



Cassava

Key Messages

- *Promote timely implementation of policies and initiatives that support the commercialization of the cassava crop in the country.*
- *Support initiatives that stimulate local and export demand for cassava products*
- *Invest in breeding programs that produce high yielding and disease resistant varieties*
- *Promote the dissemination of improved cassava varieties through research institutions and extension services*

1. INTRODUCTION

Tanzania is the fourth largest producer of cassava in Africa, producing an average of 5.12¹ million metric tons (MT) annually. Dominant players in the market are Thailand, Vietnam and Indonesia, supplying 96% of all cassava in the world market, while the largest importer is China, importing 60% of the global market of cassava (Prakash, 2008). Cassava (*Manihot esculenta* Crantz) is usually referred to as a food security crop due to its adaptive nature to a wide range of agro-ecological zones. It is a major source of calories within the continent and the second most important food crop in Tanzania after maize.

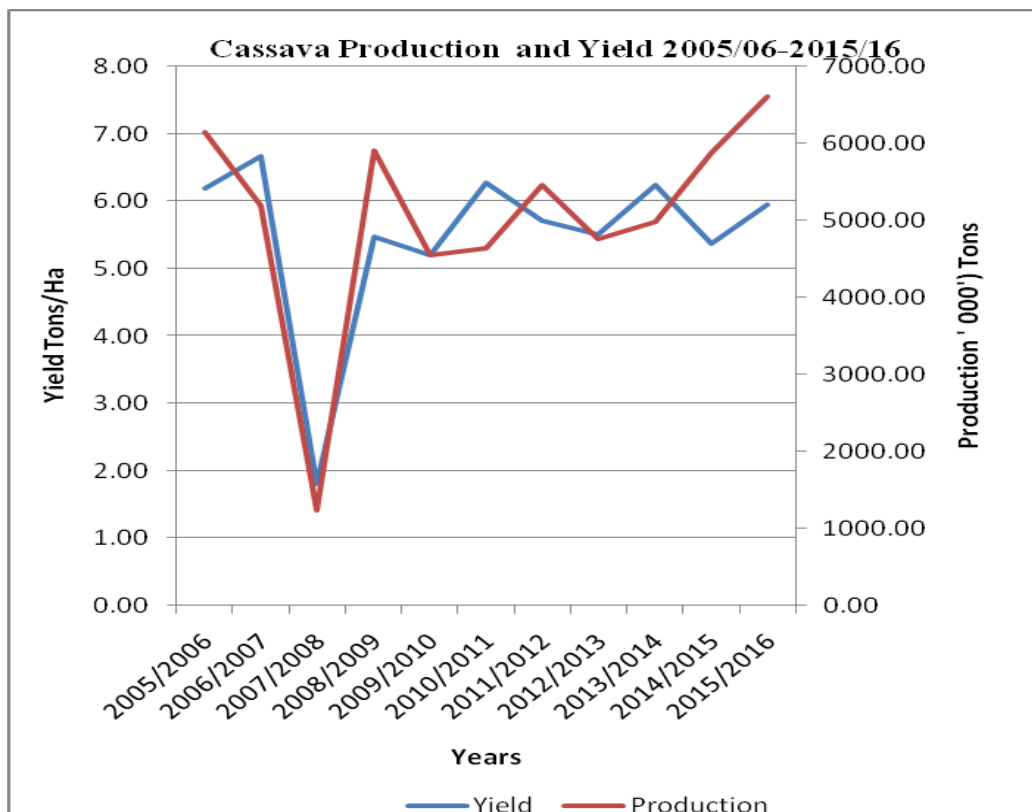
2. PRODUCTION, PRODUCTIVITY AND FARMING SYSTEM

The total land area under cassava cultivation in Tanzania is 889,000 ha; production is mainly through subsistence farming on small plots of land, measuring 0.1–1.3 hectares. A total of 1,304,000 households in the country grow cassava (URT, 2012). The main cassava-producing areas are Mwanza, Mara, Mtwara, Ruvuma, Kigoma, Pwani, Lindi and Tanga.

¹ Average production (2004–2014) FAOSTAT.



Figure 1. Cassava Production and Yield in Tanzania (2005/06-2015/16)



Source: MALF 2016 Statistics Unit

Cassava production and yields were high in 2006/2007 and dropped in 2007/2008 (Figure 1); this may be caused by cassava mosaic disease and cassava brown streak. During subsequent years production and yields were fluctuating and increased in 2013/2014. This increase might be contributed to good agricultural management of the available land and use of appropriate technologies such as improved varieties, clean planting materials and fertilizers.

3. DEVELOPMENT PARTNERS SUPPORTING THE VALUE CHAIN

Several initiatives are promoting the development of cassava value chain in Tanzania. The International Institute of Tropical Agriculture (IITA) has been at the frontline in supporting the development of the value chain. With funding from the African Development Bank (AfDB) IITA



has established a training centre for cassava processing in Kwembe, Dar es Salaam, in an effort to promote value addition and commercialization of the crop. Another project implemented by IITA, with funding from the Bill and Melinda Gates Foundation (BMGF), is the African Cassava Agronomy Initiative (ACAI). The project aims to promote the cassava supply chain by supporting farmers in improving cassava root quality and yields.

The Bill and Melinda Gates Foundation also supports the *Cassava: Adding Value for Africa Project* (C:AVA). The project has been supporting cassava value addition initiatives in Mtwara and Lake Victoria regions. The Innovative Agricultural Research Initiative (iAGRI), a Feed the Future Project funded by the United States Agency for International Development (USAID), through the Mennonite Economic Development Associates (MEDA) is supporting Sokoine University of Agriculture (SUA) to design alternative water resources to enable sustainable water supply for cassava seed multiplication units in Dodoma Region.

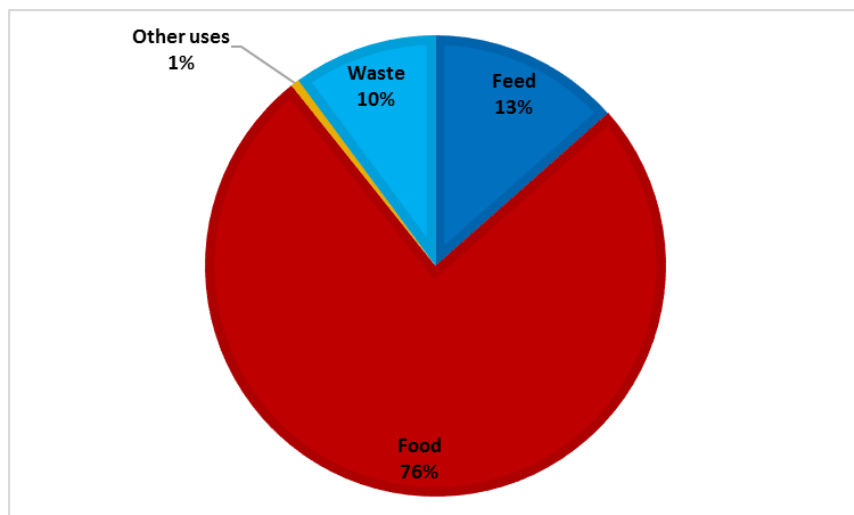
Furthermore, the Bill and Melinda Gates Foundation and the UK Department for International Development (DFID/UKaid) are supporting the project “Disease Diagnostics for Sustainable Cassava Productivity in Africa” that aims to diagnose, characterize, monitor and sustainably manage viruses affecting cassava productivity in Eastern and Southern Africa, as well as to enhance the capacity of national cassava research programs in sub-Saharan Africa. The Ministry of Agriculture Livestock and Fisheries, through its research centre, ARI-Mikocheni based Dar es Salaam, coordinates the Project.

4. CONSUMPTION

About 76% of the total cassava production in Tanzania is utilized as food, mainly in the form of boiled or fried fresh tubers, dried chips ground to flour or cassava crisps as snacks (Figure 2). Processing cassava for industrial use is very limited despite the many products that could potentially result from the crop. Only 13% of the total cassava production is used for animal feed. Due to high perishability of the crop after harvest and the lack of cassava processing facilities, more than 10% of the total production is wasted. Regional data on cassava exports are not well documented, suggesting there might be informal exports to neighbouring countries.



Figure 2. Cassava Consumption in Tanzania



Source: FAOSTAT, 2013

5. MARKETING, TRADE AND INVESTMENT OPPORTUNITIES

In the world market, cassava is mainly traded in pallets, as chips, flour or starch. A very small portion of the trade is in form of fresh tubers. Dominant players in the market are Thailand, Vietnam and Indonesia, supplying 96% of all cassava in the world market, and the largest importer is China, importing 60% of the global cassava market (Prakash, 2008). Tanzania has yet to exploit the versatile commercial benefits of the crop. Cassava has the potential to be transformed into different products for food, feed and it can be used as a raw material for industries.

Food

Besides the consumption of the fresh tuber, as is the norm, cassava can be processed into high quality flour for traditional home use in 'ugali', 'maandazi' and 'chapati'. The flour can also be used by food companies that produce biscuits, crisps, bread, cakes and other confectionary.

Animal Feed

Market analysis shows that in Tanzania there is an estimated demand of 40,000-45,000 tons per annum of processed cassava chips for blending in animal feed (Bennett et al., 2014). Tanzania's animal feed industry is one of the fastest growing industries in the country, fuelled



by the commercialization of the poultry and pork sub-sectors. For the past decade animal feed production has increased by 168%².

Raw Material

Starch is one form of processed cassava with a wide range of industrial uses including in brewing, textile making, manufacturing paper and cardboard, making glue and in pharmaceutical industry. Currently, Tanzania depends solely on imports to meet its starch demand for industrial use. As of 2015 the country imported 3,000 MT of corn starch worth USD 1.7 million, most of which was used by the brewing industry, the largest consumer of starch in the country.

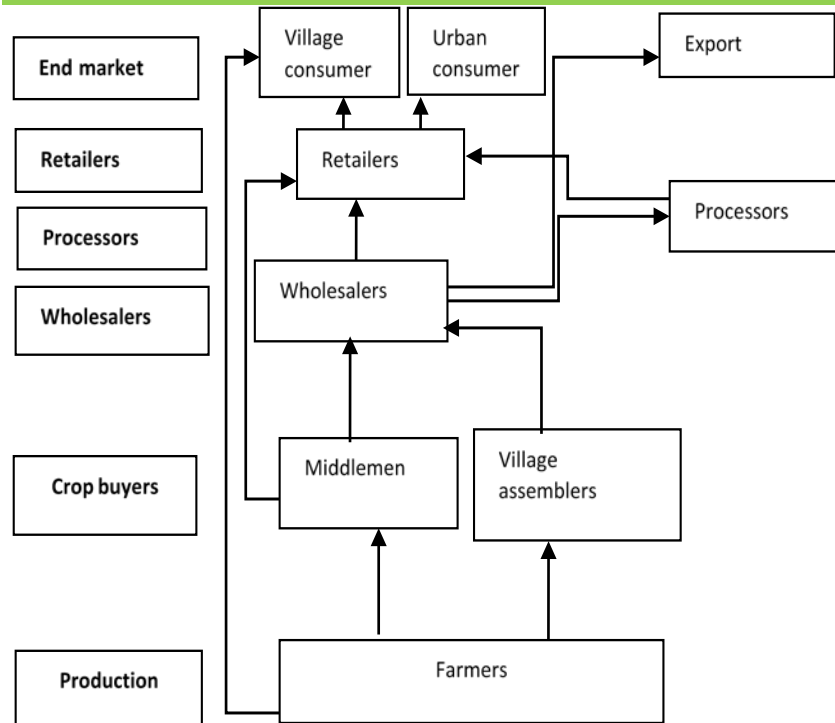
Lucrative investment opportunities in the cassava value chain are yet to be uncovered in Tanzania. Urban consumers are becoming more conscious of what they eat and are moving to more traditional staples; this is an opportunity for food processing industries to expand cassava processing into high quality flour and other products for the market. To cater for the needs of the growing livestock sub-sector, there is a need to up-scale the existing cassava chip processing for animal feed. Establishing a starch producing factory would not only save the country's foreign currency reserves used for imports but also provide a reliable market for smallholder farmers and improve their livelihoods.

6. VALUE CHAIN

At farm level fresh cassava is sold to middlemen or village assemblers who in turn sell the tubers to wholesale traders who distribute the crop to retailers, processors and the export market (Figure 3).

Figure 3. Cassava Value Chain in Tanzania

² Source: 2005/2006 and 2015/2016 Agriculture budget speeches.



Sources: Mafuru et.al 2015

7. PROFITABILITY

Table1 compares the profit margins obtained by cassava farmers in two producing districts in the Lake Zone (Kwimba District and Bunda District). The profit margin is based on farm sizes of 1 acre (0.4 ha). Bunda District has a higher profit margin of TZS 214,400 compared to Kwimba District. The difference in profitability is mainly attributed to Bunda District's strategic location; it borders Kenya and Uganda enabling easy access to regional markets which offer better prices and low input costs. Poor accessibility to input and output markets has had a significant impact on profitability in the Kwimba District whose production cost is somehow lower than that of Bunda District.

Table 1. Gross Margin from Cassava for Kwimba and Bunda Districts



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Activity	Amount (TSh)		
A:Costs	Kwimba	Bunda	Overall
Land hiring	50,000	55000	52,500
Cuttings	90,000	23,500	56,750
Manure	16,667	5000	10,833
Manure application	1,667	12500	7,083
Land preparation	37,333	73750	55,542
Planting	13,000	17500	15,250
Weeding(1-3)	60,000	81,250	70,625
Harvesting	31,667	42500	37,083
Transporting	31,000	61000	46,000
Peeling	35,000	31000	33,000
Fermenting	34,667	36000	35,333
Packaging sacks	16,267	16,500	16,383
Total cost (TSh)	417,267	455,500	436,383
B:Revenue			
Yield per acre (bags)	17	11	14
Price per bag (TSh)	32000	60900	46450
Revenue	544000	669900	650300
C: Profit Margin (Tsh)	126,733	214,400	213,917

Sources: Mafuru et.al 2015

8. STRUCTURE, CONDUCT AND PERFORMANCE

The cassava value chain is mainly dominated by a large number of unorganized players, smallholder farmers in the production nodule and small traders scattered throughout the value chain (Kapinga et al., 2005). Marketing linkages in the cassava value chain area are still weak, and the large number of uncoordinated players in the value chain is a great constraint to the development of the sub-sector.

Only about 13% of the total cassava production is marketed (Minot, 2010), most of the trading is done in small amounts in form of fresh tubers. Fresh tubers are bulky and of low value. Coupled with inefficiencies in the marketing chain such as poor transport and market infrastructure, the situation highly reduces the profit margins, limiting investment in the value chain.



9. POLICY ISSUES

Promote Timely Implementation of Policies and Initiatives that Support the Commercialization of the Cassava Crop

Delayed implementation of policies/initiatives that promote the growth of the cassava industry has been a great setback to the subsector. One of the main tasks identified in Kilimo Kwanza (Pillar No. 4) was to promote the demand for cassava through encouraging blending it with maize and wheat flour. To date, this initiative has not been promoted. Consequently, limited value addition and limited adoption of diversified cassava products have dwarfed the development of the cassava sub-sector. Trading in fresh tubers is costly, inefficient and unprofitable to farmers and traders. There is a need to stimulate the commercialization and thus the processing node of the cassava value chain. This can be achieved by supporting production initiatives and promoting processed cassava products.

Investing in Breeding Programs to Produce High Yielding and Disease Resistant Varieties

Cassava production in the country is faced with serious biotic constraints. Pests and diseases such as mealy bugs, green mites, cassava mosaic disease and cassava brown streak disease have greatly affected the country's cassava production and yields; providing support to breeding programs to improve production in the country is therefore an urgent need (Mkamilo and Jeremiah, 2005).

Promote Wide Dissemination of Cassava Research and Technology Development

Development of improved cassava varieties by agricultural research institutions should be coupled with wide dissemination and promotion of the technology including availability of improved and clean planting materials.

The potential to increase productivity in cassava production partly lies in improving the traditional production practices in producing areas. As a food security crop, cassava is mostly planted in poor soils with little or no fertilizer use. There is a need to encourage the use of organic and inorganic fertilizers to improve soil quality and productivity in the sub-sector.

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