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## Economic Parameters Influencing Farming Activities among Households in Busia County, Kenya

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### **Abstract**

*Globally, agriculture has ten times more chances of transforming lives especially in rural settings. Despite agricultural production being the main source of livelihood for 77% of the households in Busia County, most households (64%) live below the poverty line, and are food insecure (58%). The aim of this paper is to describe the underlying economic parameters that explain the paradox of food insecurity in a high potential rural setting of Busia County, Kenya. The author used a questionnaire, direct observation, and interview methods to collect data from a sample size of 500 households selected through multi-stage sampling technique from seven sub-counties of Busia County. The data was analyzed and presented by use of both qualitative and quantitative methods. The main finding of the study was that land tenure system and use patterns, technology of production, use of farm inputs, households' level of income, ownership of livestock and gender dynamics in provision of labour for agricultural production played a significant role in determining the extent to which households exploited their agricultural potential. The paper concludes that various economic aspects were limiting harnessing of agricultural potential at the household level in Busia County.*

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**Key words:** *Economic Parameters; Farming Household; Busia; Kenya.*

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### **Introduction**

Poverty in general and food poverty in particular, continue to dominate development policy agenda in Africa and other developing regions including Kenya. In 2005, 45.6% of Kenyans were poor (KNBS, 2004). Previous percentage of the poor increased to about 52.9% (rural) and 49.2% (urban) in 1997 up from 46% (rural) and 29.3% (urban) in 1992 when the overall poverty was estimated at 56%. In 2014, the 2014 Economic Survey Report showed that nearly 5 out of 10 people in rural areas are poor compared to 3 out of 10 in urban areas. Meanwhile, the agricultural sector, which is the back bone of the Kenyan economy, decelerated in 2013 to 2.9% from a revised growth of 4.2% (KNBS, 2005).

This paper is anchored on a practical observation that despite the fact that Busia County is endowed with both natural and human resources for agricultural production and economic development, the County has for several decades been languishing in chronic food insecurity situation (Sorre, 2005; Sorre, 2017). For instance, several poverty reports have declared Busia a food insecure and milk deficit County (GoK, 2008); a County where majority of its residents are low-income earners yet they rely on the market for basic food supplies that they are not able to access regularly (Sorre, 2005; FAO-Kenya, 2011); about 50% of the food consumed in the County is from Uganda (Sorre, 2005; GoK, 2008); the county has some of the poorest nutrition and health indicators nationwide (NHS, 2010); and Busia is one of the

counties with highest level of unemployed population with no factory or processing firm (GoK, 2010; KNBS, 2005). These notwithstanding, the government and non-governmental organizations have been spending millions of shillings on food aid and other humanitarian support in the County that should, in practical terms, not be the case. In contrast, Busia County has some of the best soils and climate for cash and food crop production. For instance, sugarcane from Busia County have double the sucrose used in making commercial sugar compared to sugarcane in Mumias and Kakamega (Sorre, 2005); Busia has optimal potential for dairy farming, cotton, palm, groundnuts, cassava and sweet potatoes, but none has been harnessed into meaningful economic enterprise (MoA, 2009).

This paper is one of the outputs of a study conducted by the author on “The paradox of food insecurity in rural Kenya: The underlying socio-economic parameters in Busia County, Kenya.” Basing on an anthropological approach, the study inclined towards what happens in the household that affects utilization of household production resources. This paper elucidates the question that the study sought to address on what causes the disconnection between the high potential rural environment that is endowed with human and natural resources, and the plight of the residents who are living in situations of chronic food insecurity (57%) and abject poverty (64%) (GoK, 2013). The paper proceeds with a discussion of the findings collected from 500 respondents, various direct observations and in-depth interviews. Conclusions and recommendations have therefore, been derived from the findings.

### **Methodology**

The study was guided by an ethnographic survey design where the researcher lived in the study area for a period of one calendar year, in 2014. During this period, the researcher engaged in capturing the social and economic activities that households go through as they engage in farming activities, while also issuing a questionnaire to gather quantitative data. The target population was smallholder households in Busia County, with the household head being the target for each participating household. A sample size of 500 respondents from the seven sub-counties in Busia County participated in the study. Multi-stage sampling technique was employed to select specific households that participated in the study. Purposive sampling was used to pick the key informants in the ethnographic component of the study.

In terms of data collection, a survey interview using a questionnaire was employed alongside in-depth interviews and direct observation. Both qualitative and quantitative methods of data analysis were employed. In quantitative analysis, SPSS computer program was used to summarize the findings and produce a database that allowed subsequent statistical analysis. Quantitative analysis was mainly at the level of descriptive statistics. In qualitative analysis, content and narrative analyses were employed. The study methodology was guided by a conceptual framework. According to this conceptual framework, the extent to which agricultural potential is harnessed by farmers relied on the complex interaction between the social, economic and governance parameters at household, community and national levels of the society.

### **Results and Discussions**

In agricultural processes of production, three major resources are critical: land, labour and capital. These are not just factors of production, but also crucial economic parameters that influence harnessing of agricultural potential in any community.

Availability and ownership status of land in the household was an important economic

variable of interest to the study because it is on land that all forms of agricultural production occur. Land ownership did not only refer to one having the title deed of that land, as the legal bearer of the land, but also having the ability to control the use and disposal of the land. Therefore, ownership of land has a bearing on ones productivity, especially in farming households.

From the data collected, all the respondents owned land. However, the land sizes were varied. One hundred and sixty five (33%) of the respondents had land size between 1-3 acres, 210 (42%) had between 4-7 acres, 75 (15%) had between 8-11 acres, 28 (4.4%) had over 11 acres, while 22 (5.6%) had land but did not know how many acres it was. Majority (75%) of the respondents had land that measured between 3 and 5 acres, but cumulatively, all the respondents had between 1 and 7 acres of land. According to agricultural officers interviewed, farmers who own between 2.5 and 5 acres, where the majority of the respondents belonged, are classified as smallholder or small scale farmers. In fact, they are ideally supposed to mainly engage in arable farming for subsistence purposes because their land sizes may not allow for mechanization or intensive farming activities like cash cropping: including sugarcane farming common in the study area that requires large parcels of land.

However, my practical observation registered a different picture on ground. Most farmers with small pieces of land were also farming sugarcane. This was common in Butula, Nambale and parts of Teso South Sub-Counties. In Nambale and Butula in particular, I observed many farmers with less than three acres of land engaged in sugarcane farming. They had planted sugarcane in virtually the whole land: just left the houses and compound. This means that for more than 24 months that they will be waiting for the cane crop to mature, they will have no food crops on their farm. This is further worsened by the fact that returns from sugarcane farming are not forthcoming: most farmers made losses. What this means is that they not only produce no food from own farms, but also have no or little cash to afford the available food resources from the market. The consequence of this is a household living in chronic food shortage condition. These findings tally with earlier observations by Sorre (2005), that sugarcane farming peripheralized food production and nutrition status at the household level. In terms of land use patterns, I observed that most household land was put to three major uses: homestead, livestock and crop farming. When this was illustrated by agricultural officers, ideally, a household with 5 acres needs about 2.5 acres for homestead and food crop farming including vegetable gardens. Then the remaining 2.5 acres may be put to either livestock farming or high value crop farming. Therefore, the small household land sizes limited agricultural productivity in the sense that little mechanization was possible.

The types and nature of farm inputs and technologies of production were other critical agronomic issues the study focused on. Using maize as the main staple crop, farmers were asked if they used certified seeds. It was found that only 48% of them did, while the remaining 51% did not as summarized in Table 1.1 below.

**Table 1: Use of Certified Maize Seed**

Grow hybrid maize seeds	Frequency	Percent
Yes	240	48
No	260	51
Total	500	100

Analysis in the above table shows that majority of the farmers (51%) did not use hybrid maize seeds. There are two sources of local seeds that they use. First, farmers select the physically best maize cobs from the previous harvest and store them as seed for the following season. This traditional way is the most common method used by farmers who cannot afford to buy the hybrid seed. The second way is where farmers buy maize from the market, especially maize from either Uganda or Kitale, and use it as seed on their farms after proper storage and drying of the seed maize. Uganda and Kitale are the main sources to most (80%) of the market maize found locally in Busia County.

For those that do plant hybrid maize seed (240, 48%), they said that they only use the seed during the long-rain season, but in the short season, they use the local seed. One of the reasons they cited for that was that the seed was expensive (88%). This is why they also said that they do not always use certified seed (68%): they only buy the hybrid seed if money is available. They further argued that the short rains season is short with unreliable rains (66%) to support hybrid maize that requires more rain. However, the findings on rainfall amounts contrast a more recent study by Mugure (2017) on climate change and farmers' adaptive capacity. In her study she found that the short rain seasons in Busia County are becoming more reliable with higher rainfall amounts than the long-rain seasons.

Alongside certified seeds, the use of fertilizer or manure was also significant. It was found that 83(16.5%) of the respondents use fertilizer only to grow crops, 167(33.5%) use manure only to grow crops, 127 (25.5%) use both fertilizer and manure to grow crops, while 123 (24.5%) use none of these inputs in crop production as summarized in Table 1.2 below.

**Table 1.2: Use of Inputs in Food Crop Production**

Use of fertilizer and manure	Frequency	Percent	Cumulative Percent
Fertilizer	83	16.5	16.5
Manure	167	33.5	50.0
Both fertilizer and manure	127	25.5	75.5
None	123	24.5	100
Total	500	100	

It is evident from the results in Table 1.2 that fertilizer is less used by most of the farmers. The respondents said that fertilizer is expensive for them to afford. This explains why 33% of the farmers use manure for crop production. Manure is cheap and locally found. Most of this manure comes from the livestock kept by the farmers, and it is used during planting. However, a quarter of the respondents use both fertilizers and manure in maize production. What happens in most cases is that they use the manure for planting, and top-dress the maize with fertilizer that is locally known as *Urea* (Calcium Ammonium Nitrate or in short CAN). Overall, most (75%) of the farmers use either one or both of the inputs, for those that use neither fertilizer nor manure have several reasons. These are farmers with inadequate money to buy either fertilizer or manure. Others have few or even just one animal, which may not be sufficient in providing the manure to use for maize production. Other respondents were had livestock, but lacked the knowledge to make manure for crop production. The issue of poverty expressed in the respondents' inability to afford farm inputs remains a constant constraint to agricultural production. Busia County has a poverty rate of 64% (GoK, 2013), which seem to underlie the low adoption of innovations in agricultural production at the household level.

With regard to technologies of production, all the respondents said that they mainly use hand hoes locally known as *Jembe* to till land and for weeding. Only 54(10.8%) said they occasionally use either oxen or tractor to till land. This means that most of the farmers rely on small-scale technology of production. This has several implications on household food production. First and foremost, less land is tilled. Secondly, limited production in terms of more time needed to till a small place. It also requires more human labour, which poses a challenge especially when only a few energetic members of the household are available for work. In overall, this partly explains why only 40% of the arable land in Busia County is tilled. However, given the underlying poverty situation, it also questions effectiveness of introducing tractors by the County Government to increase land tillable especially when many households cannot afford the KSh.2000 to pay for the service per acre.

During the study, I also found that communities in Busia County are generally patriarchal. Land is therefore, owned by men being the household heads. This culturally, gives them [men] the ownership, use and disposal rights, which were observed to bear another set of challenges. It was shared and revealed in focus group discussions that most men decide to sell land without consulting their spouses and children as required by the land disposal regulations. They also lease their land even to more than one person without the consent of the spouse. This has a bearing on household food security status. First, the land sizes are small, but also leased. Meaning the household has nowhere, in terms of space or land, to do farming. Secondly, such households remain vulnerable to food shortages throughout the year. Overall, household food production is affected by the small land parcels, the nature of land tenure system, and leasing of land.

Household economics has its foundation in decisions made with regard to economic resource use and distribution to realize sustainable livelihood. When it comes to decision making on what to plant, the wives (84%) in the study area would have to consult the husbands before they can know which crop to grow, where and when? This is very common and it affects a household most especially when the husband is away in town. For instance, one of the women said that they did not have maize on their farm because her husband was in town and yet he was the one to approve whether to plant maize or not. Similarly, another household that had not weeded their maize crop reported that during the weeding time, the husband was away. This also affects the harvesting of crops. Further, after harvesting, it was said that men decide on whether to store the harvest or sell part of it to raise cash for other family needs. This generally limits harnessing of household potential to realize optimal agricultural productivity because production decisions are monopolized by an individual household head. Generally, women were present in all the 500 households I visited. They also provide labour at all levels of agricultural productions: tilling of land, weeding, harvesting, preparation of the harvested produce, and even selling of the products. This is unlike their men counterparts who have the option of using their wives to provide family labour or hire casual labourers. Overall, women do the gist of the agricultural production tasks in Busia County. However, they rely on men in most of the decisions made.

Evidence from the field showed that households attain their food supply through food crop farming (74%), cash cropping (54%) and livestock keeping (79%). I found that in most households a variety of livestock are kept to supplement crop husbandry. What was important for this study was to understand whether the respondents keep livestock or not, and if yes, for what purpose. Out of the 500 respondents, 395(79%) keep livestock, while the remaining 105 (21%) did not. It is also important to note the types of livestock kept. Out of the 395

respondents that keep livestock, 5 (1.3%) had grade/cross cattle only, 158 (40.1%) had traditional/indigenous cattle only, 20 (5.1%) had goats only, 10 (2.5%) had sheep only, 10 (2.5%) had pigs only, while 192 (48%) had a combination of more than just one species of livestock kept. According to the agricultural officers, Busia is a milk deficit County. This is partly explained by these results where most farmers still rely on traditional breeds that are less productive.

Keeping the livestock alone may not be important in terms of enhancing the household's food security. What is important is how farmers use the livestock in the process of wringing livelihood out of their livestock resources. Therefore, the study was also concerned about the use of milk. For the 208 respondents that had milk cows, 106 (51%) said that they used the milk for their own consumption, 77 (37%) said that they both sold and also consumed the milk, while 25(12%) said that they sell all the milk that they get from their livestock. Generally, the study observed that much of the milk produced is consumed than is sold. This implies that keeping of livestock had a positive bearing on the nutritional status of the household. Oxen are also very important in enhancing food security in this area. First, the oxen provide power on the farms in terms of animal labour. Most of the farmers that have big parcels of land rely on oxen to plough or till their land because they cannot afford to pay for tractors.

When asked if they had enough food at the household level 460 (92%) of the respondents said no, while the remaining 40(8%) said they did. It is however vital to observe that although most of the respondents did not have enough food at their family, the interesting thing is the difference between those households with livestock and those without. Results showed that respondents that had livestock were more than those without, while the percentage of the respondents that had families with enough food was high in those with livestock than that of those without, which suggests an association between livestock keeping and food availability at the household level. Overall, household economic parameters in terms of household asset base, income availability, labour utility and decision making have a critical effect on agricultural production and the overall household's food availability status.

### **Conclusion and Recommendations**

This paper concludes that economic factors were major obstacles to adoption of innovations, information transfer and sharing, as well as scaling up of significant economic programmes that would transform lives for the farming households. In fact, agriculture being the main source of livelihood in the County was largely limited due to economic aspects, than any other form of constraints. This study was important because it addressed itself to a practical aspect directly touching on the lives of about 1million residents of Busia County. It addressed itself to issues of the underlying poverty and low agricultural performance as one of the main aspects sustaining high rates of poverty in the county.

Consequently, the study provides the following recommendations as policy advice to farmers, county and national governments.

- i. There is the need to increase budgetary allocation to agricultural sector in Busia County in order to facilitate among other things provision of subsidized farm inputs, and increase facilitation of extension services in the County.
- ii. The need to diversify economic sources of livelihoods including attraction of investment in industrial development to open up opportunities for the locals and generally reduce poverty levels that have been sustained high.

- iii. Livestock production should be encouraged to boost household food reserves especially in Samia and Bunyala Sub-counties.

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