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Factors That Attribute To Decrease in Agricultural Production in Uasin Gishu County, Kenya

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Abstract

In Kenya over 75% of its population earns it's living from agriculture, which in turn depends on rainfall (UNEP and GOK 2000). Due to the rest areas being prone to drought, Kenya's vulnerability to food insecurity is highest among pastoralists and small-scale agriculturalists most of whom are residents in Uasin Gishu County. Uasin Gishu County is the leading County in Kenya in the production of maize and wheat therefore; it is referred to as the "bread basket" of the country. But over the years, the increasing population growth in the county, has continued to exert pressure on natural resources especially land. Such pressure and continued subdivision of land through inheritance, has resulted in very small piece of land whose commercial viability is low. (DDP, 2008). The specific objective of the study was to identify the factors that have attributed to decrease in agricultural production in Uasin Gishu County, Kenya. Longitudinal survey Research design was used to identify the factors that have attributed to decrease in agricultural production and purposive random sampling was used to sample the study units. The target population was 400 rural households. Multi-stage random sampling was utilized to select a sample of 100 respondents. To analysis the collected data, descriptive statistics and chi-square test was used. The study found out that decrease in land size, increase in cost of farm inputs, declining soil fertility, poor infrastructure, climate change, and among other factors have adversely affected agricultural production in the county. It is for this reason that the researcher explored on the factors that attribute to the decrease in agricultural production in Uasin Gishu County. It was concluded that over time noticeable changes have occurred in the county among them were the escalating prices of the farm inputs which has limited the farmers' ability to use fertilizer and other soil nutrients thus causing declining soil fertility. It was therefore recommended that the government through the Ministry of agriculture subsidizes the cost of farm inputs to make farming more cost effective hence motivating farmers to increase agricultural production. The extension officers to be more effective in reaching farmers so as to provide farmers with the right information on the best agricultural practices including the right seed varieties as well as the right fertilizers to use. The Ministry of Agriculture in conjunction with research institutes such as KARI should develop and help farmers incorporate new technologies in production, develop and support serious mitigation and adaptation policies on climate change. This will help shield farmers on the consequences of climate change.

Key words: Factors; Attribute; Decrease; Agricultural Production.

1. Introduction

Agriculture in Sub-Saharan Africa still provides a relatively large share of the gross domestic product (GDP), but productivity in the sector lags considerably behind that of other continents, as well as the region's potential. On average, about 65% of Africa's labor force is employed in agriculture, yet the sector accounts for about 32% of GDP, reflecting relatively low productivity. Africa's rural population, therefore, has been unable to move out of poverty principally because of inability to transform their basic economic activity agriculture to high productivity levels. Because of its contribution to the economy, the agriculture sector's poor performance is one of the major barriers to development on the African continent. Some formidable challenges in Sub-Saharan Africa have contributed to erratic agricultural growth patterns. Several studies have noted that meeting the target of the Millennium Development Goals (MDGs) requires consistent and broad-based growth (with agriculture taking the lead), accompanied by dramatic improvements in infrastructure, governance, and other social indicators(Diao, Thurlow, Benin, & Fan, 2012)

Agriculture is the most important economic sector in Kenya and contributes 24% of GDP directly and another 27% indirectly. The sector's indirect contribution is primarily achieved through linkages with manufacturing, distribution and service related sectors. One third of Kenya's agricultural production is exported, which corresponds to 65% of the country's total export. The sector accounts for 18% of total formal employment, and more than 5 million smallholder farmers are engaged in various agricultural

related activities. Extreme weather and climate changes influence the entire economy, which depends majorly on agricultural products like cash crops, food crops and animals (ROK, 2003). The country faces tremendous development challenges in nearly all the sectors: poverty is endemic, deforestation is continuing, food insecurity is rampant, malnutrition and infant mortality rates remain high (Thaxron, 2008).

2. Research Methodology

Longitudinal survey research design was adopted in this study because it provided repeated observations over time on a set variable and enabled the researcher to detect developments and changes in the characteristics' of the targeted population at both the group and the individual level. To increase credibility of the study, the researcher used purposive random sampling to select the sample unit from the target population. Multi-stage sampling was adopted since it was easier to implement and created a more representative sample of the population. To provide simple summaries about the sample and the measures of the study, both descriptive statistics and chi-square test were used.

3. Findings and discussions

3.1 Decrease in land size

To identify factors that affect agricultural production in Uasin Gishu County, respondents were asked to indicate if certain factors influenced their agricultural production. This is evident from Figure 1

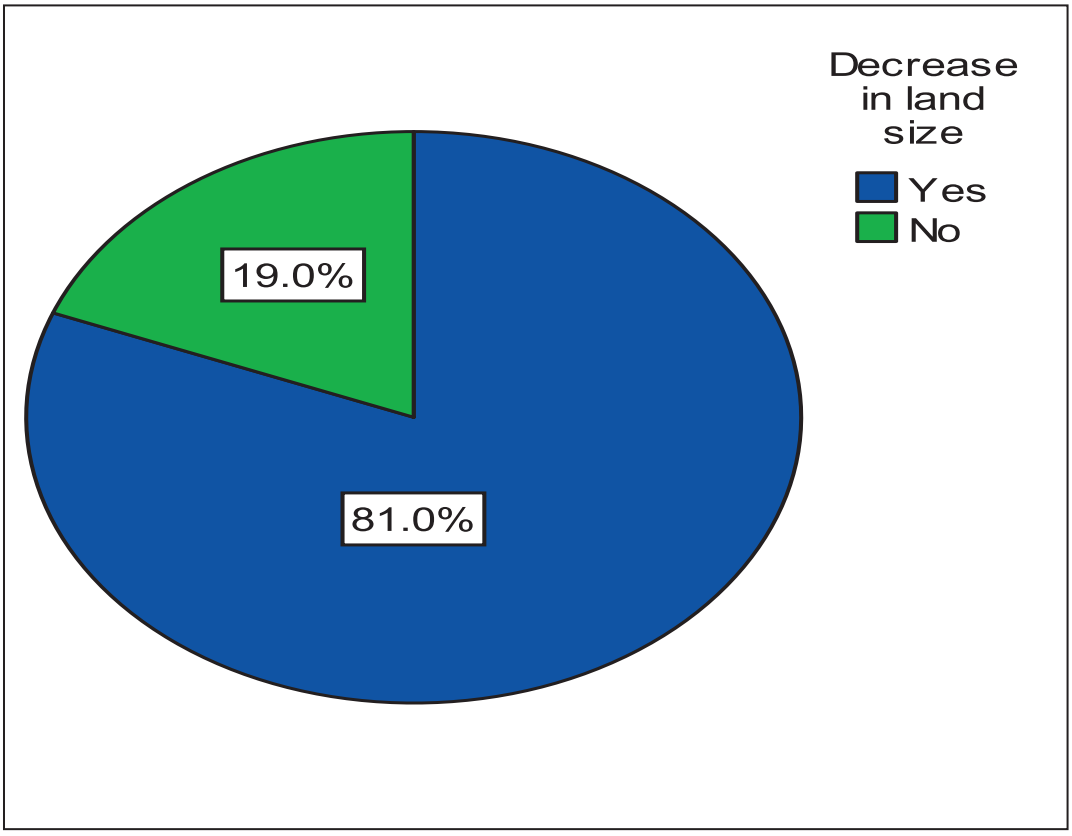

Figure 1: Decrease in land size in Uasin-Gishu County, Kenya.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation ($\chi^2_{1,0.01} = 152.91$

The changes in land size across the two districts are given in Figure 2

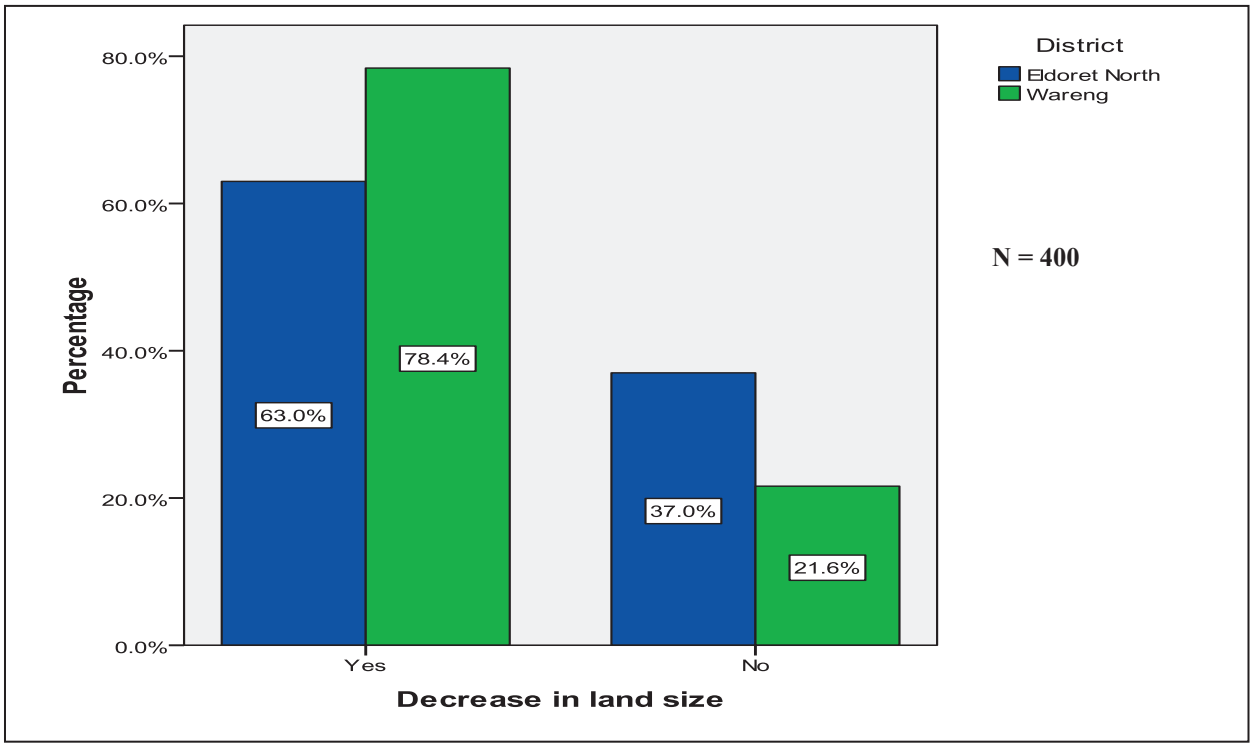

Figure 2: Number of farmers whose land size had decreased.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) relationship between decrease in land size and geographical area ($\chi^2_{1,0.01} = 11.40$). The results show that more farmers in Wareng district had been affected by decreasing land size as compared to those of Eldoret North district. These results are consistent with the fact that most respondents from Eldoret North district were having larger land sizes as compared to respondents from Wareng district. These results were supported by those of the focus group discussions which showed that changes that had occurred in the production systems employed by farmers in the county included land subdivision to small scale through inheritance, shift by more farmers to dairy farming, increase in poultry, fruit, horticulture and irrigation system. This is attributed to the increase in population growth, unaffordable farm inputs and low prices for farm output for example maize and wheat. Cost of labor and fuel of machines has also increased.

3. Increase in cost of farm inputs

Respondents were asked to indicate how increase in the cost of farm inputs affected their agricultural production. The results are given in Figure 3

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation($\chi^2_{1,0.01} = 100.00$).

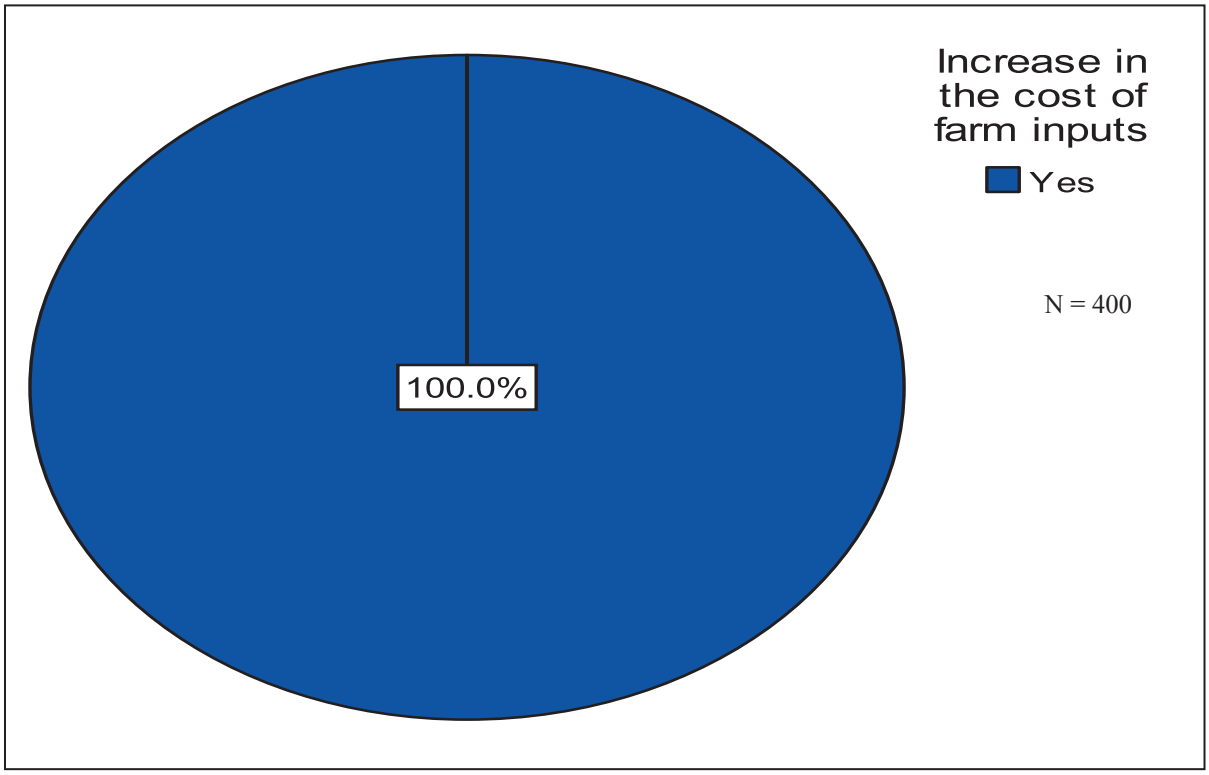

Figure 3: Influence of increase in cost of farm inputs on agricultural production in Uasin Gishu County, Kenya.

This implies that increase in the cost of agricultural inputs was a great threat to agricultural production by farmers in Uasin Gishu County, as indicated by the fact that all respondents had been affected. Results from the focus group discussions indicated that a good number of farmers have shifted to fish farming which they found to be reasonably cheap and easy to manage (Nyoro, 2001; ROK, 2003).To make matters worse, many farmers in the county do not apply enough fertilizer and other productivity enhancing agronomic practices and technologies on their farms due to high cost of such inputs.

The high costs of inputs have constrained the development of the sector. The withdrawal of government subsidies as part of economic reforms meant that many farmers became unable to afford inputs, leading to reduction in their use. The privatization of artificial insemination services has in effect increased costs, which has led to decline in the use of such services. This has led to the problem of poor quality livestock through problems of inbreeding and limited use of improved inputs. Diseases and pests also pose a challenge to the sub-sector due to weak inspectorate and quality assurance as well as lack of enforcement of the existing rule and regulations governing the movement of livestock and their products.

4. Declining soil fertility

The study also sought to determine whether declining soil fertility had affected agricultural productivity in Uasin Gishu County, Kenya. The results are given in figure 4

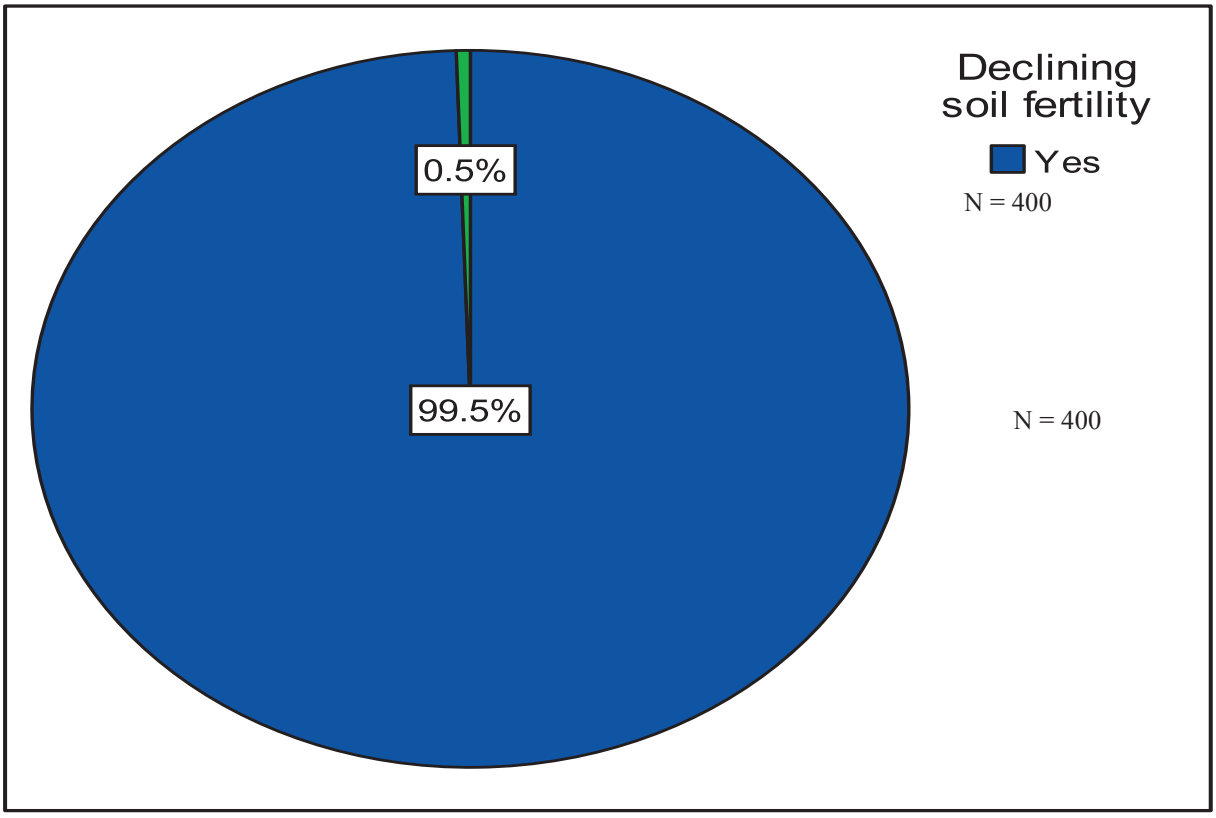

Figure 4: Influence of declining soil fertility on agricultural production in Uasin Gishu County, Kenya.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation ( ).

$\chi^2_{1,0.01} = 100.00$

This is an indication that declining soil fertility in the area had a great influence on agricultural production in the study area. Good soil fertility is very essential for both growth and amount of produce received. Hence a decline in soil fertility means that farmers should increase the amount of fertilizer or manure in the course of their farming Results from key informant interviews showed that most small scale farmers have resorted to animal manure due high cost of fertilizer. Due to land resource constrain, many farmers in the county continuously engage in their farms for agricultural production without room for soil nutrients replenishment. Some farmers in the county do not apply or use fertilizer due high cost of such inputs. Empirical evidence revealed that farmers' access to fertilizers, land and education improves the probability of food security (Berret and Clay 2003).

5. Poor infrastructure

The study sought to establish whether poor road network had affected their agricultural production. The results are given in Figure 5

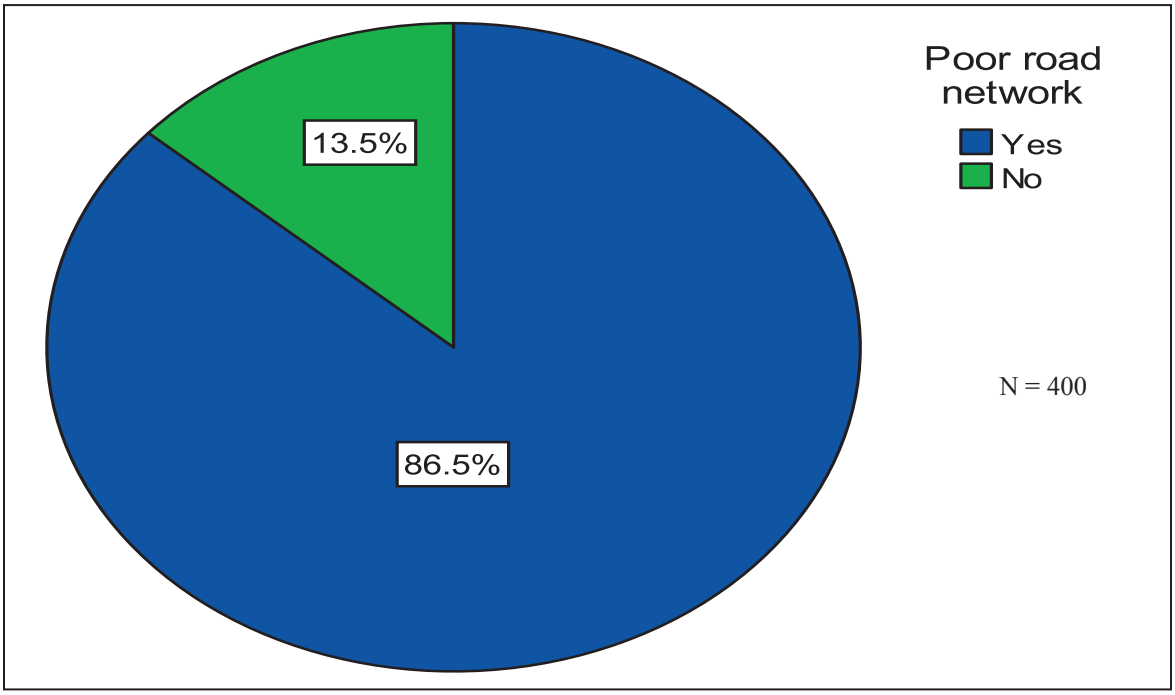

Figure 5: Influence of poor road network on agricultural productionin Uasin Gishu County, Kenya.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation ($\chi^2_{1,0.01} = 213.16$). From the results, a very large proportion of farmers (86.5%) had been affected by a poor road network in the region. Most focus group discussions and questionnaires indicated that poor roads prevented most farmers from ferrying their yields to good markets.

Poor infrastructure including poor rural roads, markets and transport systems that result in high transactions costs for farmers and inaccessibility to input and output markets are among the main concerns for the sector. The performance of the sector is affected right from the production to marketing domestically and even internationally. For exports this means lack of sustainable supply of raw materials due to uncontrolled production, with gluts alternating with shortages as well as un-competitiveness since high transport costs are reflected in high prices. Poor infrastructure has also contributed to the poor market integration in the country.

6. Climate change

The study sought to establish if climate change had influenced agricultural productivity in Uasin Gishu County. A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation ($\chi^2_{1,0.01} = 351.84$). From the results, majority of respondents (97.7%) had been affected by climate change and only few (2.3%) had not been affected. This was an indication that climate change was widely impacting on agricultural productivity in Uasin Gishu County. The county is largely a rain-fed area therefore; failure or delay of rains or any climate disorders e.g. floods, droughts etc. could affect the agricultural production negatively.

The findings are summarized in Figure 6.

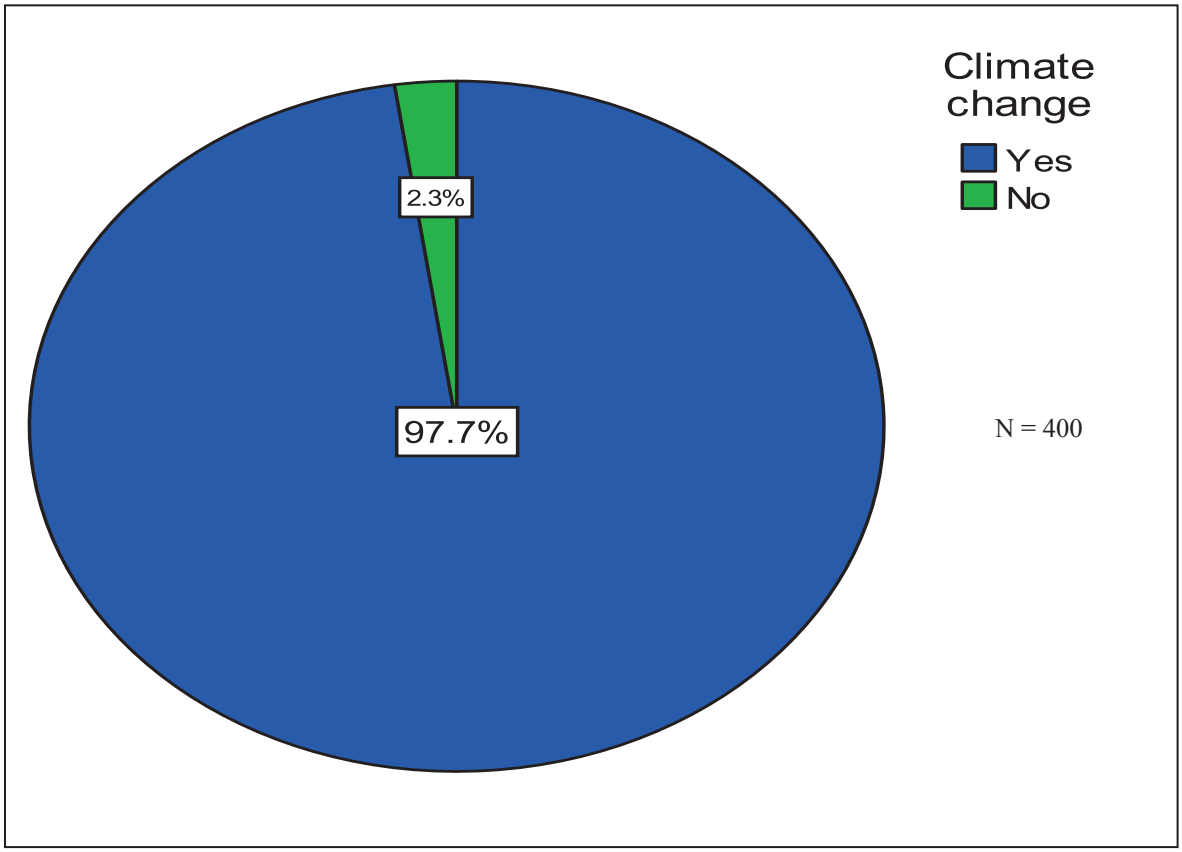

Figure 6: Influence of climate change on agricultural production in **Uasin Gishu County, Kenya.**

7. Exploitation by middlemen

To establish the effect of exploitation by middlemen on agricultural production, respondents were asked to indicate whether exploitation by middlemen affected them. The results are summarized in Figure 7

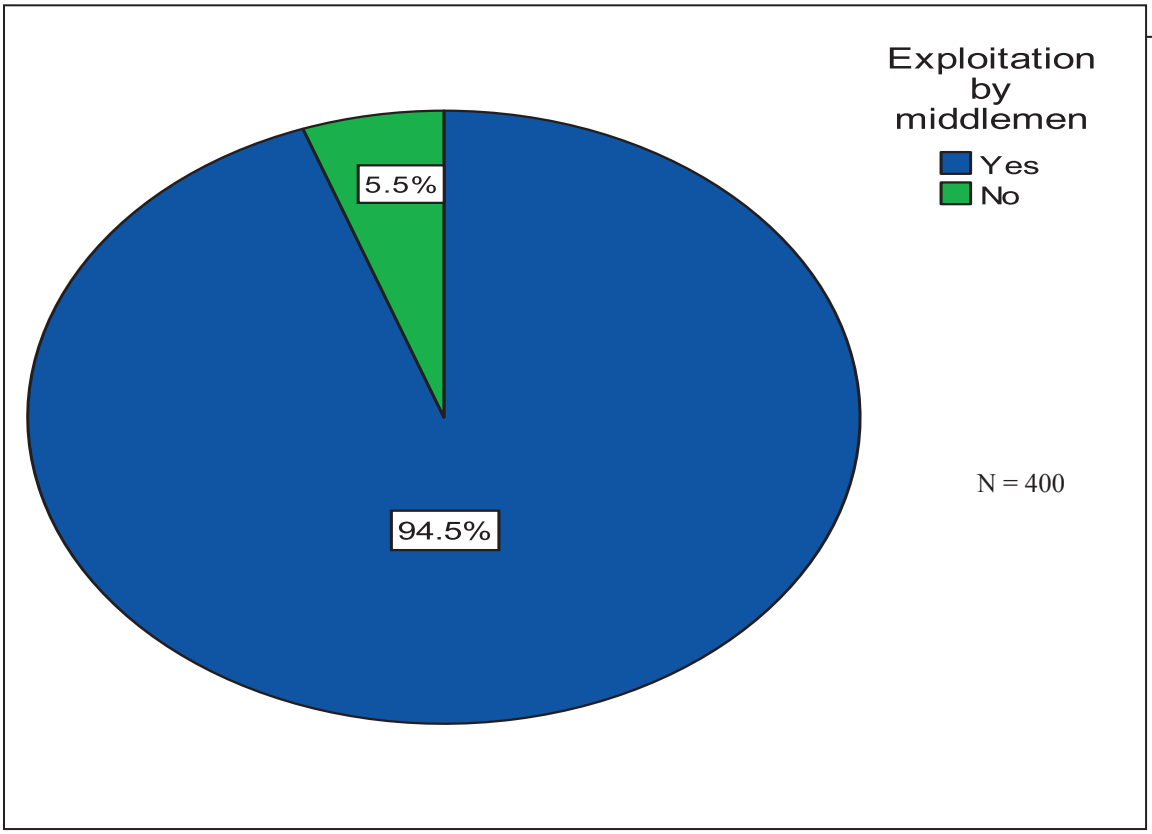

Figure 7: Influence of exploitation by middlemen on agricultural production in Uasin Gishu County, Kenya.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation

($\chi^2_{1,0.01} = 316.84$).

This implies that exploitation by middlemen affected many farmers negatively. From most Key informant interview and the focus group discussions indication were that the inaccessible roads made transportation costly thus farmers relied most on middlemen who came to their farms to buy their produce at very low prices, thus depriving the farmers from making better or huge profits.

8. Lack of credit facilities.

Respondents were also asked to indicate whether lack of credit facilities influenced their agricultural production. The responses were recorded in Figure 8

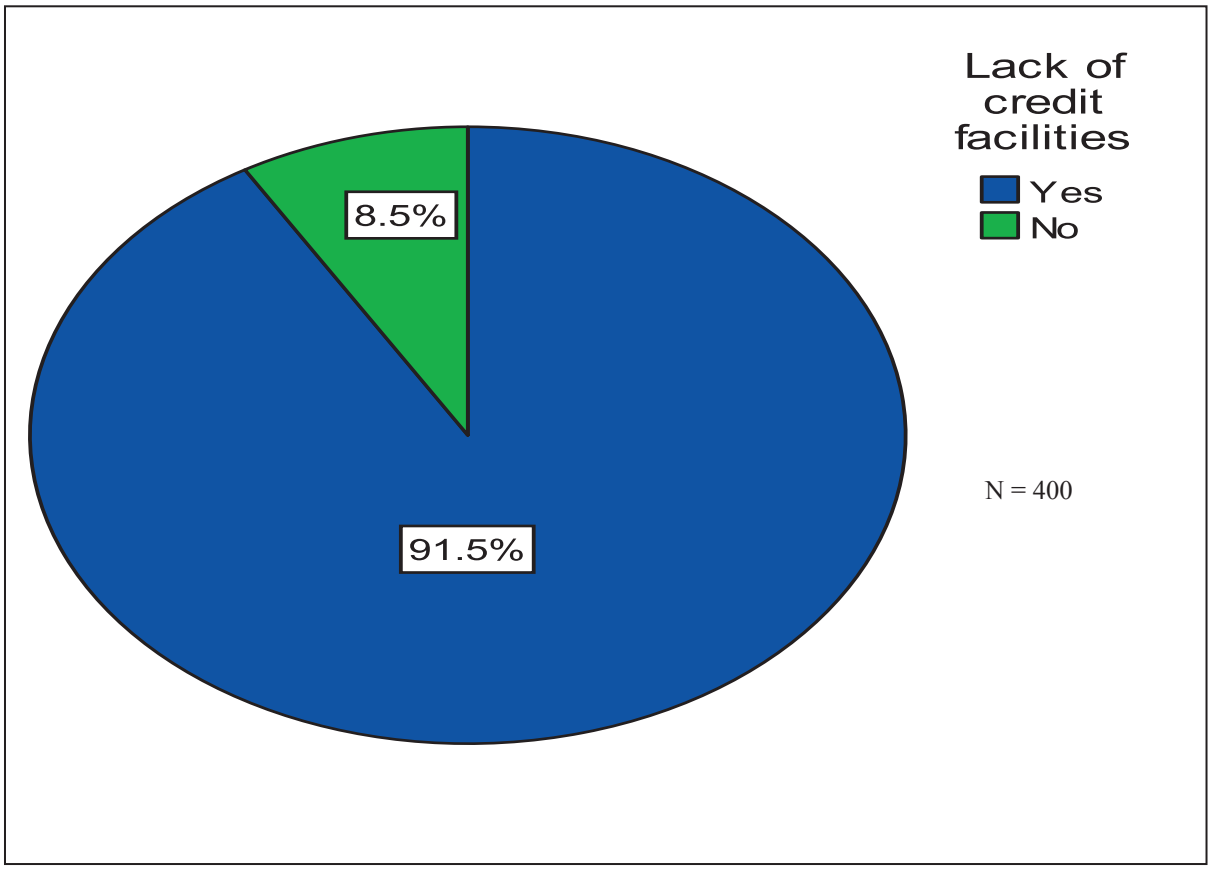

Figure 8: Influence of lack of credit facilities on agricultural production in Uasin Gishu County, Kenya.

A Chi Square test conducted on the responses indicated that there was a highly significant ($p<0.01$) variation ($\chi^2_{1,0.01} = 275.56$). From the results, 91.5% of farmers had had their agricultural production being influenced by lack of credit facilities while 8.5% had not. Diagne. A. (1998) found that formal credit had marginally beneficial effects on household annual income. However, these effects are very small and do not cause any significant difference between the per capita incomes, food security, and nutritional status of credit program members and non-current members

Results on access to credit across the two districts were recorded in Figure 9

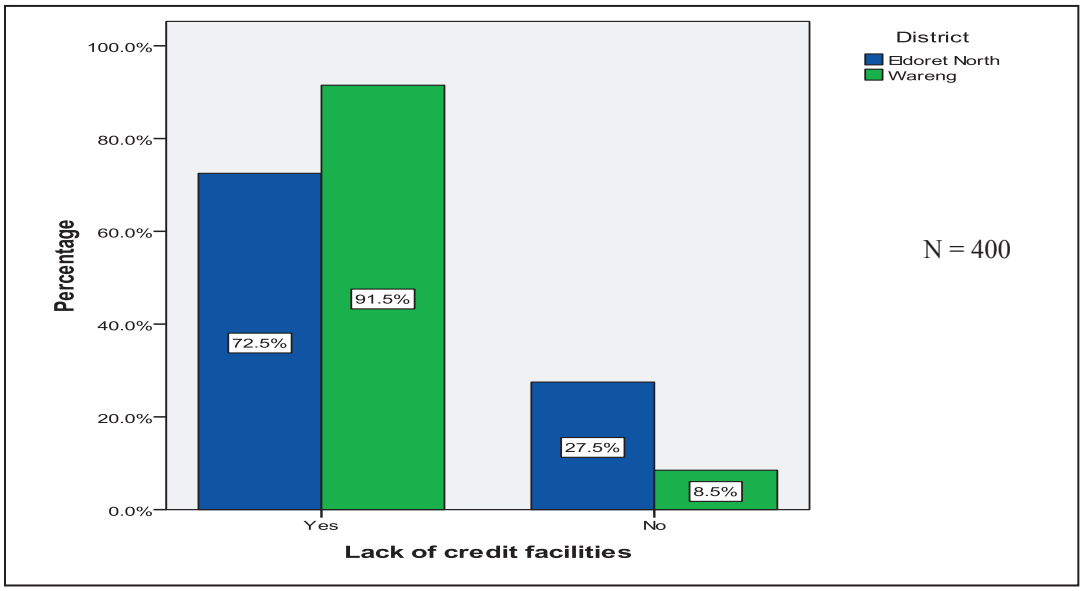

Figure 9: Influence of lack of credit facilities on agricultural production in Uasin Gishu County, Kenya

A Chi Square test of independence conducted on the responses indicated that there was a highly significant ($p<0.01$) difference on the influence of lack of credit facilities on agricultural production in the two districts

($\chi^2_{1,0.01} = 24.46$). From the results, more farmers who had had their agricultural production being influenced by lack of credit facilities were from Wareng district. From the focus group discussion, it emerged that most of the farmers in Wareng district had small parcels of land and feared obtaining loans for fear of losing their land.

The lack of finance for agriculture limits increasing production and investment in value addition activities in agriculture. Inaccessibility to credit especially for small scale farmers and especially women has limited the range of activities, the type of technology used and the scale of operations that a farmer can adopt on his farm. Agricultural credit available to farmers has tended to diminish over time since independence. Although there have been a number of institutions that have been involved in agricultural financing over time, actual investment in the sector has been small. Thus to improve agricultural productivity and incomes, especially of smallholders most of whom reside in rural areas, access to affordable financial credit is important to enable them acquire new farming technology a necessary input in realizing the higher productivity goal. There has been a bias of credit towards large farms and cash enterprises. Poor mobilization of financial resources through weak cooperative system, and grass roots organizations needs to be addressed.

CONCLUSION AND RECOMMENDATION

It was concluded that over time noticeable changes have occurred in Kenya among them were the escalating prices of the farm inputs which has limited the farmers' ability to use fertilizer and other soil nutrients thus causing declining soil fertility. It was therefore recommended that the government through the Ministry of agriculture subsidizes the cost of farm inputs to make farming more cost effective hence motivating farmers to increase agricultural production. The extension officers to be more effective in reaching farmers so as to provide farmers with the right information on the best agricultural practices including the right seed varieties as well as the right fertilizers to use. The Ministry of Agriculture in conjunction with research institutes such as KARI should develop and help farmers incorporate new technologies in production, develop and support serious

mitigation and adaptation policies on climate change. This will help shield farmers on the consequences of climate change.

Suggestion for further study

A study should be conducted in Uasin Gishu County to establish the influence of farmers' financial and management skills on efficiency in agricultural production.

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