

There's food beyond maize in securing household food security: Experience with smallholder farmers in Kilifi and Taita Counties, Kenya

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Coming from a background of farming family around Nakuru and Kajiado counties I had a perception that these 2 counties in the Coast were not into serious farming. My average experience and exposure to farming and agri-tourism coupled with my knowledge in Food safety and Quality, I had considered this task very easy. I had practised crop farming; maize, beans, wheat, boma rhodes and animals; goats, sheep and broilers although cassava farming was new would relate to it. FAO and other international players in agriculture were in constant promotion of cassava growing so the exposure was useful for my future commercial cassava growing and value addition. The farmers in these 2 counties proved very knowledgeable as I would find myself using my pen and books to record brief notes and hints frequently.

The topic of interest was preparation and utilization of cassava leaves in Kilifi and Taita-Taveta; this is because we wanted the community to appreciate the fact that there is food beyond the traditionally coveted maize as a source of household food security. The only practical exposure I had with the two counties before was a visit to Kilifi Gold milk processing plant and a visit to a few successful farmers in dairy farming. Taita Taveta was a new experience. Cassava roots and leaves as I grew up in Kajiado and Nakuru with plenty of maize, wheat and a green leafy vegetable was a plant I had rarely seen and had never consumed. Before my survey I visited my grandmother as I pre-tested my questionnaire who I remembered had one or two cassava plants. She knew cassava survived the long drought, needed no pesticide or other chemicals to grow and leaves were considered a poison to human and animals. So extensive literature reading on cassava was useful for my start as I

prepared my questionnaire and the cassava project teammates would answer most of my research questions well but not with precision and certainty of farmers. As a farmer I could easily understand the food and nutrition security aspect of the SDG but the poverty eradication aspect was only visible when I met Matthew Mwadali, a respected agri-preneur in Taita-Taveta

Although we had pre-tested our questionnaire we decided to test the ground on the evening we arrived and I learnt that I needed a note book to capture additional information as the questionnaire was a mobile based application and most farmers had additional information. Taita Taveta County cut across a wide geographical features. From the Taita Hills highlands with rich red soils, to the plains at Maktau with loam soils and the dry parts of Taveta border with mixed sandy stony areas and patches of red soils. The highlands had a variety of crop with maize, beans, cowpeas and variety of leafy African vegetables (cowpea leaves, kales, black nightshade and pigweed) and natural growing guavas and mango trees with very few cassava plants in the Wundanyi sub-county in the Taita Hills. The farmers had easy access to the main tarmacked road and other access roads. Most farmers didn't depend solely on crop farming for income as they also practised small scale dairy farming a few with goats and sheep and also reared indigenous beef cattle. Others were traders in household's items and agriculture products. The sub-county was densely populated and farming land sizes were smaller than other parts of the county .It was the most diversified sub-county in terms of economic activities in the two counties. Mama Pauline Mwamburi was one such farmer who one acre farm that touched the Mwatate-Wundanyi tarmacked road was a bee of activities with a few cassava crops she got from training with cassava project few months before. She also had cowpea crops, maize, beans, 2dairy cows,5 goats, and a few guava and mango trees. She was also one of the few farmers in the Taita hills who had interest on consuming cassava

leaves as a vegetable as she had been trained by a friend from Kilifi. Other farmers didn't consume cassava leaves as they had other options.

As one goes down the Taita hills to the Mbale area of lower altitude, the farming land size increases. Accessibility to the farms is through few limited roads and cassava farms sizes are fairly larger and farmers are specific to Kibandameno variety. A local TVET institution is frequently used by the County agricultural extension officers, NGO and universities to train farmers. The cassava project team had previously trained farmers here on cassava and they would share their knowledge with others. One of the exceptional farmers here was Matthew Mwadali who had two acres of cassava and was growing Kibandameno, pink and Kibandameno varieties and selling the seedling/cuttings to other farmers. He admitted he had earned more than Ksh 200,000 from sale of cassava roots and seedling to farmers within a three months period. He was previously a shopkeeper and a college graduate who considered himself jobless but the venture in cassava farming turned the tables. The farmers in this particular area were interested in option around crop insurance systems as mitigation to losses from drought.

After leaving the densely populated Chawia and Mbale location highlands it was time to venture in the plateaus of Maktau location and into Kenya! A village that was sparsely populated and the effect of the long drought were evident from a far. A few trees were the only sign of green life. Mama Roseline Mwariri had devised a means of survival for her few surviving cassava crops, kales, spinach and *sagheti* vegetables. She was forced to fence a section of land ten metres by twenty metres between here 2 main houses to prevent her goats from destroying the crops. The area had not received the short rains anticipated for August to October and hence most farmers lost their crops. Her crops survived and she was watering them using the little water she still had in her tank and vended the rest to neighbours. Twenty litres of water were trading at Ksh twenty. Kales worth Ksh fifty would hardly weigh a

kilogram and would hardly feed a family of two. Contrary the cassava leaves which she was sure was from Kibandameno variety were not for sale but she would give to a few friends after sharing with them on how to pound, boil and prepare as a stew to consume with ugali and *kimanga*-a local cooked paste of pounded cassava roots with a legume.

Lastly in Taveta sub-county the terrain changed to a plain dotted by hardy stones and a few patches of bare red soils and black cotton. One farmer Zablon Kamau stood out at Milimani village on the Kenya –Tanzania border. He was doing six acres of cassava both Kibandameno and Tajirika in his 15 acres of land irrigated by borehole water and practised intense mulching. He also farmed tomatoes, beans, onions and cowpeas. Although he had bought most of his cassava cutting in Voi during a farmers and traders exhibition he didn't remember selling any cuttings to other farmers. He sold the cassava roots to farmers and traders and gave the cuttings for free. He didn't consume cassava leaves at all and also didn't feed his cows and goats but just left them rot as mulch. The thorny *mathenge* shrub was one of the major challenges he and many farmers faced as they struggled to expand farming land.

Kilifi County was differed in various aspects with Taita Taveta. The most inhabitants of Taita-Taveta were Wataita and Tavetas but Kilifi were mostly Wagiriamama. The landscape in Taita Taveta was hilly but Kilifi was plains and plateaus. There was also a change in crops predominantly found in the area with coconut trees in plenty in Kilifi. Kilifi North sub-county, Tezo location, Bahari village was one of the places where I considered farmers to have been most knowledgeable on cassava leaves utilization and preparation. Mama Serah Nzalambi, a retired teacher gave me a lecture on cassava leaves first in Swahili and then English and made sure I didn't miss the spelling on other leafy vegetables options in addition to cassava leaves that she consume. She mentioned she had attended training on fermentation and packaging cassava leaves and making products such as dried and milled cassava leaves.

The last day was saved for the driest part of Kilifi County; Kaloleni sub-county Kinangoni location Kinangoni village. The village elder Mr Shehe Mbogo was my last farmer to interact with. He was very keen on details where he had to uproot a few plants of a local weed, *mchicha*(pigweed) and made sure I could differentiate it with the farmed *mchicha* that they had received from a local NGO. Almost all the household consumed cassava leaves as a vegetable although other local leafy vegetables were present but not at the dry period. Most of the farmers in this specific area were elderly men or retirees. Tajirika was the preferred variety of cassava as they claimed its was drought tolerant. They also preferred other local variety to Kibandameno which they claimed was poorly adapted to the dry climate in the area.

Other than the agriculture based research, I appreciated how the Muslims and Christians in the two counties coexisted peacefully. The farmers were also very forthcoming with information and had exceptional respect to the elders and community leaders. Farmers would also make my translation of English to Swahili flow easy as most will ensure most of the vocabularies they mentioned in Swahili they would translate to English even without my request on the translation. I also appreciated the use of field guides, university coordinator and the driver in the survey as they made the traversing of the area very easy and we covered a large area in few days.

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leaves as a vegetable and preservation and packaging of other cassava leaves products will help reduce micronutrient deficiency and achieve food and nutrition security.



Figure 1: Section of irrigated farm with cassava in Taveta sub-county



Figure 2: A borehole system (manual hand pumped) and a background of yams, sugarcanes, cassava and beans



Figure 3: mchicha and pumpkin leaves that are both used as leafy vegetables in Kilifi County.



Figure 4: a stem of cassava with top 5-10 leaves picked.