

ENHANCING CLIMATE RESILIENCE AND NUTRITION UPTAKE THROUGH THE FORTIFICATION OF CORN FLOUR WITH LOCALLY PRODUCED HIGH NUTRITION VALUE CROPS (MANGO)



Origin of Mangoes

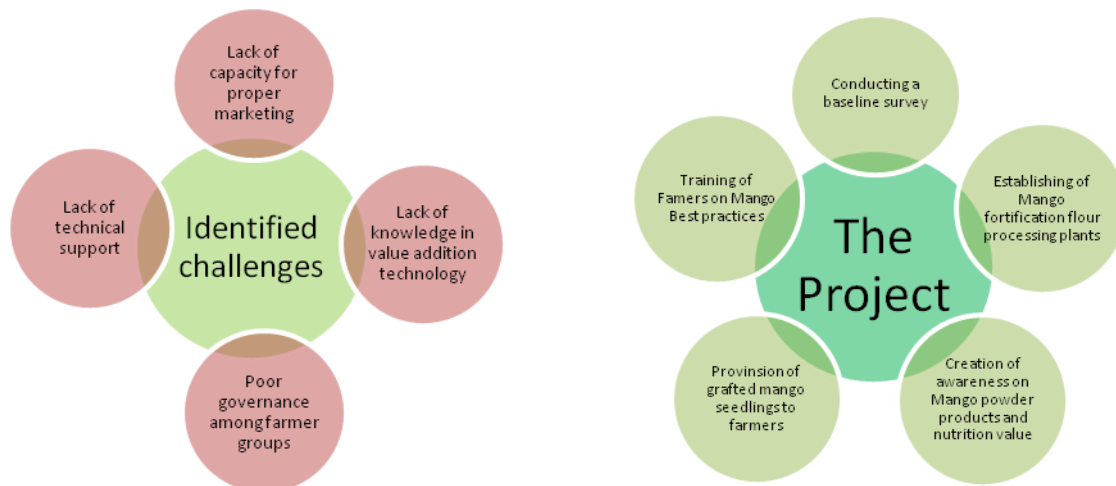
Mango origin can be traced from India in Indo-Burma around 4000 years ago. Introduction of the mango to East and West Africa and subsequently to Brazil is said to have occurred in the sixteenth century.

Mangoes productivity holds a great potential to improve farmer's livelihoods. Depending on the variety, the time from flowering to maturity is 100-150 days. Under good management 400-600 fruits per tree per year can be produced. Yield range is 10-16 ton/ha 4 depending on management, variety and age of orchard. In the case of improved varieties, fruits can weigh 0.3 – 2 kg each (<http://www.naads.or.ug/data/program/2/ATAAS%20Project.html>)

Despite this potential, mango farmers in Kitui County have not been able to exploit it together with various markets that exist for mangoes and its products. This background underscored the necessity of the intervention ***“Enhancing climate resilience and nutrition uptake through the fortification of corn flour with locally produced high nutrition value crops (mango)”*** been implemented in Kitui County by **Green Africa Foundation** in Partnership with **NETFUND** and funded by **IGAD**.

The goal of this project is to **improve quality of life** of the drylands communities in Kitui County through **increased income earned from mango fruits and enhanced nutrition**. The project purposes to **improve value addition** to mango fruit through **mango powder technology while increasing tree cover**.

A baseline survey was conducted initially to inform the whole process and ensure farmer needs were addressed. The challenges identified determined the project activities.



Project milestones

The training is impacting on farmers to improve on both quantity and quality production of mangoes. Enterprise selection, record keeping; nursery management; Farm management; post-harvest and value addition; profit analysis and marketing are the main sections of the training.

Farmer/ Community Confessions

“.....the training on best mango practices was like an eye opener for me. I have increased my mango trees from 25 to 92. And now that I understand better the benefits of mango farming; I will not fail like previously where I lost 50 mango trees to livestock by been eaten by “Mbuzi” (goats). We have shared duties with my wife. As she attends to customers in our retail shop in the nearby market, I will stay at the farm to ensure all is well. We don’t have enough money to fence the farm but we indent to use the income from integrated vegetables to fence. Thanks to the training on Crop intercropping.” Paul Muthui Kinandu (A farmer in Katse, Mwingi North Sub-County).

“.....we are happy that IGAD through Green Africa Foundation, NETFUND, MUKY-ORDAP and other partners have considered to compliment Ministry’s of Agriculture work of training farmers in GAPs. We are confident and happy that this intervention is promoting an environment for a food secure society.....” Nicodemus Munyithya (Extension officer- Ministry of Agriculture, water and Irrigation Kitui Conty)

Ann Mwikali Musyoka, a farmer from Manyanga Farmer Group says that the training came at a time when she needed it most. Her 200 Mango trees in a 3ha of land have recently dropped in production from 600 mango fruits per tree to an average of 150 mangoes. This has been as a result from high Infestation and infection from gall midges and powdery mildew. “I now know how I will manage them and get my Mango trees back to their higher productivity” She appreciates. She plans to plant more mango trees in her new 4ha of land.



Farmers in Mango Farm during the Training Session in Katse



Prof. Kanui T. of South Eastern Kenya University participating during the development of the Mango Booklet



Mr. Muthui (on left) with a neighbor displaying Tomatoes intercropped with Mangoes in his farm in Katse



Farmer Training Session in Kitui County



Training Farmers on Grafting of Mango Seedlings



Green Africa Foundation Project Officer inspecting Mango Seedlings











Training Farmers in Kitui County at Wikililye



Samples of the Project's Mango Fortification Flour processed at Kitui Development Centre (KDC)

Summary of Project Achievements

No	Achievements	Pictorial	Expected Change
1.	Developed a Mango Best Practice Training Manual		
2.	370 Farmers Trained		
3.	3 Training Tree Nurseries established		
4.	Distributed 600 grafted mango seedlings to farmers		



Project Facts

1. Kenya tree cover

Kenya tree cover stands at 6.2% (World Agroforestry Centre)

1.1 Total: 582,650 km² (224,960 sq mi)

1.2 To raise the percent with 1% = one need to plant trees in 5,826.5 km²

1.3 With 4m² for a tree, that equals 0.5m trees

2. Malnutrition levels in Kenya

More than 1m people remain **food insecure** in Kenya. This includes 239,446 children suffering from **moderate acute malnutrition (MAM)** and 2,600 children suffering from **severe acute malnutrition (SAM)** (UNICEF)

2.1 Malnutrition is mainly a result of lack of enough proteins, carbohydrates, vitamins.

2.2 Of the three vitamins have the least options of storage

2.3 Vitamins mainly come from fruits and vegetables

2.2 All fruits and vegetables are perishable

2.3 Most of Fruits are seasonal

2.4 Mango is highly perishable and seasonal fruit

3. Climate Change effects

3.1 Climate change effects evidence are clear especially from ecosystem human influence

4. Agro-Industry Status in Kenya

4.1 There are opportunities for expansion of this sector.