Building sorghum seed sector along the grain market in Tanzania: Areas for policy support

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Overview of the sorghum grain sector in Tanzania

In Tanzania, sorghum is the 3rd most grown cereal with approximately 500,000 tons produced per year (FAOSTAT, 2018). It is grown in semi-arid regions of Dodoma, Singida, Mara, Shinyanga, Mwanza, and Tabora regions. Farmers primarily produce sorghum for consumption (83%) rather than commercial purpose (17%). It is mainly used as human food, animal feeds, alcoholic beverages, and biofuels. In the past years, there has been an increase in sorghum production from 676,772 tons in 2015 to 750,000 tons in 2020 (FAOSTAT, 2022). Recently, there is an increase in demand for sorghum since many people are increasingly getting aware of the health benefits that come with the consumption of sorghum like prevention of cancer, reducing tumor incidence, and lowering blood pressure (Saleh *et al*, 2013); and increase in sorghum demand among breweries like Serengeti Breweries Limited (SBL) (American sorghum, 2016). White sorghum is highly preferred in and outside the country because of its use, color and low tannin; and red sorghum is highly demanded in Lake Zone and Northern Highland of Tanzania and exported to Burundi and Rwanda. Tanzania mostly exports sorghum to Uganda, Rwanda, Kenya, Burundi, and United Arab Emirates (UAE). Sorghum grain in Tanzania hardly competes in both local and international markets because of the low-quality grain produced due to the use of landraces, traditional post-harvest method, limited extension services, and lack of information in good agronomic practices. The presence of low-quality grain gives grain off-takers hard time to compete in the market and this results in low grain prices. Sorghum grain sector faces a number of challenges including unreliable market (close to 36%), low quality grain (about 25%), high tariff (around 11%), lack of storage facilities and low price (around 5 to 6%) (Table 1). The sorghum value chain in Tanzania can be strengthened if the seed sector is responsive.

Off-takers involved in sorghum grain business and product types transacted

In sorghum grain business, the major buyers are traders (both small and large-scale traders) and large processors. Traders accounted for about 94% while processors represent about 6%. Most traders were in Dar-Es-Salaam and Dodoma specifically at Kibaigwa International Market. Major processors who use sorghum are brewing companies such as Tanzania Breweries Company Limited (TBL) and Serengeti Breweries Limited (SBL); malt industries such as CHIBUKU, poultry feed industries such as Interchick and food processing industries which produce thick and thin porridge flour. About 95% (325,432 tons) of sorghum is purchased by traders while processors purchase 18,800 tons per year. On the domestic market, white sorghum represents around 86%, red sorghum about 7% and around 7% are tan sorghum. On the exporter market, 70% of sorghum purchased is white (highly demanded in Kenya and Uganda), around 22% are red sorghum (highly demanded in Rwanda and Burundi), about 9% are tan sorghum, slightly demanded in Kenya, Uganda and Rwanda. Around 80% of the sorghum purchased by processors were white sorghum and 20% red sorghum (Table 2).

Current linkages between grain off-takers, farmers and seed producers: expected vs. actual business relationships

In Tanzania, grain off-takers, farmers and seed producers have weak linkages. Seed producers, farmers and grain

Table1: Challenges of the grain market for sorghum

Rank	Challenges	Off-takers (%)
1	Market unreliability	36.3
2	Low grain quality	24.8
3	High tariffs	10.6
4	Lack of storage facilities	6.2
5	Low grain price	5.3
6	Unavailability of grain	5.3
7	Different tariffs imposed across districts	4.4
8	High transportation cost	3.5
9	Price fluctuation	1.8
10	Lack of capital	1.8

Table 2: Product type purchased by major grain buyers.				
Variables	Traders (both small and large traders)			Processors
Product type	Internal market/Use%	Exportation %	Destination countries %	Internal market/use %
White sorghum	85.4	69.9	Kenya, Uganda	80
Red sorghum	7.3	21.7	Rwanda, Burundi	20
Tannin sorghum	7.3	8.4	Kenya, Uganda, Rwanda	0

off-takers seed to do their businesses independently without much communication with one another to connect improved variety supply and grain market demand. Sorghum farmers seem to produce based on variety accessibility and affordability and not the target product needed in the market. They mostly produce for consumption and use their own recycled seed (48.2%) or seed received from neighbors (9.6%). Seed producers produce what they regard to be good for farmers for better grain with similar trait regardless of location, environment and market. Grain off-takers aim to purchase and sell quality grain in the market which is hardly found among farmers. According to the National Bureau of Statistics (NBS, 2018), from 2009, there had been an increase in sorghum business, where most farmers engaged in commercial farming. For farmers, seed producers and grain off-takers to succeed in their respective business, they need to speak to one another. They are supposed to have clear communication among themselves on what to produce, where to produce and to whom to sell.

Matching sorghum seed and grain market: existing gaps

Challenges in seed market affects grain market as well. Sorghum seed and grain market are both faced with low quality as a challenge. About 71% of the grain in the market are of low quality due to the use of unimproved seed, inadequate funds for research activities, lack of storage facilities for both seed and grain, failure of the extension department to provide needed knowledge to farmers and grain off-takers. Grain off-takers reported policy problem areas that weak marketing links (28%); high tariffs during transportation (27%); and less promotion of the crop (21%) as factors hindering grain off-takers in grain business.

Policy recommendations for enhancing improved sorghum variety dissemination in Tanzania

The following recommendations are formulated to build sorghum seed sector along the grain market:

- Enhanced communication and interactions among seed producers, farmers, and grain off-takers
- Contract farming to closely link the various components of the commodity value chain. Most important, a streamline contract farming involving seed producers, farmers or farmer groups, and grain off-takers will make a difference.
- Other inputs such as fertilizer pesticides and insecticides to compliment the use of improved variety seeds is key to sustainably ties quality seed and grain markets.

References

American Sorghum. 2016. Sorghum sees Research breakthroughs and New Markets. United Sorghum Check off Program. http://www.sorghumcheckoff.com. Visited on 17/12/2021.

FAOSTAT. 2018. Food and Agriculture Organization, Statistics Division. Rome, Italy.

FAOSTAT. 2022. Food and Agriculture Organization, Statistics Division. Rome, Italy.

NBS (National Bureau of Statistics). 2018. Consumption and Commercialization trends of sorghum (unpublished data). Dar es Salaam, Tanzania.

Saleh, M., Zhang. Q., Chen, J., and Shen, Q. 2013. Millet Grain: Nutritional Quality, Processing, and Potential Health Benefits, Comprehensive Reviews in Food Science and Food Safety, 12: 281-295.

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