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# FACTORS INFLUENCING MARKETING OF AGRICULTURAL PRODUCE AMONG SMALL-SCALE FARMERS: A CASE OF SORHGUM IN GIAKI LOCATION, MERU COUNTY KENYA

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**Abstract**

*Small scale farmers frequently consider marketing of their farm produce as one of their major problems. This study aimed at establishing the factors that influence marketing of agricultural produce among small-scale farmers, a case of sorghum in Giaki location, Meru County Kenya. The study embarked on the influence of middlemen in the market, road infrastructure, and access to marketing information, on marketing of agricultural produce among small scale farmers. The research was conducted using descriptive research design and the data was collected using questionnaires. The target population consisted of all the 212 households which are involved in sorghum produce in Giaki location. The sample size was 138 sorghum farmers. The variables were correlated using statistical methods through SPSS. The study found that Majority of smallholder farmers (89.5%) use middlemen as market link while marketing their sorghum produce. 96.2 % of the respondents felt that middlemen are exploitive to small scale sorghum farmers. Majority of the respondents (69.1%) felt that middlemen in the market are important .The study also found out that most of the respondents (52.6 %) use dusty roads when marketing their sorghum produce. The study also revealed that 72.2 % use mobile phones as mode of accessing marketing information since it's convenience to everyone. 69.9% of the respondents get the information from the middlemen as their source. It was established that there was a strong positive correlation between Access to information and sorghum marketing a*

*figure of 0.679, followed by middlemen in market a figure of 0.510 while road infrastructure had the weakest positive correlation of 0.390 with sorghum marketing. Moreover all the variables were significant at 95% confidence level with sorghum marketing.*

*Keywords: Agricultural produce, marketing, middlemen, road infrastructure, access to marketing information*

## INTRODUCTION

The challenge brought about by millennium development goals and the need to provide reliable and adequate food for the world population has led many people to embank into small scale farming (Eskola, 2005). The concept of small scale farming is further influenced by the fact that many agricultural lands have been sub-divided among family members who opt to plant different varieties of crops. In order to increase their income and improve their livelihoods, rural small scale farmers engage in business by selling their agricultural produce. Rao (2007) showed that agricultural growth is the principle direction to reducing poverty in developing countries, especially in rural areas.

Marketing of these agricultural produce plays an important role in attaining the overall goal of food security, poverty reduction and sustainable agriculture, mostly among smallholder farmers in developing countries (Altshul, 1998). Makhura (2001) found that the market of small scale farmers is constrained by poor infrastructure, distance from the market, lack of own transportation means, middlemen involvement, and inadequate market information.

Despite Kenya identifying agriculture as one of key sector to deliver sustainable economic growth and improved livelihoods for the poor in rural areas in the strategic plan of Vision 2030 ,the sector continues to face several constraints at the global, regional and national level that require special attention. Sorghum being one of staple food crop for many low income households in Kenya, and is typically grown on small-scale farms, was previously used for home consumption. It is produced all over the country, even in areas with low agricultural potential. Sorghum can grow anywhere from sea level to 2,500 meters above sea level and requires a minimum rainfall of 250 mm per year and a minimum temperature of 10°C (Chemonics,2010).As human food, sorghum has many uses with some of its products being:*(sorghum pilau,ugali, chapati, porridge, bread, cakes and sorghum beverage among others)* as named by the locals(MOA,2007)

In Kenya, sorghum production had been increasing since year 2009 especially in areas where rainfall reliability is low. Further, the Kenya Agricultural Research Institute (KARI) in

partnership with East African Breweries Ltd.(EABL), one of the country's leading brewers, is promoting the use of higher quality sorghum varieties, such as *Gadam* and *Sila* to supplement barley in beer production (Ochieng, 2011). This recent development has encouraged renewed interest in the money-making production of sorghum, as it offers farmers forecasts for higher returns.

Due to the view that there is ready market for the produce and good profits, the crop is becoming increasingly popular among farmers in Kenya (MOA, 2009-2012). The Meru community has also embraced farming of sorghum crop in a serious manner. This is practiced in areas of Meru County where there are high potential areas for sorghum; indications are that many farmers are engaged in commercial production and that the farmers are not able to market or sell their produce to benefit them as they would wish. However, there has been very little or no research with regard to the factors affecting small scale farmers in marketing their farm produce sorghum farmers being included. There was therefore need to analyze some of those factors which influence marketing of sorghum produce as an initial step to finding the solution to increasing marketing efficiency among smallholder farmers in Meru county.

**Statement of the Problem**

Since independence, agriculture has been the backbone of Kenya's economy. It is mostly characterized by rural small scale farmers who take a portion of 89% of total food producers and despite the important role played by these farmers in feeding the nation, they remain the poorest section of the Kenyan society (Nyoro, 2009). Even if hopes for growth and poverty reduction through agri-business are huge, they face various factors while marketing of their farm produce which influence them in different ways.

It should be understood that without good marketing the farmers will not be able to sell or trade hence they will not reap maximum returns from their produce. This means they will never improve from their poor living conditions assuming that farming is their only activity. Small scale farmers across the world frequently consider marketing of their agricultural produce as being one of their major challenges.Many studies have been conducted on other factors that influence the marketing of agricultural produce by small scale farmers but less has been done concerning marketing of sorghum produce among small scale farmers. Even though means of Accessing information by farmers' means of linking farmers to market, and road infrastructure are critical and important factors in marketing of sorghum produce, there is no study which has been conducted in Giaki Location of Meru County, in relation to these factors.

Therefore this research focused on these factors and the influence they have on small scale sorghum farmers in marketing of their farm produce in Meru county bearing in mind that

even though this commodity is of higher demand because of its diverse use, the lives of the producers who are the farmers in the rural areas of Meru County remain unchanged in some parts of larger Meru community Giaki location being a case in this research proposal.

**Objectives of the study**

The study was guided by the following specific objectives

(i) To examine the influence of middlemen in the market on marketing of sorghum in Giaki Location

(ii) To find out the influence of road infrastructure on marketing of sorghum in Giaki Location

(iii) To determine the influence of access to information by farmers on marketing of sorghum produce in Giaki Location.

**Definition of significant terms**

**Access to information-** these are the means by which the famers get the information about the availability of the market for their produce.

**Agricultural marketing-** this is a business process where farm produce in this case sorghum produce reaches the final consumer in the market.

**Middlemen in the Market-** in this case refer to those people or group of people who buy sorghum direct from farmers immediately from the farm gates and go to sell in the market to the manufacturers. They act as a link between the farmer and the market.

**Road infrastructure-** in this case refers to the type of transport used to transport sorghum produce to the market center or to the customer. These include dusty terrains, all weather roads, murrumed roads among others.

**LITERATURE REVIEW**

The study reviewed both theoretical and empirical evidence based on themes of agricultural marketing, middlemen in the market, access to information, and road infrastructure.

**Agricultural Marketing**

Marketing of any farm produce is important. This is because the aim of any producer is to deliver the produce to the final consumer (Chemonics, 2010). Kohls (1985) Stated that agricultural marketing is the performance of all business activities involved in the flow of goods and services from the point of initial agricultural production until they are in the hands of the ultimate consumer. From this definition it can be seen that groups with varying interest will view marketing differently.

**Middlemen in the market**

The concept market linkers is frequently used in marketing literature to denote a particular category of market participants mainly middlemen or brokers who are popular in the marketing field. A major problem is that the concept of a middlemen or “brokers” as many call them is used to describe participants with quite different roles in the market system (Carl, 2010). As a result, the interpretation of the concept becomes unclear. Middlemen, and trading entrepreneurs who link the small scale farmers in developing countries to emerging markets nationally and globally, seem to be generally despised despite the economic service they provide. Without their capital and specialized knowledge, high prices in growing markets might be outside the reach of the small holder in the rural area, or of the home-based artisan in the urban slum. By bridging this gap, although for profit, surely they help to reduce poverty. And yet it is this profit motive, and the claim that these middlemen make too much profits" because of market control (Carl 2010).
Generally middlemen have a negative reputation all around the world and especially so in the marketing of agricultural products in developing countries. Mainly by using their assumed monopolistic position and the low bargaining power of producers, middlemen are thought to take advantage of producers by offering them prices far below the market value (Thapa and Pokhrel, 2007). This has on a regular basis led to calls from policymakers, NGOs and producers for the removal of the middleman as he is thought to be exploiting the poor producers through his behavior.

Mcmillan *et al*., (2004) studied the case of cashews in Mozambique, and reported that cashew growers only receive 40 to 50 percent of the border price, even after border taxes are allowed for. Farmers' incomes are depressed not only by transport and marketing costs, but also by the market power exercised by the middlemen traders”. Dare and Mortensen ( 2003) the concept or setup of middlemen is encouraged by a situation of farmers having inadequate information concerning the market prices.

In a study of Nepalese marketing of mandarins done by Pokhrel and Thapa (2007) failed to find any support for middlemen exploiting producers. This has also been the conclusion of several geographically diverse studies of agricultural markets (Enete, 2009); (Hayami, 1999). In a report on Bolivian potato farming Jones, (1984) instead found that the role of middlemen had an overall positive impact on producers and should be taken into consideration when policy for rural development was made.

Those who critic of the role of middlemen in marketing argue that the opportunistic behavior of middlemen is expected to raise transaction costs and create imperfections in the market Woldie and Nuppenou ( 2011), and that their high margins in profits misrepresent the market by driving a block between the price paid to farmers and by final consumers (Tara,

2011). According to Getnet, (2008) middlemen are popularly viewed as “parasites”, that is, they do not create wealth or value because they do not actually create anything real such as a physical product or a direct service.

Those who are in support of middlemen involvement, reason that middlemen are responsible from moving products from producers to final consumers, as well as overcoming the time, place, and possession gaps that separate goods and services from those who need or want them (Kotler and Keller, 2009). Mesarić and Dujak (2010) say middlemen are important as a component of value chains in the function of consumption, production and competition development. Rubisten and Wolinsk, (1987) said that the role of middlemen is to reduce the time- preference losses that occur when agents must search for a trading partner.

**Road infrastructure and marketing of sorghum**

Transport is considered as an important aspect involved in agricultural development all over the world. It is the only means by which food produced at farm place is moved to different homes and markets. Good transport in turn creates good marketing environment for agricultural produce, it encourages interactions among geographical and economic regions and opens up new areas to economic focus. Road transport helps in connecting rural areas to collective growth. Since the majority of the rural workforce in most developing countries are directly, or indirectly, dependent on the agricultural sector for employment, expanding the road infrastructure and improving its maintenance in rural areas can directly translate into lower transport costs for inputs (such as fertilizer) and market outputs, since it reduces the travel times for delivery to market and reduces the frequency of transport damage (e.g. vehicles and produce). Ogunsanya (1981) states that, there are three most popular types of routes in the rural areas which are; bushy paths, unsurfaced rural roads and surfaced rural roads. Nevertheless, the bushy path is very common but the least developed of all the routes. Bush paths connect villages with farm steeds and they are usually narrowed, winding and sometimes overgrown by weeds especially during the rainy season.

In a study carried by Filani(1993) in rural areas of Nigeria, it was revealed that where roads which can be used by motor cycle exist they are mostly of unpaved surface, narrow width and with low quality bridges. In most cases, they are either characterized with potholes or by depressions and drooping. These unsurfaced roads are hard to pass during the rainy season when vehicles get stuck in mud or when the bridges of cut-free trunks get brushed off by flood. This makes it difficult for farmers to transport their farm produce Aderamo and Magaji (2010) noted that road transportation is the main avenue through which different parts of the society are linked together.

Transport affects agricultural marketing because it is the only means by which farmers can transport their produce to the market. Poor roads in the rural areas has led to low productivity, low income and poor standard of living among rural inhabitants and high rate of poverty (Aloba 1986).When the distance of farm to the market is far and the road is rough perishable crops may be destroyed and farmers may run at a loss. It is based on this background that this study examined the impact of road transport on agricultural production in Ilorin East Local Government of Kwara State, Nigeria. Improvement of rural roads results in elimination of frequent road closures during rainy seasons, reduction in vehicle operating costs and increased traffic volume, ownership of motorized vehicles, access to market and social services, and improvement in passenger services(World bank, 1996).

Villages with Good road infrastructure have a significantly improved situation in terms of agricultural production and incomes compared to the villages with poor road infrastructure (Raisuddine and Hossain 1990).The improvements of feeder roads, bridge construction, and rural road routine and spot maintenance results in increased participation of vendors at local markets, increased variety of available agricultural products and the geographic size of markets for agricultural products (Lucas et al, 1990).Good road accessibility significantly reduces farm gate prices of manufactured goods and increase farm gate prices of agricultural goods (Torbjorn and Bharat 2012).

Households with poor access to road are confronted with wider price bands and are less likely to participate in markets, so policies towards integrating remote areas with urban areas through infrastructure development are needed (Torbjorn and Bharat, 2012). This raises speculations that poor road network among other factors could be contributing to huge price fluctuations in Giaki Location. Provision or improvement of transport services results in reduction of transport cost. Similarly, Bhalla(2000) argued that the marginal cost decreases as a result of improved transportation. In line with this, improving transport in Giaki Location will likely raise profit margins of the sorghum farmers. Worldbank, (1994) terms transport as one of the factors of production. Local farmers of Giaki Location may benefit from improvement of roads because of the reductions in the cost of transporting agricultural products to markets. In Kenya, farmers report that they pass roads in the rainy season with their ox carts, where trucks are stuck in the mud.

**Access to information and marketing of sorghum**

In spite of how important agriculture is to economic development, small-scale farmers continue to be poor and are not well connected to markets (Aina, 2007). Schemermeier and LightFoot, (2007) Argue that small-scale farmers are oppressed and do not get a reasonable share of the

final consumer price due to poor access to marketing information. Rural farmers mainly receive marketing formation from their fellow farmers' through word of mouth Gordon and Kindness, (2001) .Poor access to marketing information has left rural farmers exploited by other players in the chain. Rural farmers often are not aware of the prices of what they produce at distant markets. The poor access to information motivates the traders and middlemen to visit the farmers at their homes and local markets and make purchases there. Mainly the farmers negotiate based on the prices proposed by the traders or middlemen. Traders and middlemen take advantage of the farmers based on the farmer's lack of knowledge concerning market prices, poverty level and weak bargaining power influenced by illiteracy and low social status (Lightfoot and Scheuermeier, 2007). Intermediaries time and again ignore market rule and their pricing lacks transparency (Rao, 2007).

Marketing information that is disseminated to farmers may not fulfill its objectives (Robbins and Ferris, 2004). The farmers in Zambia indicated that information needed for decision-making by small scale farmers included; gross margins for a particular farm produce, possible markets, stability of the produce in the market, availability and price of inputs and projected transportation costs for inputs (Mushigwani, et al, 2002).Some studies revealed that farmers who are benefitting from the price information services would be interested in other information as well, such as weather forecasts, advice on crop production and marketing and use of appropriate seeds and fertilizers (Awasthi, 2007).

Terero, (2011) proposed that one way to link farmers to markets is by improving physical infrastructure such as; information technology that connects smallholders to markets and reducing transaction costs and minimizing risk. Agricultural Stakeholders including small scale farmers use different ICT applications and tools at different stages of agricultural value chains, from pre-production to advisory services, marketing and consumption. The use of mobile phones for marketing by small scale farmers is substantial. Donovan (2011) reported that mobile phones help to increase income, improve efficiency of marketing, reduce transaction costs and present a great opportunity for new interventions.). This finding reflects the evidence that farmers equipped with information have stronger bargaining power and can access a number of markets at the same time.

## RESEARCH METHODOLOGY

### Research design

This study has used descriptive design since the questions raised in the study require collecting information by interviewing or questionnaire. Descriptive research design is meant to explain state of relationships as it exists. Kerlinger (1969) points out that descriptive studies are not only

limited to fact finding, but often results in the formulation of important principles of knowledge and solutions to significant problems. A research design involves measurement, classification, comparison and interpretation of data.

**Target population**

A target population is a collection of individuals, objects or items from which samples are taken for measurement (Donald and Delno, 2006). The target population consisted of all the 212 households which are involved in sorghum produce in Giaki location. The location is made up of 3 sub- locations namely; Mbeu,Thameri and Kambereu sub- Locations which was distributed as follows; Mbeu 80, Thameri 63, and Kambereu 69.

**Sample size**

The sample size was achieved using the formula which was developed by (Yamane,1967) and arrived at a sample size of 138 small scale sorghum farmers in Giaki Location which is 66% of the target population.

$n = N/\{1 + (Ne^2)\}$

Solution= $n = 212/\{1 + (212 * 0.05^2)\}$

$= \frac{212}{1.53} = 138$

**Sampling procedure**

A combination of probability and non-probability sampling methods was employed to arrive at the respondents for interviews.

The study used same sampling criterion to determine sample size per sub location. After a suitable sample size for every sub location was established the researcher employed systematic sampling technique in picking the farmers who were interviewed. The names of the farmers were arranged numerically then randomized and respondents were determined through systematic sampling technique. Population proportion sampling procedure was used to distribute respondents to the 3 sub locations in Giaki Location. Proportional sampling (VanDalen 1979) was appropriate for this study because it provided the researcher away to achieve even greater representativeness since selection of individuals was accomplished by selecting individuals at random from the sub locations in proportion to the actual size of the population in the total population.

Table 1. Sampling frame

| Name of sub location | Total households | Criteria used | Sample size |
|---|---|---|---|
| Mbeu | 80 | $\frac{80}{212} * 138$ | 52 |
| Thameri | 63 | $\frac{63}{212} * 138$ | 41 |
| Kambereu | 69 | $\frac{69}{212} * 138$ | 45 |
| Total | 212 | | 138 |

**Validity of the instrument**

To ensure the validity of the questionnaire the researcher employed content validity concept where the instruments were tested before the real research was started in a process called research pre-test. Consultations with the supervisor on whether the instrument was valid were also done and various amends on the tool made at this stage. Questions that proved to be vague or ambiguous were deleted from the questionnaire. It is important to stress that findings which were obtained in the pre-testing study was not used in the final report but was vital for purposes of testing the research instruments.

**Reliability of the instrument**

Reliability can be defined as a consistency of one's measurement or the degree to which an instrument measures the same way each time if the instrument is used under the same conditions with the same subjects (Trochim, 2006). In this study the reliability of the instruments was checked using the test-re-test technique because it's easier to administer and understand this technique refers to the test of consistency among different administrations to determine the coefficient for this type of reliability; the same questionnaire was given the sampled population in pilot study on at least two separate occasions. The questionnaire was given to the farmers on two weeks difference. The test was done on last week of April and Retest conducted in the second or third week of May. The questionnaires were expected to yield similar results. Then to find the test re-test reliability coefficient, correlation between the test and the re-test was calculated using Pearson's correlation coefficient formulae.

**Data collection procedures**

Before starting the process of data collection, this study proposal was taken through approval procedures as required by the University of Nairobi. The research assistants were trained for two days on correct interpretation of the questions in the instruments and ethical considerations.

The researcher was in the field with the research assistants giving helping hand to both the research assistants and the respondents wherever necessary. The research assistants interviewed individual farmers using structured questionnaires and respondents were assured of strict confidentiality. To ensure high response rate the farmers were interviewed in their farms during the day. Every evening meeting were held between the researcher and research assistant to review and evaluate the progress and address emerging issues

**ANALYSIS AND FINDINGS**

In this research study a total of 133 respondents were available for the study, where out of them 71(53.3%) where male while 62(46.7%) were female. It was also found that majority of the respondents 43(32.3%) were of age 36-45 years and closely followed by those of 26-35 years old 36(27.1%). 121(91%) of the respondents markets sorghum grains

On the influence of middlemen in the market the study found out 119(89.5%) of the respondents use middlemen as market link to market their sorghum. 115(86.5%) of the respondents disagreed that selling to middlemen is more profitable to farmers than selling direct to the consumes. 107(80.5%) agreed to the statement that middlemen provide the most convenience means of marketing sorghum grains. The study also found out that 124(93.2%) of the respondents agreed to the statement that middlemen are better informed about sorghum marketing then the farmers. Majority of the respondents 128(96.2%) confirmed that middlemen are exploitive to farmers. Also the study found out that majority of the respondents 92(69.2%) thought that middlemen are important in marketing of sorghum produce because they reduce the transportation cost to the customers because they buy at farm gates and also they are conversant with new or emerging markets.

Regarding the influence of road infrastructure on marketing of sorghum produce the study found out that 70(52.6%) of the respondents use dusty terrains when transporting their sorghum. 73(54.9%) of the respondents strongly disagreed to the statement that the kind of road infrastructure available for them is appropriate for marketing of their sorghum produce, 45(33.8%) agreed to the statement while 15(11.3%) only disagreed to the statement. According to Majority of the respondents 73(54.9%) roads were currently in poor condition. The poor condition of the roads affects sorghum marketing negatively this is according to 83(62.4%) of the respondents. 80(60.2%) of the respondents agreed that improvement on road infrastructure will in turn improve the income gotten from sorghum marketing.

In regard to influence of access to information on sorghum marketing the study found out that 96(72.2%) of the respondent use mobile phones to access information. 103(77.4%) of the respondents felt that the mode of accessing information was reliable to them. It was found out

that majority of respondent's 89(66.9%) gets the information from middlemen. Most of the information gotten from the source of information was marketing information according to 63(47.4%) of the respondents. All the 133(100%) respondents felt that if an improvement is done in the access to information sector it will have a positive impact to the marketing of sorghum produce in Giaki location.

**Correlation analysis**

The relationship between the variables was summarized in table 2.

Table 2. Correlation Matrix

| | | Sorghum marketing | Middlemen as market link | Road infrastructure | Access to information |
|---|---|---|---|---|---|
| Sorghum marketing | Peason correlation sig (2-tailed) | 1 | | | |
| Middlemen as market link | Peason correlation sig (2-tailed) | 0.51 | 1 | | |
| | | 0.029 | | | |
| Road infrastructure | Peason correlation sig (2-tailed) | 0.390 | 0.420 | 1 | |
| | | 0.049 | 0.099 | | |
| Access to information | Peason correlation sig (2-tailed) | 0.679 | 0.561 | 0.662 | 1 |
| | | 0.019 | 0.600 | 0.561 | |

As shown on Table 2 Peason's product moment coefficient analysis (PPMC) was used to test the strength of the association between the variables. The researcher used the Peason's product moment correlation and the findings were as on the table. From the findings it was clear that there was a positive correlation between sorghum marketing and middlemen as market link as indicated in correlation figure 0.51. It was also clear that there is a weak positive correlation between sorghum marketing and road infrastructure as the correlation figure was 0.39. Also there was a strong positive correlation between sorghum marketing and access to information as the correlation was found to be 0.679. Finally it was established that there was a strong

positive correlation between Access to information followed by middlemen in the market while road infrastructure had the weakest association with sorghum marketing .moreover all the variables were significant at 95% confidence level with sorghum marketing, access to information being the most significant (P=0.019) and road infrastructure being least significant (P=0.048)

**SUMMARY**

From the study most of the respondents dealing with sorghum marketing are in their youthful years and are mostly males. The results indicated that majority of the respondents have been involved in sorghum marketing for a period of not less than 6 years. It was also clear that most of them are of primary level of education.

The results also reviewed that majority of the respondents use middlemen to market their sorghum produce though it's not profitable selling to middlemen as they would wish. It was also reviewed that they sell to middlemen because it's the most convenient means available for them; this is according to majority of respondents. The respondents use middlemen as market link because they assume that middlemen are better informed than them. The results also shown that despite the respondents dealing with middlemen as market link they view middlemen as exploitive. Surprisingly is that even though the respondents viewed middlemen as exploitive towards them, majority of them also think that middlemen are important as market link. This is because middlemen have resources to transport sorghum produce in bulk and also they create connection between manufacturers and famers in the village.

With regard to road infrastructure the study reviewed that many of the respondents use dusty terrains as means of transporting their sorghum produce which in turn tends to be difficult and expensive to the small-scale farmers and hence opting to involve middlemen. It was also found out that despite these roads being so important to the villages or famers they are only serviced after two or more years. In the study it was noted that the current road infrastructure in Giaki location is in poor condition and brings negative effect in sorghum marketing. The respondents thought that if road infrastructure can be improved even the income coming from sorghum marketing can improve.

With regard to access to information it was noted that most of the respondents use mobile phones to access information from marketing parties mostly middlemen, this is according to majority of the respondents. The reason being the respondents find mobile phones being reliable and accessible to many people. It's also seen that improvement in access to information will also have a positive impact on sorghum marketing.

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