

Information trend on Kola production and the need for Kola rehabilitation techniques in Nigeria

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Abstract

The kola industry had in the 60s and 70s contributed greatly to Nigeria's GDP. The discovery of oil in the country which unfortunately led to the neglect of agriculture, led to the decline and fluctuation of kola production particularly between 2007 and 2016 as a result of the kola farmers' neglect/abandonment of their respective farms. This behaviour has adversely affected Nigeria's kola industry; hence, the domination of Nigeria's kola plantations by old trees having very low yield base and/or prone to infestation of pests and diseases. In order to ameliorate this undesirable development, the Nigerian government through one of its agencies- Cocoa Research Institute of Nigeria (CRIN), developed various techniques on rehabilitation for kola farmers across kola producing zones in Nigeria. It has become evident that these techniques could mainly be achieved through effective information dissemination and farmers' group participatory approach. The study therefore sought to assess the production trends of landrace kola and the need for kola farm rehabilitation in Edo State, Nigeria.

Key words: Rehabilitation, techniques, landrace kola, trend, production, metric-tonnes.

Introduction

Kola nut (*Cola*) is a nut of the kola tree, a genus of trees native to tropical rainforests of Africa and classified into the family *Sterculiaceae* with over 40 species in West Africa alone. However, only two species: *Cola acuminata* and *Cola natida* are of major economic importance (Oladokun, 1982).

Kola nuts have been an important trade item in the West African sub- region for many years. The nuts are valued in many cultures as a sign of friendship and peace, and are consumed (broken) at reunions, during meetings, ceremonies and festivals. It is also the only stimulant allowed and consumed by religious faithfuls (Asogwa *et al.*, 2006). For this reason, there is a heavy trade of kola from the humid southern regions to the northern arid parts of West Africa.

In kola producing regions, there are markets which specialize in the bulk trade of kola nuts and which lead to long distance wholesale traders. The long distance

traders of kola nuts earn the highest profits, but this is usually controlled by merchants from the north who have access to transport and capital resources.

Nigeria presently produces about 70% of world kola nut with an annual production of 200,000 metric tonnes of fresh nuts, mostly in the South-West, Middle Belt, South-East and surrounding boundaries of the South-South. But despite the huge success of ranking in kola production in the world, kola farmers' production still remain poor, unstable, fluctuates and even stagnated due to farmers' socio economic characteristics, old age of plantations and the long gestation period.

This study therefore focused mainly on the assessment of kola production trend and the need for rehabilitation techniques towards reactivating old moribund kola plantations and thus, enhances the crop's production in Nigeria.

Specific Objectives:

- (i) Ascertain the level of production trend in kola.
- (ii) Investigate the causes of low kola production trend with measures in enhancing kola productivity.

Techniques and Practices of Kola Rehabilitation

Opeke (2005) explained rehabilitation as the act of renewing a tree crop like kola that has become derelict either because of old age, low soil fertility, or because of pests and diseases. The method of rehabilitation adopted will depend on the cause which necessitated it. The methods used to rehabilitate kola farm plantations such as fertilizer application, pruning, coppicing, insecticide application, weeding, proper harvesting method, pollination control, ring weeding, replacement of dead seedlings with improved/resistant varieties, removal of chupon, mulching among others. These techniques if properly carried out, will help to prolong the life span of the kola trees and also increases the kola yield, income, and livelihood of the kola farmers. In response to this, Cocoa Research Institute of Nigeria (CRIN) has developed various rehabilitation techniques for this purpose of rehabilitating old kola trees on kola plantations in Nigeria. To further achieve this, CRIN considered information transfer on kola farm rehabilitation (KFR) as a significant approach through the collaboration of other organisations.

Rehabilitation of kola trees by grafting

Kola is mostly propagated by many farmers through nuts, either directly on the field or raised at nursery for onward transplant into field. With the advent of modern rehabilitation techniques, grafting is one of the methods in kola rehabilitation as it heisting vegetative growth, remove incompatibility and also

maintain desirable genetic characteristics (Amoah *et al.*, 2004). However, other methods of vegetative propagation such as budding and stem cutting seem not produce desired result in kola trees (Amoah *et al.*, 2004). Grafting as a method of rehabilitation could be used due to old age of trees, pollination incompatibility, pest and disease infestation and low productivity among others. The grafted seedlings are planted in between the old and less productive trees which later give way for proper growth of young grafted seedlings. Grafted seedlings make management of canopy architecture is very easy.

Pollination in kola tree

Low kola fruit production starts from pollination activities. Kola trees produce three types of flowers which include male, female and hermaphrodite flowers. There is need to increase kola nut production through cross pollination and retention of flowers by hormones. Natural pollination in kola tree is much hindered, due to incompatibility. Based on the observations of Russell (1955), self-incompatibility is predominant in Nigeria kola and this contributes to low productivity, which leads to loss of more than 50% of fruit yield. The tree can also lose production through loss of developed buds (Bodard, 1962). Oyebade (1973) observed that for fruit maturity to occur it takes about 135-150 days from day of pollination.

According to Umar *et al.* (2006) which states that, communication is the bedrock for effective teaching as vital tools in promoting knowledge. This was also corroborated by Uwagboe *et al.* (2006) that new technologies and innovations reach larger proportion of farmers through personal contacts such as visits from extension agents.

Below are some illustrations of kola plantations that need rehabilitation, have been already infested by pests and diseases, mistletoes, plant climbers and poor farm sanitation



Plate 1: Diseased kola tree that needs rehabilitation.



Plate2: Kola tree infested with plant climbers that needs rehabilitation



Plate 3: Kola tree infested with mistletoe



Plate 4: Kola plant that needs rehabilitation by pruning



Plate 5: Moribund and unproductive kola farm that needs rehabilitation.



Plate 6: Abandoned and unproductive kola plantation that needs rehabilitation

However, the above pictures have shown that kola farmers in Nigeria need to be educated and also to have adequate information on the awareness of kola farms rehabilitation techniques of their abandoned kola farms and also established new kola farms to replaced existing old kola plantation so as to increase their production towards improving their livelihood.

Discussion

Table 1 depicts the production trend of kola in Nigeria with variations of figures in metric tonnes from 2007 – 2016. From the Table below, it that, in the year 2014, 2009 and 2015 production was (167,686), (162,080) and (161,966) kola tonnes against 2014 with production of (143,829) tonnes of kola production. This indicates that climatic conditions were favourable including human factors. The average production trend in tonnes of kola production is between (132,000) to (144,950) tonnes of kola, while the least is in 2008 and 2007 falls between (120,000) and (100,000) tonnes of kola.

However, since environmental factors and human activities are major constraints that militate against kola production, it is therefore agreed that rehabilitation techniques will help to revitalized old moribund and disease kola farms plantation to full production capacity.

Table 1: Kola Production trends in Nigeria (2007-2016)

Year	Production (Metric tonnes)
2016	143,829
2015	161,966
2014	167,686
2013	132,000

2012	135,000
2011	138,000
2010	144,950
2009	162,080
2008	120,000
2007	100,000

Source: faosat, 2016.

Table 2 shows that Ivory Coast with 6,968 kola nut yield/ ha ranked second, while Nigeria, with 5,658 yield/ ha ranked first among the leading kola producing countries of the world, while Sierra Leone, with 2,970yeild/ha ranked fifth. This finding shows that effective farm land size in hectare does not really influence yield production, rather Good Agricultural Practices (GAPs) on rehabilitative techniques will enhance kola production and other tree crops in Nigeria and result into an increase in our economic GDP growth.

Table 2: Kola nut, Production Quantity (tonnes) and yield by hectare for leading Countries in the world from 2007 to 2016

World/Countries	Tonnes	Yield / ha	Ranking
Nigeria	143,829	5,658	1 st
Ivory coast	55,238	6,968	2 nd
Cameroon	43,274	4,251	3 rd
Ghana	23,624	2,812	4 th
Sierra Leone	8,128	2,970	5 th

Source: Faostat, 2016

Trend analyses showing stagnating and or decline growth rates for kola production.

The trend below shows the analytical trends of kola productivity between 2007 and 2016 in selected kola producing countries around the world.

The analytical line graph below (Figure 1) shows quarterly production of kola-nuts against yield (for leading countries between 2007 and 2016). This Figure shows that there is a weak correlation between the two variables. It further indicates that there is a fall and noticeable fluctuations in kola nut production across the countries concerned.

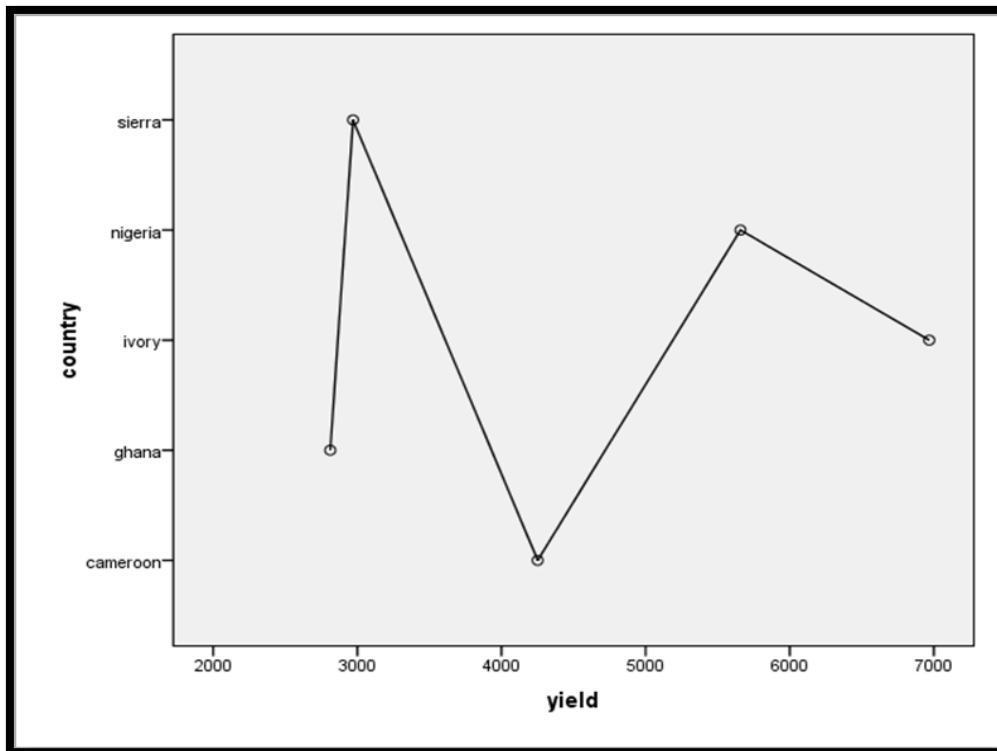


Figure1: Analysis on kola-nuts quarterly (tonnes) and yield by hectare for leading countries (2007-2016)

Figure 2 shows the analytical graph of tonne of kola yield. The graph explained that there is a weak relationship between two variables. That further means that, there is no pattern to the points indicating that yield of kola nuts has effect on the quantity (metric tonnes) produced (i.e. as metric tonnes increases, the yield of production decreases).

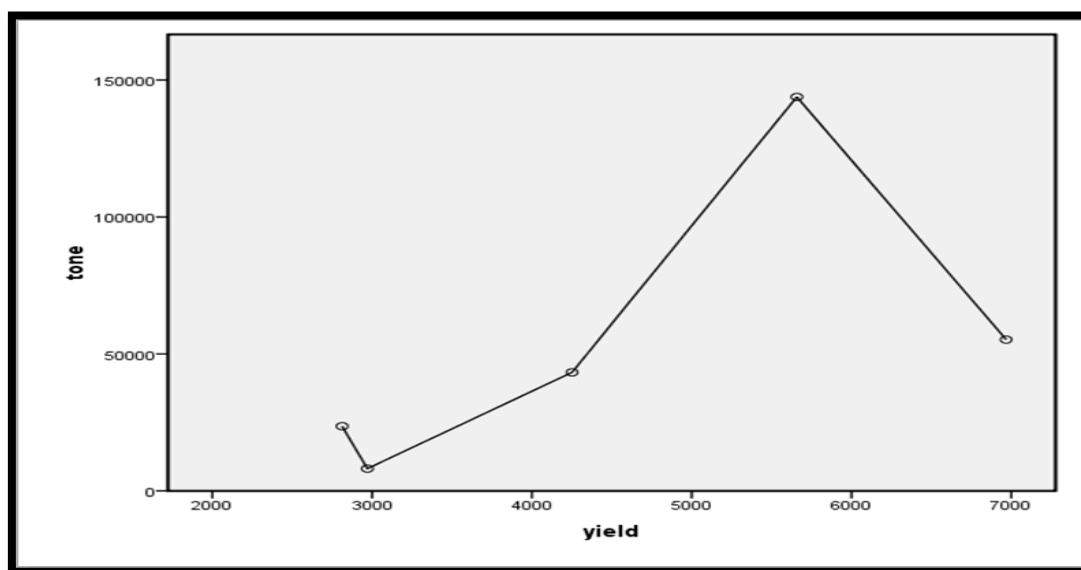


Figure 2: Analytical graph of kola yield and production

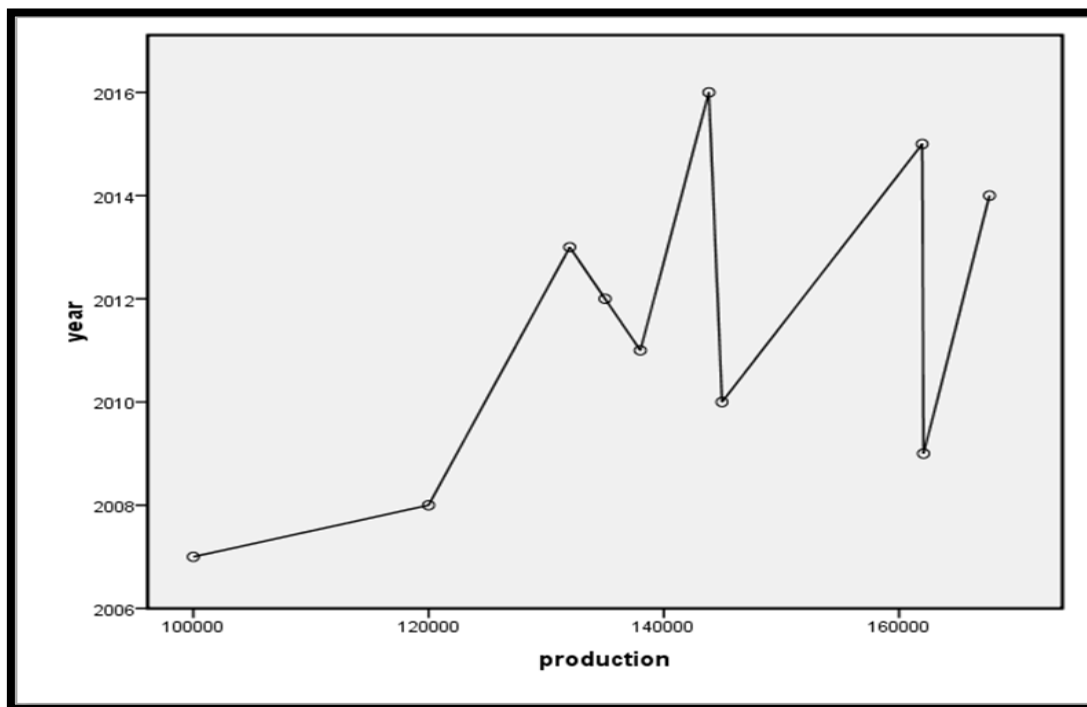


Figure 3: Kola and year of production

The plot of production against years is scattered (Figure 4). This is an indication that there is a weak correlation between the two variables. This further shows that as the year increases the production decreases and fluctuate steady. Thus, there is fluctuation in year and production of kola production in the study area.

Due to the observed variables, there is no pattern to the points indicating the year's effect on each of the differences. This shows that as the years increase the differences decrease and fluctuate on different bases. Thus, there is fluctuation in year and difference of kola production.

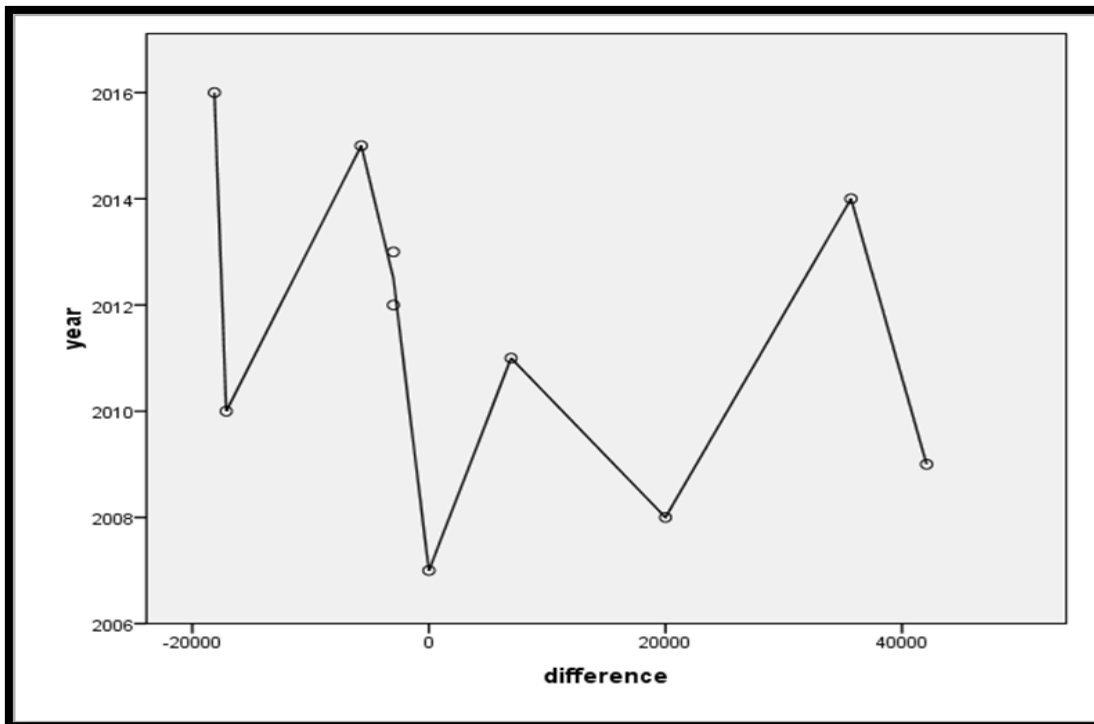


Figure 4: Difference on yield

Figure 5 shows the plot of difference and production are scattered. By this, it further indicates that there is weak correlation between two variables. This result has shown that there is no pattern to the points that production has effect on each of the difference. This further explains that production and difference i.e. as production increases the difference decrease and fluctuates.

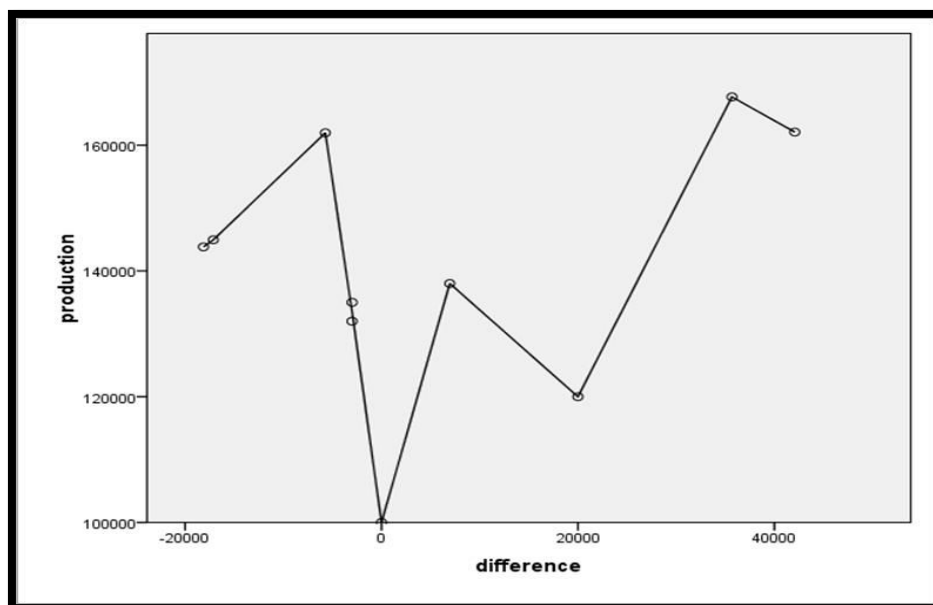


Figure 5: Difference on production

Figure 6 below shows that there is no pattern indicating that the country of production has effect on the quantities (tonnes) of kola produced. This further shows that there is no relationship between country and tonnes (Figure 6).

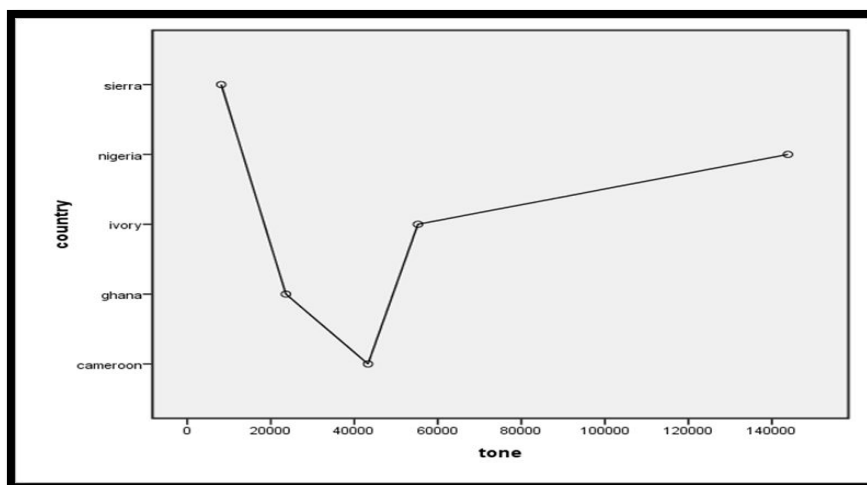


Figure 6: Kola nut production (tonnes) per country

Conclusions and Recommendations

Based on the findings and outcomes of this study, global kola production trend in Nigeria has been found to be unstable. Investigation has made it known that environmental and human factors are mainly responsible for the unstable production. The factors include, aged kola plantation farms, socio-economic characteristics, decline in soil fertility, pests infestation and diseases, low pricing of kolanuts by buyers, low rain fall and sun light, removal of over grown chupons, climbers, mistletoes, post harvest operations, lack on rehabilitation techniques such as coppicing, ring weeding, regular weeding, pruning, sterility and incompatibility, fertilizer application, removal of mistletoes and plant climbers, supply of quality hybrid kola materials, and insufficient farm labour/financial cost among others. In solving these problems, regular farm maintenance practices must be adopted. This will not only lead to an increase yield but also enhance kola farmers' finance and standard of living.

The attitude and perception of farmers must change towards kola production. The crop needs to be given a pride of place among other tree crops like cocoa, oil palm, cashew, coffee, and tea. Efforts should also be geared towards the reduction of the crop's gestation period which is presently between 7-11 years. Rehabilitation of old kola plantations should also be done on a regular basis since little efforts are currently being put into establishing new kola plantations to replace old/moribund kola ones.

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