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An Analysis of Marketing Constraints Faced by Small Scale French bean Farmers in Murang’a County

BY:

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LIST OF ACRONYMS
HCDA- Horticultural Crop Development Authority
GDP- Gross Domestic Product
FPEAK- Fresh Produce Exporters Association of Kenya
MRLs- Maximum Residual Levels
KEPHIS- Kenya Plant Health Inspectorate Service
GOK- Government of Kenya
KHDP- Kenya Horticultural Development Program
NAFIS- National Farmers Information Service
1.0 INTRODUCTION

1.1 Background information.
French beans production and marketing in Kenya has been on the increase due to the profits associated with it after marketing. According to HCDA (2010) French beans are the most exported vegetables from Kenyan agriculture accounting for 60% of all the exported quantities of horticultural products. Produce is mainly exported to the European nations such as United Kingdom, France, Holland and Germany. Other markets include the United Arab Emirates. This leads to a big contribution to the country’s GDP (Gross domestic product) due to gains from foreign exchange gains. The horticultural industry in Kenya is thus a big contributor to the economic development of the country. It stands as the most profitable sub sector in the agricultural sector and supports the country’s vision 2030 where agriculture is a major driver (GOK, vision 2030).

French beans are cultivated for both fresh consumption and processing mainly freezing and canning (NAFIS, 2013). Production is carried out by both small and large scale farmers but small scale production is recommended because production of the beans is labor intensive (KHDP, 2013). Demand for French beans in the international markets has led to increased production by small scale farmers all over the country who either export the produce on their own or through middlemen. Local consumption of French beans has also increased over the years as the increasingly growing population is appreciating the health benefits accrued to consumption of the beans, the beans are high in protein thus act as supplements to animal proteins (HCDA, 2010).

Local consumption is been aided by the increase in number of sellers of green produce. Supermarkets have significantly led to this as they have incorporated the selling of French produce in their chains.

In the export chain we have the producers, middlemen, exporters, logistic companies and the government that acts as the regulator of the industry (HCDA, 2010). All players in the value addition chain have to play their roles effectively so as to increase the returns. This has not been
the case and has led to marketing problems where the primary producer (farmer) ends up gaining low profit from his work while the other players continue to exploit them.

The horticultural sector is one of the fastest growing industries having recorded a growth of 132% since the year 2001 (KHDP, 2013). As cited by E. o. monda and S. munene (2003) production of the French beans faces many challenges in the small farms that correspondingly have an effect on marketing of the beans. Increase in input costs as indicated by Muriithi, Mburu and Ngigi (2011) lead to escalation of the production cost that affects the marketing effectiveness of the beans. Kenya has been working towards attaining of the traceability certification under the EUROGAP in order to comply with the set conditions in the market and hence increase market of the beans in the Europe countries.

According to FPEAK Kenya developed its own requirement standards similar to the EUROGAP and the standards are working towards traceability, quality, product safety, environmental management and the health and safety of the workers (KENYAGAP, 2005). By the end of the year 2005 900 farmers had attained EUROGAP certification (KHPD, 2013). The certification concerns tracing back the produce in the value chain to the farmer level and ensuring that the issue of MRLS (maximum residual levels) is put in check.

Various institutions come into play in the value chain addition and marketing of the French beans. The ministry of agriculture is one of the players. It has moved in to educate the farmers on the good agricultural practices (KENYA GAP) concerning the beans. This has led to keeping in check to the requirements in the market. The government does this through its agent HCDA that acts as the regulator in the horticultural industry. Farmers are also educated on the use of chemicals on the beans and thus trained on good spraying methods thus checking on the MRLS (HCDA, 2010).

KEPHIS (Kenya plant health inspectorate services) has also played a major role in ensuring good quality produce. They inspect facilities where beans are packed and check on the hygienic requirements. After inspection a certificate of phytosanitary attesting that the produce has been inspected and is pesticide free is issued. Hygienic requirements are needed for packing, washing and processing (KEPHIS, 2013).
Exporters and the farmers have been encouraged to join FPEAK (Fresh produce exporters association of Kenya) to safeguard their interests in the industry (FPEAK, 2013).

1.2 Problem statement.
French marketing has been a success story in Kenyan horticultural sector leading to high financial gains when compared to crops such as maize. Minot and Ngigi (2004) cited this as due to the simple production practices associated with the beans and the ready European markets where demand is high. Kenyan export of the beans averaged to about 12.64% by volume in the European markets (EUROSTAT, 2009). Despite the success associated with French bean marketing many farmers end up playing the victims as they are exploited by the exporter thus do not reap the profits. Empirical data is lacking from available literature on marketing constraints faced by farmers thus the gap of knowledge where my study focuses.

The economic research problem in this study is to analyze marketing constraints of French beans in Murang’a County. In Murang’a county French beans production is carried out by small scale farmers. The farmers face a number of marketing constraints thus are not able to move their produce into the market both locally and internationally. This means that the farmers end up getting low returns after selling their produce.

1.3 Purpose of the study.
The purpose of the study is to analyze the marketing constraints faced by small scale French bean farmers in Murang’a County. The specific objectives of the study are thus;

i. Identify marketing constraints faced by small scale farmers in the county.
ii. Assess extent to which the marketing constraints influence farmers’ income.

1.4 The hypotheses
i. Marketing constraints have positively affected marketing of French beans in the county
ii. Low income to the farmers is solely due to the marketing constraints faced.

1.5 Justification of the study
Information gathered from the study will be useful and will provide an insight and recommendations to the farmers, exporters, policymakers and other stakeholders in the marketing value chain of French beans. Information will be used by the farmers to identify the
marketing constraints and enable them develop strategies on how to overcome them in order to increase their incomes. Information will also be used by the policy makers in the formulation of policies and programs that will be directed towards streamlining the market chain of French beans. This will ensure constraints are minimized thus increasing markets of the French beans and accrue more income to the farmers.

1.6 Study Area

Muranga County covers an area of 2325.80 sq km with a population of 942581. The economy of the county is predominantly agriculture. Most farmers carry out production in smallscale farms. Tea, coffee and maize are some of the major crops cultivated in the region. Due to the favorable climatic conditions and good soils vegetable production is on the rise especially that of French beans. Many small-scale farmers have opted to French bean production and marketing because it’s profitable than cultivation of traditional crops such as maize.

The county is a hub of trade and commerce due to its proximity to Nairobi and its large population. The local high population provides market opportunity to the farmers as French beans as there is high demand in the local markets. The farmers have also identified international markets where they market their produce to directly or through exporters. Marketing generates income to support their livelihoods. High income to farmers is not always the case as they are faced by a number of marketing constraints hence low income. This is thus a relevant study area to my research in order to identify the marketing constraints faced by small scale French bean farmers.

1.7 Organization of the project

The rest of the project is organized as follows; chapter 2 gives the literature review supporting my study, chapter 3 show the methodology used in the study, chapter 4 shows the expected outcome and chapter 5 indicates the references.
2.0 LITERATURE REVIEW
Kariuki (2003) carried out a study in Mwea Tebere where he evaluated the effects of contacts between farmers and exporters on the production and marketing of French beans. He sampled 60 household farmers and used risk square estimation method to determine direct and indirect effects of contracts. By use of gross margin analysis he was able to compare the incomes among contracted and non-contracted farmers. Study found out that contracts were informal, abuse prone and based on trust. This led to farmers’ exploitation by the exporters. Kariuki concluded that to avoid farmer exploitation there was need to adopt standardized contracts which should be formalized.

Monda et al., (2003) carried out a study in Nkuene and Abogita divisions in Meru district. They analyzed production constraints of French beans and their link to marketing of the beans. They used interviews where a questioner was used to collect data from the farmers. Constraints identified included; education level of farmer, age of the farmer, high input costs which led to increase of production cost. Study found out that 22% of the farmers in the region wanted to stop French bean production due to high cost and poor marketing. Price fluctuation of the beans was also identified as a marketing constraint. Study concluded that there is a direct link between production constraints and the marketing of French beans.

Wollni and zeller (2007) carried out a study on how quality of the beans determine their price and hence their marketing. They found out that price of the beans is highly affected by the quality with the fine quality beans fetching higher prices. Study concluded that quality of the beans is affected by the nature of production that coincidentally affects marketing. French beans have to be of good quality to conform to market requirements. Most of the small holder farmers do not have the knowledge and information on production of the beans. This leads to poor quality beans that fetch little price in the market.

As cited by Beatrice (2008) where she carried out a study on compliance with EuroGap standards: determinants, cost and implication to profitability in Kirinyaga district. Study found out that compliance to standards entails costly investments and thus a burden to the small scale farmers. The study also identified the implication of the standards on profitability of the farmer.
Study concluded that to reduce compliance cost the government and other stakeholders in the subsector should assist farmers to ensure continued access to lucrative markets.

Ondieki et al., (2010) carried out a study in Kirinyaga region to investigate the various institutional arrangements that small scale farmers use to participate in export horticulture of French beans. Study was done where farmers were interviewed by use of focus group discussions. Study found out that most famers sell their produce to brokers followed by selling as part of a group to an exporter. Study also found out that some famers were involved in more than one institutions arrangement as a strategy to overcome inherent disadvantages of marketing. Study concluded that if small scale farmers are going to continue participating in export horticulture they should choose institutional arrangements that reduce transaction costs.

According to bean value chain analysis Kenya (2012), after a study of value addition of product, the case of French beans identified constraints leading to low marketing of the beans. Study found out that most farmers are involved in low or no value addition to their produce before marketing. Study concluded that for farmers to increase market penetration product development is required. Farmers can learn how to package their produce in order to look presentable and attract customers in the market. Study also cited Tariff and non-tariff barriers as a challenge posing a threat to the traditional markets of the beans and exerting pressure mostly to the small holder farmers.
3.0 METHODOLOGY

3.1 Data collection procedure and sampling design
Data for the study was collected by use of a structured questionnaire that was administered by the researcher. Field study was used to collect the primary data used in the study where a questionnaire was used to gather data on the marketing constraints which they face as small scale French bean farmers. Questionnaires were filled out by face to face interviews with the farmers. A quantitative design was used to gather data on various variables such as farm size, farm yield and distance from the nearest market in order to get a glimpse of how they affect marketing of the French beans.

Study respondents were selected by use of stratified clustered sampling. Random selection of the farmers was applied where a total number of 31 farmers were selected and interviewed on the marketing constraints they face as small scale French bean farmers. Statistical Package for Social Services (SPSS) was used in the data analysis.

3.2 Model used
Simple linear regression model was used in the data analysis to analyze relationship between the marketing constraints identified in the study and the level of income to the farmer. A simple formulation of the model was as follows:

\[ Y = \alpha_i + \beta X_i + u_i \]

Where:
Y=level of income of the farmer (dependent variable).
\( \alpha_i \) = Constant (other factors which were not include in the model but affect the dependent variable)
\( \beta \) = Co-efficient of the variable
\( X_i \) = Variable
\( u_i \)= Error term
3.3 Variables included in the model
To attain the study objectives a number of variables were included in the model as follows:

Table 1: Variables in model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description of the Variable</th>
<th>Expected sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmsizeacres</td>
<td>Size of farm (acres).</td>
<td>±</td>
</tr>
<tr>
<td>Yeildkilograms</td>
<td>Seasonal yield from the farm</td>
<td>±</td>
</tr>
<tr>
<td>Farmdistance</td>
<td>Distance of farm to nearest market</td>
<td>±</td>
</tr>
<tr>
<td>Accessmarket</td>
<td>Market accessibility</td>
<td>+</td>
</tr>
<tr>
<td>Edulevel</td>
<td>Education level of the farmer</td>
<td>+</td>
</tr>
<tr>
<td>Marketingyears</td>
<td>Marketing experience in year’s</td>
<td>+</td>
</tr>
<tr>
<td>Marketingconstraint</td>
<td>Marketing constraint face</td>
<td>+</td>
</tr>
</tbody>
</table>

Size of the farm was used as a variable in the model in order to get the average farm size of the small scale French bean farmers in the county, it was expected that many farmers will have small tracks of land due to resources available to them for use in production.

Yield of the farm in kilograms was considered a variable in the model so as to get the level of income of the farmer after sale of the produce at the specific market prices. It was expected that a higher yield would mean a high income level to the farmer but this was not the case due to the marketing constraints the farmers faced.

Farm distance from nearest market was used to gather data on farm distance from market and also check on how distance affected marketing of the French beans. French beans are horticultural products and are expected to be fresh when in the market place. It was expected that farmers who were nearest to the markets would be able to comfortably transport more of their produce to the market place and the produce would still be fresh and in good condition.

Market accessibility was used as an additional variable in the model to evaluate level in which the farmer was satisfied on matters of getting his produce to the market place for sale. This
variable helped identify constraints to marketing faced by the farmer. It was expected that farmers with a high market accessibility level would market more of their produce.

Education level of the farmer was used in model as a variable to gather data on the number of farmers above or below secondary education level. It was expected that farmers with a higher education level to be more knowledgeable on marketing matters such as market standards of the produce and ways to increase market penetration when compared to those with low education thus would market more their produce easily.

Marketing experience of the farmer was used to gather data on farmers experience in marketing and how it affected farmer’s ability to deal with the marketing constraint faced. It was expected that farmers with high marketing experience would have relevant skills to deal with marketing constraints efficiently and thus increase their income by marketing more of their produce.
4.0 RESULTS AND DISCUSSIONS

4.1 Farmer characteristic in the study region

Table 2: Descriptive statistics for the continuous variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Descriptive statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age of the farmers</td>
<td>37.74</td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>54.8</td>
</tr>
<tr>
<td>Education level of the farmer (% above secondary)</td>
<td>64.5</td>
</tr>
<tr>
<td>Average gross seasonal income (% below shs 20000)</td>
<td>71</td>
</tr>
<tr>
<td>Average farm size (acres)</td>
<td>2.571</td>
</tr>
<tr>
<td>Average farm distance to nearest market</td>
<td>2.87</td>
</tr>
<tr>
<td>Farm labor source (% using family labor)</td>
<td>61</td>
</tr>
<tr>
<td>Major market for farmer (% of farmers in local markets)</td>
<td>77.4</td>
</tr>
<tr>
<td>Time involved in marketing</td>
<td>7.61</td>
</tr>
</tbody>
</table>

From Table 2 above out of the total number of farmers interviewed 54% of them were female farmers. The higher number of female farmers in the area was due to the fact that most males in the region did not consider agriculture as a full time source of employment and thus leaving the females to carry out agriculture. Higher numbers of female farmers in the county also reciprocated the national scale where in recent studies most women are involved in agriculture than men. Mean age of farmers in the county was 37 years. This explains that most farmers in the county are the young people who are not employed and are thus carrying out agriculture as their main source of income and livelihood.

According to Table 2 above, of the farmers interviewed 63% of them had secondary school education and above. This meant that most farmers were educated on various matters of marketing of the French beans and thus could comfortably do so. The average farm sizes of the
farmers was 2 acres thus confirming that most French beans farmers in the county carry out production on small scale level which also correspond to their marketing.

From the Table 2 above most farmers were near market centers at an average distance of 3 kilometers. This proved vital to transportation of the produce to the market places for sale as the product would get to the market place while still fresh. Distance from the farm to the market place contributed a lot to most farmers choosing the local market as their major marketing place at 77% of the farmers interviewed. Most farmers also preferred the local market as they did not have the sufficient capacity in terms of quantity and capital to invest in international markets. The local market was also preferred as the farmer would monitor and take charge of his business efficiently.

As from Table two above, 61% of the farmers interviewed used family labor in their farms. This was because they considered it to be cheaper than hired labor. Use of family labor was also supported by the fact that most farmers had small tracks of land and thus no need to hire additional labor to use in both production and marketing of the produce. According to Table 2, 71% of the farmers reported a gross income of less than sh 20000. This was attributed to the fluctuating cost of French beans in the market and the marketing constraints faced by the farmers.

**4.2 Marketing constraints faced by the farmer**
Most farmers cited poor infrastructure as a constraint to their marketing, due to the poor roads the farmers are unable to get their produce to the market in good conditions when they are still fresh. This thus leads to the produce fetching fewer prices in the market.

Other marketing constraints identified by the farmers included; lack of capital to invest in storage facilities such as cold rooms, exploitation by the middle men, high cost of production of the beans due to high inputs cost which reduce profits, lack of proper marketing information, market price fluctuation, distorted markets and lack of ready demand for the beans leading to losses due to spoilage.
4.3 Effects of marketing constraints and variables on farmer’s income
Marketing constraints indentified from the study in addition to the study variables were found to have an effect to the income of the farmers. These relationships of the variables to the income of the farmers were estimated by use of the linear regression model and results shown as follows;

Table 3: Variable relationships to income level of the farmer

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.00</td>
<td>0.123</td>
</tr>
<tr>
<td>Farmsize acres</td>
<td>0.418</td>
<td>0.154</td>
</tr>
<tr>
<td>Yield kg</td>
<td>0.48</td>
<td>0.000</td>
</tr>
<tr>
<td>Farm distance</td>
<td>-0.33</td>
<td>0.018</td>
</tr>
<tr>
<td>Access market</td>
<td>0.47</td>
<td>0.107</td>
</tr>
<tr>
<td>Edu level</td>
<td>-0.278</td>
<td>0.110</td>
</tr>
<tr>
<td>Marketing year</td>
<td>0.11</td>
<td>0.150</td>
</tr>
<tr>
<td>Marketing constraint</td>
<td>0.117</td>
<td>0.109</td>
</tr>
</tbody>
</table>

From the regression Table 3 above, the constant variable was developed to represent others variables not included in the model that would have an effect on farmer’s income. Various variables were found to positively affect the income of the farmer. The variables are thus said to have a positive relationship to the income of the farmer. Farm size affected the income of the farmer where it correspondingly affected the yield of the farm. Farmers who had large sizes of farms meant that their yield was high and despite marketing constraints they faced they accrued high income levels. Both results of farm size and farm yield were as predicted in the model.

Farm distance from the nearest market has an inverse relationship to the income of the farmer as from the study. This was due to the fact that most farmers despite being far away from the market they were able to get their produce to market place for sale. This was thus contrary to the
expected results as farmers cited that the poor road networks to the market posed a challenge to their marketing. Hence the further the farm was from the market the most difficult the farmer was unable to get the produce to the market place.

Access to the market was positively related to the farmer’s income. A farmer with high market accessibility was able to market more of his produce and thus high income. A one percent increase in market accessibility would mean a 47% increase in income holding other things constant and assuming no marketing constraint. There was also a positive relationship between income of the farmers and marketing constraints identified. The results were as expected as an increase in constraints would mean that farmers earn less from their sales.

From Table 3 above, education level of the farmer was inversely related to the income. This was contrary to the expected results where farmers with a high education level were thought to be more vibrant in marketing. Farmers cited experience and knowledge of the market as a reason for marketing more of their produce. This was also evidenced by the positive relationship between marketing years and income of the farmer. Result was as expected from the model. A one year increase in number of marketing years would increase income of farmer by an 11% increase holding other things constant.
5.0 CONCLUSION
Objectives of the study were to identify the marketing constraints faced by small scale farmers and their effects on the income of the farmer. Using the linear regression model it was discovered that various variables and marketing constraints were related to the income level of the farmer. Farm size, seasonal yields, access to market and marketing constraints such as poor infrastructure were all positively related to the level of income of the farmer. From the results of the study it is thus important to reduce the marketing constraints in order to increase income level of the farmer. This can be done by market intervention such as strict legislation, ensuring price stability of the beans, building of better infrastructure to ensure produce reaches market in good quality. Improvement of road network would increase accessibility to market and thus lead to increased levels of income to the farmers.
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