable Intensification.

This project received its funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No. 862848.

Through joint partnership and collaboration, this project is led in Kenya by University of Nairobi's Prof. Sheila Okoth and KALRO (Kenya Agricultural & Livestock Research Organization).

The project mission aims at developing Sustainable Intensification (SI) of agriculture productions in organic, agroforestry and mixed crop and livestock farming systems in 38 study areas of 6 countries belonging to EAST (Ethiopia, Kenya and Tanzania) and WEST (Burkina Faso, Ghana, Sierra Leone) Africa.

The research activities, carried out in Farmer Field Research Units (FFRU), address areas such as marginalized or abandoned lands and existing agricultural lands to increase their yield potential.

Through integrated participative research innovative tools (FFRU, ICT, Integrated Pest Disease Management - IPDM) and identification and dissemination of best practices, participating countries will be linked into an interregional East-West African BELT able to reinforce Sustainable Intensification in agriculture.

The project introduces famers to highly innovative, cost-affordable technologies, to be easily used in the field by unskilled personnel. EWA-BELT addresses gender issues and empowering of women at every stage of the process.

The Project results (in progress and final achievements) will be disseminated annual during the Infopoverity World Conference at the UN Headquarters, one of the highest-level initiatives to elaborate strategies and design solutions towards Sustainable Intensification.

### Specific Objectives

- a) Assess performance of nutritious and economically viable Neglected and Underutilized traditional crops (NUS)
  - i) Evaluate performance of groundnut varieties
  - ii) Evaluate performance of farmer preferred Finger Millet & Sorghum varieties
- b) Promote pre- and post- harvest technologies that minimize mycotoxin contamination in food and feed
- c) Develop soil fertility improvement technologies for increased food production and income generation

### Technologies being promoted (1/3)

1. **Evaluating performance of Farmer preferred Neglected / Underutilized Species (NUS)**
  - a) Finger millet (U-15) (Maturity, Yield, striga tolerance)
  - b) Sorghum (Gadam) (Marketability, Yield)
  - c) Groundnut (Red Valencia)
  - d) Maize (WH 505, DK 8031)
  - e) Associated agronomic practices (land prep, certified seed, spacing, weeding, thinning, fertilizer application, pest & disease identification and control, soil erosion management)
  - f) Use of sun-flower as border crop to minimize bird damage in sorghum and finger millet crop
2. **Sustainable Soil Management**
  - (a) Use of organic manure (poultry manure) and inorganic fertilizers
  - (b) Rotation of cereals with legumes (groundnuts)
3. **Use of Aflasafe KE01** as a pre-harvest biocontrol for aflatoxins in the NUS & Maize
4. **Post-harvest Technologies** to control mycotoxin contamination in the harvested NUS
5. **Post-harvest Technologies** to control mycotoxins in the harvested NUS and Maize
  - (a) Effective solar drying systems
  - (b) Innovative storage bags containing an inner layer of material which allows the slow release of different concentrations of food grade preservatives (sulphur dioxide, propionic acid and sorbic acid)
  - (c) Decision Support Systems – for real time monitoring of CO<sub>2</sub> production in grain silos (i.e. integrated CO<sub>2</sub>/Temp/RH sensors in various positions within a storage space to provide real time data on the safety of the crop in store)

### Kenyan Case Study Areas and sites:

No.	County	Sub-county	Number of working groups	Lead Organization
1	Kisumu	Nyakach	4	UoN
2	Homabay	Karachuonyo	3	UoN
3	Busia	Nambale	5	KALRO
4	Kakamega	Mumias East	3	KALRO
		Mumias West	3	
5	Bungoma	Bumula	5	KALRO

### Project implementation Strategy

- Farmer Field Research Unit (FFRU)
- Farmer participatory research and studentships
- Annual stakeholder forums to review project progress and outputs

- Project publicity and documentation through updating project website, videos, brochures, posters, branding and social media communication channels
- Hence technology up-scaling beyond case study areas

**Expected Impacts**

- Contribute towards Improved Food security and Nutrition in case study areas
- Improved soil and water-related ecosystem services
- Sustainable Development goals (SDGs)

2 - Food security and sustainable Agriculture

5 – Climate Action and Resource Efficiency

12 - Sustainable production and consumption patterns

**PHOTO GALLERY FOR THE WORKSHOP**

























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