ABSTRACT

This study makes an appraisal of the traditional food crop farming methods practiced by the local farmers of the Mambilla Plateau of Nigeria. A survey of 20 farms was undertaken and some local farmers and agricultural extension workers were interviewed. It was noticed that cash crop (tea and coffee) production and pastoralism have gradually taken over almost all farm land, hence, the waning of local farming methods such as bush fallowing, mixed farming, rotational and mixed cropping. This is so because indigenous farmers are restricted to small patches of lands, which have been exhausted of their natural nutrients thereby, forcing them to use processed organic fertilizers and pesticides, which have endangered the lives of man and the soils. In conclusion, the paper notes that this stems from the fact that Nigeria just like most African countries lacks a realistic maintenance culture policy, which requires the judicious utilization of both her past and present human and natural resources, with less or no foreign assistance. There is therefore, a need for such a policy to be established, so as to enable an inward oriented development attitude in these times of global economic crisis.

KEYWORDS: Indigenous, Mambilla, Farming, cash crops, pesticides, pastoralism.
INTRODUCTION

This study makes an appraisal of the once effective traditional food crop farming methods of the local farmers of the Mambilla Plateau of Nigeria which are today almost non-existent. To better ascertain the issues, twenty (20) local farms on the outskirts of the farming villages of Maisamari, Yelwa, Yerimar, Gembu, Nguroje and Kakara were observed and some local farmers were also interviewed.

This plateau (former ‘Mambilla Local Authority’ and ‘Mambilla Local Government Area’), was part of British Northern Cameroons, which voted in 1961 to join the Federal Republic of Nigeria. It is located on the southernmost part of the Sardauna Local Government Area, of Taraba State and covers an area of over 9,389 square kilometers with its southern and eastern escarpments bordered by the Republic of Cameroon. Some scholars also considered it as the original home of Bantu-speaking peoples on the Cameroon Nigeria border.

It is inhabited principally, by the Mambilla after which the plateau is named and who are believed to be the original occupants. The other ethnic groups include Kaka, Kambu, Panso and Fulani. The Kaka, Panso and Kambu, claim Tikar ancestry with origin in the east; somewhere in Ndobo, Kimi or Tibati, all pre-19th century settlements in the Adamawa Region of Cameroon. The Fulani moved into the area in the 1920s during the British administration of the area after the First World War.

Rainfall increases southwards where the maximum of between 1500-2000mm is recorded. The Plateau enjoys an annual rainfall, which averages at about 2000 mm. Minimum annual rainfall fall at 45 °F. Generally, the climate is cool and marked by two distinct seasons - dry and rainy seasons. The rainy season starts from March to the end of November. Torrential rains accompanied by thunder and lightning are common in July and August.

Dry season temperatures rise in the day and fall faster at night. This invigorating climate and lack of tsetse flies make the plateau so ideal for human and animal habitation; hence, it is one of the areas on the Adamawa range of mountains that is densely populated with cattle since the 1940s. By and large, the Mambilla Plateau has a tropical/temperate climate.

The Plateau has tropical savannah vegetation dominated by the Hyparrhenia grass, good for cattle consumption. There are few patches of gallery forests and afforested trees such as the Australian eucalyptus and cypress. Vegetation is dense in areas not frequented by cattle grazers and the soils are generally fertile. It is an extension of the Bamenda Highlands in the neighbouring Republic of Cameroon. Series of undulating and gentle sloping hills, small plains, narrow and deep valleys or gorges with River Donga and other small perennial streams, characterize the landscape. This landscape together with its natural features, determine settlement patterns and the type of economic activities undertaken.

Food Crop Production in the Mambilla Plateau

We do not for now have any evidence of when this started in the Mambilla plateau, but it is clear that the present occupants already had the knowledge of subsistence food crop production when they reached the area. Except for the Fulani who by nature are generally, pastoralists, the other four ethnic groups still practice food crop farming. It is mostly done by the women with the men helping occasionally in clearing new farms, cutting down trees, transporting harvested crops and building farm huts.

The common and most important food crop cultivated is maize, Zea Mays. The quality and quantity of maize harvested, determines the survival of any family throughout the year because the popular tuwo masara or "fufu-corn" is prepared out of maize flour. It is generally, eaten with huckleberry, at least two times a day by all families. A typical Mambilla plateau man takes it that he has not been entertained if on a visit he is not offered fufu corn. Maize is also used to prepare a local drink commonly popularly called nsha. This is similar to burukutu, which is generally, prepared out of guinea corn. Other crops include kidney beans, phaseolus calcaratus, groundnuts, Arachis hypogea, Irish potatoes, Solanum tubersum, cocoyam, xanthosoma sagittifolium, yams, Dioscorea Dometorum and Dioscorea Cayenensis. Vegetables include cow pea, Vigna Unguiculata, and huckle berry solanum nigra. The two main cash crops cultivated are Arabica coffee and tea.
Indigenous Farming tools and Methods

The basic tools used include, hoes, cutlasses, and axes. The most important is the hoe, which has a semi-circular shaped blade with a socket which can be fitted into a forked-shape wooden shaft handle, about half a meter long. Cutlasses are used for clearing and also like axes, for cutting down trees especially, on new farms. The wood is later used as fuel¹⁰. It should be noted that maize is the dominant food crop so, most of the indigenous tools and methods are therefore, destined towards having high yields of this crop.

Locally, farms are usually tilled manually by women in the dry season, in preparation for planting, with the start of the rains. They leave their homes in the morning around 7 to 8 A.M, take their lunch on the farm and return home between 5 to 6 P.M. Before tilling, grass and garlic which were earlier cleared by men is gathered and set on fire. The heat generated by the burning helps to kill new shoots of plants thus, easing weeding¹¹. Another alternative method is to clear during the rainy season and allow the grass to rot by the intense bacteria activities of this season. During the dry season before the rains start, the rotten grass is buried with little or no burning involved¹².

In virgin lands where farming is done for the first time, large flat top mounds locally called mching by the Kambu are prepared. This has to do with heaps of gathered clearings, which are covered with earth and later lit with fire and left to smolder for some days. At times, women use their hoes to root off tufts of grass which are left to rot before being buried. In slightly hilly areas, where there is threat of erosion and a need to retain rain water, terrace (contour) farming is practiced. The terraces prevent rain water from washing away the nutrient rich top soils.

Valleys and plains are characterized by ridge farming. A traditional ridge is 4 to 5 meters long and narrowly raised with two sloping surfaces. The hoe is used to dig out the soils and form the ridge by capping the clearings or rubbish, which decays with time to enrich the base of the ridge. Continuous digging deepens the furrow between the ridges which are joined at both ends by cross-bars so that the furrows could retain and ensure the even distribution of water into the base for subsequent absorption by crops. The crops which are planted on the ridge do not stand the risk of being flooded since they are on elevated surfaces¹³. The ridge of this year is demolished into a furrow next year because it is believed that the former ridge has been exhausted of its nutrients. Garbage from the previous ridge is laid in the furrow to form the base of the new ridge. It also decays to form a good nutrient base for the crops planted on.

Mixed cropping¹⁴ is also common with traditional farming in this area as it was in other parts of indigenous Africa. The commonest combination is maize, beans, and Irish potatoes. Hoes, cutlasses, well sharpened bamboos and sticks are used to dig holes on the ridge where the seeds are buried or planted to prevent birds and predator animals from removing them before they germinate. The spacing of crops on a ridge varies from crop to crop depending also on the farm size and number of crops planted. Huckleberry and pumpkins are preferably planted on isolated burnt heaps, which contained enough potash needed by these plants for growth. To ensure continuous supply of huckleberry for fufu-corn consumption, valleys and river banks are cultivated during the dry season.

There is also crop rotation. In newly farmed land where the soils are so compacted, farmers start by planting any leguminous crop like cow pea or groundnut, which helps in softening the soils before maize and other root crops like cocoyam and sweet potato are planted. In the environs of Jalingo, the Taraba state capital, the Mummuye ethnic group, well known for yam cultivation, first plant pennisetum for three years, to soften the soils before planting yams¹⁵.

Three or four weeks after planting, farmers remove weeds some of which even serve as pest reservoir or compete with the food crops for light, space, water and other nutrients with hoes. Crops already infected are removed from the lot and burnt (rouging) to prevent contamination of others. More than a month after planting maize, farmers do some form of mulching and molding during which soils are added to the base of the crops to enable them withstand rain storms. Local manures made up of home rubbish as well as cow and goat dung are also spread at the base of the crops¹⁶.

¹⁷Nfor summarizes what happens when the first shoots of especially maize plants appears till harvest time as involving weeding, mulching, molding, manuring, pruning, thinning, pest and diseases control.

¹⁰M.Crowder (1960): 154-176
¹⁵Abdul Somayah. Interviewed 23 May 2012. He is a 55 year old Mummuye Farmer, Jalingo.
Naturally, the crops matured at different periods. Irish potatoes in May and June, beans in June and July, maize in August and September and vegetables in early May. Most of the root crops are harvested in the dry season upon need due to storage problems. Harvested beans are taken home and dried under kitchen roofs after which they are shelled and stored in containers. The harvesting of the main food crop, maize is done in groups as family members and friends come together and harvest one farm after another. The maize is also taken home and dried under kitchen roofs and in the ceiling of houses. When fully dried, it is taken into barns from where it is retrieved upon need.

Judging from the number of years a plot has been cultivated and the quality of harvested crops, farmers are in a position to determine the level of fertility of their farms. If he concludes that the farm had been exhausted of its nutrients, it is fallowed for some years to regain its nutrients before cultivation again. During this fallowed period, nutrients producing plants or nitrogen fixation plants like Tephrosia spp and Sesbania Sesban are allowed to grow on the farm. Farmers also allow cattle to graze on their farm so that its dung could help fertilize the soils. Other plots are farmed during the fallow period to ensure the continuous supply of food in the society. This is called plot rotation meant to ensure the availability of farm lands at different times for cultivation by families.

Cash Crops / Pastoral Activities and Traditional Farming Methods

With the coming of colonialism in the late 19th century and the subsequent arrival of the Fulani pastoralists from Banyo in Cameroon and Jos in Nigeria in the 1920s, things were never to be same again in the Mambilla Plateau. These indigenous farming methods, which proved very effective in the past and sustained all families, were negatively affected. Colonialism introduced the cash crop economy of Arabica Coffee in the early 1920s. After independence in the 1960, another cash crop, tea was introduced in the 1970s at Kakara and late 1980s at Maisamari. These crops were cultivated to satisfy foreign demands hence, disrupting the indigenous food crop economy of the Mambilla Plateau as most local farmers, encouraged by the fast cash, in the later years, turned their food crop farms to coffee and Tea production.

Farming methods had to change to support this mono-cropping form of farming. The use of chemical fertilizer, pesticides, animal drawn-mould board and tractors good for cash crops, were introduced and intensified with time. Traditional manure such as household refuse, cow, goat and sheep dung, which usually improved the natural nutrient content of the soils and good for food crops, was therefore, indirectly discouraged.

Pastoral Fulani attracted by the luxuriant grassland vegetation and the lack of tsetse flies in the area, came in their numbers and might. We should note that the ‘jahads had succeeded in the Adamawa and Fulani hegemony was established over the indigenous ethnic groups of the region. The Fulani used financial and political resources at their disposal to grab and fence large indigenous farmlands for grazing. Farmer – grazer problems have over the years become a common phenomenon in the plateau as attested by numerous court cases in the area, most of which are judged in favour of the pastoralists. It is interesting to note that, 90% of the population of the Mambilla Plateau practice subsistence agriculture but pastoralism practiced mainly by the Fulani occupies almost 90% of the landscape.

The conversion of food crop land into cash crop production and pastoral activities meant a reduction in food crop production. This has over the years negatively affected local families especially, with the increase population and the need for more farm land, which is not readily available as before. Bush fallowing and plot rotation are not practiced again since; there are no alternative plots to turn to in times of exhaustion. Farms are continuously cultivated until they are exhausted.

DISCUSSION

Nobody is arguing the fact that pesticides kill pests, which disturb the growth rate of crops; fertilizer improves the fertility of the soils also necessary for the growth of plants and tractors or horse-drawn mould boards can plough large areas in a shorter time with less human labour. These are however good only for cash crop production (mono cropping) and not food crop production (mixed cropping).

Spore an agricultural magazine, holds that although hand-weeding with a hoe can take 132 hours per hectare against 68 hours for a tractor; the hoe is more gentle and caring for the soils. Tractors which are good for large scale farming, handle soils in a rough way by destroying some soil micro-organisms needed for the growth of food crops thereby, modifying the soil pH.

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22 Alfred Nganyu. Interviewed 21 April 2012 and 60 year old Kambu Farmer, Maisamari.
23 Dar-Al-Handasah 1978:23
24 Spore(1994) No. 51
The big worry is that most if not all traditional farmers could not afford fertilizer, pesticides and a tractor or even operate it. It was generally the opinion of farmers in this area that, the application of chemical fertilizer to the natural fertile soils has proven detrimental over the years. The productivity of the soil is now determined by the continuous application of fertilizer, which most of them cannot easily afford since they are not financially capable to continuously afford it. They, therefore, experience poor harvest during fertilizer-absent seasons.

Most of the farmers even complained that chemically fertilized crops, for example, huckleberry, are so tasteless, artificial and often cause stomach problems. According to them, fertilizer hastens the growth rate of crops hence; it does not allow the crops to properly absorb the natural nutrients they need for growth. Above all most of the local farmers are illiterate who cannot read the brochure; hence, they do not always follow the instructions experts orally give them on how to administer the fertilizer or pesticide. The toxic content of some of these chemicals is so high and others are even banned in the developed world. The wrongful application of pesticides has caused skin irritations, kidney, lung and nervous problems in some farmers. People and even animals like goats and sheep have died as a result of inhaling pesticides or eating recently treated crops. They have also been affected by drinking water contaminated with pesticides washed down by rain from treated plants (residual toxicity). The family of Tanko in Kakara will never forget their son who died after inhaling excessive amount of pesticides during the spraying of crops. The cost of treating farmers affected by inhaled pesticide or residual toxicity is at times more than the cost of the pesticides.

It was also observed that at times, the pest develops resistance to the chemical pesticides and the crop is instead destroyed. This created disastrous consequences as the pest population tended to increase in an uncontrollable manner. There are also times when the pesticides destroyed both the pest and the predator. Nfor, an agricultural technician, notes that pesticides just like chemical fertilizer, could destroy the soil life community (insects, earthworms, bacteria etc), if wrongly applied. Gamje, a local farmer, maintains that, in addition to removing infected crops and weeds from the lot at an early stage, predator weeds in some instances were planted or encouraged to grow so as to handle the pests. Nitrogen fixing plants such as *Tephrosia spp* and *sesbania sesban* as earlier mentioned were also planted or encouraged by the indigenous farmers to grow amongst crops and even after harvest so as to improve on the soil nutrients. They also served as fuel when they got dry.

Goat/cow dung were ground, mixed with water and sprinkled on the crops as they were growing. This kept off goats and sheep from eating and destroying the crops since they cannot eat anything mixed with their dung. Some local grasses and branches of eucalyptus and cypress trees were put in maize barns to prevent weevil attack or its survival. The scent they produced repelled pests. Yam sets were smeared with wood ash and allowed to dry before planting. The ash prevented rotting of the set while in the soil. Swarms of locust which destroyed crops were easily sent away not through spraying of pesticides but by the whole community coming out and using zinc sheets, drums and broken pans to make noise, since locust hates noise. Selective planting of food crops which were very resistant to pest was practiced.

Kiwiyi, a local Panso farmer, wondered why these less costly traditional methods could not be encouraged by government and its agents, in favour of chemical pesticides and fertilizer, which are imported, costly and complicated to use. She is even more worried as days go by and most of the custodians of this traditional knowledge of farming are gradually, passing on to eternity without transferring this valuable knowledge to their descendants.

It should also be understood that colonialism also brought Christianity, while the Fulani pastoralists brought Islam. These two religions preached the belief in the Almighty God and are against traditional worship of local gods. Shey, a Christian, and Baba, a Moslem, both observed that these two religions discouraged traditional farming rites which were usually performed before planting and harvesting. The local farmers of the Plateau belong to ethnic groups which believe in ancestral veneration, sacred kingship, distinctions between royals and their subjects. The offering of sacrifices to appease their gods and ancestors was a common phenomenon amongst them. Concerning farming, each village had a fertility shrine where rituals were performed by the chief priest, of the village before planting and harvesting. The Kambu ethnic group called it *Ndapgong* meaning “people’s house”. Seeds of crops to be planted and newly harvested crops were taken there for blessing and veneration, sacred kingship, distinctions between royals and their subjects. The offering of sacrifices to appease their gods and ancestors was a common phenomenon amongst them. Concerning farming, each village had a fertility shrine where rituals were performed by the chief priest, of the village before planting and harvesting. The Kambu ethnic group called it *Ndapgong* meaning “people’s house”. Seeds of crops to be planted and newly harvested crops were taken there for blessing and veneration, sacred kingship, distinctions between royals and their subjects.

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- ²⁸Ibid.
- ²⁹Dan Tanko. Interviewed 20 April 2012. 76 year old Panso Farmer, Gembu.
- ³¹I.P.N. Nfor. Interviewed 25 April 2012. He is a 50 year old Agric Technician.
- ³³Winifred Kiwiyi. Interviewed 21 March 2012. 60 year old Local Panso Farmer.
This was very much similar to the Yam Festivals in the Igbo and Tiv lands. It is also believed that this was meant to prevent people from planting when soils were not ready and also harvesting premature crops. This helped to control the consumption rate of families, ensuring that food was available throughout the year. Unfortunately, these farming rites are scarcely practiced nowadays, since most farmers are either Christians or Moslems. They take their seeds and newly harvested crops to the church for blessing.

Postcolonial Nigerian governments as earlier noted also continued in this vein, by assisting multinational companies to seize more local crop land for cash crop farming, of no immediate benefits to the displaced local owners and without any reasonable compensation paid. A case in point was the seizure of about 2000 hectares of local land in Maisamari village in the late 1980s which was given to Lever Brothers Nigeria Limited, for tea production. The most worrying thing about all these is that there is a Highland Tea Estate at Kakara just about 30 miles away from Maisamari, which was also opened in the 1970s on land taken from the local farmers. Its products have not even been exhausted all over Nigeria, not to talk of the Mambilla Plateau. The government argued that the Tea project at Maisamari would, reduce unemployment and crime rate in the society by employing youths. This sounded convincing, but according to Gamje, the question is whether what these exploitative multinational companies paid as wages was enough to sustain families, the way farm produce did? When the estate was opened in the late 1980s labours put in about eight hours and more of intensive work a day and ended up with 500 naira or less a month. They could not do anything substantial with this. Today with the high rate of inflation in the country, labourers end about 5000 naira monthly and this cannot satisfy their immediate needs.

To worsen matters, some wealthy people, most of them senior government officials from other parts of Nigeria, have over the years, used their status to illegally acquire large hectares of fertile farmland in the plateau without appropriate compensation. They fenced the acquired land with barbed wires thereby, forcing the local indigenous farmers to move to unfertile and dangerous hills, far away from their homes. Some of them have never visited the plateau and are considered absentee landlords, a situation which was common with Medieval Britain.

This continuous seizure of farm land by government, pastoralists, rich individuals and multinational companies has left a lot of families without land to farm. Crime wave increased as many took to stealing because the meager compensation they were given for their seized land could not sustain them. Interestingly, this is the situation the government had hoped to avoid by opening an additional tea estate at Maisamari.

CONCLUSION

Local Mambilla Plateau farmers like farmers elsewhere in Africa, had a unique understanding and interpretation of their environment. They were natural scientists who looked at the vegetation, colour of the soils and the nature of the drainage system and determined the specific farming method and exact crop that was good for the area. They practically, knew what to do to maintain the fertility of their soils, because as peasant farmers, the soil was the basis of their survival. Generally, local farmers of this Plateau believe that, the Nigerian government lacks an implementable maintenance culture policy, which takes into account the survival of the local masses. This has been responsible for the loss of land by local farmers, the abandonment of their effective traditional food crop farming methods, in favour of complicated and costly methods associated with cash crops. An effective maintenance culture policy requires the ability by the state to locate and exploit Nigeria’s past and present indigenous farming resources so as to see how these could be put into use before seeking foreign assistance.

It also requires that the political leadership take out the economy from this disadvantage circle of importing almost everything, utilizing, discarding and importing. If this is done, Nigeria would borrow only what it lacks to improve on what it has, instead of importing everything. For selfish interests, they complain of the exploitative tendencies of western powers on our economy and yet, still openly go out there to beg for these destructive agents in exchange for our natural resources. Leadership should match their words with action. It is high time our leaders learnt from the past for as Andah noted in a lecture at the University of Ibadan "there is a need to balance the demands of the future with our obligations to the past, because where there is no past, there is no present and no future." This will encourage Nigerians to make an internal assessment of their past and present natural and cultural resources so as to see how best they could manage their resources with little or no foreign assistance.

This can only be possible if our nation through its archaeologists, historians and ethnographers, anthropologists, economists, with the assistance of indigenous leadership identify, recover and preserve some of these our past indigenous expertise and talents.

38 Bridget Ntala Interviewed 22 April, 2012.
39 Baleri Gamje Interviewed 20 March 2012.
40 Ahmadu Isa Interviewed 22 April 2012. 76 year old Panso Farmer, Kakara.
41 W. Wallbank and A. Schrier (1964) Living World History. Atlanta Scott, Foresman and Company. :139-142)
42 Baleri Gamje Interviewed 20 March 2012.
43 See B.W.Andah (1979) "Anthropological Archaeology in Nigeria "Launching Lectures for October Lectures, Department of Archaeology and Anthropology, University of Ibadan, Nigeria.

How our peasant forefathers survived had never been a subject of interest to our postcolonial leadership who has over the years generally propagated policies which destroyed our effective and adaptable indigenous farming methods. They wrongly, think the solution to the problems of our agricultural sector lie outside or in imported pesticides, fertilizers, tractors and cash crop production.

The exportation and importation syndrome dominated the country when there was a buoyant economy in the 1970s. Nigeria's leaders then, totally, neglected the indigenous agricultural sector as attention was turned to oil. The accrued odds of looking outside and depending on oil and cash crops for solutions to food problems are now deeply felt in the society. What local communities in the Mambilla plateau and all over Nigeria, primarily, need is not cash from cash crops but food to eat. Unfortunately, Nigeria produces cash crops which we do not consume and whose prices are determined by the foreign consumer. One might be tempted to ask how many families in the Mambilla Plateau, where Highland and Lipton Tea and Arabica coffee are produced even drink tea or coffee?

It is very clear that for Nigeria to succeed, her huge craving for external dependence has to be marginalized so as to give long forgotten indigenous ingenuities and talents an opportunity to thrive again. We are not against the importation of foreign ideas or modernized farming techniques. The argument is simply that, before importing these foreign farming techniques and products, those concerned should first ask how these would enhance human life without disrupting indigenous values, which sustain the cohesion and identity of every local society.

Most of the local farmers believe that if food crop production is given the attention it deserves by the state, their lives will slowly, but surely change for the better. Cash crop farming and to an extent pastoralism, abuse land ownership as the few rich acquire most of the land (at times forcefully), at the detriment of the majority peasant food crop farmers. There is therefore a dire need for Nigeria to develop an implementable maintenance culture policy especially, as far as the subsistence or food crop farming sector is concerned. This will certainly preserve the dignity of indigenous people as human beings and discourage this outward looking attitude for solutions to local food problems in Nigeria.

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