

An analysis of agribusiness support projects contribution on coffee production in Machakos county-Kenya

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Introduction

The increasing demand of coffee all over the world has surpassed the supply. This has led to a focused attention by key stakeholders in coffee production. These players have recently introduced agribusiness support based projects aimed at increasing the production of coffee. These projects provide support services on farm advisory services, certification programs, credit facilities and market information. The focus for the programs has been in Africa with a particular attention given to Kenya. Despite this, coffee production in Kenya is steadily declining as farmers are changing their attention from coffee production to other economic activities. The fact that there is a retrogressive production of coffee in presence of these agribusiness support based project raises concern as to whether this project achieve improved coffee production. This therefore necessitates the need to analyse agribusiness support based projects on Kenya's coffee production. The study sought to answer the question of the extent to which advisory services by agribusiness projects facilitative sustainable coffee production, the degree to which certification programs motivate farmers in coffee production, the extent to which credit facilities enhance profitable coffee production and the degree to which provision of market information facilitates better market prices for coffee farmers. The study was of benefit to farmers and all stakeholders in the value chain of coffee as it will provide a critical insight on how farm advisory services can be enhanced through adopted demand driven trainings and clustering of farmers to increase the scope covered by the projects. On certification projects, the study explored the need for participatory approach and offering premiums on certified coffees geared towards farmer's motivation and the need to enhance the effectiveness of credit facilitation on long term basis. The study explored the need to enhance better ways of accessing market information for farmers. The study adopted a descriptive survey design. The target population was coffee farmers in Machakos County. Convenient and census sampling techniques was used to select 2 districts with 100 respondents out of 320 coffee growers drawn from the management committees from various cooperatives. A questionnaire was used as the instrument of data collection. Data was analyzed using descriptive statistics with the help of Statistical Package for Social Sciences (SPSS).

Key Words: Agribusiness, coffee, Coffee production, Farmers, Market.

Background

World coffee consumption has been increasing at a steady compounded annual growth rate of 1.6% over the 1993-2007 period, with total consumption at 6.8 million metric tons in 2007 (World Resource Institute, 2007). Further, the World Resource Institute, (2007) adds that United States is the largest coffee consuming country in the world, accounting for 18% of world consumption. However, recent consumption growth has been driven by other countries such as Brazil, Russia, Poland and Ethiopia. Within the United States, the specialty coffee segment is the major growth area with a 20% annual growth rate and total sales in 2006 of \$12.27 billion (Mintel, 2007).

The increased consumption of coffee in the western countries has seen an increase of stakeholder interest in coffee production (Central Bank of Kenya, 2007). International coffee markets have demonstrated the importance of quality and consistent production traceable to the origin with a growing monitoring on the value chain (Kinoti, 2005). According to Mbogo (2007), producers must comply with specialty markets needs and husbandry practices. Due to short supply from major production countries like Brazil and Columbia, most international players in the coffee production sector have turned their focus on coffee production in Africa and in particular Kenya (Talbot , 2004).

Coffee production in Africa accounts for about 12% of global supply and less than 11% of global exports of the product for the 2009/10 (Central Bank of Kenya, 2010) . These contributions to the global coffee market are almost equal to Indonesia's, the third largest world producer of the commodity. Notwithstanding the small contribution of African countries to the global coffee market, the commodity constitutes a large proportion of both GDP and exports share in some of the continent's small economies. For example, in Ethiopia and Rwanda, coffee exports generated about 26% and 22%, respectively, in export revenue in 2009 (Central Bank of Kenya, 2010).

Given the importance of coffee production, many stakeholders have shown interest in production of coffee through initiation of agribusiness projects aimed at supporting sustainable production. The main Agribusiness sustainability projects with presence in Kenya includes: Organic certification, Fair-trade Certified, UTZ Certified, Rainforest Alliance Certified and Multi-stakeholder/Sector initiatives -The Common Code for the Coffee Community (4C). In addition, Corporate programmes have been initiated in Kenya with core objective of enhancing sustainable production in the aspects of Product Quality, Economic Accountability, Social Responsibility, and Environmental Leadership that includes; Nespresso ecolaboration, Starbucks C.A.F.E Practices and Technoserve among others (Block et al, 2005).

Kenya being one of the producers of the finest coffee in the world has particularly attracted several agribusiness support projects in pursuit of increased production (Block et al, 2005). The agribusiness support project provide farmers with farm advisory services, facilitation of certification programs, credit facilities on inputs, and market information. Despite this support, coffee production in Kenya has been steadily declining and many coffee farmers are replacing the practice of coffee production with other economic practices (Kinoti, 2005). Further, Dada, (2007) supports this by commenting that a keen interest has to be diverted on Kenya's export sector due to declining contribution of coffee exports.

Overview of coffee production and Agribusiness projects in Machakos

Machakos County is a major rural centre, and also a satellite town due to its proximity to Nairobi. Its population of 192,117 (2009 census) is rapidly growing. People who live here are mostly the Akamba though it is a cosmopolitan town. Machakos is surrounded by hilly terrain, with a high number of family farms. The main Agribusiness sustainability projects in Machakos county includes: UTZ Kaphe certification and Fair trade projects funded by Solidaridad foundation through Tropical Farm Management (K) limited, Rainforest Alliance projects by Sustainable management services and Multi-stakeholder/Sector initiatives -The Common Code for the Coffee Community (4C) by Technoserve.

The main crops grown in the district are maize and beans which are the staple food. Other crops grown in the district are cowpeas, pigeon peas, green grams, sorghum and millet. Growing of Cotton, coffee and horticulture are practiced but at a small scale. The region has a total of 32 coffee Farmer cooperative societies among other few independent estates. The region lies at latitudes lower than 10° and altitudes of 3600-6300 feet with frequent rainfall that causes almost continuous flowering of coffee, which results in two harvesting seasons. The period of highest rainfall determines the main harvesting period, while the period of least rainfall determines the second harvest season (Sylvester et al, 2008). This conducive environmental factor for coffee growing has prompted initiation of Agribusiness support projects to improve its production in the region. However, coffee production in the region has been declining (World Bank, 2007). This therefore forms the basis to carry out the study.

Statement of the problem

The Kenyan coffee production has been steadily declining in terms of both output and quality since its peak in 1987 (Kinoti, 2005). Exports fell from 2.1 million to 0.9 million bags between 1987 and 2007 and world market share has declined from 3.1% in 1986 to 0.6% in 2006 (Central Bank of Kenya, 2007). Moreover, the quality of Kenyan coffee has fallen, making it harder for Kenya to demand a premium over commodity prices. Approximately 20% of Kenya's coffee production was premium grade in 1993 but this proportion fell to about 10% by 2003 (Dada, 2007). Declines in production volume have been driven, in part, by declining crop yields (FAO, 2008).

Quantity and quality of coffee at farm and primary processing level is not maximized (World Bank, 2007). According to Edward, (2005) cooperatives are not able to adopt best processing practices in the pulping stations. The period of low prices has seen farming practices and farm management in general decline (Reardon, et al 2005). Coupled with the high price of inputs and lack of credit in the rural community, unsustainable practices are widespread (Sylvester et al, 2008). A general decline in incomes from coffee has therefore been observed. Despite the available opportunities provided under agribusiness support projects in terms of Farm advisory services, Farm Inputs, certifications and market information to reverse the situation, coffee farmers continue to face a decline in coffee production coupled with poor unimproved living standards as a result of poor coffee returns. Farmers seem not to have any positive return on investment due to declining volume and quality of the commodity (Mude, 2006). It is against this background that this study sought to analyse Agribusiness support projects contribution on improved coffee production in Machakos County-Kenya.

Scope of the study

The study focused on analysing Agribusiness support projects contribution on coffee production in Machakos County. The study sought to answer the question of the role of farm advisory,

certification, Input supply and access to information provided by Agribusiness support projects in Kenyan coffee production. The study targeted 32 coffee farmers cooperative societies in Machakos County with a population of about 25,000 active members spread in the region's coffee production belt.

The study questions

The study sought to answer the following questions:

- i. What is the contribution of farm advisory services provided under Agribusiness support projects on coffee production in Machakos County-Kenya?
- ii. What role does a certification exercise play on coffee production in Machakos County-Kenya?
- iii. What are the effects of farm inputs provided under Agribusiness support projects on coffee production in Machakos County-Kenya?
- iv. What are the effects of market information provided under Agribusiness support projects on coffee production in Machakos County-Kenya?

Literature

Past studies by Reardon et al, (2005) showed that coffee is one of the most important commodities traded internationally and its commerce impacts the lives of millions of coffee workers around the world more so in Africa. Many African countries depend on this trade as their main source of foreign income (Bates, 2005). Coffee production in Kenya is characterized by extreme division at grower level and heavy concentration of influential players further upstream (John, 2004). The literature review has depicted coffee production in Kenya to be of particular interest to many stakeholders. Among the many interested parties in coffee production are the multinational companies (MNC). These companies have put emphasis on coffee production through introduction of Agribusiness projects aimed at improving coffee production among coffee farmers. Among the list of services offered by the agribusiness projects include Farm advisory services, certification programs, input supply and provision of market information.

From past studies, farm advisory services have been of relevance to farmers since time immemorial (Alexander, 2007). This has been done through capacity building for farmers, agricultural management practices, and provision of market orientation (Kurt et al, 2009). Despite the relevance of farm advisory services on coffee production, how this impacts on small scale farmers has not been studied. The studies on farm advisory services have discussed on how important it can be to the farmers but the practicability of the practice has been given little emphasis. These study intends to fill in this gap by exploring the role of demand driven farm advisory services on coffee production.

Scholars have discussed certification and verification programs to be of great relevance to coffee production in terms of value addition, access to market information and dissemination of good agricultural, environmental and social practices (Gaaf, 2008). Despite the certification exercise being existent, Studies by Jean et al, (2009) have indicated that there is not much direct information on the actual quantities of coffees that are exported as certified from Kenya due to the newness of the initiatives currently in place. Certification programs have been depicted as complex and unaffordable by many small scale farmers in coffee production (Friedenberg et al 2004). Studies have shown the importance of certification projects and the benefit on coffee production, however these projects have been faced with challenges as the extent to which small scale farmers can adopt them is greatly hampered by complex procedures involved in the process as well as the anticipated

cost implications. This study intent to fill this gap by exploring the need to put more emphasis on certified coffee and premier payment for farmers whose coffee has undergone certification process.

Scholars have indicated input supply as one of the major challenge of coffee farmers in Kenya (Mburu, 2007; Talbolt, 2004; Dada, 2007). Farmers have started to diversify farming practices so as to mix coffee with other crops so as to meet the increasing cost of inputs Han et al, (2006). Agribusiness projects have come in to help farmers with supply of inputs, however this step is questionable as many of the inputs provided by these projects are in form of short term loans and farmers are expected to pay back at maturity of the coffee crop. The return on investment is normally lower than the cost of inputs and farmers end up producing coffee only to pay for inputs. This study intent to fill this gap by analysing how adoption of long term input loans at low cost by agribusiness projects can add value on coffee production without necessarily harming the farmer. Provision of market information in coffee production has been emphasized by many countries to increase transparency and volume of information flowing through the supply chain for different agricultural products (Andrew, 2007). Study by Robert ,(2007) shows that long transaction chains, lack of transparency, lack of standards, and insufficient access to markets for products has perpetuated low incomes in predominantly agrarian economies. Although market information services are provided to farmers, they often tend to be insufficient to allow commercial decisions to be made as time lags between data collection and dissemination (Andrew, 2007). This study intent to fill this gap by exploring how efficiency can be improved so as enhance timely collection and dissemination of market information to farmers especially those within the rural coffee production setup.

METHODOLOGY

The study adopted a descriptive survey design to achieve the objectives of the study. The Survey design was found suitable due to the fact that surveys are relatively inexpensive and are useful in describing the characteristics of a large population; very large samples are feasible, making the results statistically significant even when analysing multiple variables. In conducting this survey, questionnaires were developed to solicit the desired information.

Target population

This referred to all the members of the real or hypothetical set of people, events or objects under study (Chandran, 2004). According to Kenyan cooperative society's by-laws, Volume and quality production coupled with requisite skills in coffee business is always the top most benchmark for any famer to be elected in the management committee to serve for a minimum period of one year (Mburu, 2007). These elected committee members therefore assumes ultimate responsibility in management of the cooperative society affairs in regard to coffee farming, milling, marketing and payments. Further, coffee famers cooperative society movement constitutes small coffee holders with less than 5 acres under coffee farming. On this basis therefore, the study targeted the committee members of these cooperative societies to represent coffee famers scattered in a given production zone. Machakos county has 32 Coffee Cooperative Societies each managed by an average 10-member management committees who are also coffee farmers. This gave a total target population of 320 respondents.

Sample size and sampling technique

Convenient sampling technique was adopted to select the representative districts followed by census sampling method to identify the actual respondents to participate in the study. Machakos County

being the case study had five coffee growing districts which include, Machakos, Masii, Mwala, Kangundo and Matungulu district. Since all of them have homogeneous operational structures and management systems, convenient sampling technique was adopted to select 2 out of the 5 districts on the basis of accessibility, affordability and proximity to the researcher. Further, census technique was used to sample 100 percent of all sitting committee members elected to manage the cooperative societies within the 2 districts identified. In this context, Matungulu and Kangundo district were selected as the 2 districts of focus in this study whose cooperative composition and sample size of 100 respondents is as shown below.

District	Names of cooperatives	Committee membership	Actual sample size 100%
Matungulu	Mwatati,	9	9
	Kyaume,	11	11
	Kingoti	11	11
	Kambusu	10	10
Kangundo	Mbilini,	12	12
	Kawethei,	9	9
	Kakuyuni,	9	9
	Kilalani,	11	11
	Kitwii,	9	9
	Muisuni	9	9
Totals		100	100

Sample size

To validate the information given by committee members as true representation of all coffee famers, one famer who is not a committee member from each cooperative society was conveniently identified and subjected to oral interview to purposely reinforce the study findings. This therefore resulted to additional 10 respondents.

Operationalization table

Variable	Measurable verifiable indicators
Farm advisory services	50% of the coffee growers in Kenya get the services they truly need. 50% of the growers in Kenya apply best agricultural practices in coffee production.
Certification	20% of farmers are familiar with certification projects codes being undertaken in the Kenya.
Input supply	95 % of Kenyan coffee growers have access and ability to purchase adequate inputs for their coffee farming.
Market Information	95% of Kenyan coffee growers have adequate market information for their produce.
Sustainable coffee production	50% increase in coffee production among the Kenyan coffee growers supported by agribusiness support projects.

Source: NUCAFE Project in Uganda entitled “A Famer- Driven Approach for Improved Coffee Quality and increased Chain Value Share”.

RESEARCH FINDINGS, DISCUSSIONS AND INTERPRETATIONS

Acreage under coffee production

From the study, 95.9 % of all respondents indicated that they have less than 2.5 acres under coffee while the other portion 4.1 % have between 2.6 – 5 acres under coffee. This justifies the target

population composed of board of directors of co-operative societies that serves small holder coffee farmers with less than 5 acres under coffee.

Provision of Farm Advisory Services towards improved coffee production

The effects of Farm advisory services on coffee production was examined under the following aspects; Awareness of availability of the service, scope of farm advisory service, frequency, control, and respondents rating on satisfaction in terms of knowledge gained and quality of the services towards improved coffee production. The findings were that, Majority of the respondents accounting for 96.9 % had the awareness that agribusiness support projects do exist in their areas in support of coffee production. Only 3.1 % had centrally opinion. The finding reveals the importance associated with this agribusiness support projects. Most of these projects were found to be initiated by private entities in the value chain especially, commercial millers/Marketers and non-governmental organizations aligned to coffee.

Do Agribusiness projects have any effect on coffee production in the area?

Out of the 96.9 % of the respondents who have awareness of existing agribusiness projects, 91.8 % were in agreement the projects affected coffee production. Capacity building at both Farm and factory level were emphasized as the key areas of focus amplified by provision of credit facilities to procure farm inputs on time.

Do you think farm advisory services have affected coffee production in the area?

Provision of Farm advisory services and the effects on Coffee production was positively highlighted by 90.8 % respondents compared to 9.2 %. Farm advisory service elements of training on good agricultural practices, wet processing procedures, quality management systems, disposal of wastes, financial accounting were key issues brought out as having enabled majority of the societies to scale up on their production.

Ways in which advisory services have affected coffee production

General Capacity building to farmers was highly appreciated by 68.4 % of the respondents, 27.4 % were satisfied with provision of better agricultural management practices while a small section of 4.2 % favoured provision of market oriented information. This calls for more emphasis on market knowledge.

How often are the advisory services provided by the Stakeholders of Agribusiness projects?

Farm advisory services are often provided under the agribusiness support projects as revealed by 51.6 % of all the respondents compared to only 7.4 % who felt that these advisory services are not often offered. 41.1 % moderately scored meaning that Farm advisory services continue to be relevant in regards to the coffee farmers in pace with the changing environment.

Control over services needed

From the findings above, the typical farmer has control of the advisory services they need as scored by 62 % of the respondents compared to 38 %. It is an indication that indeed, the farmers know their knowledge weaknesses/gaps that requires transformation into strengths under the agribusiness support projects activities.

Respondents level of satisfaction in terms of addressing problems faced by coffee farmers

A large proportion of the respondents (62.2 %) were satisfied with how the problems they were

experiencing were being tackled/solved by the various agribusiness support projects with orientation of farm advisory services. 31.6 % were neutral compared to 6.1 % who were dissatisfied. The element of dissatisfaction calls for progressive measures of improvement by the agribusiness support projects.

Respondents level of satisfaction in terms of knowledge gained under field advisory services

There still seem to be a gap as regards knowledge transfer under farm advisory services as indicated by 28.6 % of the respondents who were satisfied compared to 71.4 % who were neutral. More intensified approach needs to be adopted for the scenario to change over time.

Respondents level of satisfaction in terms of quality of field advisory services

In tandem with knowledge transfer, quality of production is attributed to provision of farm advisory services by 41.8 % of satisfied respondents compared to 54.1 % who were neutral. Only 4.1 % of respondents felt dissatisfied. For quality of coffee to be improved, factory managers and farmers require adequate knowledge and constant refresher trainings by the agribusiness support projects.

Respondents level of satisfaction in terms of frequency of receiving field advisory services

The frequency of receiving beneficial farm advisory services was a major concern to 44.9 % of the respondents compared to 55.1% who felt satisfied. For the needs of the population to be visited regularly to ensure commonality in understanding, quality and quantity production ought to be realized during and after the project implementation period.

Certification exercise towards improved coffee production

The effects of Certification exercise on coffee production was analyzed under the following aspects; certification awareness , challenges faced , types of certification and their effects , value addition benefits, effects on production growth, pricing and cost implications in relation to improved coffee production as discussed below.

Awareness of certification exercises carried out by Agribusiness projects in the area

Majority of the respondents accounting for 96.9% were very aware of certification projects carried out within the area compared to small proportion of 3.1%. It is therefore noticeable that farmers are aware of certification trends expected by major buyers of the commodity.

Challenges faced during certification process

In recognition of the presence of certification exercises being undertaken, 90.9% are facing challenges to get certified. Only 9.1% felt no challenges attributable to sponsorship by agribusiness support project players in the sector provided as value addition service.

Cost of certification was the most identified challenge faced by coffee farmers as revealed by 69.6% of the respondents. 13% cited complex procedures as a hindrance while 6.5% were doubtful of how premiums are calculated and whether guaranteed. Inadequate technical capacity and lack of sufficient information on certification was highlighted by 4.3% respectively. 2.2% of the respondents were challenged by the many types of certifications being fronted by different certifying bodies and by extension unable to choose the most relevant one to implement given the resource constrain. Participatory approach therefore needs to be adopted in development of the guidelines to meet both the expectations of the farmer and market.

Extent of value addition by Utz, Kaphe, Rainforest Alliance certifications, 4C and Fair Trade certifications

As indicated in the four charts above, the common certifications are 4C, UTZ Kaphe, Rainforest Alliance and Fair Trade. It is evident that over 59.7 % to a large extent felt all the above listed certifications add value to coffee production. Vetting per certification, 100 % of respondents highly regarded Fair Trade, compared to 70.5% on 4C. Rainforest was moderately favoured by 84.8 % of the respondents while Utz Kaphe to a moderate extent of 59.7 % all in isolation. 4C implementation was found to be relatively easier compared to the other certifications. Fair Trade certification on the other hand was more common as it was introduced earlier than the others. Rainforest Alliance certification was revealed a bit complicated to achieve but commercially viable in terms of premiums guaranteed.

Extent of benefits achieved due to certifications

Majority of the respondents (51.6 %) agreed that there are benefits realized after certification exercise. 16.8 % strongly agreed compared to 25.3 % who were neutral in their assessment. Only 6.3 % disagreed that there are no associated benefits. Agribusiness support projects championing these certification exercises should be encouraged to accommodate more coffee farmers for maximum benefits across the country.

Extent of satisfaction that certification have improved coffee production

The findings indicate that certification exercise enhances coffee production as supported by 73.9 % compared to 4.2 % who disagreed. 18.9 % of the respondents were neutral. This affected substantially in areas of governance, environment, processing, labour relations etc.

Extent of satisfaction that certification has led to annual growth in coffee production

Growth in terms of coffee production is still slack given that 32.6 % of all respondents strongly agreed that certification leads to production growth. 40 % just agreed compared to 21.1 % who were neutral while 6.3 % disagreed. For the certification to contribute positively in production growth, elements of capacity building, input supply and financial support are key for the project's success.

Extent of satisfaction that certification has led to better prices compared to uncertified coffee

It is a common belief that any certified coffee will fetch higher prices compared to uncertified coffees as revealed by 74.7 % of the respondents. 6.3 % disagreed with this notion while 18.9 % remained neutral. This perception has been amplified by different service providers fighting to grow their market share using certification as a competitive advantage especially millers and marketers.

Extent of agreement that certification is unnecessary cost

Farmers always get illusion by the frantic efforts when they realize no premiums forthcoming if coffee sold through the central auction system. This was highlighted by 51.6 % of the respondents who agreed that the cost incurred in certification is unnecessary. 18.9 % were neutral in their score compared to 29.5 % who felt is a necessary cost. This shows that out of the many certified growers, only few are reaping the benefits hence an eye opener to the agribusiness support project implementers.

Provision of Farm Inputs towards improved coffee production

The effects of Farm input supply on coffee production was analyzed under the following aspects; necessity, value addition benefits, different challenges faced and effectiveness in the provision for

improved coffee production.

Opinion on whether farm input supply under the agribusiness projects affects coffee production

Majority of the respondents (92.6 %) compared to 7.4 % were of the opinion that Farm input supply affected coffee production substantially. Many of the coffee agronomical zones need fertilizer and chemical application in order to maximize the coffee bushes production potential. Provision of farm inputs therefore is a fundamental element towards success of agribusiness support projects in coffee sector.

Value addition aspects of farm input supply

Input application as highlighted by 76.5 % of the respondents majorly contributes to better/high yields as opposed to 23.5 % respondents who pegged on better quality coffee. This finding reveals the high level of awareness in terms of coffee production by Kenyan farmers. Common knowledge among them is that farm input application will induce more berries of higher density thus better yields, free of diseases or physical damage that impairs the quality aspect of the coffee.

Are there any challenges as far as input supply is concerned?

From the study, 96.9 % of the interviewed respondents were facing challenges in accessing Farm inputs especially the ones who have no projects attached. It was not a big challenge to 3.1 % of the respondents who can be traced to be under project sponsorship. The magnitude of farm input application therefore is a huge concern and therefore requires more attention for it to contribute immensely to coffee production.

Types of challenges faced as far as input supply is concerned

It was established that 86.7 % of the respondents faced the challenge of high cost of farm inputs hence beyond their purchasing power. Some of them accounting for 6.1 % cited high interest rates as a hindrance to get credit facilities to facilitate acquisition of the farm inputs. Short periods of loan repayment were also a challenge to 5.1 % compared to 2 % who faced accessibility constrains. This finding calls for customization of credit facilities to enable coffee farmers' access to adequate farm inputs in a timely manner for maximum benefits.

Rating the effectiveness of farm input supply on coffee production

Provision of input supply was voted by 81.6 % as very effective way of improving coffee production compared to 3.1% who felt negatively. 15.3 % of the respondents were moderately in agreement that farm inputs are important in improving coffee production. For the sector to grow the current volumes upwards, integrated approach among agribusiness project implementers will be required in terms of farm input supply, education and follow-ups to monitor application and usage.

Provision of Market information towards improved coffee production

Market information on coffee production was analyzed under the following aspects; sufficiency, frequency, respondents rating on effects on price discovery, mode of sale, relationship with pricing, technological capacity receive and internalize the information towards improved coffee production.

Access to sufficient market information on green coffee production and sales trends

As indicated by the study findings, 91.3 % of the respondents agreed to getting sufficient market information on coffee supply and marketing trends from Nairobi coffee exchange through service

provides and external prices via agribusiness support project entities compared to 8.7 % who don't get sufficient market information. This shows farmers are knowledgeable on the market for their produce and therefore the need for their involvement in sale decision making.

Frequency of getting sufficient market information on green coffee production and marketing trends

In tandem with weekly coffee auctions, 63.4 % of the respondents normally get market information on weekly basis compared to 5.4 % who get as often as after a month. 31.2 % gets it on yearly basis that can be tied to Annual general meetings where payment rate is declared according to subsequent sales and cherry deliveries at factory level. Majority of respondents who cited weekly receipt of market information were found to be under a project thus amplifying the essence of this agribusiness support projects in the coffee sector.

Respondent rating on the extent to which market information assist in best price discovery

Respondents were divided across in relation to the extent to which market information access assist in best price discovery. 20 % disagreed, compared to 22.11 % who strongly agreed. The two extremes downplay the importance of market information to farmers as they are not involved directly in marketing the produce. However, 36.84 % of the respondents agreed but not strongly while 21.05 % were neutral. Though provision of market information by the agribusiness support project is vital, it doesn't significantly facilitate better price discovery as agents are involved in closing the sales on behalf of farmers.

Respondent rating on the extent to which market information is related to coffee sale channels

The findings of the study showed that there was no direct relationship between market information and prices realized as 60 % of the respondents disagreed with the opinion. A proportion of 20 % agreed that there is a relationship compared to 20 % who were neutral. As highlighted elsewhere farmers are not involved directly in selling their coffees and therefore, market information provided acts as a motivational tool to produce more and better quality to enjoy the prices as advised by the agribusiness support project entities. The project activities in terms of market information ought to be aligned along the existing market framework objectively to inspire and motivate the farmers to improve their production.

Respondent rating on the extent to which market information is not used in sales benchmarking

Market information as highlighted by 62.1 % of the respondents is very useful in determining how and who will sell their coffees. 35.8 % were neutral while 2.1 % indicated they don't rely on market information to decide how they will sell their coffee. This phenomenon is very pronounced among farmers who were under no projects hence their high level of switching from one service provider to the other chasing for better prices rather than looking at the holistic dynamics of the market. The projects entities increasingly and progressively have the capacity to filter the much market information available and communicate to the farmers in a more structured and controlled manner to improve coffee production.

Respondent rating on the extent to which requisite technological tools and knowledge to internalize the market information provided

The infrastructural capacity in terms of technology for farmers to receive and understand market information was established as lacking by 69.6 % of the respondents compared to 30.3 % who were

neutral in their opinion. This therefore calls for the agribusiness projects to go extra mile in ensuring that the farmers are equipped with the appropriate technological tools, equipment, and knowledge for them to consume the market information provided to improve coffee production within their geographical jurisdictions.

Respondent rating on complexity of the market information provided

Majority of the respondents accounting for 48.4 % were moderately of the opinion that the market information provided by agribusiness project entities is not easily understood. This is further amplified by 45.2 % who disagreed the information is easy to understand compared to only 6.3 % who agreed with the opinion. For any information to have maximum benefit to the end user, its coding and execution should be easily understood. For the farmers to internalize the market information accordingly, agribusiness support projects may be should opt for localized teaching aids, language translations or use of local trainers who can effectively communicate in local languages for improved coffee production. In reference to these effects, majority preferred localized implementation of the projects rather than foreign based principles that somehow contradicts the local coffee framework of operations.

FINDINGS, CONCLUSION AND RECOMMENDATIONS

□ FINDINGS

Provision of Farm Advisory Services towards improved coffee production

The effects of Farm advisory services on coffee production was examined under the following aspects; Awareness of availability of the service, scope of farm advisory service, frequency, control, and respondents rating on satisfaction in terms of knowledge gained and quality of the services. The findings revealed that majority of the respondents accounting for 96.9 % had the awareness that agribusiness support projects do exist in their areas in support of coffee production. Only 3.1 % had centrally opinion. Out of the 96.9 % of the respondents who have awareness of existing agribusiness projects, 91.8 % were in agreement the projects affected coffee production. Provision of Farm advisory services and the effects on Coffee production was positively highlighted by 90.8 % respondents compared to 9.2 %. General Capacity building to farmers was highly appreciated by 68.4 % of the respondents, 27.4 % were satisfied with provision of better agricultural management practices while a small section of 4.2 % favoured provision of market oriented information. Farm advisory services are often provided under the agribusiness support projects as revealed by 51.6 % of all the respondents compared to only 7.4 % who felt that these advisory services are not often offered. 41.1 % moderately scored meaning that Farm advisory services continue to be relevant in regards to the coffee farmers in pace with the changing environment. From the findings above, the typical farmer has control of the advisory services they need as scored by 62 % of the respondents compared to 38 %. A large proportion of the respondents (62.2 %) were satisfied with how the problems experiencing are being tackled/solved by the various agribusiness support projects with orientation of farm advisory services. 31.6 % were neutral compared to 6.1 % who were dissatisfied. There still seem to be a gap as regards knowledge transfer under farm advisory services as indicated by 28.6 % of the respondents who were satisfied compared to 71.4% who were neutral. In tandem with knowledge transfer, quality of production is attributed to provision of farm advisory services by 41.8 % of satisfied respondents compared to 54.1 % who were neutral. Only 4.1 % of respondents felt dissatisfied. The frequency of receiving beneficial farm advisory services was a major concern to 44.9 % of the respondents compared to 55.1 % who felt satisfied.

Certification exercise towards improved coffee production

Majority of the respondents accounting for 96.9 % were very aware of certification projects carried out within the area compared to small proportion of 3.1 %. In recognition of the presence of certification exercises being undertaken, 90.9 % are facing challenges to get certified. Only 9.1 % felt no challenges attributable to sponsorship by agribusiness support project players in the sector provided as value addition service. Cost of certification was the most identified challenge faced by coffee farmers as revealed by 69.6 % of the respondents. 13 % cited complex procedures as a hindrance while 6.5 % were doubtful of how premiums are calculated and whether guaranteed. Inadequate technical capacity and lack of sufficient information on certification was highlighted by 4.3 % respectively. 2.2 % of the respondents were challenged by the many types of certifications being fronted by different certifying bodies and by extension unable to choose the most relevant one to implement given the resource constrain. The common certifications are 4C, UTZ Kaphe, Rainforest Alliance and Fair Trade. It is evident that over 59.7 % to a large extent felt all the above listed certifications add value to coffee production. Vetting per certification, 100 % of respondents highly regarded Fair trade, compared to 70.5 % on 4C. Rainforest was moderately favoured by 84.8 % of the respondents while Utz Kaphe to a moderate extent of 59.7 % all in isolation.

Majority of the respondents (51.6 %) agreed that there are benefits realized after certification exercise. 16.8 % strongly agreed compared to 25.3 % who were neutral in their assessment. Only 6.3 % disagreed that there are no associated benefits. The findings indicate that certification exercise has enhanced coffee production as supported by 73.9 % compared to 4.2 % who disagreed. 18.9 % of the respondents were neutral. Growth in terms of coffee production is still slack given that 32.6 % of all respondents strongly agreed that certification leads to production growth. 40 % just agreed compared to 21.1 % who were neutral while 6.3 % disagreed. As deduced in the findings, It is a common belief that any certified coffee will fetch higher prices compared to uncertified coffees as revealed by 74.7 % of the respondents. 6.3 % disagreed with this notion while 18.9 % remained neutral. Farmers always get illusion by the frantic efforts when they realize no premiums forthcoming if coffee sold through the central auction system. This was highlighted by 51.6 % of the respondents who agreed that the cost incurred in certification is unnecessary. 18.9 % were neutral in their score compared to 29.5 % who felt is a necessary cost.

Provision of Farm Inputs towards improved coffee production

Majority of the respondents (92.6 %) compared to 7.4 % were of the opinion that Farm input supply affected coffee production substantially. Input application as highlighted by 76.5 % of the respondents majorly contributes to better/high yields as opposed to 23.5 % respondents who pegged on better quality coffee. Findings revealed that 96.9 % of the interviewed respondents were facing challenges in accessing Farm inputs especially the ones who have no projects attached. It was not a big challenge to 3.1% of the respondents who can be traced to be under project sponsorship. It was established that 86.7 % of the respondents faced the challenge of high cost of farm inputs hence beyond their purchasing power. Some of them accounting for 6.1 % cited high interest rates as a hindrance to get credit facilities to facilitate acquisition of the farm inputs. Short periods of loan repayment were also a challenge to 5.1 % compared to 2 % who faced accessibility constrains. Provision of input supply was voted by 81.6% as very effective way of improving coffee production compared to 3.1 % who felt negatively. 15.3 % of the respondents were moderately in agreement that farm inputs are important in improving coffee production.

Provision of Market information towards improved coffee production

In terms of market information sufficiency, 91.3 % of the respondents indicated that they get

sufficient market information on coffee supply and marketing trends from Nairobi coffee exchange through service provides and external prices via agribusiness support project entities compared to 8.7 % who don't get sufficient market information. In tandem with weekly coffee auctions, 63.4 % of the respondents normally get market information on weekly basis compared to 5.4 % who get as often as after a month. 31.2 % gets it on yearly basis that can be tied to Annual General Meetings where payment rate is declared according to subsequent sales and cherry deliveries at factory level. Respondents were divided across in relation to the extent to which market information access assist in best price discovery. 20 % disagreed, compared to 22.11 % who strongly agreed. The two extremes downplay the importance of market information to famers as they are not involved directly in marketing the produce. However, 36.84 % of the respondents agreed but not strongly while 21.05 % were neutral.

The findings above showed that there was no direct relationship between market information and prices realized as 60 % of the respondents disagreed with the opinion. A proportion of 20 % agreed that there is a relationship compared to 20 % who were neutral. Market information as highlighted by 62.1 % of the respondents is very useful in determining how and who will sell their coffees. 35.8 % were neutral while 2.1 % indicated they don't rely on market information do decide how they will sell their coffee. The infrastructural capacity in terms of technology for farmers to receive and understand market information was established as lacking by 69.6 % of the respondents compared to 30.3 % who were neutral in their opinion. Majority of the respondents accounting for 48.4 % were moderately of the opinion that the market information provided by agribusiness project entities is not easily understood. This is further amplified by 45.2 % who disagreed the information is easy to understand compared to only 6.3 % who agreed with the opinion.

□ **Conclusions**

On the aspects of Farm Advisory service, most of these projects were found to be initiated by private entities in the value chain especially, commercial millers/Marketers and none-governmental organizations aligned to coffee. Capacity building at both Farm and factory level were emphasized as the key areas of focus amplified by provision of credit facilities to procure farm inputs on time. Farm advisory service elements of training on good agricultural practices, wet processing procedures, quality management systems, disposal of wastes, financial accounting were key issues brought out as having enabled majority of the societies to scale up on their production. Farm advisory services continue to be relevant in regards to the coffee farmers in pace with the changing environment.

Examination on certification exercise revealed a noticeable indication that farmers are aware of certification trends expected by major buyers of the commodity. Only 9.1 % of respondents felt no challenges attributable to sponsorship by agribusiness support project players in the sector provided as value addition service. Under this basis, participatory approach needs to be adopted in development of the guidelines to meet both the expectations of supply and demand. 4C implementation was found to be relatively easier compared to the other certifications. Fair trade certification on the other hand was more common as it was introduced earlier than the others. Rainforest alliance certification was revealed a bit complicated to achieve but commercially viable in terms of premiums guaranteed.

The effects of Farm input supply on coffee production was analyzed in various aspects as basis for

conclusions. Many of the coffee agronomical zones need fertilizer and chemical application in order to maximize the coffee bushes production potential. Provision of farm inputs therefore is a fundamental element towards success of agribusiness support projects in coffee sector. This finding reveals the high level of awareness in terms of coffee production by Kenyan farmers. Common knowledge among them is that farm input application will induce more berries of higher density thus better yields, free of diseases or physical damage that impairs the quality aspect of the coffee. It was not a big challenge to 3.1 % of the respondents to acquire farm inputs that can be traced to be under project sponsorship.

On market information access, study finding showed famers as knowledgeable on the market dynamics for their produce and therefore the need for their involvement in sale decision making. Majority of respondents who cited weekly receipt of market information were found to be under a project thus amplifying the essence of this agribusiness support projects in the coffee sector. Though provision of market information by the agribusiness support project is vital, it doesn't significantly facilitate better price discovery as agents are involved in closing the sales on behalf of farmers. As highlighted elsewhere famers are not involved directly in selling their coffees and therefore, market information provided acts as a motivational tool to produce more and better quality to enjoy the prices as advised by the agribusiness support project entities. The project activities in terms of market information ought to be aligned along the existing market framework objectively to inspire and motivate the famers to improve their production.

□ **Recommendations**

The study found under farm advisory aspects that farmers know their knowledge weaknesses/gaps that require transformation into strengths under the agribusiness support projects activities. The element of dissatisfaction on quality, frequency and effectiveness of farm advisory services calls for progressive measures of improvement by the agribusiness support projects. More intensified approach needs to be adopted for the scenario to change over time. For quality of coffee to be improved, factory managers and famers require adequate knowledge and constant refresher trainings by the agribusiness support projects.

Agribusiness support projects championing certification exercises should be encouraged to accommodate more coffee famers for maximum benefits across the country. On value addition, this affected substantially in areas of governance, environment, processing, labour relations etc. For the certification to contribute positively in production growth, elements of capacity building, input supply and financial support are key for the project's success. The perception on better prices for certified coffees has been amplified by different service providers fighting to grow their market share using certification as a competitive advantage especially millers and marketers. Out of the many certified growers, only few are reaping the certification benefits hence an eye opener to the agribusiness support project implementers.

The magnitude of farm input application is a huge concern to coffee growers in terms of availability, affordability and usage. These areas therefore require more attention for it to contribute immensely to coffee production. The finding calls for customization of credit facilities to enable coffee farmer's access to adequate farm inputs in a timely manner for maximum benefits. For the sector to grow the current volumes upwards, integrated approach among agribusiness project implementers will be required in terms of farm input supply, education and follow-ups to monitor

application and usage.

The projects entities increasingly and progressively have the capacity to filter the much market information available and communicate to the farmers in a more structured and controlled manner to improve coffee production. The agribusiness projects needs to go extra mile in ensuring that the famers are equipped with the appropriate technological tools, equipment, and knowledge for them to consume the market information provided to improve coffee production within their geographical jurisdictions. Further, for any information to have maximum benefit to the end user, its coding and execution should be easily understood. For the famers to internalize the market information accordingly, agribusiness support projects may be should opt for localized teaching aids, language translations or use of local trainers who can effectively communicate in local languages for improved coffee production. In reference to these effects, majority preferred localized implementation of the projects rather than foreign based principles that somehow contradicts the local coffee framework of operations.

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