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Market Integration as a Determinant of Household Decision-Making in the Production of Roselle Plant in Mwea Sub-County

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ABSTRACT
This study sought to analyze market integration as determinant of household decision-making in the production of Roselle plant in Mwea Sub-County. This study employed a descriptive survey since this method is designed to obtain pertinent and precise information concerning the status of phenomena and whenever possible to draw valid general conclusions from the facts discovered. The target population was 200 farmers drawn from four areas i.e. Karie, Kangai, Ngariama and Mutithi. The sampling technique used in this study was the stratified type since the population is divided into four strata. Data collected was analyzed qualitatively and quantitatively using SPSS tool and presented in form of frequencies, pie-charts, tables, and graphs. The results indicated that market integration was influencing farmers' decisions to take up growing Roselle through respondents selling their produce as groups and also the agreement the farmers had with the processing company which enabled them to sell their produce to the company. Some of the recommendations made were the need to carry out further research on how the other parts of the Roselle plant like the roots, leaves, stem and seeds can be used to avoid disposing them yet they could be having potentials just like the calyces.
Keywords: Market integration, farmers, Roselle, calyces

1.0 INTRODUCTION

1.1 Background of the study
Although the contribution of agriculture to gross domestic product (GDP) has declined from 40 % in 1963 to only 24 % in 2002, the sector continues to be dominant in the Kenyan economy and contributes largely to economic growth. The sector generates about 60 % of the country's foreign exchange and provides employment to about70 % of the total population. The sector

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also provides nearly all the food requirement for the nation and the bulk of raw materials needed in the industrial sector. Between 15 and 17 per cent of Kenya's total land area has sufficient fertility and rainfall to be farmed, and 7–8 % can be classified as first-class land. Because agriculture is a major sector of the Kenyan economy, its performance directly mirrors that of the overall economy. Therefore, whenever agricultural GDP declines, overall GDP for the whole economy correspondingly declines and vice versa (Odhiambo, Nyangito and Nzuma, 2004).

An immediate development challenge for Kenya in the face of overall poor economic performance and deepening poverty is to reverse the adverse trends in agricultural growth and productivity. Indeed, it is now widely recognized that increasing agricultural productivity is the single change with the greatest direct benefit to the poor, given that 82 % of Kenyans live in the rural areas, the majority of whom are poor (Odhiambo, Nyangito and Nzuma, 2004). This requires an understanding of what propels growth and productivity in Kenyan agriculture. The key questions are: What determines agricultural productivity? What can be done to enhance agricultural growth and productivity in Kenya? This study is an attempt to answer some of these questions through studying a new plant by the name Roselle which seems to be having a lot of potential, due to its uptake by farmers especially in Mwea Sub-County.

According to Pau, Salmah and Suhaila (2002) Roselle (Hibiscus sabdariffa) is a species of Hibiscus native to West Africa, used for the production of bastfibre and as an infusion, in which it may also be known as carcade. It is an annual or perennial herb or woody-based subshrub, growing to 2–2.5 m (7–8 ft) tall. The leaves are three to five lobed, 8–15 cm (3–6 in) long, arranged alternately on the stems. The flowers are 8–10 cm (3–4 in) in diameter, white to pale yellow with a dark red spot at the base of each petal, and have a stout fleshy calyx at the base, 1–2 cm (0.39–0.79 in) wide, enlarging to 3–3.5 cm (1.2–1.4 in), fleshy and bright red as the fruit matures. It takes about six months to mature. The crop is extensively cultivated in tropical Africa, Asia, Australia and Central America. It is a rare plant in Kenya hence it has not been exploited despite its existing potential for a wider application in food and textile Industry (Pau, Salmah, Suhaila, 2002).

The motivation driving this study is to contribute to the debate on the ways in which innovations in growing of crops impacts the socio-economic status of farmers and their livelihoods. It is on this basis that this research will analyze the effects of market integration on household decision making in the production of Roselle plant in Mwea Sub-County. This will increase the knowledge level on the critical determinants and how they influence growth of Roselle plant. This will contribute in guiding policy on other unconventional crops across the country and thus improve ensuring high living standards of farmers and their food security.

1.2 Objective

1. The general objective of the study is to analyze the effect of market integration on farmers willingness to grow Roselle plant in Mwea Sub-County.

1.3 Research question

To what extent does market integration determine willingness of farmers to plant Roselle in Mwea Sub-County?

2.0 LITERATURE REVIEW

2.1 Market Integration

Different authors provide similar definitions on market integration. McNew (1996) gave the definition of market integration as the trading process where one location has close relationship with the marketing system in order to receive product prices with efficiency and to reduce shocks in prices. Another author mentioned that market integration is the alternative choices in the trading process to stabilize the price (Mushtaq et al., 2008). Others, Barrett, Bezuneh, Clay and Reardon give a very simple definition on market integration that it is the opening and development of tradability, the flow of commodities from one to different market actors in the systems. Thus, it's evident that different authors provide different definitions but in similar way. Therefore, it can be interpreted that market integration is the trading process involving different actors for selling and buying with negotiation of prices.

2.5.1 Market Integration Operations

High production is regarded as the core effect, leading to integration in commerce. Whenever people can get high productivity in their production, they begin to learn the new norms for swapping their products for maximum profits. To achieve this, people have to integrate their products with other stakeholders in trading fairness thinking (Maltsoglou and Tanyeri-Abur, 2005). Private sector improvement is very effective in linking farmers to the dynamic trading process, but farmers themselves also must prepare to act productively in selling their output. However market integration can simply be said to be bringing two or more market actors together into one system. Three main kinds of market integration are very common in the world including Vertical Integration, Horizontal Integration, and Circular Integration (Rehber, 1998).

2.5.1.1 Vertical Integration

Vertical integration is the style of management in both production and trading. A firm can manage their own suppliers and buyers. It means that one actor in the market chain has to control other members for getting high benefits (Van, 2008). Rehber (1998) also gave a similar concept that vertical integration is the combination of activities when a firm tries to engage in all activities in their production and trading. For illustration, a meatpacker decides to buy the meat from farmers and operate it for selling to consumers in the countryside. Generally, vertical integration is classified into three varieties. Firstly, "Backward Vertical integration" means a firm tries to produce some inputs or bargain with other input suppliers to get a suitable price to use in their whole production process. Secondly, "Forward Vertical Integration" happens when the firm tries to control their product distribution to wholesalers, retailers, or consumers. Thirdly, "Balanced Vertical Integration" will have happened whenever the firm tries to control both input supplies and output distribution by their own operation (Rehber, 1998).

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2.5.1.2 Horizontal Integration

Horizontal integration is in contrast with vertical integration. It is the way that a firm or farmers decide to sell their product to various and numerous markets. It occurs when farmers decide to produce similar products in different areas and sell to different market actors or different areas in order to get high prices for their products (Van, 2008). For example, "farmers improve their access to information and technology, their power to control over contract or their cooperation with other members in the chain". Another example is "a car manufacturer merging with another car manufacturer. In this case both companies are in the same stage of production and also in the same industry". We can understand that those car companies are like two communities of local farmers, and they integrate to become a union for selling their products to other market actors whom they wish.

2.5.1.3 Circular Integration

Circular integration is the combination of vertical and horizontal integration. Some firms try to expand their integration in both vertical and horizontal ways to reach a higher goal in their business. When farmers try to cooperate in the process of their production and trading, a vertical integration appears; at the same time if their cooperative or communities merge together under a regional cooperative union, a horizontal integration has been established. Therefore a farmer has to cooperate with other farmers in creating a community or cooperative; their cooperative has to continue integration with another cooperative for establishing a broad cooperative union.

2.2 Conceptual Framework

Independent Variables   **Dependent variable**

Market integration	→	Decision to grow Roselle

3.0 METHODOLOGY

The researcher used mixed method research design as a design as popularized by Creswell (2009). The reason was that this design allowed the use of qualitative and quantitative approaches in analyzing data and thus provided an in-depth understanding of the phenomena being investigated. The target population for this research was farmers who have grown Roselle plant in their farms in Mwea Sub-County. The sample size was 133 respondents who consisted of employees working in the Roselle farms. The researcher used a stratified sampling technique which involves dividing your population into homogenous subgroups and then taking a simple random sample in each group (Orodho and Kombo, 2002). Questionnaires were used to collect information and were closed ended. In addition to the questionnaire, structured interviews were also used because it allowed for face-to-face contact with the respondents thus enabling provision of in-depth data which is in line with (Lindlof and Taylor, 2002) and (Mugenda and Mugenda, 2009). SPSS tool was used in analysis of data. The data was analyzed quantitatively and qualitatively and descriptive statistics will be used to analyze, present and interpret data.

4.0 FINDINGS OF THE STUDY

Table 4.4.0 Market accessibility of Roselle plant

	Frequency	Percent
Yes	61	89.7
No	7	10.3
Total	68	100

 Of the 68 respondents who filled the questionnaires, 61 respondents who were the majority had access to markets for their Roselle produce and they were represented by a percentage of 89.7. However, 7 respondents reported that they did not have access to markets for their Roselle produce.

Table 4.4.1 How the produce is marketed

	Frequency	Percent
As an individual	16	23.5
As a group	52	76.5
Total	68	100

Table above indicates that majority of the respondents market their Roselle produce as groups as shown by 76.5 percent. Only 16 respondents represented by 23.5 percent market their Roselle produce as individuals.
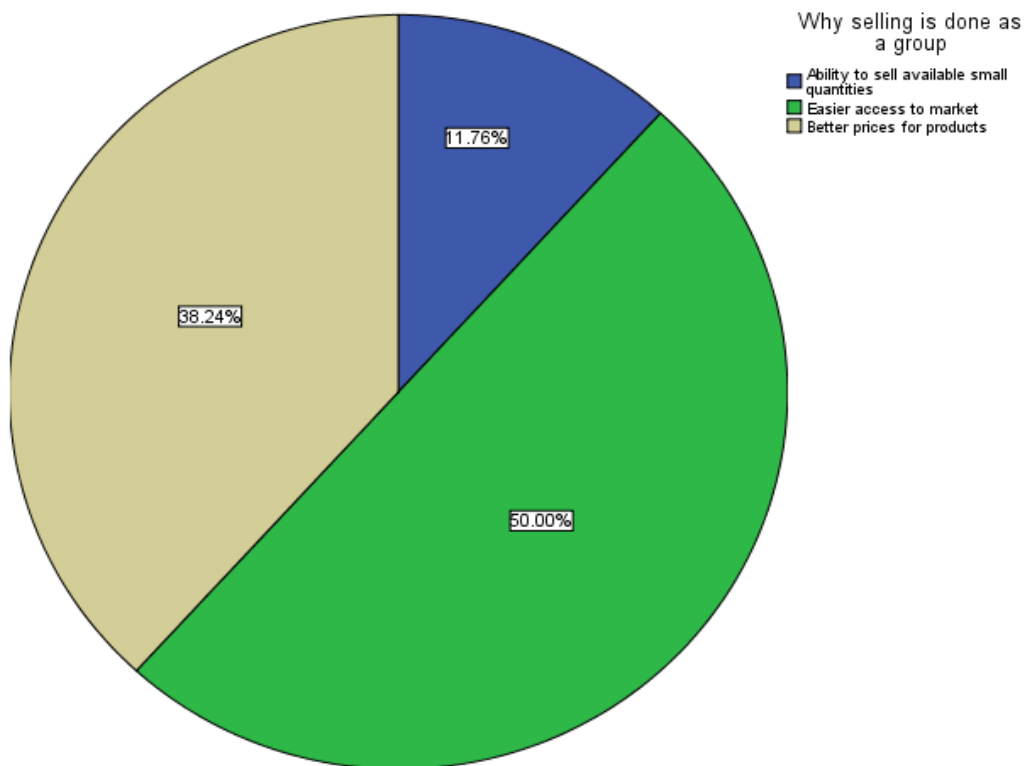

Figure 4.4.0 Why selling is done as a group

From the figure it is evident that majority of the respondents sell their Roselle produce as a group so as to be able to get easy access to markets and this is clearly shown 50.00 percent. 38.24 percent sell as groups so as to fetch better prices for their products whereas 11.76 percent sell as groups because of the ability to sell the available small quantities.

Table 4.4.2 Frequency of selling Roselle produce.

	Almost always	Most of the time	Some of the time	Almost never
As an individual	0	0	17	51
As a group	48	20	0	0
Total	48	20	17	51

48 respondents who are the majority sold their Roselle produce as a group almost always. 20 respondents sold the produce as a group most of the time whereas none of them sold as individuals most of the time. 17 respondents sold their Roselle produce some of the time with none selling as a group some of the time. No single respondent sold the produce as a group some of the time. 51 respondents almost never sold as individuals.

Table 4.4.3 Market for Roselle produce

	Frequency	Percent
Processing company	51	75
Local market	12	17.7
Middle men	4	5.9
Total	68	100

From the table, it is evident that majority of respondents sell their Roselle produce to the processing company as shown by 75 percent. 17.7 percent of respondents sell to the locally available market whereas only 5.9 percent do sell to middlemen who then take the produce to other markets.

Table 4.4.4 Component of Roselle plant sold

	Frequency	Percent
Calyces	42	61.8
Seeds	6	8.9
Both Calyces and seeds	20	29.4
Total	68	100

Of the total 68 respondents, those who said they sold the calyces of Roselle were 42 whereas only 6 of them were involved in selling of the seeds of the plant. Twenty of the respondents sold both the seeds and the Roselle calyces.
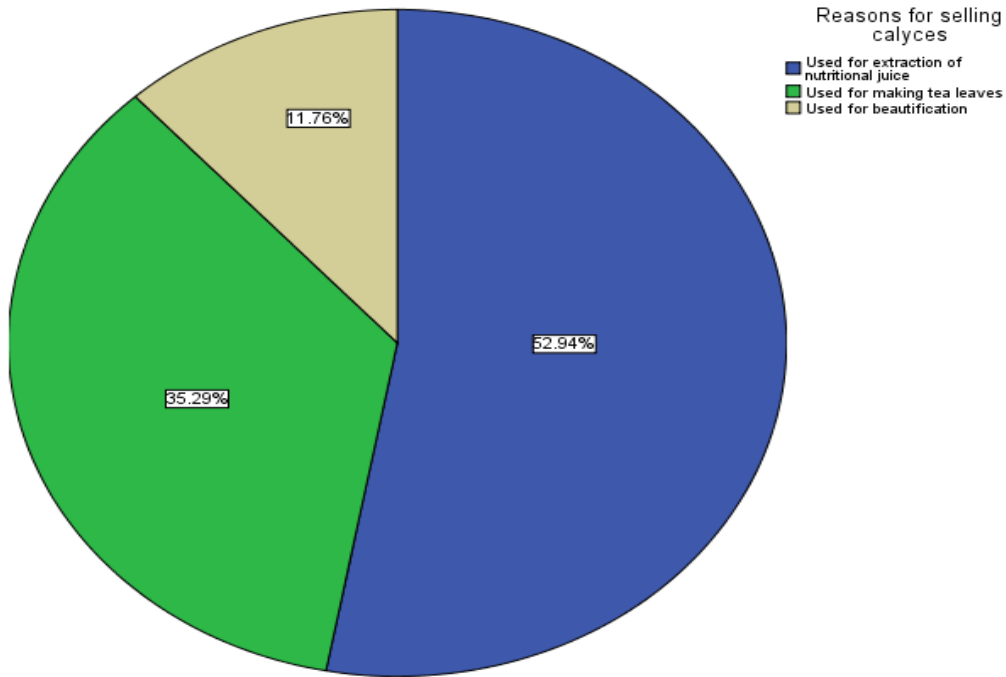
Figure 4.4.1 Reasons for selling calyces

Of the respondents who mentioned that they usually sell the calyces 52.94% indicated that the calyces are used for extraction of nutritional juice. 35.29% noted that the calyces are used for making of tea leaves whereas 11.76% of respondents indicated that the calyces are used for beautification.
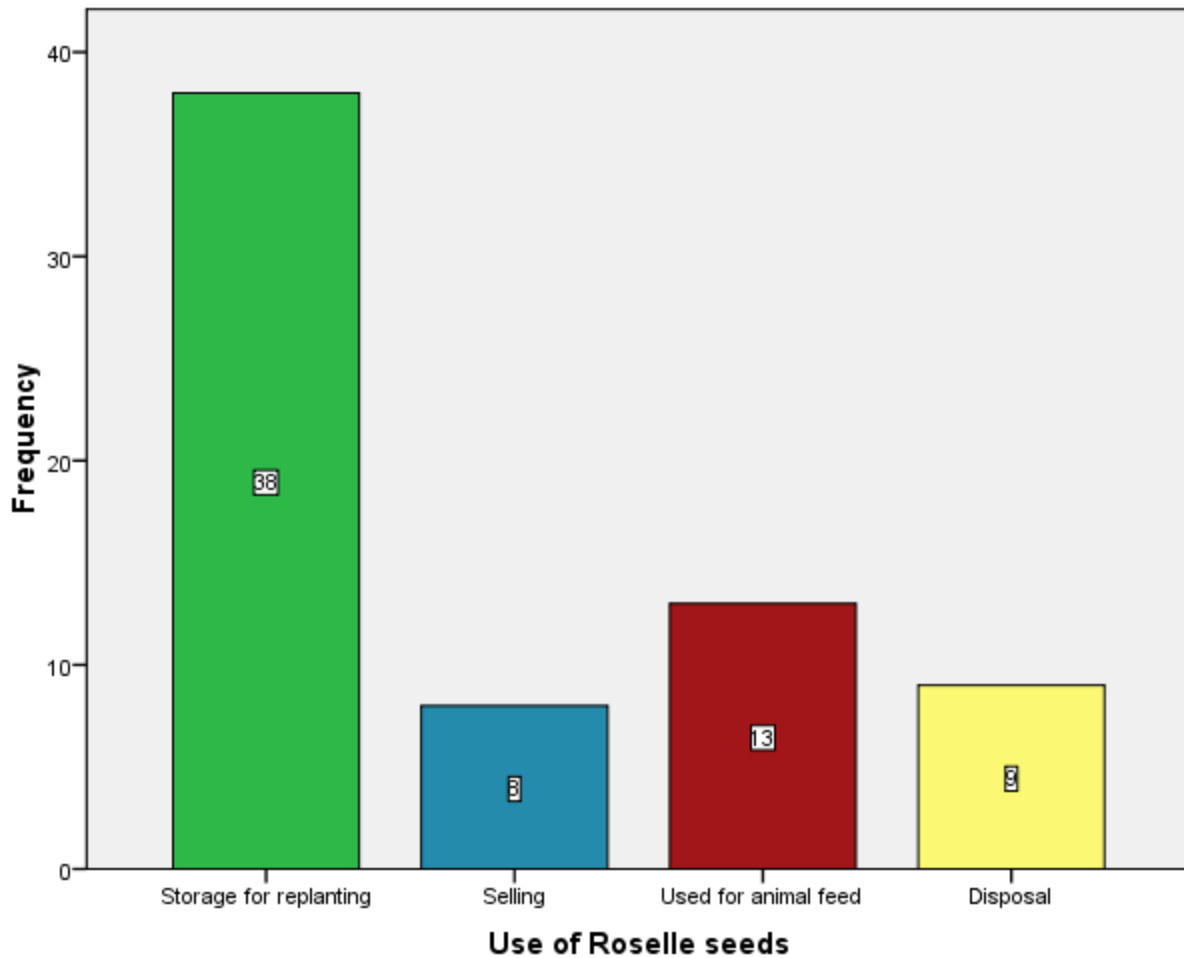
Figure 4.4.2 Use of Roselle seeds

Figure indicates that majority of the respondents stored the seeds for replanting as shown by a frequency of 38 while 13 respondents used the seeds to feed their animals. 9 respondents disposed the seeds with 8 of them selling the seeds for re-plantation.

Table 4.4.5 Whether you sell the calyces inform of kilograms and the cost per kilogram

	700 KES	1000 KES	500KES	1500 KES
Yes	9	51	8	0
No	0	0	0	0
Total	9	1	8	0

51 respondents sold their Roselle calyces at a cost of 1000 KES per kilogram whereas 9 said that they sold the calyces at a cost of 700 KES per kilogram. 8 respondents on the other hand reported that they were selling at a cost of 500 KES per kilogram. All 68 respondents therefore agreed that they sold their Roselle calyces inform of calyces.

Table 4.4.6 Rating how economical it is to produce Roselle plant in regards to application of the following

	Excellent	Very good	Good	Poor	Very poor
Rating of fertilizer application	68	0	0	0	0
Rating of application of manure	5	26	14	14	9
Rating of application of seeds	9	24	18	10	7
Rating of application of water	13	34	8	8	5

Table above shows that all respondents rated Roselle in regards to fertilizer application as excellent and this is mainly because the farmers are not allowed to use fertilizer. In regards to manure application 26 respondents felt that the application was very good whereas 14 each rated the application as good and poor respectively. 24 respondents rated the application of seeds as being very good as 34 respondents rated application of water as being very good also.

Table 4.4.7 Effectiveness of cost of selling Roselle calyces in relation to cost of producing it

	Frequency	Percent
Not effective at all	5	7.4
Least effective	9	13.2
Effective	42	61.8
Very effective	12	17.7
Total	68	100

From the table, 42 respondents representing 61.8 percent mentioned that it was effective to sell Roselle calyces when compared with the cost of producing it.12 percent indicated that the cost was very effective while 13.2 percent reported that it was least effective. Only 5 respondents which is represented by 7.4% claimed that the cost of selling the Roselle calyces in relation to the production cost was not effective at all.

5.0 SUMMARY OF MAJOR FINDINGS
In relation to the ways in which market integration determines farmers' willingness to grow Roselle plant in Mwea Sub-County, the study revealed that a majority of the farmers had access to markets for their Roselle produce as shown by 89.7%. 76.5 respondents sold their Roselle produce inform of groups and this is in line with Van (2008) who notes that horizontal integration occurs when farmers decide to produce similar products in different areas and sell to different market actors or different areas in order to get high prices for their products. Baumann (2000) further argues that contract farming is defined as the agreement between farmers and a processing, export, or purchasing unit for supplying products with standard quantity, quality and price through using a contract.

6.0 RECOMMENDATION

The government in collaboration with processing companies should strengthen accessibility of markets for farmers growing Roselle since the calyces can be used to produce many products like nutritional juice and tea. This therefore will improve the living standards of farmers growing the plant through the incomes earned.

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