

Original Article

**Tobacco Growing Condemning Tobacco Farmers to Poverty in
Malakisi, Bumula Sub-County**

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Abstract

This paper examines the relationship between tobacco production, food crop growing and food security in Malakisi sub-county of Bungoma County with a view of establishing the effect of tobacco growing on household food security. Bungoma County is one of the major tobacco growing zones in Kenya where tobacco was introduced as a cash crop by British American Tobacco (BAT) in the seventies. The main aim of the study was to assess the effect of tobacco production on food crop growing and household food security in the sub-county and how this has affected household nutrition. Malakisi is one of the nine sub counties that make up Bungoma County, which receives high rainfall and favourable conditions for cash and food crop growing. However, Malakisi sub-county has been food insecure raising questions as to whether tobacco growing is beneficial to the farmers. In this study, data was collected from 138 farmers who grew tobacco together with food crops and those who grew tobacco only in order to make a comparison on their household food security status. Data was collected using questionnaires, oral interview, direct observation and focus group discussion (FGDs). The results indicate that the region is food insecure with majority of the tobacco farmers living below the poverty line as a result of low returns from tobacco growing. The results also indicate that farmers grow tobacco because of the farm inputs that are given on credit basis by the tobacco companies which is later deducted from the farmers' payment when the cured tobacco leaves are delivered to the contracting companies. The study found out that farmers devote too much of their time tending the tobacco crop at the expense of food crops, leaving almost no time to grow food crops. This has resulted in food shortages in the area.

Keywords: Tobacco production, Cash crop growing, Food production, Household food security

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Introduction

Tobacco growing continues to thrive in the world without any opposition yet its negative effect on human life is well documented. Tobacco kills millions of people prematurely each year and these numbers keep increasing particularly in low and middle income countries, yet tobacco control continues to face dogged, well-organized and well financed opposition (Magati et al, 2016). According to GOK (1994), the production of tobacco (*Nicotiana tabacum*) in Kenya started in 1974 following consultations between the Kenyan government and British American Tobacco (BAT) as well as experimental surveys in many parts of the country. Extensive soil surveys and tests were carried out before a decision was made for BAT to produce its own leaf tobacco. After extensive survey, five administrative divisions were selected. Some of these zones include Busia, Bungoma, Meru, Migori, and Kuria (GOK, 1994). Today tobacco employs a large number of farmers and the number keeps on increasing yearly. Bungoma region grows all the three types of tobacco unlike other regions which are very specific regarding the type of tobacco grown (Khisa, 2011). Tobacco growing has been embraced in Bungoma county due to the perceived advantages which are assumed to accrue from the growing of the crop. Nevertheless, the effect of tobacco production on food security in the county is not very clear, leading to contradicting arguments which are not conclusive. Many studies have concentrated on the effect of tobacco growing on the environment and health but have neglected its effect on food crop growing and household food security.

Tobacco farmers' growing calendar in Malakisi Sub-County

In Malakisi sub county, the tobacco farmer's year begins with the preparation of seedbeds and planting of tobacco seeds around February. At this time of the year, the region does not experience any rains, and this calls for constant watering of the seeds while in the seedbed. This is a major problem for some farmers who do not have a permanent source of water near their farms. During the time when tobacco seedlings are in the seedbed, farmers walk for very long distances in search of water for watering the seedlings, a task that is very tiring and time consuming. This exercise fully occupies the farmer such that he does not have time to engage in other activities. These sentiments are echoed by Marwa et al., (2017) who report that tobacco crop itself entails a high degree of maintenance, including pest and disease control, use of firewood for curing, a regular water supply and fertilizers to enhance yield. This occupies that farmer throughout.

BAT and Mastermind hand out the seeds for free to their contracted farmers, but the rest of the farm inputs like chemicals and fertilizers come on loan basis. The seedlings are then transplanted to the farms in March, when it is still dry. This is known as dry-planting, whereby regular watering is done before the long rains begin later in the month. The crop then requires weeding, ridging and pruning while in the farm to ensure high quality leaves and good yields. Whitty (2002) affirms that the soil should be free of weeds and disease organisms to enable production of high quality leaves. The crop requires a lot of care and close monitoring all the time while in the farm. This is later followed by harvesting in July. The work does not stop there. Harvesting is later followed by curing which is equally tiring and exhausting.

The curing process becomes challenging when the farmer does not have enough supply of wood fuel which is becoming rare in tobacco growing areas, forcing farmers to walk long distances every time they harvest their crops in search of firewood. Due to shortage of wood fuel in the farms because of over exploitation, the farmers are forced to pay high price when purchasing the wood, which increases their production costs. Farmers then have to inspect the tobacco leaf by leaf before hauling it for weighing. The tobacco farmers are subsequently left

with very little time to plant food crops during the short rains, a situation which further complicates their household food situation.

The Food and Agricultural Organization (FAO) of the United Nations defines food security as a situation that exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for a healthy and active life (FAO,2001). From the FAO (2001) definition, it can be concluded that most households in the resource poor countries do not have adequate food because a sizeable number of the households do not know where their next meal will come from especially during the dry season. This situation is replicated in Malakisi Sub-county where farmers toil all year tending to the tobacco crop but their financial status does not seem to improve and neither does their household food security.

METHODS AND MATERIALS

Study Area

Malakisi sub-county is in Bungoma County, which is one of the most productive counties in Kenya due to the high rainfall received and the fertile soils. The county produces maize in large quantities because it forms the staple food of the people. Other food crops grown include beans, sweet potatoes, millet, sorghum, cassava, bananas, among others. The county also produces cash crops like sugarcane, tobacco, cotton, coffee and horticultural products, some of which are planted on small acreage. Apart from sugarcane, tobacco is the other main cash crop that is extensively grown in the county. Tobacco is mainly grown in Malakisi and Bumula Sub-Counties of Bungoma County (GOK, 2009). The climatic conditions in Malakisi are conducive for the growth of tobacco, a factor that attracted many farmers to the growth of the crop.

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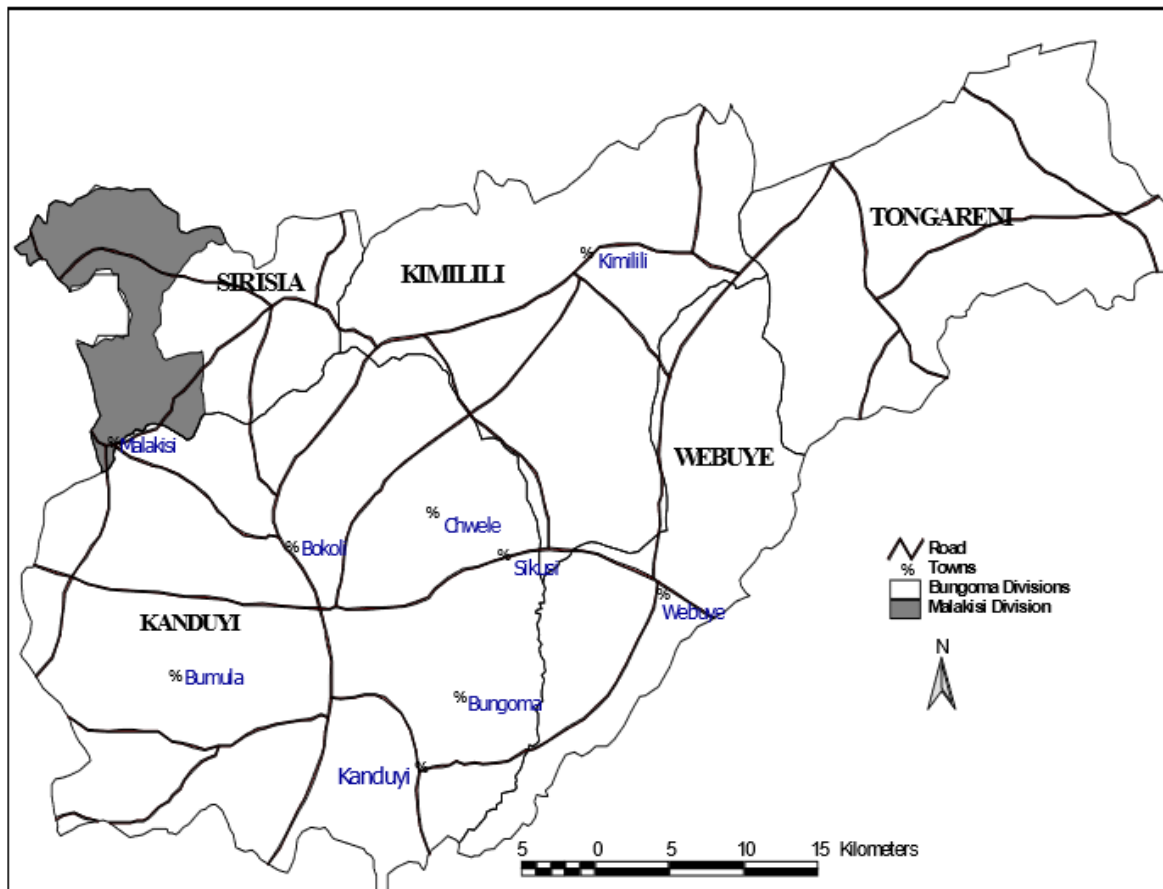


Figure 1: Map of Bungoma County showing Malakisi

Data collection and analysis

Primary data was obtained through the use of oral interviews, questionnaires, direct observation and focus group discussions (FGDs). This study interviewed farmers who grew tobacco together with food crops (62.3%) and those who grew tobacco only (37.7%). This information was important to the study for purposes of comparing the food security status among farmers who grew tobacco together with food crops and those who grew tobacco only. Primary data was also collected from BAT factory workers who sought anonymity in the interest of their job security. Secondary data was sourced from various institutions among them SACRED-Africa and various government agencies such as Ministry of Agriculture reports, Ministry of Environment and Natural Resources reports, journals and unpublished Masters theses. The data was analysed using SPSS statistical package and the results were presented in table, charts and graphs.

Results and Discussion

62.3% of the respondents were tobacco farmers who also grew some food crops while the remaining 37.7% grew tobacco only. The tobacco farmers who also grew food crops grew it on a smaller acreage as compared to that under tobacco implying that they did not grow enough food making them food insecure. One of the factors that has led to household food insecurity was the small sizes of farms which were not adequate for the growth of both food and cash crops. The farmers who grew tobacco without food crops anticipated to get good financial returns from tobacco that would enable them to meet their financial needs including their nutritional needs but the money was never adequate.

The farmers had grown tobacco for varying lengths of time. Of the 138 tobacco farmers, only 16 (11.59%) had grown the crop for more than 6 years, while the remaining 122 (88.41%) had grown the crop for less than land 5 years. 56 (40.6%) of the 138 tobacco farmers indicated that they had increased the acreage of land under tobacco while the remaining had not. This was a clear indication that the acreage under tobacco was increasing albeit slowly at the expense of food crops. Most of the farmers admitted that they would continue growing the crop because of the farm inputs that were given on credit and also because it had ready market unlike food crops which required the farmers to look for market after harvesting. The farm inputs and ready market were some of the incentives that had attracted many farmers to tobacco growing. Prompt payment and stability of tobacco producer prices were other factors that motivated the famers to increase the acreage under tobacco. Though the prices were stable, the farmers did not ask themselves whether they were paid the correct market price or whether the prices were far below the market rate. Because the grading of tobacco leaves and the prices were determined by the companies, tobacco farmers, who were the major players, did not have a say and are often trapped in a vicious cycle of poverty and debt (Teh-wei and Lee 2015). Most crop prices fluctuated during the harvesting period when the prices were very low due to oversupply on the market and only stabilized when the supply reduced. Contrary to this, tobacco prices were very stable irrespective of the supply on the market.

Variation and reason for tobacco growing

This study sought to find out how long and why the farmers continue growing the crop despite the problems associated with it (Figure 2). This would assist in understanding the factors that encouraged or discouraged the tobacco farmers. This information was important in assessing the value of the crop to the farmers. The main reasons why the farmers increased the land under tobacco were varied as shown in Table 1.

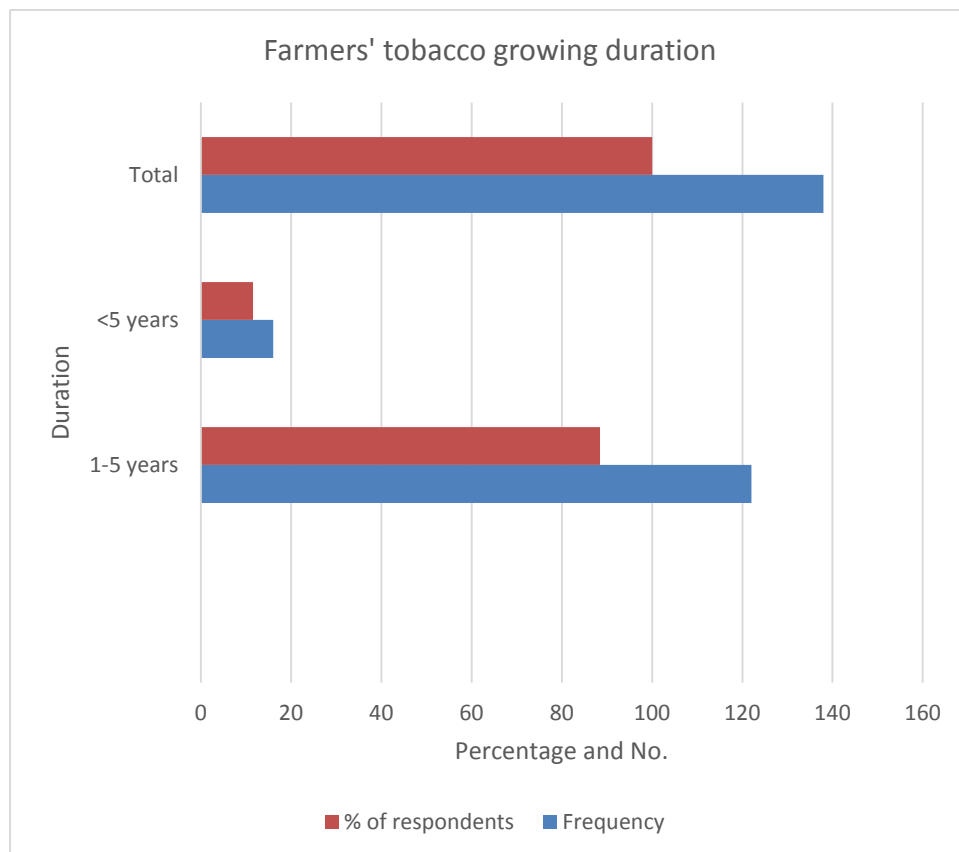


Figure 2: Farmers' duration of tobacco growing

Table 1: Reasons for variation in tobacco production

Reasons for increased acreage	Percentage (%)	Reasons for not increasing acreage	Percentage (%)
Pays well	32.6	Poor yields	38.5
Prompt payment	7.2	Lack of incentive	21.7
Total	39.8		60.2

Table 1 indicates the various reasons why the farmers increased or decreased the acreage under tobacco. Poor yields was the main reason shown by 38.5% while 21.7 % indicated that they lacked the incentive to increase the acreage. This shows that despite the credit facilities that were extended to the farmers, most of them lacked the morale to expand the growing of the crop due to the problems associated with growing of the crop. The results further indicate that approximately 40% of the tobacco farmers increased the acreage of land under tobacco. Of those farmers who increased production, some indicated that tobacco paid well especially when compared with maize and other food crops which fetched very low prices during the harvesting season when the market was flooded with the commodities. The farmers increased the production of tobacco because the contracting companies paid the farmers immediately the cured leaf was delivered to the companies unlike the National Cereal and Produce Board (NCPB) which took very long, sometimes as long as one year or more to pay the farmers for the cereals delivered.

Delay in payments by NCPB resulted to low morale and poor yields among maize farmers because most of the farmers depended on the returns from the previous year's harvest to re-invest in their farms. In a situation where the farmers were not paid for the crops delivered to NCPB, they lacked the financial power to purchase farm inputs which resulted in poor yields. Brandy (1990) reports that income generation is directly affected by government policies on land tenure, pricing, availability of inputs, access to efficient markets and other agricultural production incentives. Lack of these results in reduced production on farms leading to food insecurity. Tobacco is seen as a better income earner because the price per kilo is relatively stable as compared to the food crops whose price fluctuates according to market supply as earlier reported.

Other farmers did not increase acreage under tobacco for various reasons. Among those interviewed, 38.5% did not increase due to poor yields while 21.7% of the tobacco farmers did not increase tobacco acreage due to lack of incentives. The poor yields were mainly a result of adverse weather conditions like hailstones which destroyed the tobacco leaves. Tobacco is graded according to the quality of the leaves harvested. In a situation where the leaves were destroyed by for example hailstones, the leaves were poorly graded or were considered unsuitable (not buyable). Such a situation led to the farmer's loan being carried forward to the following year or at times the farmer's personal property was auctioned in order to offset the loan.

All the farmers who engaged in tobacco growing reported that their main reason for growing the crop was because the tobacco companies that contracted them provided them with farm inputs like fertilizers, sprays, pesticides and pipes on loan basis which was deducted from their dues after harvesting and delivering the leaves to the contracting companies. The farmers did not grow other crops because they could not afford to buy farm inputs. Magiti (2016) also argues that tobacco farmers consistently identified credit as one of the central issues bearing on their ability to engage in agricultural practices. He further reports that in tobacco farming, all you need to worry about is giving it time, and not look for money to buy

fertilizers, pesticides and other inputs unlike other crops (Magati, 2016). This has an adverse effect on food production in Malakisi because more land is devoted to the growing of tobacco at the expense of food crop production which has less land allocated to its production.

A study carried out in Migori (Kariuki, 1999) showed that some of the tobacco farmers were switching to food crops, complaining that growing tobacco requires intensive labour and close care for long periods and that the earnings are too low when compared to the time spent caring for the crop. Kariuki (1999) concurs with (Khaoya, 1992) that although tobacco production creates employment and generate foreign exchange to the country, these benefits were outweighed by the negative effects of the crop on the family economy of the various tobacco growing households. (Ndalila, 2015) also concurs with (Kariuki 1999; Khaoya, 1992) and reports that this dilemma is particularly evident in Kenya. The farmers confirmed that they neither had the time to grow traditional food crops like maize, beans, sorghum, cassava, and sweet potatoes nor did they earn enough to purchase adequate food for the family.

Magati et al, (2016), affirms that tobacco growing is a family activity with both males and females participating in tobacco growing which left the farmer with very little time to attend to his food crops. This was a major factor contributing to food shortages in the study area. Nevertheless, the farmers were non-committal as to whether they would stop growing tobacco due to lack of an alternative cash crop which had an organized marketing system like tobacco. This is confirmed by Magati et al., (2016) who reports that although tobacco did not rank highest in terms of importance when compared to growing food, they often considered it to be the only crop that brought consistent cash earnings.

Tobacco, however, is not the only cash crop causing problems to small scale farmers in Kenya. Kariuki (1999) reported that in sugarcane-growing areas like some parts of Bungoma County, there are similar reports of farmers who earn as little as 10,000 Kenya shillings per acre of land yet they toil with their families all year round on a crop that also leaves them with little time to grow food. In Bungoma county, both tobacco and sugarcane are grown, and evidently, the two crops are very labour intensive, occupying the family labour for the better part of the year. This leaves the farmer with very little time and land to grow food crops, a factor that has aggravated the already fragile household food situation.

Reasons for continued tobacco growing

Despite the many problems experienced by tobacco farmers, the number of new farmers is on the increase. In spite of the afore mentioned challenges, many farmers have continued to grow tobacco even with this realization due to the fact that most of them have taken farm inputs on credit from the contracting companies, which must be repaid back. The implication of this is that if the farmer abandons growing the crop, his property would be auctioned in order to pay the loan. The farmers are therefore tied to tobacco growing, and every year, most farmers increase their already existing loan by taking more farm inputs on credit.

Another reason for continued growing of tobacco is that in Bungoma County, apart from sugar cane, tobacco is the only other cash crop that has a sponsor and ready market. Once the tobacco leaves are harvested and cured, the farmers deliver the leaves to buying centres, which makes their work comparatively easy. According to Kweyu (1994), the farmers argue that its better the little funds from tobacco than growing crops whose market trend is unpredictable. Magati *at al* (2016) report that tobacco interests often argue that tobacco control would be detrimental to the fragile economic livelihoods of tobacco growers, and therefore use tobacco farmers to justify their opposition to tobacco control measures. Nevertheless, this opposition to tobacco control is mainly to benefit their interests and not the tobacco farmers interests.

Prompt payment was another factor cited by the farmers for continued tobacco farming. In Kenya, a large number of cash crops have organized co-operatives through which farmers market their products. But, in some instances, the co-operatives take too long to pay the farmers while in other cases, the farmers are not paid due to mismanagement of their funds by the elected co-operative management. In the case of tobacco, the farmers sell directly to the contracting companies who organise to pay them as soon as possible. This boosts the farmers' morale and encourages them to continue growing tobacco even when the payment is not very rewarding.

Most of the farmers who grew food crops complained of weevils (nicknamed "osama") attacking the harvested crop while in storage. Due to low prices offered on the market during harvest time when the market is flooded with the produce, some farmers opt to store their agricultural produce as they wait for the price to improve. It is during this period that the stored grain is attacked and destroyed by "osama". Tobacco farmers were advantaged because of the ready market for their produce. Tobacco farmers also had an advantage of getting pesticides from the contracting companies which helped to prevent the crop from getting destroyed by pests.

Effect of tobacco production on food crop growing

The tobacco farmers who were interviewed were also asked to indicate whether they grew enough food to feed their household. All the 52 tobacco farmers who did not grow food crops, when interviewed claimed that their farms were too small for the growth of both crops but also indicated that the money got from tobacco was not sufficient to meet their dietary and other household financial needs. This was one of the reasons for insufficient food in the household. This shortage in food supply was brought about by the fact that the farmers devoted a bigger portion or all of their land and time to tobacco production as compared to food production which led to severe food shortages in the study area.

Ministry of Agriculture sought to control the adverse effects of tobacco cultivation on food security through the publication of the tobacco farming rules of 1991 that among other things gives a schedule of tobacco-growing months to ensure that farmers are also involved in growing food crops. In this schedule, tobacco growing was restricted from the period beginning 1st August to 14th November in Nyanza and Western regions while in Eastern and Central region, the closed period was from 1st June to 14th July (Magati *et al.*, 2016). This still did not help to improve the food situation in the tobacco growing regions.

According to Klemesu (2002), stability of household food supplies depends on the ability of a household, even when faced with unpredictable crises, to procure through income, production and or transfers of adequate food supplies on a continuing basis. The study found out that the farmers in the study area are not able to produce enough food even in times when the climatic conditions were favourable all year. This was because their farms are too small to sustain the farmers' household.

Generally, it is believed that with rising income from tobacco production, households' income is expected to increase which should result in a reduction in women's work in agriculture. This is because the additional income would release the women labour from the tobacco farms because the increased income would be used to hire labour. The women's labour could therefore be utilized in the production of food crops so as to increase the food available to the households. This is not the case in Malakisi sub county because the income from tobacco is spent on other financial needs of the household leaving very little to be ploughed back in the farms. This means that very little labour is hired, implying that the family is the main source of labour in the tobacco farms. The contributions of different family members to household food security and nutrition, and the ways in which changes may alter the traditional role and capability of women in ensuring household food security and nutrition

security, are particularly important. When these traditional roles are reversed, the most probable outcome is food insecurity.

Cash crop production has always been seen as having a negative impact on the production of food crops. This is because, out of a farmer's resources, a decision has to be made as to what proportion of land would be allocated to cash crops as opposed to food crops. Cash cropping has traditionally been regarded as important because of the direct contribution to farm income. The effect that the cash cropping can have on food crop production may be negative or positive thus influencing food security either negatively or positively. In this study, the effect of tobacco production on food security has been found to have many negative effects on food security because tobacco cannot be used as food unlike other cash crops like maize which can be used both as a cash crop and as a food crop. Magati et al., (2016) concur with the study findings and reports that tobacco growing regions, especially in Nyanza and Western, continue to face food shortages because farmers continue to spend most of their time and land on tobacco farming at the expense of food crops.

Tobacco growing entails a substantial expansion of demand for hired labour in virtually all areas but particularly when the crop is still in the farm. This demand for labour has had a positive effect on the nutrition status of the hired-labour's households who are able to purchase food using the income from this temporary employment. The employment effect is of particular benefit to their food security. Brady (1990), notes that poor people spend a larger portion of their income on food and the increased income helps them to acquire and consume more food.

Contrary to tobacco growing, in some cases, farmers producing coffee and sugar cane had also high productivity of maize, potatoes and beans (Nyoro & Jayne, 1999). These cash crops had, in addition to the direct contribution to household incomes, indirect effects on food production thus indicating the existence of a positive relationship between cash crop production and food production. This positive relationship is seen when the inputs issued for cash crops are also used in food crop production. Alternatively, the income got from cash crops is injected into food crop production leading to better yields and consequently better nutrition. In tobacco growing, the farm inputs are strictly used in the tobacco farms, and occasionally the company extension officers are sent out to the farms to ensure that the fertilizers are used in tobacco farms and not in food production. In cases where the farmers diverted tobacco fertilizers to food production, it sometimes results in poor tobacco yields especially where the soils were poor and drained due to tobacco growing for long periods. Deforestation to expand land for tobacco crops and for wood for processing tobacco leaf (barns and curing of certain tobacco types) also contributed to soil erosion with further negative effect on farmers growing sufficient food (Magati *et al.*, 2016).

Effect of tobacco production on household food security

Household food security refers to a household's ability to acquire adequate food. A household is food secure when it has access to the food needed for a healthy life for all its members and when it is not at undue risk of losing such access. World Bank (1986) defines food security as access by all people at all times to enough food for an active and healthy life. Its essential elements are the availability of food and the ability to acquire it. Food insecurity is in turn the lack of access to enough food. The degree of adequacy of dietary energy intake for good health and normal growth of all individual household members is one measure of household nutrition level and food security. Food insecurity may be triggered by seasonal fluctuations in food availability, food prices and/or incomes, which themselves may result in seasonal fluctuations in individual nutritional status. A household that cannot cope with seasonality in this way may be said to be food insecure.

In the study area, it was found that most farmers did not harvest enough food to feed the household to the next harvest. The study results indicated that the area was in food deficit, a factor that is indicated by the fact that almost all the respondents did not harvest enough food. Assunta (1999) notes that in tobacco growing regions, cheap labour is exploited and fertile land tied up in tobacco when it would be producing food. A survey done by UNICEF (2007) in one of the tobacco growing districts in Democratic Republic of Congo (DRC), found that 52% of the children in the district either suffer from chronic or acute malnutrition, or were underweight.

Food security has been given a lot of emphasis in recent years by the government of Kenya (GOK, 1994a, 1994b). Most of the capacity required to attain food security will be met by increasing maize production which is the staple food of Kenya (KARI, 1996). According to KARI (1996), this entails the use of improved seed, use of fertilizers and timeliness in crop husbandry practices such as land preparation, weeding, pest and disease control. Okigbo (1990), reports that use of pesticides and chemical inputs such as growth regulators and fertilizers in Africa is very limited or absent since poor farmers cannot afford them. He adds that animal production systems involve mainly small livestock in the humid or sub humid areas, where they serve as source of manure, meat and cash in times of emergency. A household without livestock is more vulnerable to food supply inefficiencies because they lack security that would be a quick source of income in times of food shortages or other emergencies.

Food security level in a household depends on availability of resources necessary to obtain the required amounts of food, which have the right nutrients that are required by the body. Among the farming communities, it is expected that they grow their own food, although it is also hoped that they will concentrate on areas where they feel they enjoy an advantage. For small scale farmers, this advantage points to on-farm production and self-sufficiency. It is expected that a farmer would use all the resources available at his disposal to ensure household self-sufficiency in food production. But there are instances when the resources available to a farmer are at bare minimal such that even if the farmers put them to maximum use, he cannot attain food security at the household level. In Malakisi Sub County, the farmers had land and household labour as their only available resource, yet food production entailed more than just land and labour. This therefore calls for renewed effort to empower the farmers so that they can increase their food production which will in turn ensure food security at the household, community and national level.

Majority of the farmers in Malakisi confessed that they had never enjoyed sufficient food for their households in any single year. They are always faced with transitory food insecurity especially when the crops are still in the farms as they wait for them to mature. The situation worsens when the maize is harvested and eaten while still green. This leads to a reduction in the amount of maize that dries and is harvested.

Effect of tobacco production on nutrition

Tobacco production does not affect nutrition directly but affects nutrition when it has a negative effect on food production. This occurs when tobacco competes with food production for land and other resources. The insufficient food scenario occurs when as earlier discussed, a farmer opts to allocate more land to tobacco growing as opposed to food crops. Majority of the respondents who grew tobacco also grew some food crops though on a smaller acreage than tobacco.

Jayne *et al.*, (2002), report that concerns are often expressed that cash crops compete with food crops for scarce land and may jeopardize households' ability to feed themselves particularly when markets fail. This becomes a problem when more time and labour is allocated to cash crop production as opposed to food crop. Such is the situation experienced

in Malakisi where there is a lot of competition for land between food crops and tobacco which results in a bigger portion of land being put under tobacco while food crops receive a smaller ratio, which often results in insufficient food in the household. In Malakisi, the farmers experience very severe food shortages when their tobacco crop is affected by environmental constraints such as hailstones or unreliable rainfall which destroy the tobacco leaf leading to very poor yields. In such cases, the farmers' household is forced to survive on little food reserves for the better part of the year, which results in malnutrition especially in children below five years of age.

Tobacco has replaced food crops and livestock, and threatens the food security of every family, yet it does not yield enough money for farmers to buy food for subsistence and livelihoods. The tobacco farmers have been blinded by the farm inputs which they get on loan and the little income that is paid after the sale of the cured leaves. They hope to use this money to buy food and meet other financial needs, yet almost every year, the farmers suffer from insufficient food because the money is never enough to meet all their financial needs.

The growing of tobacco has had a negative effect on people's diet which has made some households to have one or two meals a day. At the household and individual level, the concept of adequate food is considered in both quantitative and qualitative terms. Similarly, household nutrition depends not only on the availability of an adequate and sustainable supply of food but also on the means employed by households to acquire the needed food. The composition of the meal is also an important factor which affects the household's nutrition. Female-controlled income and income from food crop production are more likely, than other forms of income, to be used to enhance household nutrition. Household income was found to be one of the major determinants of household dietary intake which has a direct bearing on nutrition.

In some households, due to food shortages, the children were forced to fend for themselves during the day by whatever means they could, and were only given one meal which was provided in the evening. This situation forced children to chew sugarcane from other people's farms during the day when there was no food provided at home. According to Jenny and Egal (2002) nutritional deficiency disorders such as protein-energy malnutrition (PEM) and deficiencies of micronutrients such as iodine, iron and Vitamin A, are the results of numerous factors, including insufficient or inadequate intake of food, caused by poverty and/or inappropriate feeding practices. Where the children chew cane, such children do not get all the nutrients required for growth which result in poor health due to lack of essential nutrients required by the body for growth. Most households ate the same type of food because they did not have the resources required to change the type of food served (Figure 3). In some instances, the food was not balanced and this resulted in deficiency of some nutrients especially among children below 5 years of age. The capacity of farming household to feed itself depends on the resources owned at the farm level such that in times where such resources are inadequate, it more often than not results in shortages in food supply and poor nutrition at the household level.

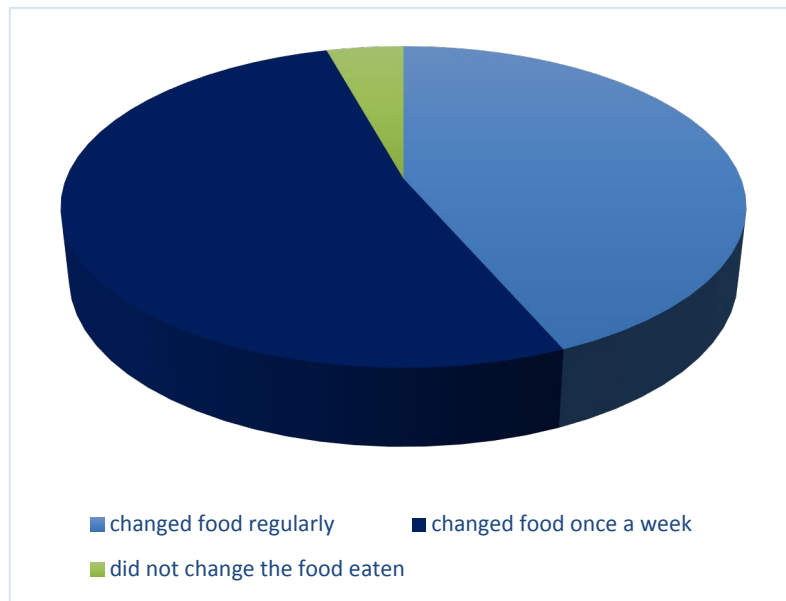


Figure 3: Frequency of changing the food eaten

Problems encountered by tobacco farmers

This study also sought to investigate the main problems encountered by tobacco farmers. Earlier on, it was discussed that there were many benefits associated with the growing of the crop. These benefits were however accompanied by many problems which were encountered by the farmers.

Figure 4 shows that the respondents who were tobacco farmers encountered different problems. Most of the farmers experienced more than one problem. The worst problem was pests and diseases. The pests that affect tobacco are cutworms, tobacco whitefly, aphides and moles among others. Though the farmers are provided with pesticides on loan by the tobacco companies, most of the farmers complained that sometimes the pesticides are released too late when the leaves have already been destroyed by the pests. Infertile soils were another problem that was encountered by farmers. The farmers complained that tobacco drained all the nutrients from the soil leaving it dry and not suitable for growing food crops. The soil therefore required heavy fertilizer application if crops were to be grown on it. In a situation where the farmer did not apply fertilizer to replenish the soil, the output was so low that the farmer's effort was all in vain. When compared to food crops, tobacco and sugarcane were worse in draining the soils' nutrients.

Delayed payment was another problem which was experienced though by a very small percentage of farmers. Most of the farmers concurred that the tobacco companies paid them promptly. The few farmers whose payment was delayed may have been due to some technical problem in computation of their dues. The problem that was common to most farmers was the adverse effects of natural calamities like drought and hailstones. These were problems which the farmers had no control over, but which caused them a lot of losses. Even after the effects of such calamities which led to poor or no harvest at all, the tobacco companies still expected the farmers to pay the loans advanced which led to financial constraints in the farmers' households.

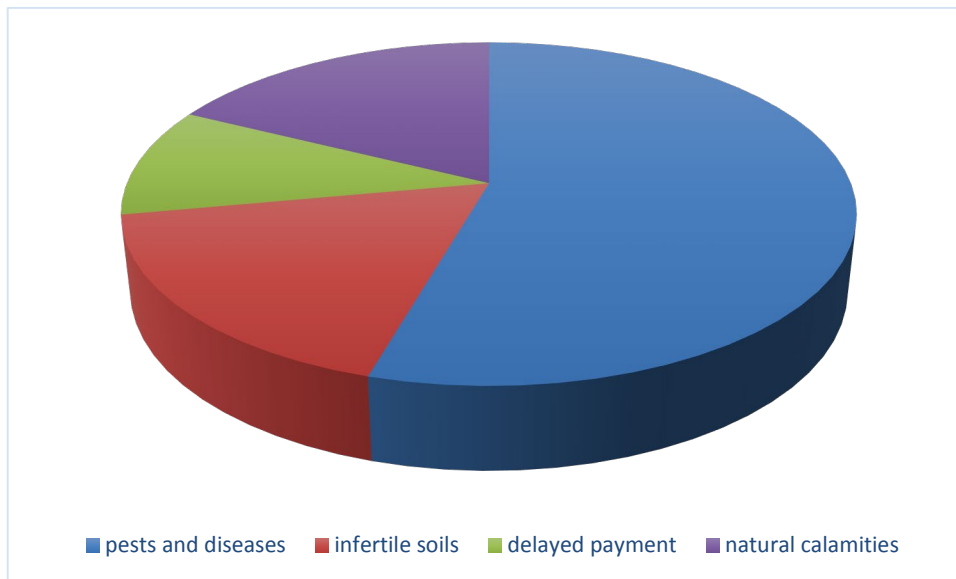


Figure 4: Problems encountered by tobacco farmers

Labour source on tobacco farms

Tobacco crop requires a lot of care which calls for a great deal of labour right from the planting season through to the harvesting and the curing time. As earlier discussed, the crop is first grown in the nursery before the seedlings are transplanted. The utilization of household labour has a negative effect on education because the children are withdrawn from school in order to work in the tobacco farms. It is very common to find half full classrooms during certain times of the year because the students are withdrawn from their classrooms so as to offer labour in tobacco farms especially during weeding season. Sometimes the children offer their labour for hire in tobacco farms at the expense of their education. This has contributed to a high school dropout in tobacco growing regions because the children are introduced to earning an income at a very early age. ILO (2001) concurs that the problem is endemic in African countries. Children in African families contribute to the labour supply. Driven by poverty, these children work on tobacco farms. They work long hours, stooped and for very little pay, sometimes being paid only each six-months or yearly, going without education, and suffering from the adverse health consequences of farming tobacco (ILO,2001). This is echoed by Teh-wei and Lee (2015) who reports that in tobacco growing countries in Africa, it is common to find farmers growing tobacco on small farms and the farm workers are often family members, including women and children.

Most farmers indicated that they gave priority to tobacco because it gave them income with which they could meet their family financial needs including purchasing of food. However, costing of the labour that is utilized in the tobacco farms is not done. The farmers are not in a position to calculate the labour costs used in the farms and make a comparison with the income that is received from the sale of the harvested crop. If the costing was to be done, it would surprise the farmers how much they got from a year's hard labour and toil because the tobacco companies benefited more from the farming than the farmers themselves. Ndalila (2015) reports that the tobacco companies' oligolitic structures as observed transformed a once self-sufficient people with a vibrant agricultural based economy into tobacco leaf producers for the international market.

Conclusion

In summary, the analysis of the effect of tobacco farming in Malakisi Sub county points to a major food shortage among the tobacco farmers. This paper focused on the findings of the

research that was conducted to establish the main factors that have contributed to the food insecurity in the study area. The analysis concentrated on the constraints that have directly or indirectly affected food production in the area. It should be noted that food security depends on available world supplies of food, the income of the designated population, accessibility to the available supplies, the consumption rate of food, and the amount that can be set aside for future use (Johnson, 1998)

Tobacco farming has directly contributed to food shortages because more household land is allocated to tobacco production as opposed to food production, a factor that has led to a high rate of malnutrition especially among children below five years. The result showed that tobacco farmers are more likely to experience food shortages than non-tobacco farmers. It can also be concluded from the study that tobacco being very labour intensive and requiring a lot of care, has resulted in most of the household labour being devoted to caring for the crop almost all year such that food production is neglected with the hope that the income got from tobacco production would be used to purchase food. This has however not been possible because the tobacco income is not sufficient to meet all the household financial needs. Food crops are mainly grown during the short rains when the tobacco has been harvested yet this period is usually too short for growing most of the crops.

It was also found that tobacco farmers get farm inputs from contracting companies on loan which is deducted from the farmers' payment when they deliver the leaves to the companies. This is another factor that has attracted more farmers to growing the crop because as discussed earlier, most farmers do not have a regular source of income to invest in their farms. The farm inputs given on credit basis are therefore a big attraction and relieve to most of the farmers who are not financially able.

The prompt payment given to tobacco farmers and the ready market for the harvested tobacco leaf is another factor that has attracted many farmers to growing the crop leading to more land devoted to tobacco as opposed to food crops. This has resulted in food shortages in the sub county which in turn has resulted in food insecurity in the household.

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