



Enhancing cassava seed bulking and production skills in Nakuru County

*Mulwa R. M. and Arama P. F. (Principle Investigator and Collaborator)
Nderitu E., Ng'eno G., Oduor S. (MSc Students)*

Nakuru County has a robust ecological system for agriculture. The main food crops produced in the county include maize, beans, Irish potatoes and wheat. Climate change has affected the County's bimodal rainfall pattern making it difficult to predict the onset of the long and short rains. This has affected the farmer's timing of activities such as land preparation and planting, leading to a decline in agricultural productivity.

More specifically, climate change has highly affected the drier areas of Lare, lower Subukia and Solai, which are also resource poor and food insecure. This has increased the demand for drought tolerant crops in non-traditional growing regions. Cassava is one such drought tolerant food security crop, mostly grown for subsistence and with limited commercialization in western, eastern and coastal regions. In comparison, some West African countries such as Nigeria have large cassava industries.



The Problem

Previously, local institutions like Mtakatifu Clara Community Based Organization (CBO) with support from the World Bank had implemented a cassava project in Nakuru County. The CBO distributed cassava planting materials to the farmers. However, Nakuru farmers and CBO members were not well conversant with good agronomic practices for cassava. As a result, farmers planted without enough knowledge and skills. In addition, they did not know how to creatively use the crop apart from boiling roots. Inexperienced farmers fear using cassava because of its poisonous nature. It is therefore a small number of farming families in Nakuru County who grow and consume the safe sweet varieties of cassava. Another major setback with cassava adoption in Nakuru is the long maturity period of the introduced varieties, which in some cases takes more than eighteen months to mature.

Cassava CARP+ Approach

The cassava value chain Community Action Research Project (CARP+) at Egerton University commenced in 2018. The project was funded by MasterCard Foundation through the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). CARP+ Project builds on previous cassava initiatives so as to promote cassava production and commercialization in Nakuru County. The partners include: County government of Nakuru, Mtakatifu Clara Community Based Organization, Rongo University in Migori and the East African Breweries. The goal of the cassava CARP+ is to improve food, nutrition and income security of smallholder farmers in the arid and semi-arid areas of Nakuru County through innovations in the cassava value chain.

The issue of disease tolerance was overlooked in the previous project. This community action research project bridges the gap by introducing disease tolerant and early maturing sweet cassava planting materials for increased production. Smallholder farmers will be trained on seed bulking, production, value addition options and market linkage to East Africa Breweries will be created. The project will also support masters and PhD student's research projects.

Developing the Nakuru County Cassava Value Chain

The cassava CARP+ project targets the entire value chain starting from inputs, production and agro-processing. At local level, farmers will be trained on production, and domestic and cottage industry production of value-added products. Surplus cassava will be sold to East African Breweries Limited for beer-making. The project is also promoting agriculture among the youths by involving TVET students in the cassava value chain by providing training and value addition equipment to Baraka Agricultural College, a partner in the project. The equipment will include a cassava chipper and miller in order to make the process efficient and effective.

CARP+ Process

Establishment of Cassava Demonstration Sites

1. Community entry

From the onset, the CARP+ project sought to ensure community ownership and sustainability beyond the project cycle. The first step was to identify community leaders as an entry point to reach community members in areas where cassava was earlier supported. The project targeted local government administration staff, for example, chiefs and village elders. They played an important role of mobilizing interested farmers and stakeholders.

2. Baseline Survey

A participatory baseline survey was conducted in January and February 2018. The aim was to establish the farmers who were producing cassava and could be model farmers or cassava champions. Another aim was to establish gaps in the value chain so as to identify the most strategic entry points and find out how the project would engage for impact. The survey was purposive and focused on farmers that had been introduced to cassava production by Mtakatifu Clara CBO through the World Bank funded Kenya Agricultural Productivity and Agribusiness Project (KAPAP).

Interactive meetings with farmers and stakeholders in each site were held. During these meetings cassava baseline information was collected and potential bulking demonstration farms were identified. Through the participatory baseline activities, the project team identified varieties that the farmers had and the source of their planting material. Farmers also provided information on what they had learnt on cassava production in general and ways to use the crop.

3. Identification of demonstration farms

The baseline also helped to identify three most ideal demonstration sites in each location. A total of nine demo sites were selected. The demo sites have been planted with a collection of 27 sweet cassava

varieties collected from various parts of the country for purposes of evaluation to select the most adaptable, early maturing and disease tolerant types for the various locations. Specifically, the varieties were sourced from Busia, Migori and Njoro (KALRO).

4. Enhancing farmers' production skills

Planting of the varieties took place in May 2018. Before planting, the target farmers were practically shown how to plant cassava cuttings with regard to spacing, positioning of cuttings and fertilization. Farmers owned the project. They set demonstration plots in their farms and took care of the crop, monitored the growth of the cassava as well as maintained the records. Yields and other growth parameters will be recorded per variety so as to identify the varieties suitable for each of the three locations: Lare, Solai and Subukia. Based on their observations and data collected together with the project scientists, farmers are expected to give feedback and justify their choice of varieties selected to plant in their own farms.

5. Evaluating the best varieties

In its efforts to commercialize cassava and promote learning among farmers and stakeholders, the CARP+ project will carry out two major assessments of growth at six and 12 months. The aim is to identify early maturing cassava varieties that will be ready in 12 months. The six months assessment was conducted mid-February 2019.

At 12 months, the varieties will be harvested, assessed and selected through a participatory process and mutually agreed criteria. The preferred varieties will then be bulked. The cassava cuttings will then be sold to farmers who will be supported to grow the crop on commercial basis. Support will be provided to the local agriculture extension staff, lead farmers and other local actors seeking drought tolerant crops with ready market.

6. Cassava marketing and processing

The primary market for cassava is local households to meet food security needs. For secondary markets, farmers will organize themselves into producer groups that will collectively market cassava to agro processors.

The involvement of youth in value addition cottage industries will stimulate local demand for cassava products and create jobs along the value chain. The involvement of East African Breweries as a large cassava buyer will create a ready market for cassava and increase farmers' income.

Sustainability

The project will promote farmer ownership by setting a commitment fee contribution within existing CBOs. This is to ensure the project is sustainable as farmers will be responsible for their seed-bulking costs. The seed cuttings will be sold to generate income for the seed producing households.

The cassava CARP+ project is building the capacity of farmers, Egerton University students, youth in two TVET institutions, local CBOs and other value chain actors. It aims to achieve the following results:

- Select at least three adaptable, fast maturing sweet cassava varieties through stakeholder participation.
- Develop one high value cassava-based food product.
- Develop one cassava-based animal feed product.
- Develop one cassava based industrial product.
- Develop at least three Cassava Brown Streak Disease (CBSD) tolerant advanced lines through a PhD study research project.

Challenges

The main challenge faced in terms of project timelines is that cassava takes long (12-14 months) to mature compared to fast maturing crops like potatoes that take three to four months. The first harvest of the early maturing varieties is expected in May 2019. This will be 15 months after project inception.

The project team recently learnt that there are no concluded studies on Cassava Brown Streak Disease (CBSD) molecular markers. As such, the project will adopt a different course of action to develop the CBSD tolerant lines envisaged in the PhD study.

Lessons

The project team learnt the following:

- Busia County has a good model on community managed cassava seed bulking
- The baseline was time consuming but it provided very useful information to the project team and helped create ownership among farmers.
- After the training on case study development, we plan to produce and share more case studies in this series. Be on the lookout for these on our webpage.

For more information, contact:

Prof. Richard Mulwa

Principal Investigator

Cassava Value Chain CARP+ Project

Egerton University

P.O. Box 536-20115 Egerton- Njoro, Kenya

Email: rmulwa@egerton.ac.ke

