

Evaluation of Avocado Production and Export as a Source of Prosperity to Smallholder Farmers: A Case of Wanging'ombe District Mbandu Division, Tanzania

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ABSTRACT

This article is intended to assess the extent of avocado production and export as a source of prosperity for smallholder farmers in Wanging'ombe District, Njombe Region, Tanzania. The general objective of the study is to assess avocado production and export as a source of prosperity for smallholder farmers in Tanzania. The study was guided by absolute cost advantage theory and comparative cost advantage theory. With the use of the descriptive research design, the target population was small-scale farmers, employees from the OLIVADO industry, and Wards Extension Officers. 150 respondents from six wards in the Wanging'ombe area were chosen using simple random sampling and purposive sampling. The data collection methods used were questionnaires, interviews, and focus groups, and the analysis was conducted through quantitative methods. The findings show that many farmers in Wanging'ombe district owned orchards of 1 to 5 acres only due to limited capital. This is because avocado cultivation thrive well under commercial cultivation which needs high capital for purchasing quality propagates, fertilizers and agrochemicals which many farmers are unable to access, avocado farmers face significant production and export market challenges as a result of their lack of suitable farmer skills and knowledge, the primary marketing channel for avocado producers is wholesalers as Tanzania's northern region's export channel is fueling growth, the local market and, to a lesser extent, an export section is driving development in Southern Highlands and identified a low poverty rate amongst avocado growers which is a main indicator of a rising standard of living among avocado farmers. The study concluded that various agricultural institutions as well as the government have been participating and conducting various trainings to build the capacity of Waging'ombe avocado farmers as well as the distribution of fertilizers and quality seeds to produce crops with the required quality in the export market and thus find a market for exportation, increasing their income and reducing poverty in their areas. The study concluded that provision of education for international commercial terms for exporting agricultural products, increase subsidies to agricultural inputs, access to low-interest rate loans from financial institutions to support small avocado farmers, increase in whole sellers' companies in the marketing channel to reduce bureaucracy, increase packaging quality of the avocado products, and improvement of infrastructure will be crucial to avocado farmers in Waging'ombe district.

Keywords: Avocado Production, Export, Small Farmers

I. INTRODUCTION

Promotion of agricultural production and agricultural trade is recommended as a key strategy for economic growth and poverty reduction. An Organization for Economic Cooperation and Development (OECD) report (2017) titled "Monitoring and Evaluation of Agricultural Policies 2017" showed that few countries achieved sustained economic growth without being preceded or accompanied by agricultural and rural growth. However, most analysts agree that only smallholder agriculture can achieve sustainable rural economic growth and associated poverty reduction, and avocados are considered "green gold" in Mexico and are produced all year round (Barrett et al., 2022).

Per capita consumption of avocados in Europe also increased by an average of 179% between 2012/13 and 2017/18 (from 54% in France to 248% in Italy), and the industry expects further increases. A significant part of this demand is due to Europe's young millennials and the rise of a flexitarian diet that places more emphasis on plant-based foods. The global avocado market is expected to grow at a Compound Annual Growth Rate (CAGR) of 6.2% from 2017 to 2027. Furthermore, the retail price of avocados in the EU is relatively stable due to a relatively safe and stable supply. The top avocado importers in 2018 were the USA, Netherlands, France, Italy, the UK, Spain (Carman, 2019).

With a focus on tomatoes and avocados, the University of Pretoria has conducted extensive research initiatives to look into the postharvest conditions of fresh food in South Africa. This study looks into how fresh produce is handled in packhouse settings and how it is then transported over long distances by road, first from Tzaneen in the Limpopo Province to Cape Town in the Western Cape Province, which is roughly ± 1800 km, and then by sea from Cape Town to Rotterdam in the Netherlands, which is approximately $\sim \pm 12,500$ km, with the goal of reaching international markets. Fresh produce value chains, such as those for avocados, are important for local

residents and the surrounding communities that depend on them, as well as for farmers and other stakeholders engaged in the smooth execution of the various phases' underlying operations (Sibomana et al., 2016).

A study in Kenya by Amare et al. (2019) examined incentives for outsourced farming but did not examine differences in avocado production performance between contracted and non-contracted smallholders. Production results, such as the quality and quantity of avocados sold, are key performance indicators of productivity, efficiency, and competitiveness. Given that the quality and quantity of avocados produced and sold are indicators, the demand-driven growth of avocados creates employment opportunities and increases the incomes of rural households.

Tanzania's economy is based on agriculture, which generates more than 25% of the nation's Gross Domestic Product (GDP), provides 85% of its exports, and employs around 65% of the labor force. The majority of producers are on small farms. Due to the numerous production and marketing challenges faced by smallholder farmers, the market performance of high-value crops looks to be subpar. Siamwalla (2018) argued that lack of markets, poor product quality, and high transaction costs are some of the challenges faced by small farmers in Africa.

In 2017, Tanzania exported 4.4 thousand metric tons of avocados; Kenya (57%) was the top export market in 2017, followed by France (15%), the Netherlands (15%), and the UK (15%). It is important to note that Kenya reexports avocados to Europe and Asia after receiving them as exports from Tanzania. From 2012 to 2016, the Tanzanian Revenue Authority (TRA) put avocados in the top 10 exports. Tanzania's Wanging'ombe district's avocado farming is a fascinating illustration of the contribution agriculture may make to extreme poverty. The avocado was just recently introduced to Tanzania and has the potential to be both a cash crop and a food crop. The Wanging'ombe district is one of the poorest areas in the country. Small-scale agriculture production employment is a significant source of revenue throughout the nation, particularly in the Wanging'ombe district. In this community, avocados are commonly farmed and sold (Mwakalinga et al., 2019).

This paper therefore empirically analyzes avocado production and export as a source of prosperity for smallholder farmers' livelihoods. The paper seeks to answer the following questions: What is the current status of the production and marketing of the avocado crop in Wanging'ombe district? What are the major fruit marketing channels in Wanging'ombe district? Does participation in avocado production and export improve the livelihoods of smallholder farmers? What are the setbacks of the avocado production and export industries in Wanging'ombe district?

1.1 Statement of the Problem

With over 65 percent of the people involved in agriculture, Tanzania's economy is mostly based on agriculture. Small-scale farmers make up the majority. Avocado farming has attracted a lot of attention, and its significance has grown recently. Only a small portion of the avocados grown in Njombe are traded on the export market, which limits the country's potential to earn foreign currency. The plant has a long history of cultivation and is significant in securing income for the government and jobs for farmers and dealers (most of whom are women), but in Tanzania, it encourages production and commerce.

Tanzania has seen a decline in avocado exports compared to overall crop yield, despite rising global demand. According to the report of the Tanzania Horticultural Association (TAHA) in 2018, which is currently 7,000 metric tons of fruit annually, this is significantly lower than the export rates of competing nations like South Africa, Kenya, and Chile for avocados. Access to international markets, current knowledge of agricultural technology, and the introduction of cost-effective and novel technologies can raise household income and agricultural prices. As a result, the production and export of avocados, as well as their relationship to the prosperity of smallholder farmers in the Njombe Wanging'ombe district, were studied and evaluated.

1.2 Research Objective

- i. To study the current status of production of avocado crops in Wanging'ombe district.
- ii. To determine setbacks of avocado production and export industry in the Wanging'ombe district.
- iii. To identify the major marketing channels of avocado fruit in Wanging'ombe district.
- iv. To determine the extent of participation in avocado production and export has improved the livelihoods of smallholder farmers.

1.3 Research Questions

- i. What is the current status of production of the avocado crop in Wanging'ombe district?
- ii. What are the production setbacks of the avocado production and export industry in Wanging'ombe district?
- iii. What are the major marketing channels of avocado fruit in Wanging'ombe District?
- iv. To what extent the participation of people in avocado production and export has improved the livelihoods of smallholder farmers?

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Absolute Cost Advantage Theory

The founder of modern economics, Adam Smith, created this hypothesis. Adam Smith stated that the only way to ensure that trade will increase is through free trade. According to him, nations should only produce commodities if they are incomparably superior.

2.1.2 Comparative Cost Advantage Theory

David Ricardo was the one who originally put forth the comparative cost idea. Later, J.S. Mill, Marshall, Taussig, and others refined it. A clear edge is not necessary, according to Riccardo. Theoretically, each nation should concentrate on manufacturing goods that benefit their nation the most or have the fewest drawbacks. Therefore, nations will export those items when the going is good and import them when the going is bad.

2.2 Empirical Review

Zekarias (2018) pointed out in his study that the distance differences are related to the size of the breeds used and to differences in breeding modes. This management method incorporates the indigenous practices of farmers, from seed propagation to harvest. According to Orwa et al. (2019), planting intervals are influenced by soil type, fertility, economic circumstances, and technological advancements. It is cultivated in commercial forests in rows that are 5-7 m tall with 7-9 m between them. His first two years of trimming encouraged many trusses to branch out and expand laterally.

Saenger et al. (2018) argue that in numerous agroecological zones throughout Kenya, avocados are mostly farmed by small farmers for their own consumption or to sell in regional and international markets. Local types dominate Kenya's production of avocados, making up over 70% of the total, while improved avocado varieties suitable for export, Fuerte and Hass, make up roughly 20% and 20% of the production, respectively.

Mwakalinga (2014) argues that avocados thrive in Tanzania's Kilimanjaro, Mbeya, Kagera, Arusha, Manyara, and Tanga regions. Less than 7,500 tons of avocados were produced in the nation in 2008. In contrast, a dramatic growth trend has been evident since 2008, with production rising from 7,500 metric tons to 19,449 metric tons in 2016–17 (United Republic of Tanzania [URT], 2016). The rise in global avocado demand from 2.71 million tons in 2000 to 5.92 million tons in 2017 is what is causing Tanzania's production to rise (Nyakang'i et al., 2023). Since then, Tanzanian avocado farming has gained attention as a potential new export market. This coincided with the introduction of an improved Hass avocado cultivar popular in the export market.

III. METHODOLOGY

3.1 Research Design and Scope of the Study

In this study, a descriptive study design was used by the researcher to find out in-depth data analysis regarding evaluation of avocado production and export as a source of prosperity to smallholder's farmers, and the scope of the study was conducted in Wanging'ombe District with the population study of one hundred and fifty farmers.

3.2 Sampling and Sample Size

This study used systematic random sampling to select members who meet the criteria with the Sample size of 150 from the below standard formula.

formula was used to determine the sample size for this study:

$$n = \frac{N}{1 + N \times (e)^2}$$

Where: n = the sample size N = total population, e = the acceptable sampling error, assuming a 96% confidence level, the acceptable sampling error is thus 0.04

$$n = \frac{198}{1 + 198 \times (0.04)^2} =$$

$$n = \frac{198}{1 + 198 \times 0.0016}$$

$$n = \frac{198}{1 + 0.3168}$$

$$n = \frac{198}{1.3168}$$

$$n = 150.365 \approx 150$$



As such total sample size required for survey will be 100 farmers and 50 employees from OLIVADO employees and ward extension officers.

3.8 Data Collection

A structured questionnaire was used for this study to gather data for this study, and respondents were supplied with the position of inquiry for them to point out their agreement or disagreement statement. The measurement scale used Likert for agreement and disagreement statements. The collected data was analyzed by quantitative approach through SPSS (23). These were presented through Tables.

IV. FINDINGS & DISCUSSIONS

4.1 Demographic Characteristics of the Respondents

Four demographic variables were involved, namely age, gender, education level (Table 1). More than 73.5% of the respondents were aged between 19 years to 39 years old, 26.5% of respondents to be the age of above 40 years this means majority of the staff are of the younger and middle age. These findings are kindly similar to the findings in the study of Lema (2015) who argued that the characteristics of people can be determined in traditional and economic activities.

Table 1
Demographic Characteristics of the Respondents

S/N		Frequency	%	Mean	Std. Dev.
1	Age			1.89	.87
	19-24	1	1.2		
	25-29	12	14.5		
	30-34	28	33.7		
	35-39	20	24.1		
	40-above	22	26.5		
2	Gender			1.60	.50
	male	63	75.9		
	female	20	24.1		

4.2 Production Trends for 5 Years

In this study, the aim was to investigate avocado production trends in acres. The results can be illustrated in the table below.

Table 2
Production Trends for five Years

less than 10 acres	39	47.0
10-20 acres	25	30.1
20-30 acres	8	9.6
30-40 acres	8	9.6
above 50 acres	3	3.6
Total	83	100.0

According to the above table, 47% of respondents stated that they had less than 10 acres to produce avocado products. Respondents, which comprise 30.1%, mentioned that they had between 10 and 20 acres for avocado production. Respondents who comprised 19.2% mentioned that they had between 20 and 40 acres for avocado production, and those who comprised 3.6% mentioned that they had more than 50 acres for avocado production in Waging'ombe district.

Table 3*Awareness on International Commercial Terms for Exporting Avocado*

SN	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1.	Policies supporting farmers	5 (6)	4 (4.8)	24 (28.9)	30 (36.1)	20 (24.1)	83 (100)
2.	Awareness on international commercial terms for exporting of avocado product	20 (24.1)	18 (21.7)	14 (16.9)	17 (20.5)	14 (16.9)	83 (100)
3.	Receive incentives from government	15 (18.1)	19 (22.9)	37 (44.6)	8 (9.6)	4 (4.8)	83 (100)
4.	Financial institution provide/support farmers through loans	4 (4.8)	2 (2.8)	16 (19.3)	27 (32.5)	34 (41)	83 (100)

4.3 Policies Supporting Avocado Farmers

The researcher looked at whether there were any policies assisting avocado farmers in table 5. The findings indicate that 36.1% of respondents agreed with the statement that policies support avocado farmers, 24.1% of respondents strongly agreed with the statement, 28.9% of respondents were unsure of their position on the issue, 4.8 percent of respondents disagreed with the statement, and 6% of respondents strongly disagreed with it. These results show that 60.2% of respondents agreed with the statement that policies benefit avocado producers, compared to 28.9% who were unsure and 10.8% of respondents who disagreed with the statement. According to the analysis, the majority of respondents agreed that there are measures that benefit avocado producers. This outcome is close to the study by Thomas and Mkundi (2020) who reveals that the development of good policies helps to a great extent in raising the agricultural sector starting with research, quality seeds and marketing.

4.4 Awareness on International Commercial Terms for Exporting of Avocado Product

In Table 3 above, the researcher assessed whether avocado farmers are aware on international commercial terms for exporting of avocado products. According to the findings, 24.1 percent of respondents strongly disagreed with the statement that they were aware of the international commercial terms for exporting avocado products, 21.7 percent of respondents strongly disagreed with the statement, 16.9 percent of respondents were unsure of their position on the statement, 20.5 percent of respondents agreed with the statement, and 16.9 percent of respondents strongly agreed with the statement. These results show that, in contrast to 16.9% of respondents who were unsure of the statement and 37.4% of respondents who agreed with it, 57.8% of respondents disagreed with the statement that they were aware of international commercial terms for exporting avocado products. According to the investigation, the majority of respondents refuted the claim that they were familiar with the international commercial terms for exporting avocado products. Similar research by Research on Poverty Alleviation (REPOA, 2018) found that exporters strongly emphasize that farmers must adhere to a set of specified production standards to satisfy the demands of foreign markets. These requirements include the use of species that produce large fruits, fruits with green skin, avoiding fruit skin fractures and blotches, and using little to no chemical fertilizers and pesticides, resulting in organic fruits.

4.5 Receive Incentives from Government

In Table 3 above, the researcher assessed whether avocado farmers receive incentives from the government. The findings show that 44.7% of respondents were neither agreed nor disagreed with the statement, 22.9 % disagreed with the statement, 18.1 % strongly disagreed with the statement, 9.6 % agreed with the statement, and 4.8 % highly agreed with the statement. According to these results, 44.7 percent of respondents were undecided regarding the statement that avocado farmers receive government subsidies, compared to 41 percent who disagreed with the statement and 14.4 percent of respondents who agreed. According to the analysis, the majority of respondents were unsure if the government should offer incentives to avocado producers in order to improve production, but neither agreed nor disagreed with that statement. The study by Saenger et al. (2018), which makes a similar argument, claims that a combination of public and private investments in supporting agricultural projects deliver strategic support to agricultural systems that expand the horizon of agricultural financing by enhancing its reach and impact and thereby lead to an increase in agricultural production.

4.6 Financial Institution Provide/Support Farmers through Loans

In Table 3 above, the researcher assessed whether financial institutions provide or support avocado farmers through loans. The results show that 41% of respondents strongly agreed with the statement that financial institutions provide or support avocado farmers through loans; 32.5% of respondents agreed with the statement; 19.3% of respondents were neither disagreeing nor agreeing with the statement; 4.8% of respondents strongly disagreed with the

statement; and 2.8% of respondents disagreed with the statement. These findings indicate that 73.5% of respondents agreed with the statement that financial institutions provide or support avocado farmers through loans, compared to 19.3% who were not sure about the statement and 7.6% of respondents who disagreed with it. The analysis recognizes that the majority of the respondents agreed that financial institutions provide or support avocado farmers through loans, which enable farmers to acquire agricultural inputs for increasing production. This is in line with the study by Gyau et al. (2016), who argue that timely access to funding sources is fundamental to creating better livelihoods for farmers by ensuring business viability. Agriculture needs funding for a variety of reasons. B. For operational activities, purchase, storage, and sale contracts for various agricultural implements, machinery, and quality seeds.

4.7 Marketing Channels of Avocados Production

In this study, the aim was to investigate marketing channels of avocado production by farmers. The results can be illustrated in the table below.

Table 4

Marketing Channels of Avocados Production

Statement	Frequency	Percent
wholesalers	37	44.6
Retailers	28	33.7
Local collectors	18	21.7
Total	83	100.0

In Table 4 above, the researcher identified the marketing channels of avocado production from interviews. The results show that 44.6% of respondents identified whole sellers as their marketing channel for their avocado production, 33.7% of respondents recognized retailers as their marketing channel, and 21.7% of respondents identified local collectors as their marketing channel. The analysis recognizes that the majority of the respondents identified wholesalers as their main marketing channel for their avocado production. This is similar to the study by Gyau et al. (2016), which contends that the rate of growth can be described as modest because there hasn't been a significant publicity campaign to support the crop. More important, though, is the fact that markets haven't yet received the support of numerous potential investors. While the northern zone's export route is fueling expansion, the domestic market and export segment are both important in the Southern Highlands.

4.8 Countries Exporting Avocado Products

In this study, the aim was to mention countries that are exporting avocados from Tanzania. The results can be illustrated in the table below.

Table 5

Countries Exporting Avocado Products from Tanzania

Country	Frequency	Percent
Netherland	37	44.6
France	11	13.3
United Kingdom	8	9.6
United Emirates	17	20.5
China	10	12.0
Total	83	100.0

In Table 5 above, the researcher assessed the countries that export avocado products from respondents. The results show that 44.6% of respondents identified the Netherlands as the main exporting country of their avocado products; 20.5% of respondents identified the United Emirate; 13.3% of respondents identified France; 12% of respondents identified China; and the last 9.6% of respondents identified the United Kingdom. These findings indicate that, compared to other countries, the majority of respondents identified the Netherlands as their main exporting country for avocado products. This is similar to the study by Gyau et al. (2016), who argue that the top destinations for avocados from Tanzania are the Netherlands, with a quarter of the product's exports, followed by France and the United Kingdom, together with 20% of exports. Also, the export value of 2019 was more than 8.5% times the 2013 value, and Tanzania's share in world markets increased from 0.1% to 0.4%.

4.9 Producing another Crops than Avocado

In this study, the aim was to investigate to respondents if they are producing other crops than avocado. The results can be illustrated in the table below;

Table 6

Producing Other Crops than Avocado

Response	Frequency	Percent
Strongly disagree	7	8.4
Disagree	12	14.5
Agree	22	26.5
Strongly Agree	42	50.6
Total	83	100.0

In Table 6 above, the researcher assessed whether avocado producers are producing another crops than avocado. The results show that 50.6% of respondents strongly agreed with the statement that they are producing another crops than avocado, 26.5% of respondents agreed with the statement, 14.5% of respondents were disagreed with the statement, and 8.4% of the respondent strongly disagreed with the statement. These findings indicate that 77.1% of respondents agreed with the statement that they were producing another crops than avocado compared to 22.9% of respondents who disagreed with the statement. The analysis recognizes that majority of the respondents agreed that they were producing another crops than avocado like maize, bananas, potatoes, union and tomatoes. This study by Ayelech (2018) contends that smallholder farmers in Ethiopia intercrop avocado at an early stage with maize, taro, ginger, chat, cabbage, and banana. Intercropping of avocados with short-cycled crops, which is highly popular in sub-Saharan Africa and best utilizes the space during the first few years, was the subject of a study by Gilliard and Godfroy (1995).

4.10 Production Setback to Avocado Farmers

In this study, the aim was to investigate production setback to small farmers. The results can be illustrated in the table below;

Table 7

Production Setback to Farmers

Response	Frequency	Percent
Pest And Diseases	20	24.1
Inadequate Farmer Skills And Knowledge	25	30.1
Limited Access To Finance	18	21.7
Drought	9	10.8
Cost Of Agricultural Inputs	11	13.3
Total	83	100.0

In Table 7 above, the researcher assessed production setback to avocado farmers. The results show that 30.1% of respondents identified inadequate farmer skills and knowledge as a main production setback to avocado farmers, 24.1% of respondents identified pest and diseases, 21.7% of respondents identified limitation on accessing finance, and 13.3% of respondents identified cost of agricultural inputs as a production setback to avocado farmers. The analysis recognizes that majority of the respondents identified inadequate farmer skills and knowledge as a major setback to avocado farmers' producers. Similar findings have been made in the study of De Souza et al. (2015), which claims that the majority of African avocado farmers struggle due to a lack of modern agricultural inputs, knowledge, skills, and technology. According to them, smallholder farmers were taught skills like farm planning, planting, pruning, fertilizer application, pest management, and disease control. Africado clarified that fewer inspections are conducted annually because farmers' capacities have significantly risen.

4.11 Export Market Setback

In this study, the aim was to investigate to respondents if there are export setback to their avocados. The results can be illustrated in the table below;

Table 8*Export Market Setback*

	Frequency	Percent
poor quality of produce	26	31.3
price fluctuation	18	21.7
transport and logistics issues	24	28.9
problem of middlemen	15	18.1
Total	83	100.0

In Table 8, the researcher assessed export market setback to avocado farmers. The results show that 31.3% of respondents identified poor quality of produce as a main export market setback to avocado farmers, 28.9% of respondents identified transport and logistics issues, 21.7% of respondents identified price fluctuation, and 18.1% of respondents identified cost middlemen problem as an export market setback to avocado farmers. The analysis recognizes that majority of the respondents identified poor quality of produce as a major export market setback to avocado farmers compared to other setbacks. This is similar to the study by Barrett et al. (2022), who argue that damage to avocados, poor transportation, low fruity quality and marketing information are hindering the export of avocados into the international market.

4.12 Indicators for Rising Standard of Living

In this study, the aim was to investigate to indicators for rising standard of living. The results can be illustrated in the table below;

Table 9*Indicators for Rising Standard of Living*

Statement	Frequency	Percent
Low poverty rate	39	47.0
Quality and affordability of housing	22	26.5
Hours of work required to purchase necessities	2	2.4
Gross domestic product (GDP)	9	10.8
Affordable access to quality healthcare	10	12.0
Quality and availability of education	1	1.2
Total	83	100.0

In Table 9, the researcher evaluated indicators for avocado farmers' rising standard of living. The results show that 47% of respondents identified a low poverty rate as a main indicator of rising standards of living among avocado farmers, 26.5% of respondents identified quality and affordability of housing as an indicator, 12% of respondents identified affordable access to quality healthcare, 10.8% of respondents identified gross domestic product (GDP), 2.4% of respondents identified hours of work required to purchase necessities, and 1.2% of respondents identified quality and availability of education as an indicator of rising standards of living. The analysis acknowledges that the majority of respondents identified the low poverty rate as a primary indicator of a rising standard of living among avocado farmers compared to other indicators. This is similar to the study by Tabeshpour et al. (2017), who argued that the efficiencies of existing small farms offer the greatest potential. The production and trading of crops, as well as the circumstances surrounding these activities, all play a significant role.

V. CONCLUSIONS & RECOMMENDATIONS**5.1 Conclusions**

Based on the objectives and the findings of the study, the following conclusion can be drawn: The study concluded that various agricultural institutions as well as the government have been participating and conducting various trainings to build the capacity of avocado farmers, as well as the distribution of fertilizers and quality seeds to produce crops with the required quality in the export market. Despite the various challenges in the production of avocados, the Wanging'ombe district farmers of this crop have been striving to produce quality products and thus find a market for exportation, thus increasing their income and reducing poverty in their areas.

The avocado industry needs a worthwhile and supportive environment in order to enhance the capacity of avocado production in this region and, as a result, support small-scale farmers in increasing their income from this sector. This could involve enhancing the assets of rural poor households, particularly through more equitable land distribution, boosting the productivity of small-scale farmers by providing them with access to farming inputs and skills, and creating opportunities in the rural non-agricultural economy by promoting non-agricultural livelihoods and developing practical and workable rural infrastructure. The development of avocado growing, not only in Waging'ombe but also in other regions of the country where this product can thrive, requires significant government involvement and a strong commitment to agricultural policy within the agricultural sector.

5.3 Recommendations

Various agricultural stakeholders as well as the government should provide education on international commercial terms for exporting agricultural products so that farmers can produce quality products in order to access the international market. This comes from the fact that many farmers, especially small-scale farmers, lack education on producing quality products like avocados in order to meet international standards and be compatible with the world market, so this education will help small farmers produce quality products for the world market.

The government should make an effort to increase subsidies for agricultural inputs, as many small avocado farmers have had the challenge of accessing adequate agricultural inputs so that they can produce avocado products that are compatible with international markets. This subsidy will help reduce the cost of agricultural inputs and thus increase the production of avocados.

Financial institutions should put a low interest rate on loans for small farmers, many of whom do not have enough capital to be able to invest in avocado production, so that they can get modern agricultural inputs and fertilizers that help in the quality production of avocados. The availability of modern agricultural inputs helps small farmers produce high-quality avocado products on the international market. However, the obstacle has been the availability of capital to achieve the goals of better avocado production.

Due to the small presence of whole-seller companies in the marketing channel of avocados, this market has been determined by a few companies that set the market price of avocados, and thus small farmers get little benefit from not having a special price in the market. The increase in whole sellers in the marketing channel will help to increase the competitive price in the market, and thus farmers will sell their avocado products at a more profitable price.

There have been challenges in product packaging for the international market, thus reducing the quality of products, especially avocado products. So agricultural cooperatives, stakeholders, the government, and whole sellers are responsible for providing education about product packaging on various crops like avocados to protect their quality and also to reach the standards set in the international market, where avocados have been in high demand.

Due to the high demand for avocados in the international market, the government should improve road infrastructure and airports, especially in the southern highlands, where avocados have been cultivated at a high rate, especially by small-scale farmers. This improvement will help the products be shipped on time to the international market. There has been a challenge in the transportation of agricultural products from dowry when they are transported to the final consumers due to unfriendly infrastructure.

The study further recommends that the government should review its agricultural policy in order to be in line with the current times, especially on increasing subsidies for agricultural inputs, which are highly demanded for domestic and international markets.

The study has revealed inadequate skills and knowledge for avocado farmers in Waging'ombe district, which hinders producing quality avocados and prevents them from accessing the export market. The findings cannot be sufficient to conclude that there is a big challenge for the government to improve infrastructure, like the construction and renovation of airports in different areas, in order for avocado products to be shipped on time to the international market. Upcoming research should be carried out in science and technology that can be used to improve agricultural products and assess the contribution of financial institutions to supporting small-scale farmers.

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