

## TEMPORAL VARIATION IN PERENNIAL CASH CROPS PRODUCTION IN ONDO STATE, NIGERIA

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### ABSTRACT

*Tree crops are the predominant agricultural produce from Ondo State but their production quantity over years vary from one crop to the other. Annual production of four important perennial cash crops (cocoa, rubber, palm kernel and cashew) were examined. This paper aim at examine the annual variation in term of percentage of production over twelve (12) years of observation. Available data were subjected to descriptive statistical analysis. Results indicated that cocoa account for 80.69%, palm kernel 15.61%, rubber 2.90% and cashew 0.79% of tree crops production in the State. However, the rate of appreciation were in order of cashew (40.99%), cocoa (6.44%), palm kernel (5.9%) and rubber (-1.26%) over the years of consideration. There is need to pay absolute attention to those crops that have low and negative rate of appreciation to avoid their extinction to save some companies that depend on them for their local production in the later years.*

**Keywords:** Appreciation, hybrid perennial tonne, variation

### INTRODUCTION

Cocoa (*theobroma cacao*) belongs to Steruliaceae and genus theobroma family. It was introduced to West Africa from Brazil (South America) precisely from Fernando Po into Nigeria in 1874 by one Squiss Bamengo, a chief of the Niger Delta (Adegeye, 1996). It was first planted in Delta region and then spreads northward to its suitable cocoa belt of Western Nigeria. Five years later it was taken to the then Gold Coast, the present day Ghana in 1879. Cocoa was first planted into the Western region in 1890. (Oyekale et.al., 2009). It gained prominence rapidly in Nigeria to the extent that Nigeria happened to be the second largest producer globally by 1965. Before the emergence of black gold (crude oil) in Nigeria, cocoa was the major leading cash and export crop in Nigeria especially in southern part of Nigeria. Nearly all South Western States in Nigeria except Lagos involve in cocoa production. The main producing states are Ondo, Oyo, Osun, Ekiti, Ogun, and others such as Edo, Cross River and Akwa Ibom. (Adegeye, 1996) stated that over 50% of the total quantity of cocoa produced for export or utilized locally per annum are from Ondo State. Even within Ondo State, cocoa production is not equally produced among the existing regions (Akure, Owo, Ondo, Akoko and Okitipupa).

In Ondo State, Idanre, Ondo West and Akure South local government have been leading in cocoa production since 2005-2007. (Ogubodede et. al., 2010). At independence, Nigeria was second only to Ghana as world producer, -reaching peak production in 1970, beginning a decline that continued until 1982, when it was only 80% of its 1960 level and 64% of 1970 level. Despite this fall in production, Nigeria is among the leading group of world producers (Cote D'ivoire, 25%; Brazil, 22%; Ghana, 10%; Nigeria, 8%; Cameroon, 6.7%) with 130,000 metric tons of

cocoa(86.66%) of its total production) exported in 1982.(Oladiran,2000).Cocoa processing is currently expanding in Nigeria. Nigeria produced an estimated 385,000 tons of cocoa beans with more than \$570 million in 2005(industry source).This accounts for about 11 percent of World total cocoa production(3.5 million tons).About 80-85 percents of Nigeria's cocoa is exported as beans mostly to the EU, where they are then processed into butter, paste and liquor(75 percent) and powder(25 percent).The United States imported cocoa beans with nearly \$50 million from Nigeria in 2005(USDA'sBICO report ).North America and Europe consume 86 per cent of cocoa based products and between them, they produce 14 per cent of the World cocoa; whereas Africa and Asia produce 86 per cent of the raw beans, but consume just 14 per cent of cocoa based products.(Owofemi,2010.).Nigeria is the third largest producer of cocoa in Africa, producing about 12 percent of the total World production behind Cote d'voire(35) percent and Ghana (13) percent. Nigeria is the fourth largest cocoa producing country globally after Cote d'voire, Indonesia and Ghana. Cocoa remains a major export in Nigeria, with reference to CBN 1998 report, a revenue of 74,593 million Naira(US\$53,280).

Oil Palm (*elaeis guineensis*) is a tree crop produce in tropical region of the world. Before 60's Nigeria was a country with the largest production but overtook my Malaysia after years. The Oil Palm tree is one of the greatest economic assets a nation or state has, provided its importance is realized and potentials fully harnessed. Palm products include palm Oil, Palm Kernel Oil and Palm Kernel cake e.t.c. Palm kernel nuts have both local and international markets value. Its geographical location and production scattered in the rain forest region in southern Nigeria especially in Ekiti, Edo, Ondo, Anambra, Cross River, Oyo, Abia, and Enugu. Between 1960 and 1966 Nigeria, with a annual production of palm kernels averaging over 400,000 metric tons, was far and away the leading world producer, supplying 50% of total world consumption. (Oladiran, 2000).

Natural, para rubber (*hevea brasiliensis*) is a commercial tree economically grown in plantation. Rubber is important in the socio-economic life of many tropical developing nations such as Nigeria and Brazil. Rubber is used in the manufacture a number of industrial products which range from tires, balls, containers, shoes to band and a host of other item. The product of the coagulated latex is rubber. Rubber before the era of the oil boom, was one of the agricultural commodities that were the mainstay of Nigeria economy, thereby provided bulk employment for the people of the present Ondo, Edo and Delta State.(Uyovisere Edna,2000). Rubber was originated from South America, Brazil precisely. Nigeria's rubber production since independence has varied between an annual 43,000 and 72,000 metric tons which, until 1971, was entirely exported. (Oladiran, 2000). Rubber requires a well-drained, sandy loam, well-aerated permeable subsoil in which their root systems can profelirate with annual rainfall of at least 1700mm and between 24°C-35°C.

The cashew tree (*anarcdium occidentale*) is a native of Brazil and the lower Amazons. The economic importance of this special tree is such that while the tree is native of central and South America, it is now widely distributed throughout the tropics, particularly in many parts of Africa and Asia. (Akinhanmi et al 2008 and Ibrahim et al.,2011).The major producing countries of cashew are Tanzania, India, Mozambique, Sri-lanka, Kenya, Madagascar, Thailand, Malaysia, Indonesia, Nigeria, Senegal, Malawi and Angola. Africa is the third largest global source of cashew nut and produces about 100,000 tons per year (Spore 19997, Olunloyo 1996 and Ibrahim et al., 2011).About 60-65% of the total cashew production in Africa is utilized while the rest are discarded. Aduku (1993) observed that cashew nut meal has the following proximate

composition viz: protein 40.9%, fat 1.3%, crude fibre 1.5%, calcium 0.06%, phosphorus 1.72%, Ash 5.30%, Lysine 0.86%, methionine 0.35%, Cystein 0.32%, and tryptophan 0.29%. However, it is carefully observed that cashew, palm tree and cashew advertently or inadvertently exist within cocoa plantation being used to nurture cocoa seeding for protection and shading of hash sun-ray during the dry season. Cocoa being the major cash and tree crop accounts for 80.69% of tree crops in Ondo State annually.

### STUDY AREA

There are eighteen (18) Local Government Areas in Ondo State. The State was created on 3<sup>rd</sup> February, 1976 and ranked 25<sup>th</sup> in term of size after Ogun State. Ondo State has a total land area of about 15,500km with total population of 3,441,024 persons.(NPC,2006).Generally, Ondo State is characterized by abundant rainfall with tropical pattern of climate.(Oyakale,2009).The rainy season normally commenced from April to October with double maxima rainfall and slight dry season between November and March. Being an agrarian society, about 70% of the inhabitants specialize in farming activities, with cocoa serving as the predominant cash crop. Other important economy tree crops are rubber, cashew and palm kernel from oil palm fruit. Hence, apart from these, other food crops are also cultivated. And Idanre, Ondo West, Akure South, Ile-Oluji/Okeigbo are the leading producers of cocoa in Ondo State.(Ogunbodede et. al,2010).Also, beside aforementioned crops are Kolanut,Plantain,Banana as well as giant trees of various species that provide shade during the dry season. Other inhabitants specialize in trading and artisan.

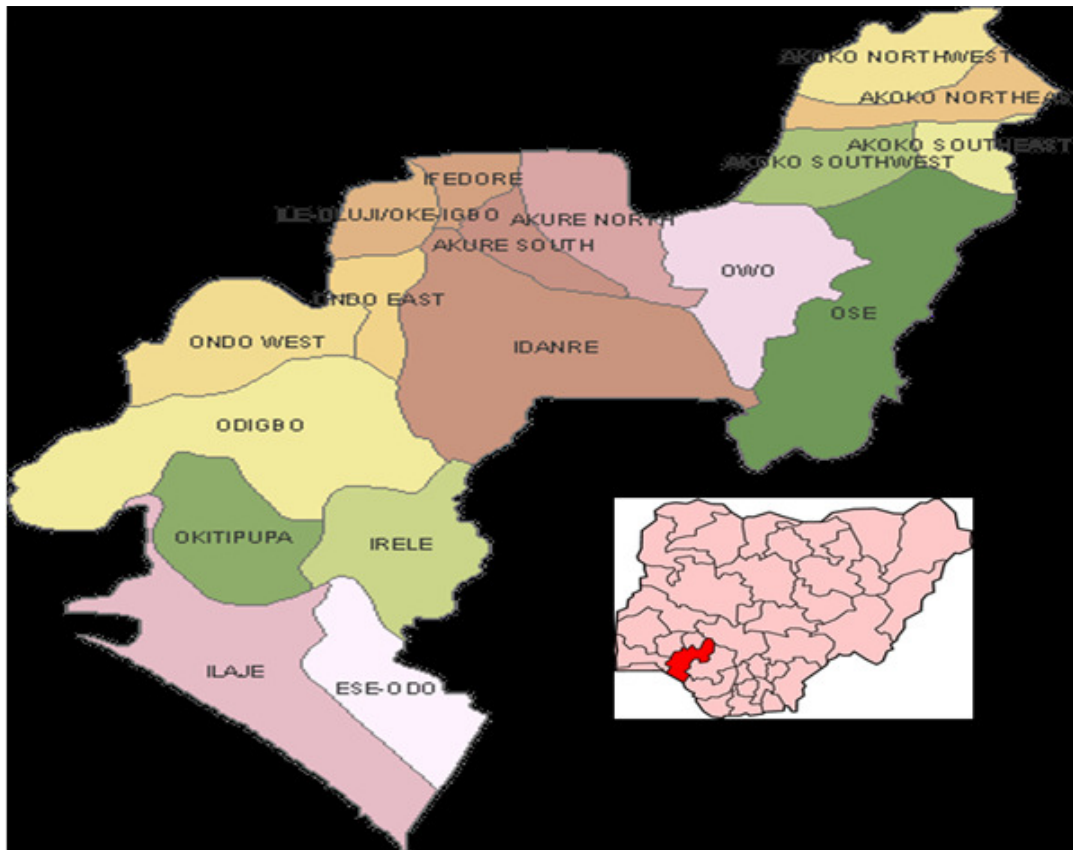


Figure 1: Ondo State map showing L.G.A

## MATERIALS AND METHODS

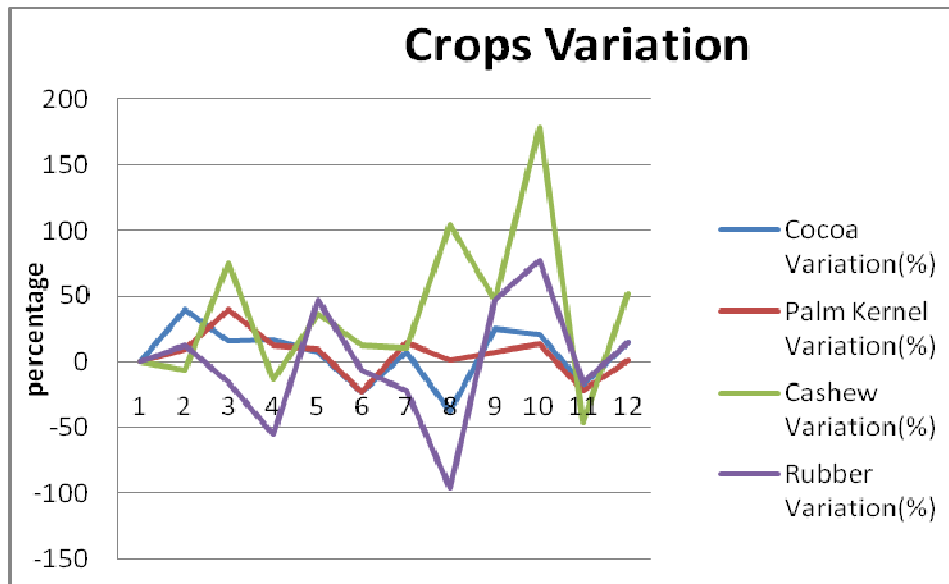
This study used secondary data of annual production of cocoa, palm kernel, cashew and rubber were collected from Ondo State Ministry of Agriculture, Akure. The analysis of the data involved different analytical tools such as descriptive statistic for the description of variation in annual production of each crop. Variation in annual production of the crops were arranged in tabular form with respect to percentage and degree of production within the State. Pie chart were used to illustrate the degree of annual crops production in relation to percentage and order of production and appreciation over years of observation.

## RESULTS AND DISCUSSION

**Table 1: Annual Variation in Tree Crops Production in Metric Tons and Percentage**

Year	Cocoa	% V	P.Kernel	% V	Cashew	% V	Rubber	% V
2000	24,047	0	5,531	0	153	0	1,284	0
2001	45,875	39.78	6,095	9.25	143	-6.70	1,474	12.89
2002	54,219	15.39	10,086	39.57	572	75	1,268	-16.25
2003	64,906	16.47	11,542	12.61	504	-13.49	814	-55.77
2004	69,822	7.04	12,802	9.84	788	36.04	1,549	47.45
2005	57,076	-22.33	10,452	-22.48	903	12.74	1,452	-6.68
2006	61,835	7.69	12,227	14.52	814	10.93	1,188	-22.22
2007	45,023	-37.34	12,332	0.81	399	104.01	605	-96.36
2008	60,039	25.01	13,407	7.99	760	47.5	1,134	46.65
2009	76,399	21.41	15,499	13.52	273	178.39	5,023	77.42
2010	65,224	-17.13	12,746	-21.59	504	-45.83	4,343	-15.66
2011	76,558	14.87	12,856	0.86	1,058	52.36	5,087	14.63
<b>Total</b>	<b>701,023</b>	<b>70.84</b>	<b>135,575</b>	<b>64.9</b>	<b>6,871</b>	<b>450.89</b>	<b>25,221</b>	<b>-13.86</b>
<b>Total Av</b>	<b>58,390.75</b>	<b>6.44</b>	<b>11297.92</b>	<b>5.9</b>	<b>572.58</b>	<b>40.99</b>	<b>2101.75</b>	<b>-1.26</b>

Source: Ondo State Ministry of Agriculture, 2011



**Figure 2: Annual tree crops variation trend pattern**

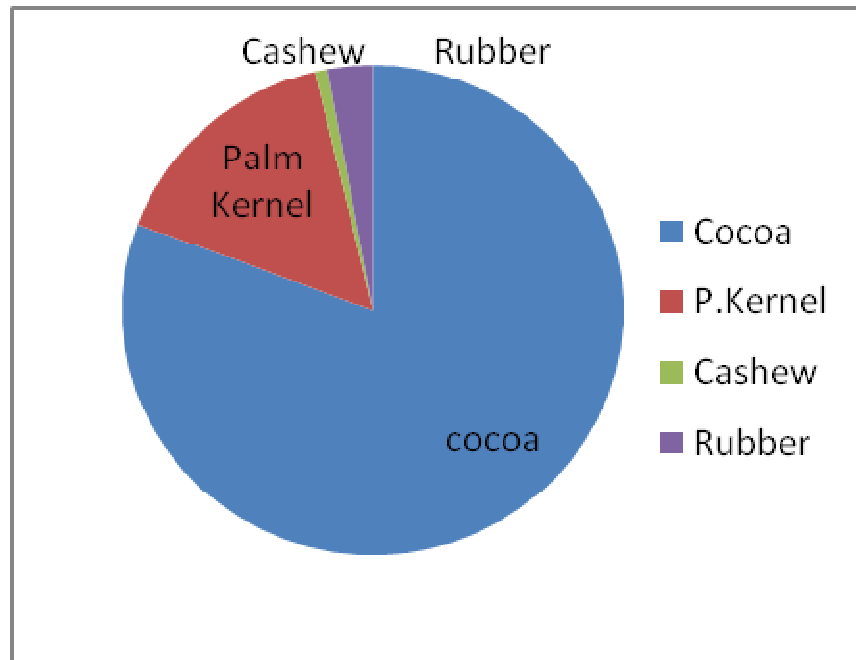
Line graph revealed the annual trend pattern of variation in percentage of the examined crops. Rubber is the crop with the highest rate of negative variation followed by cocoa, cashew and palm kernel. Notwithstanding, annual pattern of cocoa(6.44%),palm kernel(5.9%) and cashew(40.99%) were positive due to people awareness at the expense of rubber(-1.26).Year 2002,2007 and 2009 were highly favour the rate of cashew production with the percentage variation of 104.01%, 178.39% and 75% respectively. Percentage variation in cocoa, palm kernel, cashew and rubber were ranged from -17.13% to 39.78%, -21.59 to 39.57%, -6.70 to 178.39% and -6.68 to 46.65% respectively.

Over years of observation(12 yrs),cocoa production ranged from 24047 to 76558;palm kernel, 6,090 to 15,499; cashew, 143 to 1,058; rubber, 605 to 5,087 metric tonnes. Reduction in cocoa production occurred in 2005 (18.25%), 2007 (21.19%), and 2009 (27.25), palm kernel; 2005 (22.48%), and 2010 (21.59%), cashew; 2001(6.70%) 2003(13.49%) 2010 (45.83%), and more than half of the years of observation account for reduction years in rubber production. An average rate of increase in cocoa, palm kernel, cashew and rubber are 7.5, 5.4, 18.1 and 15.1 with average production of 58, 418.58, 11,297.08, 572.58, 2,101.75 respectively, from 2000 to 2011.

**Table 2.Magnitude Order of Tree Crops Production and Appreciation in Ondo State**

Crop	Level of Production		Crop	Level of Change	
	Percentage	Degree		Percentage	Degree
Cocoa	80.69	290.4	Cashew	40.99	283.40
P.Kernel	15.61	56.2	Cocoa	6.44	44.52
Rubber	2.90	10.5	P.Kernel	5.9	40.79
Cashew	0.79	2.8	Rubber	-1.26	-8.71
	100%	360 <sup>0</sup>		52.07	360 <sup>0</sup>

Source; Author fieldwork, 2012



**Figure 4: Quantity of tree crops production**

Cocoa is the most widely produced tree crop in Ondo State with 80.69% average value while its rate of appreciation over twelve years of observation is 6.44%. The state is the best producer of cocoa and her annual production account for more than half of the whole country production. Palm Kernel is in second position with average value of 15.61% and increase rate of 5.9%. Rubber ranks third with 2.90% average value and negatively reduced with -1.26% decrease over the years. Cashew is the fourth produced tree crop with 0.79% but with the highest rate of appreciation even more than the combination of the other three crops over same years of observation, Its has 40.99% value of increase from 2000 to 2011.

Negative variation may be attributed to unfavourable climate change. Cocoa is highly sensitive to changes in climate, particularly to temperature due to its effects on evapotranspiration (Anim and Frimpong, 2005; Ajewole and Iyanda, 2010). The effects of weather can either lead to increased metabolism, and disease incidence in field environment. (Justina and Emaku, 2007). Thus, to improve the production of any crop there is need to understand the average weather conditions of such area (observed as the climate), whereby climatic parameters such as temperature, rainfall, humidity as well as sunshine hours affect the agricultural output of any region. Daily, seasonal, or annual variations in the values of the climatic element are of greater importance in determining the efficiency of crop growth (Ayoade, 2004).

## CONCLUSION

However, to avoid the extinction of valuable crop like rubber in the state, there is need for government, institution and agro based companies to rise for the safety of rubber. Conversely, if care is not taken, in the next few years to come, rate of rubber production will be nothing to write about in Ondo State and its rate of importation may likely cut-short the production capacity of rubber products beyond the expectation. Also the highest produced crop (cocoa) rate of production does not correlate with the rate of appreciation. Hence, absolute attention needs to be paid to other crops like cashew, palm kernel, rubber as cocoa. Ondo State is characterized by about four functioning cocoa processing industries in Akure, Ile-Oluji and Ondo town precisely (KPMG, 2008). Also cashew and rubber processing factories should be invested on either by government or private organization. Hybrid tree crops that can withstand fluctuation in climatic elements should be developed through government agencies, and institutions with the support of agro-based companies to avoid the low production even extinction of some crops that can bring about their massive and uncontrollable importation later in future.

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