

# Challenges facing the tea Sector in Nyeri County

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## ABSTRACT

Nyeri County is renowned for its production of quality tea for export. However, the sector is beleaguered by numerous problems and is not performing at its full potential. This survey was carried out to identify the issues currently affecting the sector and possible mitigating measures. Twenty-eight farmers and four key informants were interviewed. Low prices, lack of technical know-how on tea production, adverse climatic conditions, and lack of markets for purple tea were identified as major issues limiting tea sector in the county. Possible solutions are discussed in this paper.

**Key words:** Challenges, Mitigating measures, Tea.

## INTRODUCTION

Tea is the leading cash crop in Kenya with significant contribution to the economy. In 2009, tea contributed 4% of the GDP equivalent to Ksh 97.7 billion and 28% of the export earnings (TBK, 2010). Tea is also the highest export earning single commodity and crop. About three million (almost 10%) of the Kenyan population derive their livelihood from tea. Tea contributes significantly to infrastructure development and environmental conservation. The smallholder sub-sector contributes 60% of the total production of tea (TBK, 2010). The task of managing small-scale farmers lies with the Kenya Tea Development Agency (KTDA, 2014). Nyeri County is one of the leading producers of tea in Kenya.

Tea is produced best in tropical red loam mixed with volcanic soils found in the higher altitudes of Kenya usually between 1800 and 2000 m above sea level. The soils are required to be well drained within two meters depth and a PH range between 4.5 and 6.5. Tea thrives with rainfall ranging from 1200 to 2500 mm annually, preferably with long and sunny intervals (Owuor, 2011).

Tea production is a function of a combination of several factors including land, the number of bushes planted and their age, labour availability and its utilization, plucking cycle, proximity to collection or buying centres, rainfall and soil conditions (fertility and level of PH) and general tea husbandry (TBK, 2014). Kenya tea is grown in prime lands capable of producing over 6000 kg mt per hectare per year under good cropping weather. However, smallholder Tea yield on the average less than 2000 kg mt per hectare per year due to use of inappropriate agronomic and cultural practices resulting from low adaptation and adoption of developed and recommended research technologies (Anon, 2011). This study attempts to identify and address some of the challenges in tea production in Nyeri County.

## METHODOLOGY

A survey was conducted in July 2014 in Othaya, Tetu and Mathira sub-counties of Nyeri County. Twenty-eight farmers and four key informants were interviewed using two structured questionnaires. The interviewees were selected using systematic random sampling. Data was collected on the challenges that face the tea sector as well as the mitigating measures used to address them.

## **RESULTS AND DISCUSSION**

### **Age**

Forty-eight per cent of the farmers were over 51 years while 44% were between 36 and 50 years. Only 8% were between 18 and 35 years. This could be due to the fact that tea farming is mainly done by the older generation. This reflects a widespread issue since in Kenya the average age of the farming fraternity is 58 years (CBS, 2010). The youth tend to shun agriculture as a “dirty” job and are looking for “white collar” jobs to sustain themselves. Key informant ages ranged from 36 to 55 years, and still showing lack of involvement of youth in tea production.

### **Educational level**

Forty-one per cent of the farmers had secondary school level of education while 37% had primary school level of education. Eleven per cent of the farmers had high school or college level of education. This has implications for farmer education meaning that the materials should be simplified and audio visuals used to ensure all farmers understand whatever innovations that are being taught (Orey, 2010).

All key informants had college education and held various positions in KTDA such as Tea Extension, Production Manager, Factory Unit Manager and Field Services Coordinator. All the informants had worked for over ten years. The college education and work experience imply that they were well educated and able to pass technical information to farmers.

### **Gender**

Ninety-one per cent of the farmers interviewed were males while 9% were females. This does not mean that women are not involved in tea production. Studies indicate that women provide most of the labour in tea production (Owuor *et al.*, 2005). However, men tend to attend educational forums and surveys such as the present one while women are unable to attend due to numerous agricultural and household chores. Tensions have also been recorded as a result of conflicts over the control of proceeds of tea sales as the men are likely to receive them while women may not benefit much. These negative gender relations affect tea production negatively and lead to low productivity and neglected tea fields (Sorensen and von Bulow, 1990).

### **Size of the farm**

The average size of the farms of the respondents was 2.2 acres. This indicates that most of the farmers are small-scale and borne out by the fact that the farmers interviewed are serviced by KTDA, whose mandate is to aid in production and marketing of tea produced by small-scale farmers. Small land sizes have been reported to be constrain productivity in Nyeri County due to declining soil fertility (Owuor *et al.*, 2010). The average size of land under tea was 0.85 acres. Seventy-eight per cent of the farmers had one acre and below under tea production.

### **Farmers’ knowledge of tea production practices**

Majority of the farmers were able to describe various tea production practices which included land clearing (slashing of bushes, cutting and uprooting of trees that is done before the rains), land preparation (digging), crop establishment (plant spacing, depth of planting, transplanting). Findings from key informants also support this. Mean adoption percentage for land preparation, planting techniques, and weeding plucking table establishment were 90%, 94% and 90% respectively. There were somewhat lower mean percentages on use of manure, plucking frequency and pruning (60%, 79%, and 50% respectively). Low tea output has been attributed lack of diffusion of adequate production technologies and inefficient use of fertilizers (Owuor *et al.*, 2011).

### **Tea factory / collecting centres**

The respondents took their tea harvests to Chinga, Ragati, Gitugi, Iriani and Gathuthi tea factories. Collecting centres were numerous. The mean distance between the farms and the collecting centres was 0.8 km. Majority of the farmers (96%) carried tea harvested on the back to the collecting centres while only one farmer indicated that the lorry picked the harvest from his farm. Most of the collecting centres in the county are at the recommended distance of 1 km. Proximity to the factory / collecting centres is important to reduce quality deterioration and reduce leaf spillage (Owuor *et al.*, 1990).

### **Quantity of tea harvested in rainy and dry seasons**

The mean quantity of tea harvested in the wet season was 96 kg/acre. In the dry season, the mean quantity harvested was 52 kg/acre. Key informants indicated that tea productivity was lower than the potential, given the Nyeri County climate and soils. Average revenue from the tea was Ksh 102, 416 per year. However, the maximum amount of revenue obtained from tea was Ksh 300,000 per year while the minimum amount was Ksh 10,000 per year. Revenue levels are still low and dependent on a myriad of factors.

### **Sources of information for the farmers**

Majority of the farmers (75%) obtained information on tea from KTDA. Only half of the farmers indicated that they obtained information on tea from the public extension service. Fifty-four per cent of the farmers indicated that they did not obtain information from fellow farmers. These findings are in line with the fact that one of the roles of KTDA is training of farmers and the role of public extension service in farmers' fields schools (KTDA, 2014).

### **Role of KTDA in tea production**

Farmers indicated the roles of KTDA as transporting, processing and marketing of tea, road maintenance, provision of bursaries to deserving students, provision of SACCO loans and inputs. Interestingly, 7% of the farmers added that KTDA is not transparent and oppresses farmers. Key informants also indicated the above named roles. The roles observed by the farmers are accurate as they are reflected in the services that KTDA provides to farmers (KTDA, 2014).

### **Purple tea planting**

All the farmers interviewed did not grow purple tea. Thirty-five per cent of the farmers indicated that they did not have any knowledge of purple tea. Nineteen percent indicated they did not have enough land to diversify to purple tea production. Thirty-four per cent indicated that purple tea seedlings are not easily available in the area. Seven per cent of the farmers said that the climate was not suitable for purple tea production. Four per cent of the farmers indicated they had not been advised to plant purple tea and that there was no market for purple tea at the time.

Most of the key informants indicated that their organizations grew purple tea. The one that did not grow purple tea indicated lack of market and equipment to process the tea as hindrances. Mean acreage under purple tea was 4.83 acres, which is quite minimal. Research studies also indicate the main constraints to purple tea production are low prices and low consumer uptake (Jiwaji, 2014).

### **KTDA farmer field schools**

Majority of the respondents (79%) indicated that they have heard of the FFSs. Forty-eight per cent of the farmers were members of the KTDA of FFSs. Those that were members of the schools were asked to rate them. Forty-six per cent rated them as adequate while 38% rated them as highly adequate. Only 15% rated the schools as not adequate. Key informants indicated that

the role of the FFSs was training of farmers in all aspects of tea production as well as other crops or animals that farmers choose, provide a link between public extension and tea farmers, and mobilizing leaders among the farmers.

A study done on the impact of the schools indicated that farmers were very positive with the programme; however, the income of participating group was lower than non-participating group. This was attributed to increased use of fertilizer and labour (Waarts *et al.*, 2012). KTDA has also indicated that tea production has been boosted by 30% countrywide (KTDA, 2004). Not only does this raise the question of who is benefitting from the adoption of sustainable agricultural practices, but also explains the reason for the 15% who rate the schools as not adequate.

Environmental conservation is an important part of modern agriculture. In relation to this, KTDA is still on the right path as it plans to roll out the FFS programme to the 3,200 collecting centres it has established with the help of the Unilever Company and other stakeholders. Certification of the KTDA factories by Rain Forest Alliance will also safeguard future tea production in Kenya (KTDA, 2004). However, the income aspects of the adopting farmers need to be addressed. Other challenges that were enumerated by key informants include low support from the schools by young farmers, low farmers enrolments, frequent absenteeism of some members, interruption of some social activities in the local areas, limited time for training trainers, limited funds to compensate trainers and a lengthy programme which results in a lot of dropouts. These challenges need to be addressed.

### **Pests and diseases**

Majority of the farmers (82%) indicated that they did not have any problems with pests in tea production. The farmers that experienced pests mentioned aphids and rodents. Control measures used were rodenticides. Other farmers said that aphids were killed by rains. Most of the key informants (75%) indicated that pests do affect tea production but the effect is minimal. The pests observed in farmers' fields were red spider mites, scales, thrips, aphids and crevice mites. Control measures suggested were cultural measures such as good nutrition. This supports the view that by and large, tea production in Kenya is pesticide free.

Over half of the farmers (54%) indicated that Armillaria root rot is a problem in tea production. The control measure of this disease was reported to be uprooting the affected plants and venturing into different enterprises.

All the key informants indicated that diseases encountered in tea were Armillaria root rot, hypoxylon wood root and stem canker. Disease control measures suggested were: for Armillaria root rot; uprooting of the tea, for hypoxylon wood root; proper pruning, and for stem canker; use of chemicals. Other studies have also indicated these diseases affect tea (Otieno, 1997).

### **Prices of tea**

Majority (78%) of the farmers and all the key informants indicated that low tea prices are a serious problem in tea production. KTDA has reported that low tea prices are mainly due to oversupply of tea in the market, volatile political environment in some of key export markets like Egypt, Pakistan and Syria, and depreciating currency in Pakistan (KTDA, 2014). Low prices have in the past led to some small-scale farmers in Nyeri County to uprooting their crop, citing frustrations in payments. Kenya Tea Board and KTDA, however, moved to arrest the situation and warned errant farmers with legal action if they uprooted their bushes (Blalock and Promisloff, 2011). Whereas KTDA claims that Kenyan farmers are among the best paid in the world, the sentiments of the farmers surveyed show the income they get is not enough for their livelihoods.

Some farmers (37%) indicated that nothing can be done concerning prices because marketing of their tea is in the hands of KTDA. This reveals the feeling of helplessness farmers have about tea prices which fuels resentment towards KTDA. Others suggested looking for new markets. The same interventions were expressed by the key informants. However, KTDA has set up strategies to mitigate these challenges through business and market diversification across the supply chain (KTDA, 2014). A lot still needs to be done for the effect of diversification to be felt by farmers. Other farmers suggested government intervention in the Tea Industry. Government subsidies to farmers are used the world over to protect farmers. This can be introduced in tea production especially when the prices are very low. A small percentage (4%) suggested value addition of the tea. A taskforce commissioned by the Nyeri County Government has also recommended value addition of tea as the way forward in the tea sector as barely 5% of the tea in Kenya is sold in value added form (Weru, 2013). Value addition strategies included market and product development support, physical and logistical support, enhancement of Kenya tea brand and compliance with consumer requirements. Benefits of tea value addition include competitive prices, increase in income, creation of cottage industries, diversification of products, and knowledge and technology development. Other stakeholders such as Karatina University are spearheading research on value addition of tea (Ng'ang'a, 2014).

Farmers also suggested that improvement in tea grades would increase the prices. This is also a critical suggestion since high quality tea attracts high prices. KTDA is trying to address this through introduction of different tea clones and farmer education (KTDA, 2014). For example, studies on the impact of KTDA FFSs indicate that leaf rejection at factories has significantly reduced. This was because farmers were taught on quality tea production. This needs to be encouraged to help mitigate low tea prices.

Another mitigating measure though not mentioned by the farmers is diversifying to other enterprises that require little land (much of the land is under tea) but are rewarding income wise. Dairy goats, pigs, rabbits, horticulture and green houses are the new emerging agricultural opportunities in the county. Already some of these incentives have been introduced. For example, 6,000 tea farmers for the Iriana Tea Factory have acquired hundreds of beehives to help diversify their income and a 150-acre plot of land on which they hoped to erect 12,000 beehives (Weru, 2010).

## **Climate**

Farmers indicated that low rainfall, extreme cold or heat and frost affect productivity of tea. All the key informants also indicated that adverse weather reduces yield significantly. Over half of the farmers indicated that nothing can be done about the climate. Eleven per cent suggested tree planting will help mitigate the adverse effects of the climate. Other farmers (7%) suggested farmers' education. The rest did not know what mitigating measures can be used. Key informants suggested interventions that were mainly based on planting of trees and preserving of existing forested areas through energy saving *jikos* and renewable energy sources. Farmers' and key informant responses show low level of knowledge on what can be done to mitigate the effects of adverse climate.

Adaptations to adverse climatic changes are numerous and include crop management practices (choice of fields, planting densities, crop varieties and planting dates), livestock management practices (feeding and animal feeding practices), land use and management (fallowing, tree planting or protection, irrigation and water harvesting, soil and water conservation measures, and tillage practices and soil fertility management), livelihood practices (mix of crop and animal production, permanent or temporary migration and agricultural and non-agricultural activities) (Bryan *et al.*, 2011). Some clones developed by Tea Research Institute of Kenya are also resistant to frost damage and are recommended for the areas that suffer from frost.

## **Soil erosion**

Majority of the farmers (72%) indicated that soil erosion is not a problem. Of the farmers that indicated soil erosion was a problem, 28% said that it occurred on the sides of the mature tea and in young tea. Control measures such as contour cultivation, terracing and cover cropping were used to reduce soil erosion. Key informants also expressed the same sentiments.

## **Availability of inputs**

Fertilizers are provided by the government on credit to the farmers. Fifty per cent of the farmers indicated that fertilizers are available but the amounts given are not adequate in some cases. Thirteen per cent indicated that the fertilizers are available but they are brought late. Eight per cent indicated that the fertilizers were available without any problems, while 8% indicated that the fertilizers provided were of low quality.

## **Excess fertilizer use**

Eighty-eight per cent of the farmers indicated that they had no problem with excessive fertilizer use. Key informants indicated the problem does exist and said the Tea Research Institute (TRI) tests soils periodically and farmer education has also been used to reduce its occurrence.

## **Disposal of agricultural chemical containers**

Slightly over half of the farmers (54%) did not know of any special way of disposing agricultural chemicals containers. Twenty-one indicated that the containers should be buried while 7% indicated that farmers should be educated on container disposal. Another 7% indicated that KTDA should collect the containers for disposal. Three per cent indicated that the containers should be thrown into the latrine or dustbin. Most of the key informants (75%) did not know of special way of disposing chemical containers. Those that knew suggested washing the container three times and burying in the ground. Recommended practices include combustion of packaging in licensed incinerator and burying of containers after rendering them unusable (Ayiemba and Nyabundi, 2008).

## **Labour**

In most tea growing areas, labour is manual and only multinationals use tea plucking machines (KTDA, 2014). Most of farmers (68%) said that labour is easily available. However, the price of labour was rated to be high by majority of the farmers (96%) and it ranged from Ksh 8 to Ksh 12 per kilo of tea plucked. Similar sentiments were echoed by the key informants such as labour costs are very high when compared to the proceeds from tea. Farmers need adequate monthly payment to organize harvesting of entire crop. During the monthly green leaf payment, KTDA needs to workout rates that can facilitate the smallholders to remove all crop on the bush. If the farmers are unable to remove all ready shoots, there is overgrowth which translates into losses (Owuor *et al.*, 2011).

## **Machine picking**

Forty-one per cent of the farmers do not know about machine picking. Other farmers indicated that machine picking i) was not found in the area, ii) was cheaper than hand picking but gave low quality tea and damages the bushes affecting their ability to sprout, and iii) is not recommended for hilly terrain which is found in Nyeri County. However, 50% of the key informants indicated that machine plucking is the best and has high acceptability. Other advantages of machine plucking were enumerated as: i) reduction in cost of plucking, and ii) fast plucking and ease of maintaining the plucking table. Ongoing research indicates that machine plucking does not have adverse effect on tea quality but it significantly reduces costs (TBK, 2011).

## Other challenges

Other challenges enumerated by the farmers include: i) wastage of time at the collecting centre waiting for the clerk or trucks, ii) delay in payments, iii) dusts and smoke from the factories that affect the nearby tea plantations iv) lack of proper clothing during cold and rainy seasons, and iv) non-tallying of tea weight. Challenges indicated by key informants included i) the fact that 50% of the labour has no formal training, ii) other players apart from KTDA want to construct factories, iii) lack of farm management services to manage labour, iv) competition from other beverages, v) political interferences, vi) poor infrastructure and vii) high processing costs due to high prices of firewood. Other studies have similarly enumerated infrastructure, poor extension coverage and governance issues as problems facing tea in Kenya (Owuor *et al.*, 1990; Owuor *et al.*, 2010).

## CONCLUSIONS

Challenges that face small-scale farmers need to be mitigated for tea production in Nyeri County to go to the next level. These challenges include poor gender relations, low adoption of some aspects of tea husbandry, low prices, adverse weather, pests and diseases and high labour costs. Opportunities in the tea industry include diversification to other enterprises to reduce the risks of low tea prices, value addition, purple tea production, research on effective tea husbandry and clones and KTDA farmers field schools.

## REFERENCES

- Anon (2001). *Tea Board of Kenya Projections*.
- Ayiemba P.O. and K.W. Nyabudi (2008). Guidelines on agro-chemicals products waste disposal for sustainable farming. *TRFK Bulletin*. Vol. 13: No. 2 April/June.
- Bryan, E.; Okoba, B.; Roncoli, C.; Silvertri, S. and Herrero, M. (2011). *Adapting Agriculture to Climate Change in Kenya: Household and Community Strategies Determinants*. World Bank Project, USA.
- Jiwaji, A. (2104). Purple tinted future of Kenya's tea sector. *Nairobi Business Monthly*. www.nairobibusinessmonthly.com. Accessed 28/8/2014.
- Ng'ang'a, S.I. (2014). *Support Tea Research*. www.karatinauniversity.ac.ke Accessed 27/8/2014.
- Orey, M. (2010). *Emerging Perspectives in Learning, Teaching and Technology*. Global Tex Project, Zurich, Switzerland.
- Othieno, C.O. (1991). "Soils" In: Willson K.C.; Clifford, M.N. Chapman and Hall (eds) *Tea, Cultivation to Consumption*. 137 — 172.
- Otieno, W. (1997). Epidemiology and management of hypoxylon wood rot of tea. *Tea*. 18: 175-83.
- Owuor, P.O.; Orchard, .E., Robinson, M. and Taylor, S.J., (1990). Variations in the chemical composition of clonal black tea due to delayed withering. *Journal of the Science of Food and Agriculture*. 52:55-61.
- Owuor, B.; B., Wambui; G., Argwings-Kodhek and C., Poulton (2010). *The Role and Performance of Ministry of Agriculture in Nyeri South District*. Research Paper 018, Future Agricultures.
- Owuor P.O. (2011). Tea in Kenya: Production and country profile. *Two and a Bud*. 58: 10-18.
- Owuor P.O.; Kavoi, M.M.; Wachira, F.N.; Ogola, S.O. (2011). *Sustainability of Smallholder Tea Growing in Kenya*.
- TBK (2011). *Tea Board of Kenya Statistics*. Nairobi, Kenya
- TBK (2014). *Getting it Right on Tea Growing Economics*. www.teaboard.or.ke/getting-it-right-on-tea-growing-economics.html. Accessed 28/8/2014.
- Waarts, Y.; L. Ge, G.; Ton and D. Jansen (2012). *Sustainable Tea Production in Kenya: Impact Assessment of Rain Alliance and Farmers Field Schools Training*. LEI Report 2012-043, Wageningen, Hague, Netherlands.
- Weru, J. (2014). *Bid to End Tea, Coffee Farmers Woes*. 19 April 2010. Web. 27 Feb 2011. <http://www.standardmedia.co.ke>
- Weru, J. (2013). *Farmers Dump Tea for Sweet Honey*. 16<sup>th</sup> July 2013. Web. 27 Feb 2011. <http://www.standardmedia.co.ke>