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An Assessment of Vegetable Farming in Plateau State: The Dialectics of Rural Poverty (1970 to 2019), Nigeria

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Abstract:

Plateau State is regarded as the home of vegetables in Nigeria. Being the home of vegetables, it is expected or assumed that vegetable farmers are heavily rich, with large income generation from the business. But reverse is case! This paper in its understanding attempts to examine the oxymoron of this argument. The main thrust of this paper is to make clear the contradiction as to why vegetable farmers in Plateau State still remain poor despite their enormous production. The analysis of this paper offers important re-examination of the vegetable Value Chain Analysis (VCA) and to show, in spite of the profit generated by rural farmers, hunger and poverty still ravages their household. The emerging finding of this paper is that poverty remains a stark reality among vegetable farmers in rural communities in Plateau State. It is within this perspective that the central argument of this paper lies in the dialectical relationship between vegetable production and rural poverty; which the paper defined as 'inseparable nexus.' This paper adopts the historical approach as a methodology for qualitative research. The submission of this paper suggests that poverty lies at the bottom of plentiful.

Keywords: Vegetable, production, marketing, value chain, rural poverty

1. Introduction

The discoveries in the health and nutritional benefits of vegetable came to limelight in Nigeria by the 70s. For instance, it was discovered that vegetables are important source of many nutrients, including potassium, dietary fibre, folate (folic acid), vitamin A, B, and C, iron, phosphorus and health acids.¹ These discoveries sparked the demand and increased the productivity and marketing of vegetable on the Plateau. Vegetable became the major cash crop of most rural farmers. Increase in demand for domestic consumption made marketers to increase the sale of vegetables at different markets. Gradually, marketers and consumers from outside the state started patronizing the local markets. Profit from the sales of vegetables, forced other local farmers to stop producing other food crops and dived into the cash crop (vegetable) production.

Large scale vegetables farms were opened up and located in the rural areas, to meet up with the demand of the accelerated growing urban population. Geographically, the understanding of this can be summarize in the light that vegetable markets are mostly located in the urban city of Jos and environs while the production centres are located mostly in the rural areas. Observing the geo-agricultural setting of Plateau State, it can be argued that; 90% of vegetables are consumed in the urban city of Jos and environs while 10% of vegetables are produced by them. On the other hand, 10% of vegetables are consumed in the rural areas and 90% are produced by them. This is to say that vegetable farmers in the rural areas produce vegetable not for the purpose of consumption but for the purpose of cash or income generation. The above analysis also made Nichols and Hilmi to opine that Vegetables can make a significant difference to the livelihood of the small-scale farmers in the rural areas. Vegetable production needs only a small area of land, with minimal capital outlay and can provide access to a valuable food under subsistence conditions, but also has the potential to provide an initial step towards establishing an income base for poorer households.² Hajdu in line with the above stressed the fact that, the secret to vegetable farming profitability lies in its high market price of crops, as well as in high demands for vegetables year-round.³ Despite the high demand, vegetable farmers are faced with the problem of perishability, bulkiness, seasonal gluts, and postharvest losses.

It is important to note that vegetable farming is a very risky business due to the nature of their perishability, bulkiness and seasonality. Vegetable farmers and marketers take risks by investing their monies in vegetables business with a strong desire to make huge profits. The highly perishable nature of vegetables imposes a greater income risk factor. The high perishability of vegetables also discourages many farmers from going into large scale production, and the present growers

¹ U. S. Department of Agriculture, 'Why is it Important to eat Vegetable, ChooseMyPlate, Retrieved from <https://www.ChooseMyPlate.gov> (accessed 23rd April, 2020)

² Mike Nichols and Martin Hilmi, Growing Vegetables for Home and Market, Diversification booklet number 11, Rural Infrastructure and Agro-Industries Division, Food and Agriculture Organization of the United Nations Rome 2009, The views expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations, 1 & 2

³ Ines Hajdu, 'Vegetable Farming From its Beginnings,' Retrieved from file:///C:/Users/first%20user/Downloads/veg/Vegetable%20Farming%20From%20its%20Beginnings.html, (accessed 12th May, 2020)

from increasing their scale of production. This has resulted in low productivity and high prices of both fresh and processed vegetables products.⁴ Because of the bulkiness, seasonality and perishability nature of vegetables, coupled with the lack or inadequate processing and storage facilities, farmers in Plateau State some times, are forced to sell their products (vegetable) in a hurry, sometimes at uneconomic rates (low prices) in order not to lose the entire product.

Risk is considered as a strong behaviour force that affects the decision-making process of farmers to produce the high value commercial crops. The majority of vegetable growers experienced high variability in price than yield. It means stabilizing price, would be a more effective strategy to reduce income risk in the cultivation of vegetables.⁵ The actual returns of the farmers are forced to below due to the risk factors in farming. Probability of occurrence of risks results in increased cost of production, decline in farm outputs and farm efficiency. An efficient agricultural marketing system ensures that both the producers and consumers attain equilibrium benefit. But the equilibrium benefit is being hindered because it is driven by profit maximization from the various marketing functionaries involved in moving the produce (vegetable) from the farm-gate to the final consumers. The consequences of this are 'high price gap between the price received by producer and price paid by the consumer'.⁶ Due to constant exploitation of rural vegetable producers by the urban marketers, vegetable farmers on the Plateau are forced to live in poverty in spite of their huge production. Thus, this is to say that, in the processing, distribution and marketing of vegetable products, risk is a prominent factor.

2. Geographical Location and Description of Boundaries

Plateau State is celebrated as 'The Home of Peace and Tourism'. With natural formations of rocks, hills and waterfalls, it derives its name from the Jos Plateau. Plateau is the twelfth-largest state in Nigeria.⁷ Approximately in the centre of the country, it is geographically unique in Nigeria due to its boundaries of elevated hills surrounding the Jos Plateau its capital, and the entire plateau itself. Plateau State is located at North Central Zone out of the six geopolitical zones of Nigeria. With an area of 26,899 square kilometres, the State has an estimated population of about three million people. It is located between latitude 08°24'N and longitude 008°32' and 010°38' east. The state is named after the picturesque Jos Plateau, a mountainous area in the north of the state with captivating rock formations.⁸ Bare rocks are scattered across the grasslands, which cover the plateau. The altitude ranges from around 1,200 metres (3,900 ft) to a peak of 1,829 metres (6,001 ft) above sea level in the Shere Hills range near Jos. Years of tin and columbite mining have also left the area strewn with deep gorges and lakes.⁹

Though situated in the tropical zone, the Inter-Tropical Convergence Zone (ITCZ) dominantly influences the climate of Plateau State.¹⁰ The high altitude means that Plateau State has a near temperate climate with an average temperature of between 13 and 22 °C. Harmattan winds cause the coldest weather between December and February. The warmest temperatures usually occur in the dry season months of March and April. The mean annual rainfall varies between 131.75 cm (52 in) in the southern part to 146 cm (57 in) on the Plateau. The highest rainfall is recorded during the wet season months of July and August. The average lower temperature in Plateau State has led to a reduced incidence of some tropical diseases such as malaria. The Jos Plateau makes it the source of many rivers in northern Nigeria including the Kaduna, Gongola, Hadeja and Yobe rivers.¹¹

The soil on the Plateau can be classified in different ways. According to the F.A.O genetic classification systems, the major soil type on the Jos Plateau the ferruginous tropical soil formed on crystalline acid rocks. The soils are highly ferruginous and are characterized by textural clay subsurface horizon. They are intensely leached, have low to medium organic matter content, moderate to good water holding capacity and a friable consistence. The common soils on the Plateau include: Entisols soil, Incept soil and Alfisols soil.¹² The vegetation of the Jos Plateau falls within the northern Guinea Savannah. This Vegetation zone is characterized by open woodland with tall grasses. The relics of the original vegetation which portray the true nature of savannah woodland are confined mostly to rugged escarpments and hilly areas where clearance of vegetation for farming and mining become difficult.¹³

The state is boarded with Bauchi State to the North-East, Kaduna State to the North-West, Nasarawa State to the South-West and Taraba State to the South-East. Plateau State is subdivided into the following seventeen (17) LGAs: BarkinLadi, Bassa, Bokkos, Jos East, Jos North, Jos South, Kanam, Kanke, Langtang North, Langtang South, Mangu, Mikang, Pankshin, Qua'an Pan, Riyom, Shendam, and Wase. The state has over forty ethno-linguistic groups. Some of the indigenous tribes in the state are the, Afizere, Anaguta, Amo, Aten, Berom Bijim, Bogghom, Buji, Jipal, Chip, Irchip, Fier, Gashish, Goemai, Irigwe, Jarawa, Jukun, Kadung, Kofyar (comprising Doemak, Kwalla, and Mernyang), Montol, Mushere, Mupun, Mwaghavul, Ngas, Piapung, Pyem, Ron-Kulere, Bache, Talet, Tarok, and Youm. These ethnic groups are predominantly farmers and have similar cultural and traditional ways of life. To make more emphasis Sen Luka GwomZangabadt posited that the area known as Jos today was inhabited by indigenous ethnic groups who were mostly

⁴Obayelu, A.E., Arowolo, A.O., Ibrahim S.B. and Croffie A.Q, 'Economics of Fresh Tomato Marketing in Kosofe Local Government Area of Lagos State, Nigeria,' in Nigerian Journal of Agricultural Economics (NJAEE). Volume 4(1), 2014 Pages 58-67, 59

⁵ Mehta PK. 'Farmers' Behaviour Towards Risk in Production of Fruit and Vegetable Crops,' Journal of Rural Development. 2012; 31(4):457-468.

⁶Ehirim NC, Odurukwe SN, Ajaero J, Emenyonu CA. 'Socio-economic analysis of farming risk in cassava-based enterprise in Imo State.' International Journal of Natural and Applied Science. 2006;2(2):89-95.

⁷Nigeria | Culture, History, & People'. Encyclopedia Britannica. Retrieved 2020-05-28

⁸ Plateau State, From Wikipedia, the free encyclopedia, Available at: http://en.wikipedia.org/wiki/Plateau_State, (accessed 23rd March, 2020)

⁹SHERE HILLS: Amazing hills and rock formations » Arewa » Tribune Online'. Tribune Online. 2017-10-10. Retrieved 2020-05-30.

¹⁰ J. Y. Gwom, et'al, A Field Guide Manual of Plateau State, (Department of Geography and Planning, University of Jos), 8

¹¹Plateau State, From Wikipedia

¹² M. J. Alexander, Soil Development on Mine Spoil and Reclaimed Area of the Jos Plateau, (Jos: Soil Profile Descriptions, 1984), 2

¹³ G. P. Buckley, 'The Forest Resources of the Jos Plateau and Role of Eucalyptus Plantation,' 1986, 9

farmers. People from other parts of country have come to settle in Plateau State; these include the Tiv, Idoma, Igbo, Yoruba, Hausas, Kanuris, Fulanis, Jukum, Ibibio, Annang, Efik, Ijaw, Bini etc.

3. An Overview of Vegetable Production in Jos Plateau

The influx of aliens especially the Europeans led to the introduction of new crops. Europeans needed locally produced vegetables and other perishables for home consumption at their colonial residence. As a result, they were keen to introduce the cultivation of such crops as vegetables, cabbage, carrots, green beans, green pepper, cucumber, lettuce, spinach, Irish potatoes, onions, ginger, artichoke, garlic, onion, fennel, cauliflower, broccoli, melon, watermelon and host of others vegetables. It was during that period that proper cultivation or farming of vegetable started by the Plateau farmers. Evidence in archival source pointed out that the possibility to grow excellent crops of vegetables and potatoes presents a most promising means by which the people can augment and improve their standard of living.¹⁴ With regards to the marketing of vegetables, the establishment of tin mining camps also ushered in different ethnicities from different locations within and outside of Nigeria. Almost the entire population of the Jos Plateau area is agriculturalists, though a considerable proportion of the people also work intermittently on the mines. The mines were mainly however as a market for their produce that the mining industry is bound up with the economy of Jos Plateau.¹⁵ The establishment of Naragutu, Delimi, building materials market, Jos Main Market and Tilde Fulani markets further encourage the production of vegetables. Gunn revealed that the Jos Plateau people sold vegetables such as carrots, potatoes and vegetables to the Europeans for consumption in the Jos market.¹⁶ Evidence in archival material pointed out that certain amount of 'garden cash crops' in the form of potatoes and vegetables were produced around the Jos Plateau by limited number who gained relative little prosperity as a result, though most of the profit remained with traders in Jos who purchased them at a low cost and sold at a high price to consumers.¹⁷

By the 1970s, vegetables production was revolutionized and farmers experienced major changes due to the introduction of new varieties of vegetable seedlings worldwide; there was high demand of vegetable by consumers and industries; the fair knowledge of farmers in knowing their terrains and how to cultivate vegetables and increase in the size of vegetable market and marketing organization. Vegetable production in Jos Plateau witnessed tremendous change due to these four factors outline above. Because of the high demand of vegetables, the Plateau farmers intensified their production. This factor in itself attracted many farmers to abundant other food crops to join vegetable business. Self-interest to make profits out of vegetable business attracted more farmers in the 70s to join the business in pursuing their self-interest to make money. With time the vegetable markets in Jos Plateau became a centre of attraction to vegetable lovers in Nigeria. Clement Dankat observed that every passing day, people buy vegetables such as Potatoes (both Irish and Sweet potatoes), Onions, carrots, cucumber and even vegetables from Jos Plateau markets and send to the south-western part of the country. He added that, when one wants to buy anything that is vegetable related, Jos Plateau markets are the ideal place to go.¹⁸

From the colonial period to the present, vegetable farming had proven to be a reliable cash crop business that generates fast income earning to the local farmers in Plateau State, but not without challenges. Vegetable production as it is, is a complex and complicated business with high risk factors involve. The production business is affected by the nature of its perishability, bulkiness and seasonality glut, which make the local farmers to loss large amount of income in the business. Also, the nature of their perishability, bulkiness and seasonality, leave the producers/farmers at the mercies of the marketers, due to their low or lack of bargaining power.

The problems that arise from low or lack of farmers bargaining power has to do with the farmers' insufficient knowledge in the marketing structure and marketing margin. The marketing knowledge of the rural farmers still remains at the rudimentary level, which increases the marketing risk factors of the small-scale local farmers. Despite the experiences gained over time, farmers are unable to grasp the opportunities for controlling the marketing of their products. On the contrary, traders and middlemen have accumulated marketing strategies that enable them to bargain for lesser prices at farm gates. The goods are then sold at high prices in towns and city markets, benefiting the trader or the middlemen rather than the farmer. Farmers are almost isolated from the market due to poor marketing information and weak bargaining power against powerful networks of traders. Among small scale farmers, poor market channels and information asymmetry were contributing factors that hindered farmers' interest in tomato production.¹⁹ Hence, the effect of the above put the farmers in a condition of poverty and hunger despite their production.

4. A Theoretical Understanding of Vegetable Value Chain Analysis

The theory of value chain analysis (VCA) found its value and place in the 1980s and was introduced by Michael Porter in his book 'The Competitive Advantage' in 1985. This concept was used to describe agricultural commodity chains, through the analysis of inputs and outputs, and a quantitative measure of cost, prices and value added.²⁰ Porter's value chain is a framework for developing an analytic structure that follows web of interdependent distributive activities from the producers to the final consumers. In an agricultural setting, the theory analyses the marketing structure, functions,

¹⁴JOS PROF 2/19/DIS AGRICULTURAL POLICY AND PROPOSAL 1946-1950, 68 PAGES

¹⁵JOS PROF 2/19/DIS AGRICULTURAL POLICY AND PROPOSAL 1946-1950, 68 PAGES

¹⁶ Harold Gunn, Peoples of the Plateau Area of Northern Nigeria, (London: Hazel, Watson and Viney Ltd, 1953), 22

¹⁷Jos Prof. 48277. 20/1/10, The Jawara-Reorganization Bauchi Province

¹⁸ Interview with Clement Dankat, 48 Years, Farmer and a Trader, Farin Dada Market, 24th February, 2020

¹⁹Awo Martha Adimabuno, 'Marketing and market queens: a case of tomato farmers in the Upper East Region of Ghana' (Berlin: Lit. Lomdon Publication: 2012), 49

²⁰Clay and Feeney, 'Analysing Agribusiness, 34

cost and margin, right from the input suppliers-to-producers-to-intermediaries-and-final consumers. According to Porter, the theory of Value Chain Analysis (VCA) states that:

...activities within an organisation add value to the service and products that the organisation produces, and all these activities should be run at optimum level if the organisation is to gain any real competitive advantage. If they are run efficiently the value obtained should exceed the costs of running them.²¹

Davis placed more emphasis in line with porter's view by stated that technological change 'has brought agricultural production and marketing closer and closer together, making them interdependent and thus the need to look not just at the production on the farm but at the aggregate of all agricultural purchasing production-distribution operations.²²The idea of a certain product at the consumer table, and a consistent set of value-adding operations needed for that to occur, is rooted in the very concept of agricultural value chain analysis.²³

This theory is relevant to vegetable production and marketing because agricultural value chains analysis encompasses the flow of products, knowledge and information between smallholder farmers and consumers. They offer the opportunity to capture added value at each stage of the production, marketing and consumption process. Smallholder farmers engage with value chains in order to gain added value for improving their livelihoods.²⁴Norton opined that in an agro-business especially that of production and marketing, the purpose of value chain is to link activities that would add value to a product; it consists of actors and actions that improve a product while linking commodity producers to processors and markets. Value chain works best when their actors cooperate to produce higher-quality products and generate more income for all participants along the chain.²⁵

In an organised marketing channel, most vegetable farmers do not sell their vegetables directly to the consumers. Between the producers and the consumer there are set of intermediaries performing different set of marketing functions. These intermediaries in the marketing channel are wholesalers, and retailers. Because of the perishability nature of vegetables couple with poor transportation network, the marketing channel in Plateau State is disorganized. Farmers sometimes, boycott the intermediaries and sell their product either to retailers or directly to the consumers. They sometimes disorganised the marketing channel because of Post-harvest perishability which is a major threat to the farmers. Odemero, and Ngozi, noted that,²⁶'as high as 10-30% post-harvest losses occur due to delays in transport arrangements and long distances to urban markets. Inefficient transportation of vegetable to the market is one of the problems of vegetable marketing as it leads to high degree of spoilage. Consequently, it is sold off in a hurry, sometimes at uneconomic rates. Adimabuno observed that among small scale vegetable farmers, poor transportation network, poor marketing channels, low commodity prices, the controlling power of intermediaries, weak market institutions, lack of farmer cooperation, processing and storage facilities, compelled farmers to sell at low prices rather than lose the entire product. Focus Group Discussion with AziGwom, Ezekiel Bulus, Ayuba Chollom, Yakubu Dawan confirmed that vegetable production is a very lucrative business but has greater risk factor because of its perishability. They stated that vegetable is not something you farm and keep; one has to get a ready market before he/she ventures into the business.²⁷

Perishability implies deterioration or loss of natural quality or marketable life or saleable quality. Gotom Jackson, a tomatoes and potatoes farmer lamented that, he lost heavily in 2019, due to pest and diseases, and the remaining ones harvested loss their quality and marketing value.²⁸SaniKabiru. Sani, a wholesaler in Tilde Fulani in Toro LGA of Bauchi State stated that, they buy vegetables from farmers at a good price base on quality and those without quality receive poor price because of their perishability. He said that vegetable with good quality are transported to south-western part of Nigeria and the poor ones are mostly sold in the local market for those who own restaurants. He confirmed that the problems for poor quality of vegetable are; pests and diseases, bad roads, heavy rainfall, poor storage and processing, postharvest handling etc. These factors seriously affect the marketing of vegetable and those who are at the receiving ends are mostly the rural farmers.²⁹ Omar Kaita, a transporter stressed that, the condition of roads in Nigeria is nothing to write home about. He expressed that the stress and headache transporters experience transporting vegetable from the rural areas to urban cities (including south-western Nigeria) is very tedious. And the painful side of it is that most consumers do not understand, all the want is to beat the price down.³⁰

In vegetable marketing, there are actors involve, each performing their roles according to their specialization. Vegetable must pass through the following channel of distribution before it gets to the final consumer (s). Diagram is shown below.

²¹Value Chain Analysis - LearnMarketing.net, Retrieved from: [www.learnmarketing.net > valuechain](http://www.learnmarketing.net/valuechain), (13th May, 2020)

²² Davis. J,From agriculture to agribusiness. (Harvard Business Review,1956, January/February), 107-108.

²³ T.L Sporleder and M.A. Boland. 2011. Exclusivity of agri-food supply chains: seven fundamental economic Characteristics.International Food and Agribusiness Management Review 14(5): 27-51.

²⁴Agricultural Value Chains,

file:///C:/Users/first%20user/Downloads/Framework/VALUE%20CHAIN%20ANALYSIS/Agriculture%20for%20Impact%20Agricultural%20Value%20Chains.html

²⁵ Roger Norton, 'Agricultural value chains: A game changer for small holders,'SlideShare, [www.slideshare.net > afaas > agricultural-value-chain-a](http://www.slideshare.net/afaas/agricultural-value-chain-a). (13th May, 2020)

²⁶Achoja Felix Odemero, and Okoh Rosemary Ngozi, 'Post-Harvest Properties of Tomato and Effect on Its Marketing Efficiency' Turkish Journal of Agricultural and Natural Sciences 1(1): 52-58, 2014, 53.

²⁷Focus Group Discussion with AziGwom, Ezekiel Bulus, AyubaChollom, YakubuDawan, Shere District of Jos East LGA of Plateau State, Farmers, 27th December, 2019.

²⁸Interview with Gotom Jackson, 38 years, farmer, Pankshin LGA of Plateau State, 22nd November, 2019.

²⁹Interview withSaniKabiru.Sani, 50 years, Tomato Marketer, Tulde Fulani, 25th November, 2019.

³⁰Interview withOmar Kaita, 46 years, Transporter.Bauchi, 25th November, 2019.

Table 1: An Overview of Vegetable Marketing Channel from Input Supplies to Consumer
Source: Wwww.Elements-of-the-Vegetable-Value-Chain-in-Nigeria-Source-Ugonna-Et-Al-2015

From the above diagram, vegetable production and marketing start from the input suppliers. The input suppliers sell the farm inputs to the farmers, who farms, produce and sell it to the wholesaler-retailer-consumer. The wholesaler sells directly to the retailer-marketers-store, the retailer in turn sell it directly to the consumer. While the farmer-wholesaler can either sells to the processor. The processor processed into finish good and sells to the departmental store and the departmental store to the consumer(s). But sometimes the marketing structure can pass through the following from farmer's field to consumers' hand.

- Producer----Wholesalers----Retailers----Consumers
- Producer----Retailer----Consumer
- Producer----Consumer

Yayock et al. classified the intermediaries associated with the marketing of farm produce into several categories viz; local and urban. The local traders live in the village takes their produce to the market and then sells collections in village markets, either through village retailers or directly to consumers while the urban traders on the other hand purchases farm produce in rural markets from retailers or directly from farmers, and transport the material to other markets or to urban centres for sale and his purchases are larger than the local trader. Retailers generally purchase produce from wholesalers and sells to the consumers who buy in small quantities at a time.

The functions performed by retailers of farm produce include: reducing produce to small units where relatively low-income consumers can easily afford or buy, buying and displaying produce for sale at places that are convenient to consumers and sorting, processing and repackaging produce to suit consumers' needs. The retailers either sell their vegetables at the main urban market or sell them on to retailers in smaller markets in the city. When selling directly to the consumer, they will sort and grade the tomatoes according to quality, including size, firmness, and blemishes. Retailers sell tomatoes by container (volume) and quality rather than weight.³¹ The wholesalers as individuals who rent stalls in urban markets and handle large quantities of farm produce performing marketing functions such as buying, storing and financing the exchange produce. Marketing through wholesalers, channels has important advantages.³² Firstly, wholesalers buy produce from farmers or local traders and sell to the retailers, to other wholesaler's domestic and foreign markets and to manufacturers and agricultural processors. Secondly, wholesalers often finance the movement of produce and invariably bear most of the marketing risks. In general, farmers who are able to sell their produce directly to wholesalers at the village markets has better chance of receiving higher prices than those who dispose of theirs through local traders to wholesalers. The transporter is another intermediary in the chain of middlemen who perform marketing functions.³³ The transporter conveys farm produce from place to place by means of animal power and various types of motor vehicles. Kassali and William,³⁴ expound more knowledge on the important of transportation at each level of the marketing channel. They argued that in a situation where smooth transportation network is not adequate, vegetables would not get to the final consumers on time and in the quality and quantity they desire. Bad roads affect vegetables production and marketing

³¹Elizabeth J. Z. Robinson and Shashi L. Kolavalli, 'The Case of Tomato in Ghana: Marketing' (The Ghana Strategy Support Program (GSSP) Working Papers, Paper No. 20, April 23, 2010) Development and Strategy Governance Division, IFPRI, Ghana, 7

³²J. Y Yayock, G. Lombin, and J. J Owonobi, Crop Science and Production in Warm Climates. (Macmillan intermediate Agricultural Series 1998), 10

³³U Haruna, M. H Sani, H. A Danwanka, and E Adejo, 'Economic Analysis of Fresh Tomato Marketers in Bauchi Metropolis of Bauchi State, Nigeria' Nigerian Journal of Agriculture, Food and Environment. 8(3):1-Published September, 2012. 2.

³⁴RabirouKassaliAdeoluBabatundeAyanwale, Ezekiel OlukayodeIdowu and Stella Bola William, 'Effect of rural transportation system on agricultural productivity in Oyo State, Nigeria', Journal of Agriculture and Rural Development in the Tropics and Subtropics, Vol. 113 No. 1 (2012) 13-19
 urn:nbn:de:hebis:34-2012061541307 ISSN: 1612-9830 - journal online: www.jarts.info., 2.

not only in Plateau State but Nigeria as a whole. Price is also a determinant factor, because price setting between farmers and traders sometimes occurs before traders go to farmers' fields, and the price is negotiated for the top-quality vegetables, traders may try to negotiate the price downwards when they see the vegetable if they feel that quality is lower than anticipated. Farmers usually have little success in dictating the terms between themselves and the traders. Traders supply the farmers with crates, thus determining the quantity and quality that will be purchased, which may be less than the farmers would have chosen to harvest and transport the filled crates to the market.³⁵

5. Dialectics of Rural Poverty

As mentioned earlier, hunger and poverty lie amidst plentiful! The reason why there is hunger and poverty among vegetable farmers in Plateau State has been attributed to number of factors ranging from the perishability nature of the crops, its seasonal glut, bulkiness, pests and diseases, postharvest handling, bad roads, heavy rainfall, drought, lack of farmers bargaining power, farmers inadequacy in the utilization of income from vegetable sale and host of other problems. The above factors are the reasons why vegetable farmers in Plateau State are tied up in the vicious cycle of hunger and rural poverty. This situation seems to be glaring in their poor standard of living, poor access to good education, health care services, comfortable housing facilities, good roads, standard of food, safe drinking water etc. The factors above made Odeyto revealed that this situation seem to be a good index or an alternative to income-oriented definition of 'the poor' since it is difficult to arrive at farmers income level defined by a fix's standard.³⁶

The dialectics of hunger also emanated from the narrow agricultural resource base, which has not changed or diversified from its traditional mode overtime. The implication of this is that vegetable productivity still remains very low and cannot bring about any meaningful development strategy to the majority of rural farmers. Rather, the slow growth in food production; financial constraints and rapid population growth generally placed extra demands on the subsistence to the extent that it led to deterioration in the quality of rural life.³⁷ Example of this is obvious when one examines the nature of land tenure and labour organization in most communities on the Plateau. Land and labour as a factor of production pose a major threat to vegetable production and marketing in Plateau State. From the pre-colonial times-through colonial and post-colonial era the structure of land tenure system and labour organization in most rural communities still remain unchanged. This in itself have to some extent hinders commercial production, development and joint farming with outside commercial farmer who have insight not only in production but also in marketing strategies.

In most rural communities on the Plateau, land is regarded as joint property of the community and the ownership belongs to the cultivator, family, lineage, clan, and community, absolutely. This type of right is called 'absolute interest'. Land can be given to a member only by birth; this means that it cannot be alienated outside the patrilineal holdings. Sometimes, it can be derivative. The 'derivative interests' on the other hand are interests that have been derived or carved out from the larger estates or superior estates.³⁸ They are inferior in quality and include leaseholds, life interests, kola tenancy, mortgage, borrowed interests among others. Labour on the other hand plays a key role in vegetable production. The labour employed on vegetable farms consisted basically of members of the household or clannish. Labour is organized at lineage or village levels, it is carried out occasionally and rotationally among the lineages. Communal labour that is organized on a large scale is open to the lineage-based community depending on how rich the farmer is and his willingness to supply the necessary beer for the workers. The practice of land tenure system and communal labour system is a huge hindrance to vegetable production and marketing because it discourages the dissemination of marketing information and weakens farmers bargaining power in marketing their produce.

Kebede and Ganin the same fashion asserted that the main sources of farm income for small and limited resource rural farmers are basically arable crop production consisting of vegetable and non-vegetable crops. According to them, the popularity of vegetable is linked to the low cost per unit of resource use in the production, short gestation period and quick returns on invested capital compared to other crop enterprises.³⁹ Thus, the practice of this has devastating effect on the soil fertility, due to over-cultivation. And the dialectics of rural poverty here is the lack of knowledge in fundamental principle of organic farming; leave the rural vegetable farmers in abject poverty due to reduction in vegetable yield. The resultant effect of soil nutrient damage, caused by over cultivation of the same piece of land yearly, put the farmers in vicious cycle poverty. Farmers sometimes have the knowledge of crop rotation but because they are used to cultivating the same type of vegetable on the piece of farmland for maximum profit, allow the soil to lose it nutrient and leads to soil infertility.

Smith and Eyzayuirre also examines that vegetable production is characterized by the use of crude implements, non-availability of inputs, illiteracy, expensive and complex technologies. Consequently, vegetable production is constrained by inadequate infrastructure, agronomic and socioeconomic variables.⁴⁰ The vegetable sub-sector of the Nigerian agricultural sector is however characterized by a large number of small-scale vegetable farmers, scattered over wide expanses of land with holdings ranging from 0.05-3.0 hectares per farmer, low capitalization and a low yield per hectare. The smallholder farmers have also been characterized by a low level of resource utilization, low levels of

³⁵ Robinson and Kolavalli, 'The Case of Tomato, 7

³⁶ Mike OdugboOdey, 'A History of Food Crop Production in the Benue Area; 1920-1995: The Dialectics of Hunger and Rural Poverty,' (A Thesis of the Department of History, Faculty of Arts, University of Jos, Nigeria, 2001), 312

³⁷ Odey, 'A History of Food Crop Production, 313

³⁸ G. O Udo, Model Building in Property Valuation (Enugu: Institute for Development Studies, University of Nigeria, 2003), 3

³⁹ E. Kebede, and J. Gan, (1999). 'The Economic Potential of Vegetable Production for Limited Resource Farmers in South Central Alabama,' Journal of Agribusiness, 17(1): 63-75, 64

⁴⁰ F. I. Smith, and P. Eyzayuirre, African Leafy Vegetables: Their Role in the World Health Organization's Global Fruit and Vegetable Initiative. African Journal of Food, Agriculture, Nutrition and Development, 7(3): 1-17, (2007), 2

productivity, low returns to labour and a low level of capital investment.⁴¹ The findings of Smith and Eyzayuirre are applicable to Plateau state. The use of simple farm tools for commercial consumption does not only discourage vegetable farming, it makes the farmer(s) to work hard and receive less income from vegetable sale. This in turn puts the farmers in a state of poverty.

Poverty is likely to affect the capacity of the farm households to access better health and education facilities, purchase inputs at the proper time, acquire other farm assets and resources as well as adopt new technologies. The low level of these factors in turn affects agricultural productivity adversely. From these, poverty is not only an effect but also a cause of low agricultural productivity.⁴² In reaction to this, James Audu observed that the reason why rural farmers cannot purchase input supplies or adopt to new technologies is because of poverty. He reiterated that most rural farmers in Plateau state hardly get support from the state or local government. With low income it is obvious to expect low farm yield. AziGwom noted that the low level of farmers income is one of the reasons why vegetable farmers are been caught up in the vicious cycle of rural poverty. According to him most farmers prefer to practice mono-cropping because it saves cost.⁴³ James Ayuba argued closely in line with AziGwom by observing that the reason why farmers in Plateau State are caught up in the vicious cycle of rural poverty is that, farmers prefer to farm a single crop because it gives good yield not minding the danger it will cause on the soil.⁴⁴ Contrary to the point of view of Azi-Gwom and Ayuba, Diver, Kuepper, and Born advice that the best method to control this is perhaps the most important method of cultural control for vegetable is rotating the crops between soils every three or four years to reduce populations of the fungus *Fusariumoxysporum* f. sp. *lycopersici* in the soil. This includes rotation of crops within the tomato family (Solanaceae), including pepper, potato, eggplant, and husk tomatoes.⁴⁵

6. Conclusion

This paper had critically examined vegetable farming in Plateau State: the dialectics of rural poverty. It analyses the fundamental reasons why farmers on the Plateau prefer to dive into vegetable farming. The finding of this paper reveals that vegetable farming is a quick and easy way of generation fast income for the small-scale rural farmers on the Plateau. The irony of over cultivation of land and planting of the same types of vegetable crop for a longer period of time, leaves the soil expose to all sort of diseases, both soil burnt and air burnt. The resultant effect of these practices leaves the farmers in abject poverty most especially during the lean period. In respond to the above findings, as a way of tackling the problem, Diver, Kuepper, and Born identify one of the foundations of organic farming is maintaining and building a microbial-active soil enriched with organic matter and a balanced mineral diet, which will help farmers to improve yield. To them, Humus-building practices and addition of minerals not only supply plant nutrients but also increase tolerance to insects and diseases, help control weeds, retain soil moisture, and ensure produce quality.⁴⁶ According to them, typical organic fertility system revolves around a combination of practices such as using crop rotation, forage legumes, cover crops, green manures, composted livestock manures, and lime, rock phosphate, and other rock minerals, as well as supplemental organic fertilizers. Depending on the soil type, soils with no history of organic management will probably need additional fertilization to be incorporated during field preparation and bedding operations or banded to the side of the row at planting.⁴⁷

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⁴⁴ Interview with AyubaGara, 38 Years, MiangoBassa LGA, Farmer, 21st May, 2020

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