

# Effects Of Agricultural Production On The Wellbeing Of Small-Scale Farmers In Murang'a County, Kenya

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## ABSTRACT

Researches have shown that Agribusiness entrepreneurship provide mainstay for majority of small-scale farmers. The study aimed to established the effect of productivity in agribusiness on the wellbeing of small-scale farmers in Murang'a County. The study used innovation, collaboration, and networking theories. Target population was 337,042. Calculated at 31 percent of Murang'a county 2019 population census of 1,056,640 people. 31 percent was estimated to represent the population of poor small-scale farmers who depended on agribusiness for their wellbeing. Descriptive research design was used. A sample size of 384 participants was used to represent the target population, calculated using fisher's statistical formula. Purposeful stratification method was used in sampling seven the sub-counties which acted as fieldwork venues. Purposive sampling was used also in selecting, participants per strata. Three data gathering instrument was used, namely: Questionnaires were distributed to 280 farmers, 40 from each of the seven sub counties who were given enough time to respond to the research questions. 84 respondents, were organized into seven (7) Focus group discussions of 12 respondents each, comprising of the secretaries and treasures of different farmer's groups. 20 key informants composed of chairpersons of farmers growing fruits, vegetables, poultry, and diary were scheduled for an in-depth interview. A pilot study was undertaken using 20 respondents from Kirinyaga West sub-county. Test and re-test method using Cronbach alpha formula during the pilot, were used in evaluating the reliability of the research instruments. Data was recorded and stored in field notebooks, video tapes and photography. Quantitative data from questionnaires was analysed using descriptive statistics. They were presented in tables, graphs and pie-charts. Qualitative data from both focused group discussions and in-depth interviews was analysed, according to teams and patterns formed. They were presented in narratives and verbatim quotations forms. This study concludes an indirect relationship existed between food production and poverty reduction. Indirect because of the emerging conflicting opinion on the expected roles of food production in poverty reduction. The study recommends that government both county and nation should promote educational programs and training workshops to enhance the knowledge and skills of small-scale farmers in sustainable farming practices, efficient crop management, pest control, and post-harvest handling.

**Key words** Agri-Business, Value Chain Development. Innovation

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## I. INTRODUCTION

Value chain development in agribusiness has become an emphasized fissure in community development programmes. The Agricultural value chain development (AVCD) presents challenges to development practitioners and governments, civil society organizations and donors. These organizations are responsible for the bigger development picture, especially for constructing the development goals. AVCD focuses at the involvement of different agribusiness stakeholders at different levels of the value chain (Donovan *et al.*, 2015).

In the United Kingdom (UK), the Big Lottery, finances community support Agribusiness, (Saltmarsh, Meldrum and Longhurst, 2011). Community support Agribusiness, (CSA), is a partnership between agricultural producers and the local communities. Its purpose would be described as: radicle approach to the production and supply of food, (Ibidi,2011:4). The partnership benefits both the farmers and the communities. The partnership achieves connecting the farming communities with the local community development. Especially connecting the disadvantaged community groups to sources of food and income.

In Ghana smallholder farming dominate Agribusiness, producing at 90 percent of the Agribusiness output. According to Al-Hassan and Ramtu (2003), these small holder farmers are faced with many problems. For example: inability to adopt improved methods, such as use of technology, or access to fertilizers. Leaving them hooked to traditional farming methods. And being exposed to increased population pressure and its effect on in-access to farming land.

Long, Omariba, and Song, (2018), argues that poverty in Tanzania stood at 48.8 percent in 2012. However, they observed a discrepancy between favourable economic growth and lower agricultural growth in Tanzania. And that the favourable economic growth did not translate into poverty reduction in Tanzania. Yet, Agribusiness in Tanzania employs 66 percent of productive labour. Consequently, the lower agricultural growth in Tanzania contributes to increase in poverty. More specifically, cash crops in Tanzania, such as cotton and coffee, have experienced decline in growth, and lack of scaling up irrigation among the smallholder farmers, have contributed to decline of Agribusiness in Tanzania, (Moff, 2016).

In Kenya politicians are using agricultural value chain development tool, as a means of political campaigns. They (politicians) are promising to use the tool to create the much-needed youth employment. They are setting targets. Especially the promise to create half million jobs for the youth who enter the job market every calendar year. In Kenya Agribusiness contribute 33 percent of the country's Gross Domestic Product. Agribusiness provides employment to 40 percent of the population. And employs 70 percent of the rural population. Agribusiness in Kenya provides 294, 000 direct jobs and 3.4 million indirect jobs.

In Murang'a county, environment protection has wellbeing negatively the small-scale agriculturally based employment. In the county, environment protection has caused seasonality unpredictability, unpredictable floods, droughts, locust infestations, to name just a few. In the county, youth are deterred from participating in the agribusiness by the factors already stated above. Especially the high cost of doing Agribusiness as business, at the county and beyond. Youth in the county are wellbeing by high unemployment rate, resulting to food poverty affecting 27 percent of the population in Murang'a county, (five-year development plan, 2014).

### **Problem of the statement**

Small scale farmers are among the largest and poorest population in the rural areas in the developing countries. They own and work on less than two hectares size of land. Agriculture is the source of wellbeing for 80 percent of them. Yet unemployment rate among them is very high. They are characterised by, lack of formal employment, income, and food security. Rural areas have very high poverty rate, by the virtue of being dependent for the livelihood and wellbeing on small scale farmers feed a very large section of the rural population. The methods of doing agriculture by the small-scale farmers, is hypothesised to be the problem. The hypothesis of the study was to change from the current subsistent farming to value chain-based development. Where production, harvesting, processing and marketing will be changed qualitatively and quantitatively. Changing the current limited agricultural marketing and services which are the outstanding problems facing small scale farmers in the rural areas of the developing countries (Rapsomanikis, 2015).

### **Objective of the study**

To establish the effects of agricultural production, on the wellbeing of small-scale farmers in Murang'a County.

## **II. EMPIRICAL LITERATURE REVIEW**

### **Effect of Food Productivity on the Farmer's wellbeing**

Researchers have established that positive correlation exists between increase in agricultural productivity and poverty reduction among small-scale farmers. Ulaanbaatar, and Mongolia, (2013), argues in favour of supporting small-scale farmers to increase their role in food productivity and environment protection as a means of achieving sustainable food security. Evidence exists indicating agriculture could play big role in the process of poverty reduction. Increased agriculture productivity would be reputed for increasing farmers' income, food supply at low cost, and provide employment opportunities for the farmer and the labourers. Diversification concept with non-agricultural sources has been applied outside agriculture in some developing countries. It is estimated that about 70 percent of the poor in developing countries live in the rural areas. In countries that are transiting from traditional to value added agricultural, the sector would create employment and address rural poverty problem (World Bank 2007).

This study focused on evaluating the impact of agribusiness value chain on the wellbeing of small-scale farmers. This was done through uncovering the challenges and recommending their solutions. For example, many small-scale farmers had been made vulnerable by some challenges, like exclusion from participating in planning policies for social development at the communities. As a result, of which the farmers became victims of reduced agricultural investment. In countries, especially in Sub-Sahara Africa, where traditional inheritance cultures are practised, land for small-scale farming continued undergoing fragmentations, reducing them to unviable for increased food production. While, in the same countries, farmers wellbeing depends on increased export of

primary agricultural products. Cash crops are grown on the larger land section for export markets. Resulting in decreasing access to foods although it increases agricultural GDP growth and therefore, creating income and employment for large scale and cash crop farmers.

In Romania, it has been argued that positive wellbeing has been achieved among the poor through agricultural technological progress, (Anriquez & Stamoulis 2007; de Janvry & Sadoulet 2002). The poor rural households in Romania, for their income, depends on the farms' outputs, (Davis et al. 2007). Agriculture in Romania finances social welfare for the farmers, (World Bank, 2007). At the same time, smallholders' farmers in Romania have the opportunity to be involved in food marketing.

In India, majority of the poor rely on small-scale agriculture for their livelihoods. Agriculture in India would be a great source of the growth of its gross domestic product, (GDP). But on the flipside of the coin, in India, general industrialization tends to benefit more the wealthier sector of the society, especially the ones living in the urban areas, (Shabana, 2017). Small-scale farming in India is not only the source of the family food for people and fodder for livestock but also, the source of income, livelihoods and contributes to the country's GDP.

In Nigeria, collaboration between international organizations and Nigeria research institutions, supported from different sources, have promoted methods of improving cassava productivity, (Ojo Olusayo, et al., 2018). At the rural parts of Ethiopia, agriculture would be a major source of wellbeing for the small-scale farmers, (Alemu, 2014). Growth in agriculture in Ethiopia affects directly the wellbeing of majority of the poor in the rural areas, (Irz, Lin, Thirtle, & Wiggins, 2001). Many studies in Ethiopia have shown that agriculture increased productivity growth is a critical factor in poverty reduction, (Cervantes-Godoy & Dewbre, and 2010; Christiaensen & Demery, 2007). Also, Ethiopian government increasingly invests in increased agricultural growth, resulting to acceleration of its economic transformation (MOFED, 2012).

In Kenya, Small-scale Farmers' agriculture contributes up to 31.4 of rural poverty reduction. Where agriculture would be the biggest source of income for small-scale farmers, and the rural poor households, (World Bank, 2020). Kenya, in 2010, developed agricultural Sectoral Development Strategy (ASDS), aiming to achieve targets for ten years. Thurlow and Benin (2008) has shown the planned targets are rather broad. They pointed to the risk that some areas are likely to benefit while others are likely to lose, based primarily on climatic variations. In Kenya, rural and urban areas benefit from increased growth in agriculture. Growth in cereals and export crops, are more likely to impact more on rural poverty reduction. Thurlow and Benin (2008) observed that to achieve growth, it would be necessary to manage properly, positive changes in public spending especially to reduce wasteful spending.

In Murang'a County, maize, which is grown by small-scale farmers is appreciated as important food crop. Each year there is increased growth of demand for maize in the county. Explained partly, by annual population growth at 2.6 percent. The county therefore will be required to introduce measures for increasing maize productivity as a staple food product. Other variables necessary to support increased maize productivity will include use of maize seeds that will achieve high yields and resist stress. There are many maize hybrid varieties grown in Murang'a county, where Kenya Plant Health Inspectorate Service (KEPHIS), argues 338 maize varieties are listed as available and grown in Murang'a County, (Kephis, 2017).

## **THEORETICAL FRAMEWORK**

This study used three theories namely: Networking, innovation, and collaboration. The study was categorized under social enterprise, a hybrid of the for profit and the not for profit.

### **Innovation**

Innovation originally emerged as one of the communication theories. It emerged to explain how overtime a product or idea emerges and develops. And how the idea or products grows and develops in time in a specific system and population.

In practice, in this study, innovation was used and seen as a critical concept in relation to agribusiness competitiveness. In Latin, innovation means to renew. In common English, innovation means improvement or replacement of something. This study used innovation in relation to improving small-scale farmers' agribusiness services, products and process. Specifically, agribusiness was seen as a tool to help in achieving improvement in productivity and profitability. Where its stakeholders played inclusive role in delivering new products, processes, and services for the first time. Small-scale farmers become more effective, efficient competitive, and resilient to the problems affecting them.

### **Collaboration**

In theory collaboration is a process where individuals or groups work as a team in learning from each other methods of solving common problems. The team members will share opinions, and partner in creating products and completing tasks. In practice, agribusiness stakeholders at the four value chain levels will work together to achieve win-win result. The aim of the result will be to outperform others. Agribusiness stakeholders

will be aware of business complexity, and learn to efficiently cooperate with all the team players. Team members will include suppliers, customers, etc.

### **Networking**

Networking in society will refer to relationships and their methods or roles as channels of transmitting information of personal and or media interest, to promote perspectives, attitudes or behaviour change. In agribusiness social theory will help in explaining how the stakeholders' relations will be structured and sustained. Also help in understanding how they are formed, and how they influence their understanding of the agribusiness value chain development. Within the agribusiness structure, networking will help in measuring the objectives and the social relationships within the stakeholders' structure and the wider society.

This study located agribusiness among social enterprise. Therefore, it qualified to be interpreted or be seen through social network lenses or theory. Social network theory defined how people related, co-operated or reacted to certain events affecting them. Social activities like agribusiness, were embedded with tools that enabled the activation. Social activities stem from incubation of ideas on how they could be done. Social networking in this study was conceptualized as an idea or theory that could help to ease the process of implementing agribusiness value chain development.

## **III. RESEARCH METHODOLOGY**

### **Research Design**

Agribusiness descriptive case study design will be used to study the wellbeing of value chain development in promoting the wellbeing for small-scale farmers, in Murang'a County, Kenya. Case study design was useful in targeting and focusing on agribusiness stakeholder structure.

### **Study Area**

Murang'a County is the site of this study. Murang'a County is one of the five counties in the central region of the republic of Kenya. The 2019 population and housing census recorded a population of 1,056,640 persons for Murang'a County, consisting of 523, 940 males and 532,699 females and a growth rate of 1.1 per cent per annum. This population was projected to rise to 947530 in 2012; 958,969 in 2015 and 966,672 persons in 2017. However, according to 2019 census, the recorded population reached 1,056,640 persons.

### **Target Population**

The target population in this study was defined as a population of 337, 042 small-scale farmers in Murang'a county. This number was arrived at after finding the 30 percent of 936228 people. Which was the population in Murang'a county according to the 2009 population census. The method used to arrive at 30 percent was purposely arrived at. In Murang'a county, small-scale farmers were divided in two categories. The middle class and the poor. The middle class cadre were so classified because they owned between 0.2 and 3 hectares of land.

### **Sample Size Determination**

The study applied fisher formula in calculating my sample size which is 384. Fisher's formula will be suitable for this study since the target population will be more than 10,000. The most essential indicators when using this formula are confidence or risk level, precision level or the sampling error and degree of variability (Israel, 2014).

Using the formula below, a sample size is determined as shown in the first paragraph above:

$$n = \frac{Z^2 * (p) * (1-p)}{d^2}$$

Where: n=sample size for large population;  
z= Normal distribution z value score, (1.96);  
p= Proportion of units in the sample size possessing the variables under study, where for this study it is set at 50%  
d = Precision level desired or the significance level which is 0.05for the study.  
The substituted value in determining the sample size for a large population are as follows:

$$n = \frac{1.96^2 * (0.5)}{(0.5)}$$

(0.05 )<sup>2</sup>

The respondents were selected randomly.

Sample population for this research was built in the following manner as: Seven groups representing seven sub-counties, which were the designate venues of the fieldwork, named as: Mathioya, Kangema, Kiharu, Maragwa, Kandara, Gatanga, and Kigumo. At each venue 12 respondents participated in focus group discussions, making a total of 84 participants. Also, at each venue 3 respondents participated in in-depth interviews, making a total of 21 participants. And, at each venue, 40 respondents completed the questionnaires, making a total of 280 less 7 absentees, equal to 273 participants. Table 3.1 below show details of sampling and implementation procedure or fieldwork protocol, as:

**Table 2: Sampling and Implementation Procedure**

GROUP	Focus Group Discussion	In-depth interviews	Questionnaires	Totals
Mathioya	12	3	40	55
Kangema	12	3	40	55
Kiharu	12	3	40	55
Maragwa	12	3	40	55
Kandara	12	3	40	55
Gatanga	12	3	40	55
Kigumo	12	3	40	55
Total	84	21	280	385-7=378

Source: Author, (2023)

**Research Instruments**

The study used three research tools: questionnaires, focus group discussions and in-depth interviews guides. The questionnaire was the main data collecting method for this study. The questionnaires were planned to be used and distributed to the 273 as respondents’ farmers. respondent meaning the person who takes part in a research survey.

Focus group could be defined as a gathering of likeminded people, in issues of development, who come together to discuss a topic of interest for certain purpose such as planning, research etc. for the purpose of this study 84 respondents were organised into seven focused group discussions each with 12 members composed of the secretaries and treasurers of all the five sectors of farming. The researcher mobilised participants comprising the secretaries and treasurers of different agribusiness groups. The researcher moderated the discussions. Posing the questions and doing the probing. The interviews were video recorded, and photos and notes taken.

Face to face interviews were scheduled with 21 key informants, all gotten from the chairmen of five sectors, namely, fruits, vegetables, cereals, poultry, and dairy. Key informants were interviewed separately, on one to one. The researcher would pose the questions, and allow time for the respondent to think, reflect and give personal opinions. The process was video recorded, photos taken and verbatim quotes recorded.

**Data Analysis**

This study collected variety of data gathered through technical methods and equipment, and limited to, discussions in the focus group discussions, interviews in the in-depth interviews and completing of the questionnaires. In this research the collected data was both qualitative and quantitative. The data was recorded in notebooks, videotaped, and photographed taken. To help data analysis, the data was tabulated, and calculated in percentages. The percentages were used to develop pie-charts and bar-graphs. Data was also transcribed. These tools helped in data description and forming patterns and themes.

**Data Management and Ethical Consideration**

The researcher obtained written permission from Mount Kenya University, NACOSTI, Murang’a County, governor, commissioner, ministries of education and agriculture, to undertake this research study in the county. Copies of the letter were delivered to the relevant officials at the sub-county level, the venues of the fieldwork. While collecting data, confidentiality of the respondents was protected. The respondents were asked not to indicate their identity on the completed questionnaires.

#### IV. RESULTS AND DISCUSSIONS

##### Food Production and Wellbeing of Small-Scale Farmers

During the fieldwork, the respondents completed the questionnaires by ticking the boxes of their choices based on the five statements presented as: strongly disagree, disagree, neutral, agree and strongly agree. After the fieldwork, data for food production in the forms was tabulated in Table 2, to assist in analysis, shown below as:

**Table 2: Quantitative Food Production Data**

SECTION B	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
production help in reducing poverty	20%	27.50%	7.50%	32.50%	11.50%
production follow environment protection rules	12.50%	17.50%	20.50%	40%	10%
production help in securing low food costs, income and employment	12.50%	20%	10%	37.50%	20%
production is affected by land fragmentation	10%	12.50%	5%	37.50%	35%
farmers participate in formulating mitigation policies	35%	32.50%	7.50%	15%	10%

##### Production help in reducing poverty

Majority of the respondents at 58 percent agreed that food production help in poverty reduction. The minority at 33 percent disagreed. Those who disagreed, probably they were more affected by farming challenges have other sources of wellbeing other than agribusiness, such as involvement in off-farm activities, like teaching, nursing or service delivery at rural based activities. Majority agreed that food production plays critical role in poverty reduction. This result was corroborated by the view that majority of the rural communities, up to 80, depend on food production by small scale farmers for the source of their livelihoods. Furthermore, majority of rural communities, undertake jobs or businesses directly related to agricultural food production. For example, some operate small-scale farming and livestock products' kiosks, locally called agrovets. Others work as labourers in land preparations, planting, weeding, and spraying. Others operate as brokers not only for the final products, but also for the investment inputs, capital and land.

##### Illegitimacy and Informality

The researcher learnt about existing challenges and deterrents facing local food production. One of the challenges was the illegitimacy and informality form of majority of local agribusiness enterprises. As a result, the unregistered, unrecognised and unregulated, small-scale farming was denied access to significant public services for example, food production subsidies, fertilizers, and seeds. Another challenge was incapacity of the small-scale farmers to form partnerships with private companies, the governments, and the donors. As a result, the farmers missed out from the list of beneficiaries for food production support, services, and products, especially, training, demonstrations, pre-planting market surveys and receiving several inputs.

##### Lack of Diversification

The other challenge was lack of diversifications in productions. In other words, small-scale farmers feared venturing into new products, methods, and processes. They would prefer to stick to familiarly. Yet venturing into new areas would help them in improving food productivity and income. Majority of respondents indicated lack of information or education, and access to certification and ratification of agricultural inputs. The farmers as a result complained about accessing fake fertilizers and seeds.

##### Food Productions and Environmental Protection Rules

Regarding following environment protection rules, 12 percent of the respondents, represented by light blue colour, strongly disagreed that food production in Murang'a county follow environment protection rules and policies. 17.5 percent, disagreed. 20.5 percent were neutral. 40 percent, agreed, and 10 percent, strongly agreed. Half of the respondents at 50 percent, indicated understanding of environment protection mitigating rules. Showing that a substantial number of small-scale farmers in the county, practise environment protection rules. Farmers were affected more by season changes and rain shortages where they were observed as outstanding factors that affected food production. Planting seasons could not be predicted. When the rain came the farmers could not be certain that it will last until the crop's maturity.

### **Food Production and Land Fragmentations**

Regarding land fragmentations 10 percent of the research participants, represented by light blue colour, strongly disagreed that food production in Murang'a county was affected by land fragmentation. 12.5 percent disagreed. 5 percent were neutral. 37.5 percent agreed, and 35 percent strongly agreed. Over three quarter of small-scale farmers in Murang'a county agree that land fragmentation affect food production. Land fragmentations in Murang'a county is a real challenge, which resulted to land degradation and destruction of the eco-systems. Land conflicts accompanying land segmentations, usually undermined the farmers' chances of local unity, collaboration and networking. In social economic terms, land fragmentations destroyed farmers economic base, resulting to poverty increasing instead of reducing. Further destroying the ability of the farmers to feed the 80 percent rural community who depended on them for livelihoods.

### **Food Production and Low Food Costs, Income and Employment**

Regarding low food costs, income and employment, 12.5% percent of the respondents, represented by light blue, strongly disagreed that food production in Murang'a county, help in achieving low-cost foods, income, and employment. 20% disagreed. 10 percent, were neutral. 37.5 percent agreed. And 20 percent strongly agreed. 58 percent agreed that food production in Murang'a county helped in achieving low food costs, income, and employment for the small-scale farmers. Yet this could be achieved only through optimizing food production. Which in turn is faced by the challenges cited in section 3.4 above. For example, the "illegitimacy and informality" of agribusiness enterprises. Elsewhere this research observed that small-scale food production was responsible for achieving wellbeing of 80 percent rural community. This observation cannot be confirmed by the 58 percent of the respondent who agreed. Instead, if 58 percent, considered by the study to represent the supply side of the equation, would be compare with the 80 percent considered to be the demand side of the equation. The result would be negative 22 percent on the supply side. Effective diversification and optimizing food production will be conditional to solving existing hindrances, deterrents, challenges and risks affecting small-scale food production. Methods would have to be created of removing the deterrents, risks, and challenges already facing small-scale farmers in Murang'a county. The challenges are already cited in section 3.4 above, for example, illegitimacy and informality of the small-scale agribusiness enterprises stand out as major deterrent.

### **Food Production and Participation in Policy**

35 percent of the respondents, represented by light blue colour strongly disagreed that small-scale farmers in Murang'a are invited to participate in making food production mitigation policies. 32.5 percent disagreed. 7.5 percent were neutral. 15 percent agreed, and 10 percent strongly agreed. The 68 percent of small-scale farmers in Murang'a county agreed they are not invited, shows a disconnection between the agricultural staff and the members. The research talked to some of the staff regarding this outcome. They complained about thin staff distribution, and narrow working budget. This meant they were not in a position to provide extension services extension services to the farmers, especially the small-scale ones.

## **V. CONCLUSION**

This study concludes an indirect relationship existed between food production and poverty reduction. Indirect because of the emerging conflicting opinion on the expected roles of food production in poverty reduction. And because of the problem of majority of the agribusiness social enterprise being done illegally, informally, and illegitimately. Climate change and environmental protection factors also deterred agribusiness from helping in poverty reduction.

## **VI. RECOMMENDATIONS**

The study recommends that government both county and nation should promote educational programs and training workshops to enhance the knowledge and skills of small-scale farmers in sustainable farming practices, efficient crop management, pest control, and post-harvest handling. Assess the impact of knowledge acquisition on food production and overall wellbeing.

Also, County government of Murang'a should investigate sustainable farming techniques that can enhance food production while preserving the environment. Assess the adoption and impact of practices such as agroforestry, crop rotation, organic farming, and water management on both productivity and farmers' quality of life.

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