

Food Insecurity Status Among Rural Households in Kakamega County

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ABSTRACT

Food insecurity is a very serious concern globally as the world population increases. Kenya is one of the Nations faced with the challenges of ensuring that her population, particularly the poor rural households, are food secure. The specific objective of the study was to establish food insecurity status in rural households, in Kakamega County. The County was selected due to its expansive area and dense population with a record of high food prices and food insecurity of up to 51% hence rising poverty levels. Food and Nutrition Theory by Simelane & Worth was utilized in the study. The study, adopted the cross-sectional survey design due its ability to expose research outcomes. The target population was 433,207 households in Kakamega County and Krejcie & Morgan, sample size determination table was used to determine the sample size of 384 households for which 345 respondents effectively filled and returned the questionnaires. 12 Agricultural Extension Officers were purposively selected since they formed key informants on matters related to food insecurity in all sub-counties in Kakamega County.

The actual number of households was selected through simple random sampling. The data was collected using interview schedules for key informants and questionnaires for households. Pilot study was conducted in Vihiga County where 20 Households were randomly sampled. The reliability was determined by subjecting tools twice to the respondents and the two results acquired were compared and determined. Face validity was determined by scrutiny of the tools by the supervisors before producing final tools. Data was subsequently analyzed using SPSS version 23 which produced descriptive statistics. Findings revealed that there was high prevalence level of food insecurity in rural household at 60%. The study concluded that food insecurity resulted from poor farming practices, poor mitigating strategies on climate change, rising theft cases, financial deficit and poor logistics in food aids distribution.

The study recommended that households to make use of seasonal climate forecasts in agricultural decision making and awareness of cultivation of drought resistant crops. Supply of food subsidies and awareness of sustainable farming methods through Agricultural Extension Officers. The results of the study would support the Government in decision-making on matters related to the resolution of food insecurity, policy formulation by the government agencies, adoption of new strategies by stakeholders on securing food and finally, the addition of new knowledge to the academic body in securing new food insecurity challenges.

Keywords: Food Insecurity, Rural Households.

INTRODUCTION

Food security is a situation in which adequate food is produced and available for everyone in a group, region, country or globally to have adequate food for house hold consumption as indicated by FAO (2022). Conversely, this is not what is reflected on the ground where accessibility, availability and even sustainability of foodstuffs are not realized. Based on this premise, presence or absence of food defines insecurity or security status of a household. Moreover, scholars have added that food security must include enough nutritious food

for everyone and in right quantities to ensure they live a productive, meaningful, healthy life that allows them to function well (Ebadi-Vanestanagh et al., 2019).

According to this, health life entails consumption of adequate meals that are nutritious thus making the body protective from diseases related to malnutrition.

In view of the afore-mentioned, many families have not considered balanced diet meals instead they go for cheaper foods that can reduce hunger pangs, this situation results from economic crises or inaccessibility of balanced diet foods. Relatively in a household, food security denotes a situation where a particular household has access to enough nutritious food to sustain healthy and productive lives (Fawole et al., 2015), thus, food availability and sustainability is essential in determining food security status globally.

Global definition of food insecurity; according to WFP, (2022) refers to a state where sufficient quantities of appropriate, necessary and nutritious types of food, whether domestically produced or commercial imports or food in form of aid, are consistently obtainable to individuals by being within reasonable proximity. This can be translated at the national level as the sum of domestic food stocks, net commercial imports, food aid and domestic production as indicated by Desta, (2019); however, this is limited to most developing countries due to poor government policy on food security or lack of finances to access food from the global market.

Policy could include regulations on food subsidies, farm inputs and farm implements that facilitate production of food. Availability of fallow arable farms without farming due to finances is one of the reasons why food shortage has been experienced especially in developing countries.

The United Nations reported that due to the Covid-19 pandemic in 2020, an additional 70-161 million people experienced hunger; approximately 720-811 million people worldwide were malnourished (United Nations, 2022c). These statistics portray a worsening situation considering that in 2014, the United Nations reported 607 million were malnourished. Furthermore, the United Nations bulletin reported that 2.37 billion people were either without food or lacked a means of having a healthy balanced diet consistently in that year (United Nations, 2022c). This is an indication that food insecurity status is still high globally.

According to World Food Program, the 2nd UNs sustainable development goal is to end hunger, achieve food security and improved nutrition and promote sustainable agriculture by 2030 as indicated by state food security and nutrition in the World Bank Report (2023), however, this has not been realized as over 700 million people experienced hunger in 2022 caused by COVID 19. During the same time, global food demand had risen for the last two decades due to steady growth of world population and decline in food production with rise in prices. This has caused food crises in households globally

According to Global Food Security Index 2022, a report on exploring challenges and developing solutions for food insecurity, India has a high prevalence of undernourished population of 16.3%, 30.9% of children are stunted, 33.4% underweight and 3.8% obese. Based on these statistics, India still faces challenges of food security. Nevertheless, globally, it is in a better position in terms of feeding its people as it ranks position 68 out of 113 countries worldwide. This results from its intensive farming where over 70% of its population engages in Agricultural activities, the only challenge is sustaining food production in the farms, post-harvest management and food utilization.

Furthermore, people have sufficient access to food when they have “adequate income to other resources to purchase or barter to obtain levels of appropriate food needed to maintain balanced diet or nutrition level, however most rural households lack stable income to purchase or finance farming. Utilization of food is not possible if it is available yet inaccessible, therefore determinants of food security are the spatial accessibility of food over time, space and the affordability of food as indicated by Costa et al., (2019). As acclaimed, this is determined by elements such as shopping variety of food, infrastructural systems that allow the movement of food and people to the required destinations and stable food prices.

These factors rely heavily on transportation and consumers' socio-economic and purchasing power to secure food. This is indicated by Costa et al., (2019). The recent Covid-19 pandemic has had disastrous effects on food security matters globally as it interfered with social setting of societies through restricted movement and actual working on the farms. In the United States, the pandemic resulted in a higher proportion of people losing their jobs and households with children having the highest prevalence of food insecurity (Parekh et al., 2021).

This explains how stunted growth in children deficiency diseases and obesity results from malnutrition (food utility). In relation to this, food insecurity arose from countries lock down which halted movement of people and food resources from one point to another thus intercepting free accessibility of food to the intended destination. The continued threat of Covid-19 posed a permanent risk to the sustainability of food production, distribution, accessibility, and utilization. Sustainable food production entails ensuring all the steps in food production, accessibility, and utilization are functioning in a manner that promotes sustainable development.

Studies conducted by Singh et al., (2021) have indicated a sharp rise in food prices which impacted negatively on the purchasing power of the poor households in Nepal during Covid-19, this made them not able to purchase food from stores. High inflation can cause food prices to go high, eventually affect affordability on low-income earners, and thus cause food shortage. How rural households surmount the barriers to food security is an essential element that needs to be understood because it determines how they may be negatively or otherwise, be affected by access to a good diet and food security. In line with this, self-provisioning food is another way rural households worldwide have overcome obstacles to food security.

In Democratic Republic of Congo, the food production challenges were exacerbated by poor infrastructure, increasing the food crises challenges due to accessibility barriers to food (FAO & WFP, 2021). In line with this, poor transport infrastructure and availability can cause inaccessibility of food from the source to destined consumption point. This has been witnessed in most developing countries in Africa and globally. According to the joint FAO/WFP Bulletin (2021), 27 million people in DRC currently face acute food insecurity and poor production system. At the same time, the supply networks are made worse by climatic conditions, poor roads and high costs of living including rising cost of food and insecurity, among other factors.

In Kenya, food insecurity in the Arid and Semi-Arid Lands (ASAL) is projected to worsen the dire food situation. For example, the county government of Turkana in northern Kenya has reported that over 4 million livestock is in danger of starvation due to drought (Turkana County Government, 2021). Kenya as a whole has faced challenges of food insecurity across the 47 counties. Food security rate varies from one county to another, for instance, Muranga, Uasin Gishu, Kiambu, Kisii, Nyamira and Trans Nzoia, Bungoma Counties have relatively sufficient food due to climatic advantages over others who are in ASAL areas. Despite this, other counties rely on food that is produced from these counties hence reducing food security.

Furthermore, specifically in Northern Kenya, barriers to accessibility to food is noted as a cause to high poverty levels, insecurity, harsh climatic conditions, and poor supply networks (Huho & Mugalavai, 2010). According to this revelation, sustained drought has reduced level of growth of economic activities which could have supplemented acquisition of food hence raising poverty levels and further insecurity instances. Studies conducted in Kakamega County examined the functions of cooperative societies in food production in the region; it was established that more is to be done to improve food security situation through cooperatives (Lokuruka, 2020). However, this study proposes not examining the role of women and cooperatives in securing food but to look at the broader picture of various factors causing food insecurity in Kakamega County. In response to SDG-2 and 4 of the United Nations, Covid-19, poverty, and climatic changes are putting the attainability of food at risk considering that SDG-2 states, "By 2030, ensure sustainable food productions and systems implement resilient agricultural practices that increase productivity that help to maintain ecosystems, that strengthen the capacity for adaptation to climate change, extreme weather, drought, flooding, and other disasters to improve land and soil quality" (UNEP, 2022).

This implies that sustainable food production must be cognizant of the environmental conditions under which food is produced, obtained, and made available to the final consumers who utilize it. Agricultural practices that are degrading environment for short-term high yields but with long-term adverse effects on food security should be avoided. In 1999, the question of sustainable agricultural practices caring for Africa's dietary and nutritional needs was questioned (Pretty, 1999). Sustainable food production safeguards current food output and secures future food security through better technologies and practices responsive to environmental health. This is because it emphasizes the assets accredited with “productive values, natural, social and human capital” that are abundant or can be replenished at the most negligible costs possible (Pretty, 1999).

In relation to Kakamega County, studies on households' engagement with sustainable food production are not commensurate with examining and evaluating their sustainable food access and utilization practices. What has come out is household engagement through women and cooperatives seeking to improve food production (Lokuruka, 2020). Still, the question of sustainability has not been checked in the entire process. The surveyed literature shows that this is a grey area that needs to be investigated.

RESEARCH METHODOLOGY

Research design

The study adopted a cross-sectional survey design. This design was appropriate because it has the ability to measure the prevalence of outcome and exposure of participants and draw conclusion simultaneously (Lavrakas, 2008). Furthermore, this provided a snapshot of the food insecurity situation in Kakamega County. This made the design to be the most ideal for the study.

Study site

Kakamega County is in the former western province of Kenya. This county was selected purposively due to its vastness compared to other neighboring counties, geographical location and accessibility.

The county is bordered to the south by Vihiga County, to the east by Nandi and Uasin Gishu Counties, to the north by Trans-Nzoia County, and the west by Bungoma and Siaya Counties (County Government of Kakamega, 2022). The county is located northwest of the capital city of Kenya, Nairobi, and its headquarters is in Kakamega Town. The county lies between the coordinates: 0.283333°N 34.75°E GPS Coordinates of Kakamega County, Kenya. Latitude, (2022). It is the 10th largest town in Kenya, with an average altitude of 1,553 meters above sea level (Saaluet al., 2019). The County has 12 sub counties which include: Likuyani, Lugari, Malava, Navakholo, Mumias West, Mumias East, Matungu, Khwisero, Kakamega South, Butere, Kakamega Central Kakamega North and Kakamega East as shown on figure 3.1. The average household size in the county is 4 people; 51.1% of the people are employed, which is slightly higher than the national average of 48.6%.

The county has an average population density of 668 people per square kilometer of land with an area of approximately 3033.8 sq. km. The rainfall is evenly distributed throughout the year, March to July being the peak, while December to February gets the least ranging from 1280 mm to 2214 mm. Poverty rates stand at 53% (FAO, 2021), and agriculture is the main economic activity in the region. Maize, sugarcane, and tea are the main cash crops grown, while many households practice subsistence farming. Some rural households in the county are engaged in small-scale gold mining to supplement their income.

The county has rich fertile land suitable for agriculture and good climatic conditions that favor livestock keeping. This includes cattle, goats, sheep, poultry, bees and pigs. Food security is expected to be safeguarded when livestock farming is combined with crop production. However, Chepkurui et al., (2014) reported that 51% of the county population is food insecure. This justifies why Kakamega County is an ideal site for this research study.

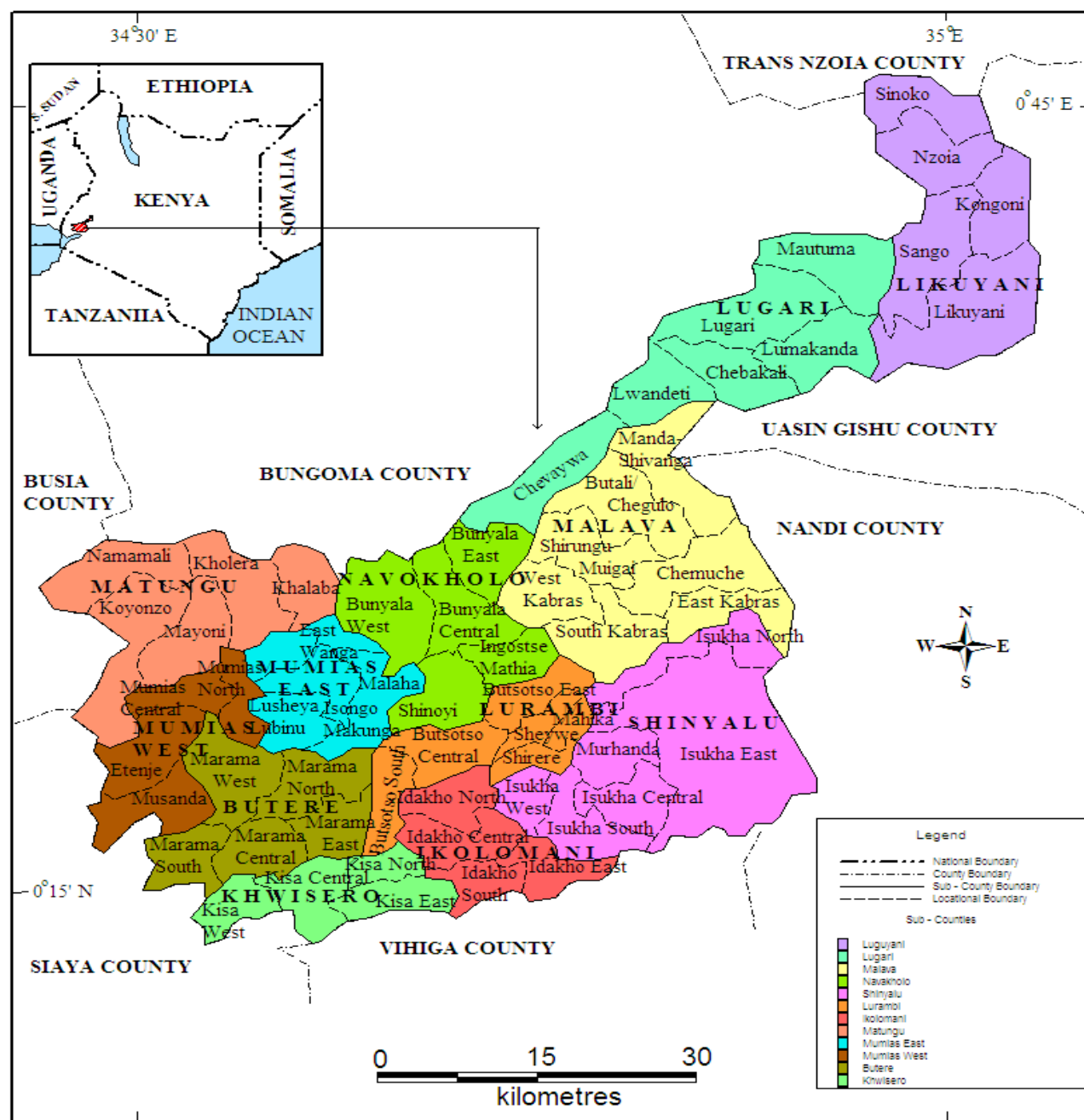


Figure 1: Map Showing Administrative Units of Kakamega County

Source: County Government of Kakamega, 2022

Target population

Kakamega County is an administrative unit within the western Kenyan region. Its population is 1,867,579 (KNBS, 2022), with over 433,207 households (KNBS, 2022). This household population was the critical target of the study population by identifying household heads as key decision-makers in the food security matters of rural households.

The study focused on rural households' areas of the county and agricultural extension officers in all sub-county offices. This allowed the research to use the population of 433,207 households as the population frame of the target households to be incorporated in the study. However, for the actual selection of respondents, the study only considered respondents who contribute to the food security of the households or practice either food crop farming or livestock farming, or both.

Sample size determination

Kakamega county was selected through purposive sampling due to its agro-ecological location in western Kenya. The study used Krecjie & Morgan's (1970) sample size determination table to decide the sample size. According to the determination table, a sample population of above 100,000, a sample size of 384 was appropriate, thus a population of 433,207 households as distributed per sub county on table 3.1; the study extracted 384 respondents as appropriated per each sub county indicated on table 3.1, which was adequate to get a confidence level of 95%.

Moreover, Agricultural Extension Officer (AEO), based on Kakamega County Executive Cabinet Secretary for Agriculture, each sub-county has an Agricultural Extension Officer (Geoffrey Nafukho Omulayi, personal communication, 16th March 2022). This study purposively selected 12 AEOs for the study. Therefore, the sample of extension officers was (12) and 384 households. The table below shows the sample size determination from each sub-county proportionately using Krecjie & Morgan's (1970) sample size determination table.

Table 1: Distribution of Population, Number of Households, and Average Household Size by Sub-County

Sub- county	Population	Number of Households	Sample Size
Butere	160,100	37428	33
Kakamega Central	191,625	53200	48
Kakamega East	172,288	40473	36
Kakamega North	244,093	52305	48
Kakamega South	117,608	28149	25
Khwisero	119,294	28866	25
Likuyani	157,773	36507	32
Lugari	128,584	28047	25
Matungu	172,755	37642	33
Mumias East	122,712	28234	24
Mumias West	120,601	28856	25
Navakholo	159,977	33500	30
Total	1867579	433,207	384

Source: KNBS (2023)

Ethical considerations

The research sought ethical approval and clearance to conduct the study from the Directorate of Graduate Studies of Kaimosi Friends University to adhere to all ethical considerations. The Directorate of Graduate Studies which was used to acquire research permit from NACOSTI, gave introduction letter. In line with this, the identity of the respondents was safeguarded, and the information obtained was used for the purposes of

the research and not disclosed to any third party whatsoever. The confidentiality of the respondents were safeguarded by ensuring that no name appeared on any questionnaire or mentioned in the research report or their contacts, such as email and telephone numbers.

The data was coded and stored in Statistical Package for Social Sciences (SPSS) software (Version 23) without including personal details that could be used to identify the respondents; children were not interviewed in the research. This study was guaranteed by ensuring that the respondents were duly informed about the intentions and purposes of the research. All obligations agreed upon by the respondents were honored immediately at the conclusion of the specific activity to which they were entitled.

RESULTS AND DISCUSSION

Questionnaires return rate by gender

The questionnaires were administered to 384 respondents for which 345 respondents effectively filled and returned the questionnaires thus giving rise to a response rate of (89.8%) from the respective respondents. Since (9%) were not fully filled, therefore they were not processed and included for final analysis. The return rate of the questionnaire was relevant to the study because it enabled the researcher to determine the number of respondents who took part in the survey and whether the number could meet the required threshold for research analysis. The number that turned up surpassed Saunders et al., (2009) who recommended that return rate of 30%-50% of responses is acceptably sufficient for statistical generalization. One-on-one in-depth interview was administered to 12 AEOs who had been targeted. Table 2 present the response rate of rural households. The high response rate was necessitated by an extra extension of one-week data collection period and regular visits to the rural households and county offices to ensure most of the respondents returned the questionnaires. This data is captured on table 2.

Table 2: Questionnaire return rate by gender

Respondents	RR
Male	38.0%
Female	51.8%
Total	89.8%

Source: Researcher (2023).

Table 2 shows that the return rate presented has expressed that the rural households were to be successfully accessed by visiting their household farms or workplace or early in the day or late evening after the day's activities. There was a slight difference in overall gender balance where men who represented 38% were available as well as family heads or breadwinners of households compared to women, 51.8% who were relatively 13.8% higher than men. The high number of women was attributed by the fact that most households are headed by women, where men have migrated to urban centers in search for livelihood. This conforms with Poulos (2018) and Simlane & worth (2020) who affirms that food security can be achieved when all gender across households play role in food production, however in this situation more women assumes the role of food production and supply in Kakamega county.

Food insecurity status among households in rural areas

The study sought to determine food insecurity status in rural households in Kakamega County. The status of food insecurity was significant for this study because the researcher was able to establish prevalence levels in terms of food accessibility, food availability, food utility and food sustainability among rural households in Kakamega County. Respondents were asked to state their food insecurity status in rural households. Aspects

identified as food insecurity indicators were land ownership, Predominant crop, food adequacy and livestock kept. This data is distributed on table 3.

Table 3: Aspects of food insecurity status among rural households.

Aspect	Yes	No
Food insecurity status	40%	60%
Land ownership	40%	60%
Predominant crop	58%	42%
Livestock kept	80%	20%

Source: Researcher (2023)

Of the respondents interacted with, the study findings revealed that 60% of households were food insecure, relative to 40% who were food secure. This was indicated by each household owning small parcels of land in hold between 0-1 acres. 70% respondents who confirmed ownership of small parcels of land indicated it. To some extent, this has occasioned food insecurity; small piece of land if not utilized well can hinder availability and access to the household.

The study further sought clarification from key informants on the state of food insecurity and land size. This is what they stated: Land demarcation was occasioned by increased demand for settlement and this has exerted pressure. Besides this, small parcels available for farming have lost their fertility through leaching. We advise rural households to utilize small space available economically through use of fertilizer to boost food production (AEO, Matungu East)

This data informs that rural households possess small parcels of land that has leached, this contributed to low food production. Research informs that, ownership of land whether small or big depends on what and how an individual make use of it. Small farms can still produce more food if well managed but in this case, there is poor land utilization.

Land ownership and by food security

The study sought to determine the land size owned by rural householders and the food production rate and reliability in Kakamega County. This aimed to establish its effect on farming and food reliance in rural households. This is indicated on Table 3.

Table 4: Land owned and its effect on food security in rural households.

Acreage (land size)	Respondents Rate
0-1	40.6%
1-2	29%
3-4	30.4%
5 and above	0%
Total	100%

Source: Researcher (2023)

Table 4 presents responses on how much land each household owns in relation to household food insecurity in Kakamega County. Of the 345 respondent, 40.6% households fell between 0-1 acres, 1-2 acres owned by 29%, 3-4 acres owned by 30.4% and no household owned 5 acres of land and above. This distribution reflects scenario where the land owned by households is smaller, with an average area of 1-2 acres. Although many households practice farming, the active part of the land in use is small, which has limited food production for rural household population, this was indicated by 40.6% of the households with least owned land and none owned above 5 acres.

This description implies that where land demarcation has taken place, minimal faming activities takes place and this explains why there is food shortage in rural households in Kakamega County. It also indicates high population density and low land ownership per capitated. The study also conducted interviews on AEOs to clarify whether small farm size could be a contributor on rural household food insecurity. This is the excerpt captured from AEOs.

Land size in rural households was too small which attributed to small harvest from subsistent farming, which tremendously has lowered food adequacy in the county. Farmers have relied on subsistent farming practiced on fragmented pieces of land and average harvest obtained from these farms aren't enough to feed rural households in the county thus causing food shortage. However, this can be resolved through use of new farming methods to boost production level. I advise farmers to use fertilizers when planting to improve soil fertility (AEO, Butere). This data informs this study that subsistence farming does not address food shortage in rural household in Kakamega County but instead increases the prevalence. It is advised to ensure more in diverse farming which can increase food production in rural households. Based on this result and linking it on one of the tenets of study theory on food and nutrition theory: food availability as cited by Simlane & worth (2020) indicates that, there is food insecurity that is indicated by lack of food in either of our farms or granaries.

Similarly, postulation of the Simelane &Worth theory agrees with Korir et al., (2021) who affirms that most farms held by family households practice subsistence farming due to small farm size that are not producing food adequately due to poor soils, same to FAO (2020) which confirmed that the most vulnerable groups on food insecurity are subsistence farmers and agro pastoralist whose livelihood are highly dependent on agriculture and animal products.

Predominant crop planted by the household

The study sought to determine the most frequent food crops planted on the farm. Respondents were asked to select crop that is commonly planted by rural households. Their responses captured and plotted on Figure 2.

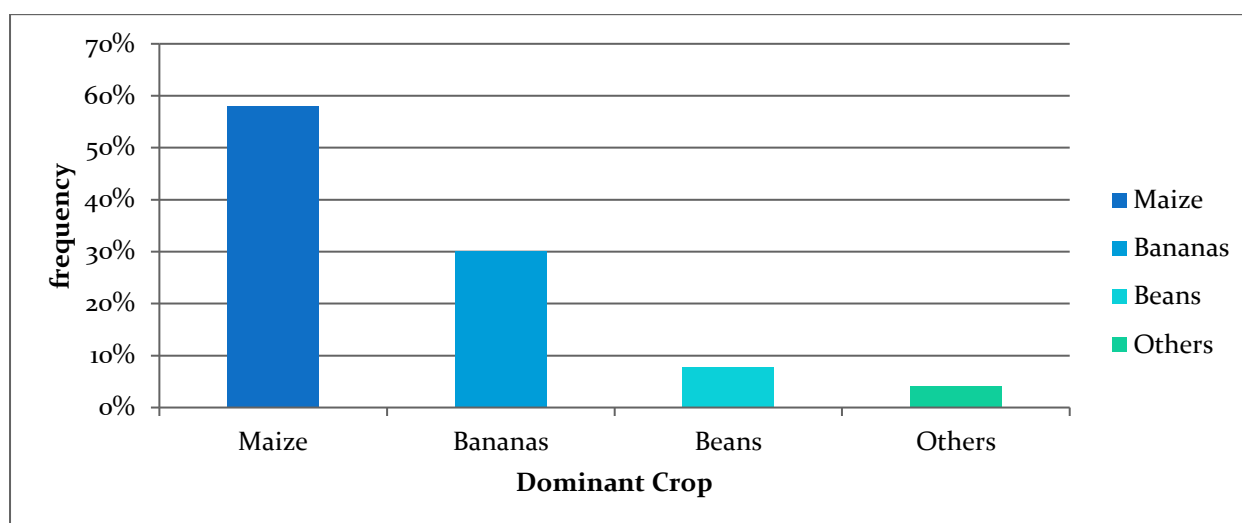


Figure 2: Predominant crop planted in rural households

Source: Researcher (2023)

Of the 345 respondents who took part in the study, 58% indicated that maize was the most common crop planted, followed by bananas at 30.1%, beans at 7.8% and other indigenous crop at 4.1% consecutively. The main reason why maize dominates in rural household resulted from its early maturation period of three months as opposed to indigenous crops, which takes longer time; however, this has lowered food production rate due to depletion of soil nutrients because of continuous monocropping in rural households. Besides this, maize is a staple food favored by climatic conditions in Kakamega County; however, the crop harvest is relatively low in relation to the cost of inputs, making it hard to meet the population's needs in terms of food security status in rural households in Kakamega County.

Further analysis of data indicated that the average foodstuff harvested by rural households was not sufficient enough to feed their entire household. This was indicated by 70% of households who confirmed that the food produced does not meet the demand of rural households. This is in agreement with Chepkurui et al., (2014) who confirmed that subsistence farming in Western Kenya has not sufficiently addressed food insecurity challenges.

Climate change was also cited as a factor that influenced farming activities in Kakamega County. Irregular climatic changes observed in recent times saw interrupted planting' calendar, making it hard to predict when to plant and harvest crops in time. This has led to crop wastage due to prolonged rains, drought and pests (army worm) infesting the farm. The consequence of drought that damage crops lead to poor nutrition and dietary uptake and poor health. This is in agreement with (Khorsandi & Snowdon, 2022) findings on food access and availability on household, however, the results do not meet the tenants of food and nutrition theory which stipulated access and utilizable food which has been limited by planting of single crop in rural households.

The study further used interviews to get more information on the commonly planted crop in relation to causes of food insecurity. All the 12 respondents who attended the interview confirmed that

Maize-predominates farms as the main staple crop for food. As a result, its production went down as soil nutrient depletes due to continuously recycled crops. This has led to poor plant yields, which increases food insecurity and was attributed to the small harvests obtained from subsistence farming practices (AEO, Khwisero)

From the data captured from AEOs, it has indicated that Farmers relied on subsistence maize farming due to their peasantry way of life. This has lowered crop yields persistently leading to decline in food sustainability. This data informs households to vary the crops planted, including Grocery, cereals, and drought-resistant crops. However, in adequate finances and lack of training on new farming methods inhibit farmers' ability to produce enough hence, lowering crop yields and this has been the cause of food insecurity in rural households. The above data informs the study that subsistence farming that relies on a single food crop has not improved and stabilized food security in Kakamega County.

Livestock kept by households in Kakamega County

The survey conducted in Kakamega County sought to establish common livestock kept mainly for food or its products in rural households. Respondents were asked to select livestock that were kept in rural household for food production. Responses captured were distributed in Table 5.

Table 5: Livestock kept by households in Kakamega County

Livestock	Respondents Rate
Cattle	70%
Sheep	6%

Chicken	20%
Goat	3%
Others	1%
Total	100%

Source: Researcher (2023)

Of the 345 respondents interacted with, 70% stated that cattle were commonly kept in their farms, followed by chicken 20%, sheep 6%, and goats 3% and other livestock 1%. Cattle was the most populous livestock kept by rural households because it had multiple uses as food as well as cultural practices. However, food insecurity has not been restored because, besides this, most farmers kept livestock for cultural practices especially between the Isukha and Idakho, this has negatively affected food adequacy in Kakamega County.

Moreover, bulls were used for ploughing and cows for milk production though this was not adequate for household consumption. While this study points out over emphasis on livestock cultural practices and rearing of indigenous breeds, Korir et al., (2021) is in agreement with these findings but pointed out reduced number of livestock due to ill health condition and low quality breeds.

Even though rural households keep cattle for food, low quality breeds has led to low production for both milk and meat, which are highly relied on by households; the prevalence rate of supply of these products is still high. This has made most households rely on supplies from neighboring counties of Uasin Gishu and Nandi County, which is inadequate for rural households thus making the area food insecure as indicated by (Korir, 2021).

The study further conducted interviews to get in-depth information about livestock in rural household on food insecurity status. The key informants were interviewed and this is what they said:

Animal breed kept for food production could not adequately serve the households because most livestock were not exclusively used for food production but also cultural functions based in the area (cattle). This situation makes it hard for households adequately utilize animal products to address the challenge of food insecurity in the county. Farmers have relied on low-quality breeds from animals with low productivity regarding milk and meat (AEO, Kakamega North).

From this interview, rural households were advised to keep graded animals with high milk and meat production yields as opposed to local breeds.

Other graded breeds included pigs, poultry, and goats which were also advised to be kept even though pigs were selectively consumed based on different faith groups in the area (Muslims). However; the unavailability of finances brings about the extra cost of acquiring these breeds and training on rearing practices. The above data informs this study that keeping of indigenous animal breeds has not improved food security status and thus there is need for awareness on artificial farming i.e. poultry, dairy, pigs, bees in rural households.

SUMMARY, CONCLUSION, AND RECOMMENDATION

Summary of the findings

Study findings on food insecurity status indicate acute food shortage in households in Kakamega County. This was greatly affected by climatic changes, which included prolonged droughts, unpredictable rain pattern, COVID 19 pandemic, high costs of farm inputs, poor farming methods, and low quality breeds. This was indicated by 60% households who stated that land use is not utilized to the maximum and minimal focus is placed on balanced diet where many households plant variety of crops mostly constituting carbohydrates.

Livestock specifically cattle are not kept exclusively for milk or meat production but also for cultural practices events. Finally, quite number of households is jobless with no income for livelihood, this has lowered the chances of market affordability to acquire foodstuffs or purchase of farm inputs and this has adversely affected securing food in rural households.

Conclusion

Based on the research findings, it was concluded that aspects of food insecurity status in households which comprised land size and land utilization for farming, dominant food crops grown and livestock kept indicated unsustainable and low food production hence food insecurity in rural households. This resulted from poor farming practices.

Recommendations

Based on the first conclusion: households to make use of county Agricultural Extension Officers who should offer advisory opinion on good farming practices. This includes adoption of good storage facilities after harvest.

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