

CONSTRAINTS TO INTERMEDIARIES ROLE IN VALUE ADDITION AND QUALITY IMPROVEMENT FOR FRESH FRUITS AND VEGETABLES SUPPLY CHAIN IN DAR ES SALAAM CITY, TANZANIA

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ABSTRACT

Despite the critical role played by intermediaries in value addition and quality improvement in the context of urban fresh fruits and vegetable supply chain, this same role has not been fully realised in the context of urban fruits and vegetable supply chain in Dar es Salaam, Tanzania. This paper explores the intermediaries' role on value addition and quality improvement in the context of urban fresh fruits and vegetable (FFVs) supply chain in Dar es Salaam city to understand impediments to value addition and quality improvement. Qualitative approach was adopted and data were collected using documentary review, in-depth interviews, and Focus Group Discussion (FGD) and non-participant observations based on the purposive sample size of 60 respondents. Thematic data analysis strategy was adopted and data were analysed using MAXQDA software. Findings showed that the intermediaries' inability to value addition and quality improvement for urban fresh fruits and vegetables were determined by a number of factors. The inability to facilitate packaging and packing was related to inadequate knowledge and awareness of packaging facilities, limited financial capital to buy modern packaging facilities and lack of quality and value assurance regulatory authorities. Impediments to branding and labelling rotated around inadequate branding and labelling technology and tools, inadequate knowledge and skills, financial difficulties by the intermediaries. Impediments to grading and sorting emanated from lack of proper grading and sorting tools and lack of knowledge and awareness on value addition and quality improvement. Impediments to collection were caused by lack of modern harvesting and collection tools, lack of modern storage facilities as well as climate changes and variation. Lastly, impediments to inspection and arrangement revolved around poor timing for conducting inspection, lack of enough fund to buy inspection tools and poor coordination of inspection. Strategies for overcoming the impediments include introduction and enforcement of relevant laws, regulatory mechanisms, appropriate policies and regulations that would effectively govern issues of fruits and vegetable value addition and quality improvement, sensitizing intermediaries on proper knowledge and skills, provision of financial assistance to intermediaries to facilitate packing and packaging of the FFV as well as improvement of marketing and selling strategies.

Keywords: *Intermediaries, Value addition, Fruits and Vegetables, Supply Chain, Impediments*

INTRODUCTION

Background Information

Supply chain of urban fruits and vegetables plays a major role in ensuring traders and farmers' sustainable livelihoods and food security for urban communities. This contributes positively towards individuals and national economy (Oguoma *et al.*, 2011). This owes in part the increasing urban fruits and vegetable trade which is a result of the sweeping urbanization process that has led to skyrocketing of food prices and the need to alleviate income poverty and famine, more especially in the context of low-income consumers (Pingali *et al.*, 2015). In Tanzania, around 30% of the populace lives in urban areas with Dar es Salaam city hosting 40% of the 22 million urban population. Such rapid urbanisation among other things attracts fruits and vegetable trade in urban and peri-urban areas (FAO, 2015).

One of the important roles played by the intermediaries in the supply chain of urban fresh fruits and vegetables is ensuring value addition and quality improvement for fruits and vegetables in urban areas (Issa & Munishi, 2020). Value addition refers to the additional features or economic value that a company or an agent adds to its products and services before offering them to customers (Mwagike & Mdoe, 2015). Value addition may take different forms including but not limited to adding a brand name to a generic product or assembling a product in an innovative way (Mwagike & Mdoe, 2015). Value addition to products or services has several advantages including helping a company or a firm to attract more customers, which can boost revenue and profits (Kulshrestha, 2018; Mwagike & Mdoe, 2015). It is indeed an important strategy to demonstrate a difference between a product's price to consumers and the cost of producing it (Holz-Clause, 2009; Mwagike & Mdoe, 2015). Value addition and quality improvement of fruits and vegetables in this context refers to the process of changing or transforming fresh fruits and vegetables from their original state to a more valuable one (Dalal *et al.*, 2019; Sharangi, 2019).

With regards to supply chain, it involves full range of activities or tasks that are required to bring a product or service from conception, through different phases of production and delivery to the final consumers (Chopra & Meindel, 2010 ; Coltrain *et al.*, 2000). Intermediaries, therefore through supply chain functions, facilitate value addition and quality improvement by transforming fruits and vegetables into more appropriate condition required by customers. Such conditions include but not limited to packaging and branding of the urban fresh fruits and vegetable products (Ballou, 2007; Veena, 2011; Hernández *et al.*, 2018; Mgonja & Utou, 2017). Intermediaries also facilitate the sorting and grading of fresh fruits and vegetable products through packing them into cartons and other appropriate containers ready for transportation (Agrawal, 2018; Rushton *et al.*, 2010). They also collect fruits and vegetables into dispatch containers such as roll cages and cartons as per customer orders ready for dispatch and transportation (Moran, 2018; Lehtinen *et al.*, 2016). However, intermediaries have been found to be less effective in undertaking their role of value addition and quality improvement s in the context of urban fresh fruits and vegetable supply chain. This is more evident in Tanzania where marketing, branding and packaging services are still minimal compared to the required standards (Publication, 2011; Mwagike & Mdoe, 2015; Issa & Munishi, 2020; Mwagike & Mdoe, 2015).

Several initiatives have been undertaken by various stakeholders to maintain and promote the role of intermediaries in value addition and quality improvement. These include the establishment of various relevant organisations under the Ministry of Industry and Trade (MIT) e.g. Small Industries Development Organisation (SIDO), Tanzania Bureau of Standards (TBS) (Issa & Munishi, 2020). Moreover, the Ministry of Regional Administration and Local Government of Tanzania is responsible for coordinating issues of trade and business particularly adjusting products branding, standard and quality which also takes into account the fresh fruits and vegetables (URT, 2010; URT, 2005). Other initiatives are enactment of Trade Act, agricultural development policy as well as SMEs policy and above all the national horticultural policy that addresses challenges facing the horticultural industry in Tanzania including aspects of fresh fruits and vegetables in Tanzania (HODECT, 2011).

Despite the critical importance of value addition and quality improvement of the fruits and vegetables plus the efforts invested in the subsector; value addition and quality for urban fresh fruits and vegetables are not impressive enough; meaning that this role is still less effectively implemented and thus leading to food losses and waste as opposed to business promotion and improvement (USAID, 2013; Shankar *et al.*, 2017; Area, 2014). For example, post-harvest losses levels mainly resulting from the poor value addition and quality improvement in Tanzania is estimated at 10%-30% in perishable commodities including fruits and vegetable products (MOA, 2019; Mwagike & Mdoe, 2015; Mgonja & Utou, 2017). In most cases, some FFVs farmers, markets, intermediaries and traders lack required facilities and techniques that may add value and quality for fruits and vegetables, poor government intervention on value promotion, lack of specific convenient markets structure for specified products, inadequate tools for promoting quality at the farms gate as well as inadequate storage facilities for maintaining value for fresh fruits and vegetables (Mwagike & Mdoe, 2015; Reddy *et al.*, 2010; Rushton *et al.*, 2010). This situation poses far reaching negative impacts on fresh fruits and vegetables supply chain and on the traders' efforts in particular, considering that majority of the traders and governments depend on fruits and vegetables value and quality as their sole source of livelihood and income (Ali *et al.*, 2013; Saima *et al.*, 2014; Sharangi, 2019; Naik & Suresh, 2018; Wakholi *et al.*, 2015). Owing to the above stated situation, this research intends to explore constraints to intermediaries' role in ensuring value addition and quality improvement of the urban fruits and vegetables in the Tanzanian context as well as recommending the strategies to improve the situation.

Research Objectives

Based on the foregoing background, the main objective of the study is to get a better understanding of intermediaries' role in value addition and quality improvement for urban fresh fruits and vegetables in the context of supply chain and recommend strategies for alleviating the constraints. Specifically, the study explores factors impeding intermediaries' role to value addition and quality improvement of fresh fruits and vegetables supply chain in Dar es Salaam in order to determine strategies for improving the situation.

LITERATURE REVIEW

The existing literature highlights intermediaries' impediments to facilitating packaging and packing for fruits and vegetables related products as presence of poor packaging facilities for fresh fruits and vegetables. This makes it very difficult to more conveniently pack the fresh produce to urban areas (Mwagike & Mdoe, 2015). Another impediment is inadequate knowledge and awareness of packaging facilities by the intermediaries (Mgonja & Utou, 2017), suggesting that intermediaries use less convenient and poorly designed packaging materials to pack fresh fruits and vegetables when delivering them to the market places (Mwagike & Mdoe, 2015; Mwagike & Mdoe, 2015; Negi, 2015; Negi & Anand, 2015; 2016). Moreover, intermediaries are hampered by limited financial capital to afford modern packaging facilities (Sharma & Jain, 2011). Other impediments are related to lack of quality and value assurance, regulatory authorities at the cultivating areas and the poor enforcement of the existing quality assurance and standard mechanism (Wakholi *et al.*, 2015). Moreover, inadequate technology on packaging and packing facilities acts as another constraint (Barman, 2016; MOA, 2019; Shukla & Jharkharia, 2013).

Other impediments are related to branding. Literature presents several reasons behind intermediary's inability to effectively facilitate this role in the context of fresh fruits and vegetables. One of the reasons is lack of relevant technology related to branding and labelling of products (Negi & Anand, 2015). Moreover, intermediaries are hampered by inadequate knowledge and skills related to branding of fruits and vegetables (Negi, 2015; Negi & Anand, 2015, 2016). Intermediaries are confronted with the problems of fluctuations and a mismatch in supply and demand of fruits and vegetables products owing to their perishable nature (Meyer *et al.*, 2017).

In discharging their role of grading and sorting of fruits and vegetables, intermediaries are impeded by lack of proper grading and sorting tools for determining the products maturity in the farms (Khatun & Khandoker, 2014). This aspect inclines the intermediaries to use traditional tools in determining products maturity and grades (Mazengo, 2014; Agarwal, 2017a; 2017b). Moreover, intermediaries are hampered by the absence of quality and grading assurance authorities more especially during the transportation of these products (Haldar, 2018; Wakholi *et al.*, 2015). On top of that, intermediaries are confronted by lack of skills related to grading and sorting for fruits and vegetables (Sharma & Singh, 2011; Maier, 2015; Sheoran A, 2015). Another impediment related to this role is lack of knowledge and awareness on the application of quality packaging devices which incline the intermediaries opt for less appropriate packaging facilities which are evidenced through use of traditional and worn out containers (Mwagike & Mdoe, 2015; Mgonja & Utou, 2017).

Literature further sites a number of constraints to intermediaries' inability to effectively facilitate collection of fruits and vegetables. One of the factors has to do with lack of modern harvesting and collection tools an aspect that forces them to utilise traditional methods of harvesting and handling fruits (Fernandez-Stark *et al.*, 2011; Mgonja & Utou, 2017). Moreover, intermediaries are negatively affected by the absence of modern storage facilities where they can safely keep the fruits and vegetables in order to not compromise products quality (Mazengo, 2014; Hernández-Rubio *et al.*, 2018). Closely related to that is bad weather condition, meaning that increase or decrease in temperatures negatively affect the products in different ways and contexts (Issa & Munishi, 2020; Sharma & Sharma, 2019; Meyer *et al.*, 2017).

In the context of inspection and arrangement intermediaries are constrained by poor timing for conducting products inspection at the cultivating areas (Register, 2014; Mazengo, 2014). Moreover, intermediaries and farmers lack the inspection tools that can facilitate grading, sorting for decayed and damaged fresh fruits and vegetables related products (Issa & Munishi, 2020). Also intermediaries fail to undertake inspection due to lack of reliable maturity index as well as oversupply of fresh produce when it comes to inspection and arrangement for fruits and vegetables (Kimaro & Msogya, 2012).

Another constraint to inspection among the intermediaries are related to lack of technology more especially those related ICT (Kalidas *et al.*, 2014). Basically, IT tools and software to determine maturity, ripening and quality for fresh produces are inadequate. Moreover, intermediaries lack funds to buy inspection tools that can help them to ensure quality and value for fruits and vegetables in particular (Sharma& Singh, 2011; Verma *et al.*, 2019). Lastly, the above reviewed literature clearly points out various constraints to intermediaries' role in value addition and quality improvement for fresh fruits and vegetables. However, the literature does not specifically address these challenges in the context of fresh fruits and vegetables based on the supply chain context. Moreover, the literature does not specifically focus on African cities and Dar es Salaam city Tanzania in particular.

METHODOLOGY

This research was carried out in Dar es Salaam city and concentrated at the Temeke Stereo and Ilala Markets where fresh fruits and vegetables trade and specific tasks of value addition and quality improvement such as packaging, sorting as well as branding and labelling take place in grater volumes. The research employed a qualitative case study design which is useful in explaining, describing, exploring and obtaining appreciation of the phenomenon of interest in everyday contexts (Toledo-Pereyra, 2012; Cresswell, 2003; Denzin & Lincoln, 2003; Åman, 2011). More specifically, case study facilitated an in-depth and indeed a better understanding for the intermediaries' constraints to the value addition and quality improvement of urban fresh fruits and vegetables in the context of supply chain. A purposive sample size of 60 respondents was employed whereby 25 of the respondents were obtained from Ilala Market, and the remaining 35 respondents from Temeke Stereo Market. Multiple methods of data collection were used, including in-depth interviews, focused group discussion (FGD), non-participant observation and documentary review (Astalin, 2013; Haron, 2012;Williams, 2007).

In-depth interviews were conducted with the intermediaries, urban farmers, markets officials, customers and traders in particular at the two markets in Dar es Salaam city. The interviews made it possible for the researcher to examine factors impeding intermediaries' roles to value addition and quality improvement in the context of the urban fresh fruits and vegetables supply chain. Non-participant observation was used to deeply explore intermediaries' impediments to value addition and quality improvement for fresh fruits and vegetables in urban areas. This was more useful in specifically to establishing as well as comparing the extent to which impediments affected various categories of value addition and quality improvement among intermediaries notably traders, market officers and urban farmers.

Moreover, total of four FGDs were conducted, two at the Ilala Market and two at the Temeke Stereo Market and each group of FGD comprised of around 5 to 10 participants. FGD procedures helped to stimulate memories, ideas and experience of intermediaries, customers, urban farmers and traders concerning the impediments to intermediaries' role of adding value and improving quality for fresh fruits and vegetables in urban areas. It enabled the researcher to undertake checks and balances concerning various responses given on the subject matter. FGD participants included the fruits and vegetables intermediaries' market officials, experienced traders and some urban farmers and were purposefully selected. The documentary review was also helpful in determining prior knowledge of the intermediaries in supply chain against the possible the intermediaries' role as well as impediments to intermediaries' role for fresh fruits and vegetables in urban areas.

Thematic data analysis strategy was adopted. This involved summarizing, arranging and organizing the data into themes and categories based on the specific research objectives. Prior to this, Swahili transcriptions were translated into English and the handwritten transcripts, typed and saved as documents in MS word. Analysis was facilitated by MAXQDA 10 [VERBI Software, Marburg, Germany]. To ensure trustworthiness of the findings the qualitative research procedures of credibility, transferability, dependability, and conformability were observed. This was ensured through some established strategies such as prolonged field engagement, triangulation, peer debriefing and support, member checking, as well as auditing at various stages of data collection and analysis (Mugenda, 1999; Padgett, 1998).

FINDINGS AND DISCUSSION

This section explores factors impeding intermediaries' role to value addition and quality improvement for urban fresh fruits and vegetables in the context of supply chain. It focuses on the five aspects notably; Collection, grading and sorting, packaging and packing, branding and labelling, inspection and arrangement.

Impediments to Facilitating Collection of FFV

Findings show that several factors impeded intermediaries from effectively playing their role of collecting fruits and vegetable as an important component of value addition and quality improvement of fresh fruits and vegetables. The first impediment relates to lack of modern crop harvesting and collection tools as attested by 78% of the respondents, who affirmed that they collected fruits and vegetables using hands, buckets and wooden containers as put clear by this respondent;

Generally, farmers and traders use very local means of collecting the produces. You can imagine someone using means like wooden crates, plastics sacks, buckets and sometime plastic sacks to facilitate handling of their produces. One major reason for using this is off course due to lack of enough funds to buy adequate and more modern facilities hence resorting to traditional ones (Male pension Trader (36), Temeke Stereo Market-Dar es Salaam)

Another factor that deterred the collection of fruits and vegetables was lack of modern tools for collecting vegetables and fruits from the farms as confirmed by 73% of the respondents. They emphasized that, collection tools were poorly constructed and designed and less convenient to carry big quantities of fresh fruits and vegetables like watermelon, avocados, coconuts and bananas. Closely, related to this was the absence of modern storage facilities at the farm gate and at the market places as further confirmed by 73% of the respondents.

Findings further emphasized that, urban market places lacked central storage facilities; an aspect that forced the traders and intermediaries to store their products in unreliable storages such as canvas sheets, boxes, leaves and tables to cover temporary storage for fruits and vegetables. One of the respondents provided evidence hereunder;

When you approach at the market place particularly during evening time at around 06:15 pm, you can see fruits like mangoes, avocados, pineapples, coconuts, bananas etc. being temporarily stored in canvas materials. Likewise, to the vegetables like tomatoes, wooden boxes are used to make temporary storage due to absence of central storage facilities for vegetables in all market places (Males Trader (37), Stereo Respectively-Dar es Salaam).

On top of that, intermediaries were confronted by the problem of climate change and variability as confirmed by 70% of the respondents, who explained that climatic variation especially around the rainy season impeded them due the fact that some feeder roads in the cultivating areas were not passable as were characterized to send, mud and water which is difficult for the vehicles to move faster enough to carry fruits and vegetables. Impediments to the collection of fruits and vegetables is summarised in the following table.

Table 1.1: Impediments to the Collection of Fruits and Vegetables

Nature of Impediments to the collection	Frequency in %	Rank
Lack of modern harvesting and collection tools	78	1
Poor technology and tools	73	2
Absence of modern storage facilities	73	2
Climate changes and variation	70	3

Source: Field data, 2020

The above presented findings do not tell a very different story. The available literature stipulates that in discharging their role of collection of fruits and vegetables, intermediaries were impeded by lack of modern harvesting and collection tools, poor technology and harvesting tools, absence of modern storage facilities as well as climate changes and variation (Khatun & Khandoker, 2014; Mazengo, 2014; Agarwal, 2017a). These findings therefore positively contribute to the existing literature.

Impediment to Grading and Sorting

According the findings, one of the impediment to grading and sorting functions were lack of proper grading and sorting tools by the intermediaries as confirmed by 72 % of the respondents. They further explained that due to lack of grading tools farmers harvested fresh produces without using grading tools, but rather based on their local experiences that led to low product quality.



Improper grading technology for FFV (Photo, by Hassan, 2020)

Improper sorting of oranges (Photo by Issa, 2020)

This role was further complicated by lack of knowledge and awareness on value addition and quality as reported by around 42% of the respondents. Majority of intermediaries did not have knowledge and skills to assure products grades through modern grading technological devices for their fresh fruits and vegetables. This obviously led intermediaries to resort to the usage of traditional devices such as wooden containers, woven sacks and alike to protect temporary fruits and vegetables. Indeed, this aspect forced farmers to harvest fruits and vegetables in order to enrich customers’ demand more rapidly as further maintained by one of the respondents hereunder:

As you approach the farms, you may start seeing that fruits and vegetables are spoiled when being handled at different stages. This obviously reveals that farmers and business people lack proper knowledge on grading tools that can help to assure value and quality of their fresh produces at the cultivating areas (Male intermediaries (39), Temeke Stereo Market-Dar es Salaam)

Impediments to grading and sorting of fruits and vegetables are further summarised below:

Table 1.2: Summary of Impediments to grading and sorting for fruits and vegetables

Nature of impediments grading and sorting	Frequency in %	Rank
Lack of proper grading and sorting tools	72	1
Lack of awareness on value addition and quality improvement	42	2

Source: Field data, 2020

Concluding from the above findings, it can be said that generally intermediaries’ inability to undertake their role of grading and sorting for fruits and vegetables is associated with lack of proper grading and sorting tools as well as lack of knowledge and awareness on value addition and quality improvement. These findings reflect other previous findings in Tanzania (Mwagike & Mdoe, 2015;Mgonja & Utou, 2017;Mazengo, 2014), India (Khatun & Khandoker, 2014; Haldar, 2018;Wakholi *et al.*, 2015; Maier, 2015;Sheoran A, 2015; Sharma & Singh 2011).

Impediments to Packaging and Packing

Findings show that several factors impeded intermediaries from effectively playing their role of facilitating fruits and vegetables packaging and packing. First was inadequate knowledge and awareness of packaging facilities by the intermediaries as confirmed by 77% of respondents. Intermediaries’ inability to effectively play their role of packaging and packing was further complicated by their limited financial capital to afford modern packaging facilities as confirmed by 65% of the respondents. Respondents complained that financial constraints such as inadequate access of funds from government and financial institutions was impeded by complicated application procedures involved as well as their inability to qualify for funds due to lack of collaterals and other formalities required by the agencies. They emphasised that financial inability to acquire modern and effective packages inclined them resort to poor ones such as wooden-box, sacks, baskets and bags. This consequently, led to poor quality of fruits and vegetables.



Traditional packaging facility (photo; Hassan, 2020)



Traditional wooden boxes (Photo: Issa, 2020)

The implementation of this role was further impeded by lack of quality and value assurance regulatory authorities more especially for fruits and vegetables as reported by 61% of the respondents. The respondents stated that, quality assurance and regulatory authorities were missing and absent both at cultivating areas and in the urban setting, as emphasised here under:

In Tanzania, there are hardly authorities for controlling quality more especially when it comes to business related to fruits and vegetables. This obviously jeopardise the quality because then farmers and business people will be compromising quality at various levels of supply chain. We urge various relevant authorities to intervene this. (Male intermediary (52), Temeke Stereo Market)

Table 1.3: Summary of Impediments to packaging and packing of Fruits and Vegetables

Nature of impediments packaging and packing	Frequency %	Rank
Inadequate knowledge and awareness of packaging facilities	77	1
limited financial capital to buy modern packaging facilities	65	2
Lack of quality and value assurance regulatory authority	61	3

Source: Field data, 2020

Drawing from the above table, the role of the intermediaries to packaging and packing of fresh fruits and vegetables was impeded by inadequate knowledge and awareness of packaging facilities, limited financial capital to buy modern packaging facilities and above all lack of quality and value assurance regulatory authority for the fresh fruits and vegetables. These findings correspond well with some former studies notably (Mwagike & Mdoe, 2015; (Issa& Munishi, 2020); Mgonja & Utou, 2017; Negi, 2015; Negi & Anand, 2015, 2016; A. Sharma & Sharma, 2019; Sharma & Singh, 2011; Sharma & Jain, 2011; Sheoran A, 2015; Wakholi *et al.*, 2015; (Issa& Munishi, 2020); Barman, 2016; MOA, 2019; Shukla & Jharkharia, 2013). It thus suggests that this current study significantly contributes to knowledge as far as this particular study area is concerned.

Impediments to Branding and Labelling

Findings revealed a number of impediments to branding and labelling for fruits and vegetables. One of them was related to lack of technological tools for branding and labelling as confirmed by over 92% of the respondents. This role was further complicated by inadequate knowledge and skills on branding and labelling of fruits and vegetables by the intermediaries as reported by 68% of respondents. Indeed, quite a number of respondents emphasized that majority of intermediaries could not understand how branding and labelling in particular could lead to value addition and quality of the fruits and vegetables as one respondent complained hereunder;

Majority of fruits and vegetables vendors lack knowledge and skills of maintaining the necessary value and quality needed as far as branding and labelling of products is concerned. This is basically caused by lack of regulatory

frameworks, law and enforcement of the same from the government side to ensure this practice at the market place takes place (*Male trader (41), Ilala Market-Dar es Salaam*)

Respondents also mentioned financial difficulties as among the critical reason that rendered the intermediaries incapable of undertaking their role of facilitating branding and labelling for fruits and vegetables as confirmed by 65% of the respondents. They argued that, lack of funds made it hard for them to learn better skills for branding and labelling as well as acquiring labelling and branding materials and facilities.

Table 1.4: Summary, Impediments to branding and labelling for fruits and vegetables

Nature of impediments branding and labelling	Frequency in %	Ranks
Inadequate branding and labelling technology and tools	92	1
Inadequate knowledge and skills	68	2
Financial difficulties by the intermediaries	65	3

Source: Field data, 2020

In a nut shell, impediments to branding and labelling for fruits and vegetables experienced by the intermediaries included inadequate branding and labelling technology and tools, inadequate knowledge and skills and financial difficulties by the intermediaries. These challenges correspond well with the existing literatures as formerly discussed by other scholars (Mazengo, 2014; Negi, 2015; Negi & Anand, 2015, 2016; Meyer *et al.*, 2017) from different contexts.

Impediment to Inspection for FFVs

Findings established that one of the common impediment to inspection faced by the intermediaries was poor timing for conducting inspection of fruits and vegetables as attested by around 63% of the respondents. They confirmed that, farmers and traders were not clear about the time for harvesting and transporting the products, this led to more waiting time that automatically jeopardised products quality. Moreover, intermediaries also lacked funds to buy inspection tools as attested by 77%, the majority of respondents. They used dilapidated inspection equipment due to lack of financial capital to purchase new and modern ones. They also reported that, tools and equipment for inspecting fruits and vegetables were absent at the market and the cultivating areas. In line to this was poor coordination of inspection and arrangement as confirmed by 70% of the respondents. They argued that, this exercise was not well coordinated thus leading to confusing among farmers and traders that further compromise quality of fresh fruits and vegetables.

Table 1.5: Impediments to Inspection Arrangement for FFVs;

Nature of Impediments to inspection arrangement	Frequency in %	Ranks
Poor timing for conducting inspection	63	3
Lack of enough fund to buy inspection tools	73	1
Poor coordination of inspection and arrangement	70	2

Source: Field data, 2020

Findings show that impediments to inspection arrangement for FFVs; rotated around poor timing for conducting inspection, lack of enough fund to buy inspection tools, as well as poor coordination of inspection and arrangement. These findings generally correspond well with former studies in various parts of Tanzania (Mazengo, 2014; Issa & Munishi, 2020); Kimaro & Msogya, 2012) and in Asia (Verma, *at al.*, 2019; Kalidas *et al.*, 2014).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Accordingly, impediments to packaging and packing were identified as inadequate knowledge and awareness of packaging facilities, limited financial capital to buy modern packaging facilities and lack of quality and value assurance regulatory authority. Moreover, impediments branding and labelling were mentioned as inadequate branding and labelling technology and tools, inadequate knowledge and skills as well as the financial difficulties by the intermediaries.

Furthermore, impediments to grading and sorting were recorded as lack of proper grading and sorting tools and lack of knowledge and awareness on value addition and quality improvement among the intermediaries. Not only that but also

impediments to the collection were recorded as lack of modern harvesting and collection tools, lack of technology applications tools, absence of modern storage facilities as well as challenges related to climate changes and variations. Lastly, impediments to inspection arrangement were captured as being poor timing for conducting inspection, lack of enough fund to buy inspection tools and last but not least poor coordination of inspection and arrangement.

Recommendation

The following discussed impediments could be addressed based on the following proposed recommendations:

- Firstly, government through the ministries of trade and industry and the ministry of agriculture should introduce and enforce relevant laws, policies and regulations that will effectively govern issues of fruits and vegetable value addition and quality improvement in the areas of packaging and packing, branding and labelling, ensuring grading and sorting, facilitating the collection as well as ensuring the inspection arrangement for fruits and vegetables.
- Secondly, government through the ministries of trade and industry and the ministry of agriculture should introduce and enforce regulatory mechanisms and authorities for value addition and quality improvement of fruits and vegetables focusing on improvement that include packaging and packing, branding and labelling, ensuring grading and sorting, facilitating the collection as well as ensuring the inspection arrangement for fruits and vegetables.
- Thirdly, it is imperative for the above mentioned ministries to devise effective, training and sensitisation on relevant knowledge and skills in the area of fruits and vegetable value addition and quality improvement should be undertaken based on improvement that include packaging and packing, branding and labelling, ensuring grading and sorting, facilitating the collection as well as ensuring the inspection arrangement for fruits and vegetables..
- Fourthly, both public and private institutions such as the above mentioned ministries and departments as well as the Tanzania private sector foundation should endeavour to build financial capacity of the intermediaries, traders and farmers should be built to be able to address the various aspects of value addition and quality improvement notably in the areas of improvement that include packaging and packing, branding and labelling, ensuring grading and sorting, facilitating the collection as well as ensuring the inspection arrangement for fruits and vegetables
- Lastly, the government through the ministries of trade and industry, ministry of finance and planning and the ministry of agriculture should consider establishing reliable markets for fruits and vegetables as well as various marketing and selling strategies be given to the farmers to access market in order to set different prices to appropriate designated customers.

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