Contribution of Vanilla Production on Livelihood of Smallholder Farmers: A Case of Missenyi District Council, Tanzania

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Abstract
Vanilla production has received widespread reputation due to its potential to significantly impact livelihood outcomes in various societies. This study investigates the welfare effects of vanilla production among smallholder farmers in the vibrant agricultural landscape of Missenyi District Council (MDC), Tanzania. Through a comprehensive examination, this study sheds light on the diverse relationship between vanilla production and the livelihoods of smallholder farmers. A total of 105 respondents contributed to the study, providing valuable insights into the diverse dynamics surrounding this crucial economic activity. Quantitative data were collected using structured questionnaires, whereas qualitative data was collected through interviews. To ensure proper analysis, the collected data was treated and interpreted using IBM SPSS software. The results revealed a shift in households' energy consumption, with a decrease from 71.1% for those using paraffin to 61.9% using solar energy for domestic lighting as benefits of vanilla production. The study confirms that vanilla production positively impacts the entire livelihood of smallholder farmers. Understanding the benefits of vanilla production can offer valuable understanding for policymakers and development practitioners looking to empower smallholder farmers in diverse agricultural backgrounds. In light of these results, the study recommends the expansion of extension services so as to influence technical knowledge and skills of smallholder farmers. Incorporating these skills to smallholder farmers can provide potential for expansion of vanilla production, thus fostering economic and social development in Missenyi District Council.

Keywords: *Welfare effect, Smallholder farmers, Vanilla production, Missenyi District*

1.0 INTRODUCTION

Cash crops such as cotton, coffee, and tea have been a significant source of income for smallholder farmers in Africa (Yao, 2023). But, vanilla production embraces immense potential in influencing livelihood results across various societies and has received the moniker of "green gold" (Shriver, 2020). Originating from Mexico, vanilla was later presented to Madagascar during the Spanish and Portuguese expansions. Its history dates back to the 15th century (Medina *et al.*, 2009), and it gained commercial importance under French royalty in 1692. Subsequently, the Reunion Island became a significant producer before Madagascar and Indonesia took the lead globally, surpassing Mexico (Raxworthy, 2019: Pérez, *et al*., 2017).

In Africa, vanilla originated in Madagascar in the 1890s during French colonization (Packer, 2008). With a recent price of approximately 600 USD per kilogram, vanilla stands as the second most expensive worldwide, trailing saffron (Munshi and Kramer: Ian, 2010). Its value has risen steeply since 2014, with farm gate prices reaching up to US$500-600/kg, corresponding to the price of silver (Munshi and Kramer: Ian, 2010). Vanilla's demand lies in its high average annual net revenue per hectare, making it the most attractive high-value crop even on small plots of land (Muzanila, 2020). Global demand for organic crops has elevated vanilla's significance, driven by robust markets in the US and Europe (Busungu, 2009). Subsequently, NGOs and development partners have introduced projects such as vanilla production that aim at improving farmers' incomes (BTC, 2012).

This natural flavoring plays an essential role in various industries, including beverages, pharmaceuticals, food, traditional crafts and cosmetics (Ian, 2010; Shriver, 2020). Today, Madagascar, China, Comoros, Tonga, Indonesia, Reunion and Turkey are the main producing countries for vanilla (Shriver, 2020). In East Africa, Lake Victoria basin and Mountain Rwenzori serve as prime areas for vanilla production, with Uganda top in production, trailed by Tanzania and Kenya (Muzanila, 2020). Uganda's achievement in vanilla production has hardened its position as an important secondary source in the global market. Over the years, Uganda has employed a successful vanilla value chain program, positively profiting communities and the national vanilla industries (Shriver, 2020).

In Tanzania abundant farmers have turned to vanilla as a new cash crop with higher market prices and as an unconventional cash crop which is interesting more smallholder farmers in the past three decades (Yao, 2023). Vanilla cultivation has gained adhesion in regions like Kagera, Morogoro, and

Kilimanjaro (Citizen, 2016). Organic vanilla farming has increased in popularity in Tanzania, with a significant number of smallholders engaged in proficient organic vanilla cultivation (BTC, 2012). The decline in coffee prices during the 1990s has driven a shift towards cultivating vanilla as a substitute cash crop in Bukoba including Missenyi District Council. According to Muzanila's (2020) a smallholder farmer has the potential worth to earn 35 million TZS per season if they successfully manage at least 20 vanilla trees. In addition, Makoye (2021) conveyed that a kilogram of local vanilla can fetch up to 850,000 TZS ($369) on the market, making vanilla the most exclusive cash crop compared to others in terms of market price.

Besides, the production of vanilla has perceived a substantial increase in Tanzania over the last five years, rising from 229.8 tons per year in 2015 to an inspiring 1,949 tons in 2020 (Muzanila and Assenga 2022). This notwithstanding, adoption of vanilla production in Missenyi District Council and allocating financial resources to the initiative, the extent of its economic influence on improving the welfare of smallholder farmers remains unknown. Understanding the effects of vanilla production is of highest importance for making informed policy decisions and potentially intensifying production to other districts in Tanzania. To address this gap, this paper examined the economic impacts on smallholder farmers' welfare as well as attitudes of smallholders towards vanilla production in Missenyi District Council.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

Theoretically, this study was informed by market-oriented agriculture theory, which was developed by (Hirschman 1958: Mellor 1986: Binswanger 2009). Market-oriented agriculture theory stresses the significance of linking agricultural activities with market demand to improve profitability and economic growth. The founders of this theory are not accredited to specific individuals but rather appeared as a response to the altering dynamics of agricultural markets. Being responsive to consumer favorites and market trends, farmers can secure better prices for their produce. This approach attracted farmers to expand their production and adopt inventive practices to achieve market necessities efficiently. The theory also underlines the importance of value addition along the agricultural value chain. By processing effectively, packaging, and marketing products, farmers can capture more value and participate in higher-value markets, leading to improved economic outcomes and welfare for farming communities. In relation to this study the theory suggests that farmers must produce crops and commodities that have higher market value and demand like adoption of vanilla production in Tanzania. Mainly this study linked adoption of vanilla production

and welfare of smallholder farmers in terms of income accessible by the market and ownership of assets.

2.2 Empirical Literature Review

2.2.1 Economic Impacts of Vanilla Production

Vanilla plays a major role in changing livelihood of farmers due to high prices obtainable in both the internal and external markets. The economic impacts of vanilla production amongst producers include employment creation, improving living conditions and a source of asset possession as it is discovered from the literatures.

Vanilla and employment creation

Vanilla is a profitable crop that demands hard work to enjoy its potentials. Cured vanilla in the market sells at high prices (Makoye, 2021) thus attracts youth engagement in vanilla production hence becomes a source of employment and job creation. Increased interest for natural vanilla products increased prices for the produce and prompted vanilla culturing the world (Medina *et al.,* 2009). Profitability of vanilla contributes to job creationand promotes the sustainable development of rural communities (Pérez *et al.,* 2017). The vanilla production in Madagascar used about 20,000 small growers and 5,000 producers (Medina *et al.,* 2009: Muzanila and Assenga 2022). In Bukoba District, vanilla has been a great means of employment to farmers and is locally used by small entrepreneurs (Muzanila, 2020: Muzanila and Assenga 2022). Vanilla export represents a large portion of government revenues (Medina *et al.,* 2009). Vanilla beans are high providers of employment with potentials beyond the family to the society (Shriver 2013). Good prices of vanilla per kilogram of green vanilla beans also stimulated more investment in vanilla as an additional cash crop (Busungu, 2009). During post-harvest period women are involved in drying, smoothing, curing, sorting and packaging vanilla products, which all involve handwork (Muzanila and Assenga 2022: Makoye, 2021: Busungu, 2009).

Vanilla and Improvement of living standards among farmers

Vanilla production brought improved living standards in Uganda amongst farmers and traders (Ian, 2010). Income produced from vanilla helps farmers to safeguard them (Muzanila, 2020). Vanilla contributes to rural households' socioeconomic situation when prices are good (Coote *et al.,* 2020). Vanilla production provides income for farmers and improves their livelihoods in Kagera Region. Vanilla production was one of the crops adopted by farmers for income generation (Muzanila and Assenga 2022). Vanilla is important to the economy since it provides income-earning opportunities, contributing to business growth and crucial tax revenue (EU, 2020). Vanilla improves farmers' livelihoods by

increasing incomes and contributes to improved living situations, properties and other business (Yao, 2023). Vanilla production has an advantage for men, women and youth with rights to own land (Coote *et al.,* 2020).

Vanilla production is a source of food security to smallholder farmers. Income derived from vanilla sales is used to purchase food for the household members. Vanilla helps smallholder farmers meet their necessary needs in form of purchasing food during the dry season (Muzanila, 2020). Vanilla improves ability to access and pay for services. The majority of households use vanilla income on education, purchase of household necessities, among others (Coote *et al.,* 2020). Vanilla like other cash crops has the value to contribute to the wellbeing of smallholder farmers. Smallholder farmers got subsidies for vanilla cuttings and training in good agricultural skills to boost production capacity as part and parcel of a supply chain programme (Muzanila, 2020). The benefits of vanilla include access to credit, price premiums, support for income diversification, vocational training, technical assistance, educational support and free health services (Hänkerz *et al.,* 2019).

Vanilla and asset ownership

Commitment in vanilla production allowed smallholder farmers in Bukoba Rural District to possess good houses, buying household assets, and to build capacity to invest in economic activities like livestock (Muzanila and Assenga, 2022). Vanilla prices provided a chance to benefit thousands of smallholders, plus women and youth invest in more housing, vehicles and engage in trading activities (European Union-EU, 2020). The majority of households use vanilla income on buying household necessities, solar equipment among others (Coote *et al.,* 2020). Vanilla enables farmers to own livestock such as sheep, cows, fishponds, to construct houses, to buy cars and motorcycles (Yao, 2023)

2.2.2 Vanilla and perception of farmers towards their welfare

Vanilla producers feel pleased and belonging because farmers have money from vanilla farming and they can raise their voice in the family. Women producers become more economically independent and hence empowered. Vanilla is conceived as a profitable crop. Farmers perceive that they will continue farming vanilla in the future (Yao, 2023). Although vanilla is a profitable crop, farmers perceive price is not reliable from season to season in the market (Shriver, 2013). This is because vanilla farmers do not trade directly with the industries due to their lack of knowledge. Farmers were unfamiliar with the right procedures to enter international markets for vanilla (Medina *et al.* 2009). Farmers normally deliver their production to middlemen at low prices which causes loss of some potential profits (Pérez, *et al.* 2017). There were few extension workers

conversant with vanilla production and these extension workers feared concentrating on promoting vanilla at the expense of other crops in the case of price instability (Ian, 2010). As Hänke *et al.* (2019) observed, in Madagascar farmers perceive theft as a serious economic problem among vanilla farmers. The study by Raxworthy (2019), found that the recurrent problem was security in vanilla plots including thieves.

Conceptually, this study employed elements from the DFID's Sustainable Livelihood Framework (DFID, 2000). Based on this model, the community possesses various assets, including human, economic, physical social and natural capital, which needs to be effectively managed to enhance household livelihoods. The primary attention of this study revolves around the welfare improvement of smallholders and how they have utilized different resources, mainly vanilla production, to enhance their economic well-being in the study area. The study specifically explores the impact of vanilla production on the welfare of household members. Dependent variables were characterized by indicators of income, which included ownership of assets i.e. smartphones, motorcycles, improved housing, solar panels, and livestock, and acquiring new plots. This study also includes socio-economic factors (age, sex, education, occupation, and marital status) as they play an important role in determining the household's financial capacity to engage in livelihood strategies, particularly farm activities, with the aim of realizing desired family objectives. The study emphases on specific livelihood outcomes, namely, increased asset ownership, income and housing conditions, which are influenced by socio-economic factors.

3.0 METHODOLOGY

This study used a descriptive cross-sectional framework. In a cross-sectional survey, both independent and dependent variables are measured simultaneously, at a single time instance (Kothari, 2004; Kumar, 2011). This design allows the collection of data from a more extensive population sample, facilitating the examination of a problem from several angles (Bhattacherjee, 2012). The research took place in Missenyi District Council, which is one of the seven districts situated in the Kagera Region. According to Yao (2023) based on vanilla collection zones (Kiziba "A, Kiziba "B" and Kyaka), Missenyi District is the second producer of vanilla after Bukoba District. The selection of this particular district was deliberate, attributed to its identity as the second in an agricultural center and its notable focus on cultivating vanilla. Also, Missenyi was purposefully selected for this study for having the highest Gross Domestic Product (GDP) among other districts in the region for three consecutive years 2013- 2015 (NBS, 2018). A total of 105 respondents were included in the sample for this study, selected from Ruzinga Ward encompassing Mugongo and Ruhija

villages, which collectively consist of nine hamlets containing 830 households. To determine the suitable sample size, the research employed the formula proposed by Yamane (1967) $\mathbf{n} = \frac{\mathbf{N}}{\mathbf{1+N(e^2)}}$ Where *n* is the sample size; N is the estimated number of households, and e = is the desired confidence level of precision

$$n = \frac{N}{1+Ne^2} = \frac{830}{1+830(0.09)^2} = 105(\text{ Approx.})$$

This study used questionnaire surveys and in-depth interviews. The questionnaire covers closed-ended questions beside with response choices, such as the Likert scale, which incorporated a range of responses from Strongly Disagree (1) to Strongly Agree (5). In the literature Anderson and Arsenault (1998), consider the Likert scale as a useful tool for capturing individual opinions and attitudes. The of the percentage of respondents who responded in a certain manner. The analysis was done by using IBM SPSS. Data derived from interviews and FGDs were imperiled to thematic analysis and interpretation.

4.0 RESULTS AND DISCUSSIONS

4.1 Economic Impacts of Vanilla Production among Smallholder Farmers

Economic impacts of vanilla production among smallholder farmers and their contribution for households' welfare were as follows: -

4.1.1 Economic situation of households before and during vanilla production

The study findings revealed that 76.2% of the households before vanilla production household economic situation was average. However, during vanilla production the study found 71.4% of the households reported that their economic situation improved (Table 1). On the other hand, the study showed 33.3% of the farmers joined community microfinance groups (CMGs) before vanilla production whereas 66.7% of the farmers joined the CMGs/SACCOS during vanilla production. It denotes that vanilla production improves economic condition of farmers. After selling their vanilla beans, farmers save part of their money though joining CMGs/SACCOS because of difficulty accessing formal banks.

This was witnessed by farmers during FGD meetings. Farmers appreciated that the advent of vanilla crops into their areas has changed their economic conditions by having money during the harvest season.

Table 1: Economic situation of households before and during vanilla production (n=105)

Economic situation before vanilla production	Frequency	Percent
Improved	20	19.0
Average	80	76.2
Bad	5	4.8
Economic situation during vanilla production		
More improved	5	4.8
Improved	75	71.4
Average	25	23.8
Farmers joining CMGs/SACCOS		
Before vanilla production	35	33.3
After vanilla production	70	66.7

Source: Study findings (2022)

4.1.2 Energy consumption in the households

From the study it was found that 100.0% of households reported that they were using firewood in the households for cooking before vanilla production. During vanilla production it was found 90.5% were using firewood. It was also found by the study that 71.4% of respondents were using kerosene for lighting before vanilla production. During vanilla production 61.9% were using solar energy for lighting (Table 2). This implies vanilla production among smallholder farmers in the study area has changed the household welfare. The change from the use of kerosene to solar energy for lighting is an indicator for improvement of household welfare. The literature shows farmers use vanilla income on purchase of household necessities including solar equipment (Coote *et al.,* 2020). During holding of FGDs participants praised presence of vanilla crops as a savior in increasing clean household energy consumption particularly energy for lighting.

Table 2: Energy for cooking and lighting in pre and during vanilla production (n=105)

Energy for cooking before vanilla production		
Source of energy	**Frequency**	**Percent**
Firewood	105	100.0
Energy for cooking during vanilla production		
Firewood	95	90.5
Gas and firewood	10	9.5
Energy for lighting before vanilla production		
Electricity (TANESCO)	20	19.0
Solar energy	10	9.5
Paraffine/kerosine	75	71.4
Energy for lighting during vanilla production		
Electricity (TANESCO)	30	28.6
Solar energy	65	61.9
Paraffin/kerosene	10	9.5

Source: Study findings (2022)

4.1.3 Asset possession in the household before and during vanilla production

The study found that 76.2% owned normal cellular phones, 17.1% owned smartphones, 8.6% owned motorcycles, 13.3% owned bicycles, 47.6% owned improved housing, 14.3% owned solar panels, 95.2% owned mattresses, 88.6% owned beds, 33.3% owned furniture, 4.8% purchased new farms; there was no household rearing cows, 4.8% reared goats and there was no household which was rearing sheep before vanilla production.

On the other hand, the study findings revealed that 100.0% of respondents owned normal cellular phones, 28.6% owned smartphones, 16.2% owned motorcycles, 25.7% owned bicycles, 81.0% owned improved housing, 61.9% owned solar panels, 100.0% owned mattresses, 100.0% owned beds, 47.6% owned furniture, 33.3% purchased new farms, 9.5% managed to keep cattle, 42.9% managed to keep goats and there was no household managed to keep sheep during vanilla production (Table 3). The households in the study area, due to engaging in vanilla production, impacted on the household welfare based in asset possession. During vanilla period households have changed the possession of assets which implies improvement of living standards and improvement of their welfare. Literatures reveal that vanilla contributes to improving rural households (Coote *et al.*, 2020: EU, 2020: Muzanila 2020). Also, literatures show that vanilla helps farmers to own assets (Yao 2023: Muzanila and Assenga, 2022: Coote *et al.*, 2020).

Table 3: Asset possession in the households before and during vanilla production (n=105)

Type of asset	Before vanilla production		During vanilla production	
	Frequency	Percent	Frequency	Percent
Normal cellular phone	80	76.2	105	100.0
Smartphone	18	17.1	30	28.6
Motorcycle	9	8.6	17	16.2
Bicycle	14	13.3	27	25.7
Improved housing	50	47.6	85	81.0
Solar panel	15	14.3	65	61.9
Matrices	100	95.2	105	100.0
Bed	93	88.6	105	100.0
Furniture	35	33.3	50	47.6
Buying new farm (plots)	5	4.8	35	33.3
Cattle keeping	0	0.0	10	9.5
Goat keeping	5	4.8	45	42.9
Sheep keeping	0	0.0	0	0.0

Source: Study findings (2022)

4.2 Farmers' Attitudes and Perceptions Towards Vanilla Production

The objective of this part was to determine farmers' viewpoints in the study area towards vanilla production to improve their household welfare. Different areas were assessed including vanilla production, markets, companies buying vanilla beans, vanilla prices, extension services, number of vanilla plants owned by farmers, security of their farms, cooperation between growers and non-growers and comparison between coffee and vanilla on achieving household welfare. The general view (average mean scores) was negative denoting that vanilla production alone without considering other factors cannot improve household welfare. The statements and their results are presented and elaborated below:

4.2.1 Farmers' satisfaction with vanilla production to change their welfare

On whether farmers get satisfied with vanilla production to change their welfare, the study found that 76.2% of the respondents strongly agreed and the statement scored 4.8 mean which implied positive attitude (Table 4). This implied most of the farmers believe that engaging in vanilla production can help them get rid of different forms of poverty and achieve household welfare. They are happy engaging in vanilla production. Literatures reveal that vanilla production brought positive impacts to farmers (Muzanila, 2020: Hänke *et al.,* 2019: Coote *et al.,* 2020).

4.2.2 Farmers' satisfaction with availability of markets for vanilla beans

About market availability, the study found 42.9% of the respondents disagreed on the availability of markets and the statement scored 2.8 mean which implied negative attitude (Table 4). Farmers produce vanilla as other cash crops in rural areas without having reliable markets. The vanilla beans are sold to unknown buyers hence there is high probability of price volatility. One of the respondents witnessed during FGDs that, *"In the year 2019 vanilla price was 70,000-120,000.00 TZS per kg and was expected in the year 2020 to continue to shoot up from 120,000.00 -150,000.00 TZS but abruptly in the year 2020 price fell to 20,000.00 per kg. It is very challenging!"* Literatures indicate that although vanilla is a very lucrative crop in terms of returns but price fluctuation is a major challenge (Shriver, 2013: Medina *et al.* 2009).

4.2.3 Producers' satisfaction with companies /AMCOS buying vanilla beans

On whether producers get satisfied with companies dealing with buying vanilla; the study found 38.1% of the respondents agreed and the statement scored 3.2 mean which implied positive attitude (Table 4). This denotes that there is a degree of trust by farmers on vanilla buyers' companies. In conducting interview with vanilla producers one respondent commented,

"*In our area we had only one company which buys our vanilla beans which is known as Natural Extract Industries (NEI) and it is cooperative with farmers."*

4.2.4 Producers' satisfaction with vanilla market price

About price satisfaction; it was found that 38.1% of the respondents strongly disagreed and the statement scored 2.2 mean which implied negative attitudes (Table 4). This implied that farmers were not satisfied with market prices because the prices promoted in social media and literatures were quite different from what farmers receive after production. Although vanilla is profitable literatures indicate price is unpredictable from season to season in the market (Shriver, 2013: Pérez, *et al.* 2017). During FGDs one respondent in the study area reported that vanilla price at the village was 30,000.00 TZS per kilogram in the year 2021 and 2022 consecutively.

4.2.5 Famers' satisfaction with agricultural extension services on vanilla production

About satisfaction with extension services; the study found 33.3 % of the respondents strongly disagreed and the statement scored 2.3 mean which indicated negative attitude (Table 4). It implied that vanilla farmers were not receiving expertise on how to farm vanilla crop. They produce vanilla using their indigenous technical knowledge (ITK) or from their own farming experiences. Literature reveal the problem of few extension workers conversant with vanilla production and the fear of extension workers concentrating on promoting vanilla at the expense of other crops in the case of price instability (Ian, 2010).

4.2.6 Producers' satisfaction with vanilla plants they own

Whether farmers are satisfied with vanilla plants they own; it was found 28.6% of the respondents strongly disagreed and statement scored 2.9 mean which implied negative attitude (Table 4). This had implication that even if farmers currently own vanilla plants, the number of plants they own does not satisfy their utility. There is an opportunity for farmers to expand their vanilla production.

4.2.7 Farmers' satisfaction with security of their vanilla plots

The issue of security on vanilla plots; the study found that 38.1% of the respondents strongly agreed and the statement scored 3.1 mean, which implied positive attitude (Table 4). This denotes that farmers believe their farms are safe although they grow high value crops. Although respondents revealed that they feel harmony and peace for their vanilla plots but literatures indicate the problem of thieves among vanilla growers (Raxworthy 2019: Hänke *et al.* 2019). Therefore, vanilla growers should not be reluctant but be aware that formal security is needed to secure their plots.

4.2.8 Producers' satisfaction with cooperation between growers and non-growers

Vanilla growers' cooperation with non-growers; the results revealed 33.3% of the respondents disagreed and the statement scored 2.6 mean implying negative perception (Table 4). The implication was vanilla producers do not appreciates non-growers. During discussion one respondent said,

> *"Vanilla has good and attractive prices in comparison with other crops we have experienced as farmers; how can you manage life in the village without growing vanilla while you need to meet your life expenses?"* The old man asked.

4.2.9 Farmers' satisfaction with neighbours' trespassing in the vanilla fields

On the issue of farmers' satisfaction with trespassers on vanilla fields; it was found in the study that 38.1% of the respondents strongly disagreed and the statement scored 2.1 mean, implying negative attitude (Table 4). This denotes that currently it is difficult to trespass in the vanilla farms v as these plots are fenced and there is extra attention paid to them. During FDGs participants identified reasons why they were against trespass in vanilla plots some being uprooting vanilla vines, stealing beans and avoiding estimation of the quantity of beans in one's plot which can accelerate theft among growers.

4.2.10 Producers' attitudes about cash crops that satisfy their welfare between vanilla and coffee

Crops satisfy household welfare; the results from the study showed 40.0% of the respondents disagreed and the statement scored 2.7 mean implying negative attitudes (Table 4). Farmers reacted negatively because they believe that vanilla producers are expected to get out of poverty compared to coffee producers because of the high prices offered in the market for vanilla in comparison with coffee. During FGDs one of the respondents said,

> *"Even if the vanilla prices will fluctuate they will never reach to the prices of coffee. The price of vanilla will be higher than coffee for example in 2020 the price of vanilla fluctuated to 20,000.00 TZS but we cannot compare with current price of coffee which is between 1,500 and 1,800.00 TZS per kilogram in 2022." Literatures reveal that vanilla helped growers to earn more money and other benefits* (Muzanila, 2020: Makoye, 2021: Busungu, 2009).

Table 4: Farmers' Attitudes and Perceptions Towards Vanilla Production (n=105)

Statements	Frequency	Percent	Score	Total Scores	Mean scores
Farmers' satisfaction with vanilla production to change their welfare					
Strongly agree	80	76.2	5	400	
Agree	25	23.8	4	100	4.8
Farmers' satisfaction with availability of markets for vanilla beans					
Agree	35	33.3	4	140	
Neutral	20	19.0	3	60	
Disagree	45	42.9	2	90	
Strongly disagree	5	4.8	1	5	2.8
Producers' satisfaction with companies /AMCOS buying vanilla beans					
Strongly agree	10	9.5	5	50	
Agree	40	38.1	4	160	
Neutral	15	14.3	3	45	
Disagree	40	38.1	2	80	3.2
Producers' satisfaction with vanilla market price					
Strongly agree	10	9.5	5	50	
Agree	10	9.5	4	40	
Neutral	10	9.5	3	30	
Disagree	35	33.3	2	70	
Strongly disagree	40	38.1	1	40	2.2
Famers' satisfaction with agricultural extension services on vanilla production					
Strongly agree	15	14.3	5	75	
Agree	5	4.8	4	20	
Neutral	15	14.3	3	45	
Disagree	35	33.3	2	70	
Strongly Disagree	35	33.3	1	35	2.3
Producers' satisfaction with vanilla plants they own					
Strongly agree	20	19.0	5	100	
Agree	30	28.6	4	120	
Disagree	25	23.8	2	50	
Strongly disagree	30	28.6	1	30	2.9
Farmers' satisfaction with security of their vanilla plots					
Strongly agree	40	38.1	5	200	
Agree	10	9.5	4	40	
Neutral	10	9.5	3	30	
Disagree	15	14.3	2	30	
Strongly disagree	30	28.6	1	30	3.1
Producers' satisfaction with cooperation between growers and non- growers					
Strongly agree	20	19.0	5	100	
Agree	20	19.0	4	80	
Disagree	35	33.3	2	70	
Strongly disagree	30	28.6	1	30	2.6
Farmers' satisfaction with neighbours' tresspassing on the vanilla fields					
Strongly agree	10	9.5	5	50	
Neutral	20	19.0	3	60	

Statements	Frequency	Percent	Score	Total Scores	Mean scores
Disagree	35	33.3	2	70	
Strongly disagree	40	38.1	1	40	2.1
Producers' attitudes about cash crops that satisfy their welfare between vanilla and coffee					
Strongly agree	21	20.0	5	105	
Agree	21	20.0	4	84	
Disagree	42	40.0	2	84	
Strongly disagree	21	20.0	1	21	2.8
Total respondents	105				
Total mean scores					**26.6/10**
Average mean scores					**2.7**

Source: Study findings 2022)

5.0 CONCLUSIONS AND RECOMMENDATIONS

This paper examined the economic impacts of vanilla on smallholder farmers' welfare as well as their attitudes towards vanilla production in Missenyi District Council. In brief, the results revealed that there was change of energy sources in the household, increased asset ownership such as improved housing, solar panels, mattresses, livestock, smartphones, furniture, among others. In the case of farmers' attitudes towards vanilla production the study concluded that respondents' had both positive and negative perceptions. The farmers had positive attitudes on the companies buying vanilla and security for their vanilla plots. On the other hand, farmers had negative attitudes in aspect of availability of markets for vanilla (meaning that farmers do not have stable markets for vanilla beans). Similarly, smallholders have negative perceptions on the vanilla market prices because of their volatility. Finally, farmers had negative attitudes on agricultural extension services (meaning that they produce without expertise) among others. If these factors are not improved, vanilla production may have less transformative economic impacts on household welfare.

The authors recommend contract farming for smallholder farmers to ensure vanilla price stability. This can be done through marketing system of vanilla production. In cooperation with other stakeholders Missenyi District Council (MDC) is advised to look for markets for vanilla beans that offerattractive price packages which will reflect real value. Also, MDC is recommended to provide extension services and skilled extension workers with experience in vanilla production. Extension services will enable smallholder farmers use expertise with indigenous technical knowledge (ITK). Therefore, incorporating agricultural expertise and ITK to smallholder farmers are potentials for vanilla production, thereby fostering economic growth and social development in Missenyi District, Tanzania, and beyond.

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