

Socioeconomic Status of Vegetable Farmers in Three Rural Communities of Jos, North-Central Nigeria

Yilangai, R. M.^{1*}, Pineau, W.², Manu, S. A.¹ and Kambai, C.³

¹A. P. Leventis Ornithological Research Institute, University of Jos Biological Conservatory, Jos, Nigeria

²Pro Natura International Paris, France

³Federal College of Forestry Jos, Nigeria

Abstract: *Smallholder farming is the predominant farming practice in Sub Saharan Africa with majority of the farmers living in rural areas. In Jos Nigeria, vegetable farming occurs mainly in the dry season providing a major source of living for the rural populace. In this study we investigated the socioeconomic status of vegetable farmers in three villages of Jos East Local Government Area in Plateau State, North Central Nigeria. All vegetable farms in the three villages were visited and documented. Questionnaire forms were used to obtain information on farmers' income before and after receiving support. Results showed that 7 vegetable crops were predominantly grown in these areas where *Cucumis sativus* (cucumber) was the most widely produced crop. The largest population of the farmers produced low quantity of the crops earning an average income of USD 384 per individual per harvest season. While after receiving support from agroforestry and vegetable production project, the average income earned per farmer in each harvest season increased to USD 629 (39 % increase). Greater population of these farmers who are married with children depend solely or mainly on farming to carter for an average family of five.*

Keywords: *Farmers' support, Income, Rural communities, Smallholder farming, Vegetable crops.*

I. Introduction

Agricultural development is the key driver of economic growth in sub-Saharan Africa [1], where about 75 % of the extreme poor still reside in rural areas, and over 90 % of those who participate in agriculture are directly or indirectly dependent on agriculture as their source of income [2; 3; 4; 1]. Research has shown that 56 % of the populations live in extreme poverty barely on US\$ 1.25 per day or less and almost 33 % are undernourished [5-6]. Poverty contributes to poor agricultural productivity, as many farmers cannot afford to purchase necessary farm inputs such as fertilizer, pesticides and improved seeds, which would bring about increased productivity [7].

Smallholder farming is the predominant form of agricultural production in sub-Saharan Africa (SSA) and also an important tool in poverty eradication in the region. For every 10 % increase in farm yields, there has been a 7 % reduction in poverty in sub-Saharan Africa, where 32 % of the Gross Domestic Product (GDP) is generated from the 65 % of labour force involved in agriculture [3]. In Nigeria, like other parts of SSA, agriculture plays a central role in its economic development. However, in spite of its vast agricultural potentials, its rural dwellers that constitute a larger proportion of its population and produce about 90 % of its food supply are poor. For many rural households in Nigeria, agriculture is the main activity, and previous and current analysis of poverty has shown that poverty is inexplicably concentrated among households whose primary livelihood lie in agricultural activities [8; 4]. Furthermore, while increasing agricultural output improves the productivity of farmers, this developmental process is not achievable without an efficient and responsive marketing system for agricultural products [9]. In most African countries, inefficient food crop marketing system makes it difficult for farmers to dispose of their produce at attractive prices and at places of their choice [7].

Farming activities in communities (Laminga, Kerker and Zarazon) surrounding A. P. Leventis Ornithological Research Institute (APLORI) take place all year round in rainy and dry seasons. Vegetable crops are the predominant crops produced and mainly during the dry season between October and April comprising two rounds of harvest periods. While vegetable production is low in rainy season, other food crops such as maize (*Zea mays*), Guinea corn (*Sorghum bicolor*), millet (*Pennisetum* spp), beans (*Vigna unguiculata*), etc are produced in larger quantities. Crude implements typical of smallholder farming, manual irrigation from locally dug wells and manual labour are employed by the farmers. Although farmers use high quality hybrid seeds which ensure high crop productivity, the continuous tillage of soil without fallow periods has reduced the fertility of the soil and consequent reduction in crop yield [10]. With the prevailing high standard of living which places high demand on the low income farmers earn with backbreaking labour, it becomes difficult for them to increase yield without intervention of experts and professional bodies. In view of the significant role agriculture plays in the livelihood of these people, studies on their socioeconomic status is important in making

informed poverty alleviation strategies and improvement of marketability of their farm products. APLORI in collaboration with Pro Natura International (PNI) and the Social Development Fund (SDF) of the Embassy of France in Nigeria initiated the agroforestry and vegetable production project where farmers in Laminga, Kerker and Zarazon were given support in form of equipment and agro-inputs. As part of the project objectives, the socioeconomic status of these farmers was investigated in order to appraise the quantity of crops produced and amount of income gained by farmers before and after receiving support.

II. Materials And Methods

2.1. Study area

The research was carried out in Laminga, Kerker and Zarazon villages in Jos, North central Nigeria about 8 km east of Jos metropolis. The occurrence of large expanse of relatively flat lands makes these villages predominantly agricultural areas producing several tons of vegetable crops annually. It has a mean annual rainfall of 1375 mm -1750 mm per annum with a mean temperature of 10 - 13 °C. Farming occurs almost throughout year in rainy and dry seasons. Crops produced during the rains are mainly cereal crops such as maize, guinea corn and millet. Vegetable crops are produced largely during the dry season by irrigation systems. The vegetable crops produced include cabbage (*Brassica oleiraceae*), cucumber (*Cucumis sativus*), green beans (*Phaseolus vulgaris*), green peas (*Pisum sativm*), green pepper (*Capsicum annuum*), Irish potato (*Solanum tuberosum*) onions (*Allium cepa*) and tomato (*Lycopersicum esculentus*).

2.2. Data collection

Documentation of vegetable farmers was carried out in December, 2011. All vegetable farms in the three communities were visited and the farm owners who were 153 in total were documented according to their communities, clans, families and individuals as well as the types of crops they produce. Socioeconomic survey of farmers was carried out using well-structured questionnaire from March to April, 2012 (before giving support) and June to July, 2013 (after giving support). The questionnaire forms were distributed to all 63 farmers in attendance during the first meeting held with farmers in the three communities. A total of 63 questionnaire forms, 21 in each community were distributed to the farmers who were in attendance. The farmers were guided on how to fill the questionnaire instrument, after which they were allowed to fill at their own leisure time. All the 63 farmers responded after which the forms were retrieved for analysis. The personal data of farmers which included age, occupation, marital status, number of children and number of siblings were investigated. The quantity of vegetables produced and amount of income (in USD) realized before and after support and challenges involved in marketing of produce were also investigated.

2.3. Data analysis

Data was analyzed using excel and R statistical package version 3.0.1. Results were presented in form of tables and graphs. One way ANOVA was used to test for difference between the numbers of farmers producing the seven vegetable crops. The percentages of farmers were determined using the formular: $n/N \times 100$ (where n = number of respondents for each item, N = total number of respondents; N= 63)

III. Results And Discussion

3.1. Vegetable farmers in the three villages

A total of 153 vegetable farmers were recorded, 79 in Laminga, 53 in Kerker and 22 in Zarazon villages, respectively. The seven most widely cultivated vegetable crops in these 3 villages were cucumber, tomato, green pepper, green beans, onions, Irish potato and cabbage. On average, more farmers produced cucumber followed by tomato and fewer farmers produced cabbage, Irish potato and onions (Fig.1).

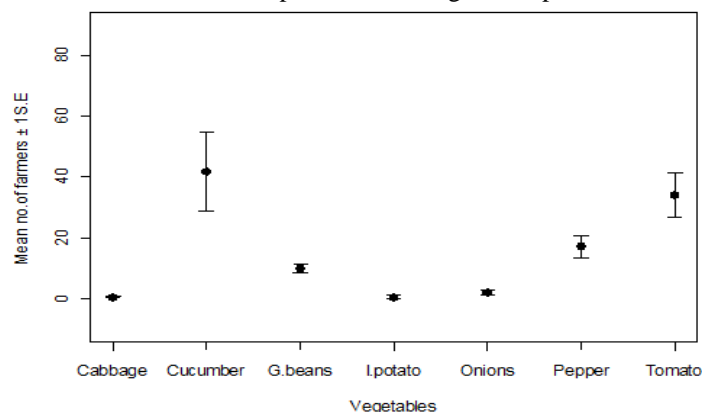


Figure 1: Farmers producing the 7 vegetable crops in the three villages

3.2. Personal data of farmers

Out of the 63 respondents, 42 (66.67 %) were married and 41 (66 %) were full time farmers while the largest number (80.31 %) of the farmers were males (Table 1). Mean number of children per farmer was 3 and mean number of siblings per farmer was 4. Generally, over 82 % of the farmers have farming as their major source of income and 66 % are full time farmers.

Table 1: Personal data of farmers (N= 63)

Item	Status	Percentage (%)
Marital status	Married	66.67
	Single	29.03
	Widows	3.23
Occupation	Students	16.00
	Business owners	10.00
	Civil servants	8.00
	Full time farmers	66.00
Sex	Female	12.70
	Males	80.31

3.3. Quantity of vegetables produced

The 4 most commonly cultivated vegetable crops were cucumber, tomato, green beans and green pepper. The largest number of cucumber farmers (41.27 %) produced between 1,800 - 4,455 kg, while the highest quantity of cucumber (4,500 kg-above) was produced by 20.63 % of the farmers (Table 2). About 52.38 % of the farmers (more than half of the sampled-population) produced between 350-3,465 kg of tomato, while the largest quantity of (10,500 kg and above) was produced by only 3.17 % of the farmers (Table 2). Quantity of green beans produced by the largest number of farmers (34.92 %) ranged between 250 - 1,225 kg, but only 9.52 % produce the largest quantity of 1,250 kg and above Table 2). Pepper cultivation was the lowest among the four vegetables investigated and 350-1,015 kg produced by the largest number (34.92 %) of the farmers. Production of pepper above 1,050 kg was recorded in only 9.2 % of the farmers (Table 2).

Table 2: Quantity of vegetables produced by farmers

Crop	Quantity (kg)	Number of farmers (%)
Cucumber	4,500 - above	20.63
	1,800 - 4,455	41.27*
	45 - 1,755	14.29
Tomato	10,500 - above	3.17
	3,500 - 10,465	20.64
	35 - 3,465	52.38*
Green beans	1,250 - above	9.52
	250 - 1,225	34.92*
	25 - 225	15.87
Green pepper	1,050 - above	9.52
	350 - 1,015	34.92*
	35 - 315	23.81

Note: * indicates the largest percentage of farmers producing the particular crop

3.4. Consumption and marketing of vegetable crops by farmers

About 10 - 30 % of the crops produced were consumed by the farmers while the remaining 70 - 90 % was sold out. The crop that was consumed by majority of the farmers (78 %) was tomato. Cucumber which was the most widely produced vegetable was consumed by about 16 % of the farmers. Considering the means of marketing of farm produce, 28.57 % of the farmers conveyed their produce to the market to sell directly to wholesalers while 25.40 % sold to wholesalers directly from the farm. About 75 % of the farmers preferred wholesalers coming to buy directly from the farm. There was no collaborative means of marketing farm produce with any marketing firm as obtained from response of 98.41 % of the farmers. The major problems faced by farmers in marketing their farm produce were inadequate means of transportation (53.97 %) and scarcity of buyers from (14.29 %).

3.5. Quantity of crops produced and income realised before and after support

A total number of 100 farmers received support for traditional farming. There was about 37 % increase in quantity of vegetables harvested per individual per harvest period as a result of support received by farmers for farming. The average income realized per individual per harvest period before the support was USD 384 and after the support was USD 629 (USD 245 or 39 % increase in income). Percentage increase in crops after

support was 57.27 for cucumber, 45.22 % for green beans, 93.33 % for green pepper and 60.50 % for tomato (Table 3).

Table 3: Total quantity of vegetables produced before and after support

Crop	Quantity before support (Kg)	Quantity after support (Kg)	Increase in quantity (Kg)	% increase in quantity
Cucumber	42,210	69,570	25,335	57.27
Green beans	2,875	4,175	1,300	45.22
Green pepper	1,050	2,030	980	93.33
Tomato	43,330	69,545	26,215	60.50

Vegetable farming in communities surrounding APLORI is a predominant agricultural practice from which a greater part of the community earns its living. Cucumber is the most widely cultivated vegetable produced by majority of the farmers followed by tomato, but in terms of annual productivity, tomato is produced in largest quantity than cucumber. A greater number of these farmers who are also married with kids depend solely on farming for their source of livelihood without any external support from government or any organization to improve their farming methods. Other classes of the farmers are students, widows and housewives whose fate depends on farming to a large extent. Similar finding [1] reported that about 70 % of Africans and roughly 80 % of the continent's poor live in the rural areas and depend mainly on agriculture for their livelihood. Poor households are more in agricultural occupation and participation in agriculture is more predominant in rural areas where majority of the people are small-holder farmers [7]. Without any collaborative means of marketing farm produce with any marketing firm or industry, a larger number of the farmers investigated conveyed their goods to the market to sell to the wholesalers directly. But when asked the means suitable for them to market their produce, majority of the farmers preferred wholesalers coming to buy directly from the farms probably because of the problem of transportation the farmers face as a major deterrent to marketing their farm produce. However, apart from poor transportation, scarcity of buyers at peak harvest times also poses some threat to maximum sale of farm produce. Because of the peasant nature of African farmers, it is almost impossible for them to overcome these constraints on their own. Therefore, there is need for greater involvement of the public sector in many African countries to improve marketing of farmers' produce against these prevailing challenges [11]. Promoting producer and marketing organizations that link small farmers to new market chains will enable African farmers to find pathways out of poverty and to contribute actively to the growth process. In line with [11], the farmers in this study suggested that making collaborations with some business firms to buy produce directly from farmers without intervention of middlemen, establishment of close proximity markets and processing industries, provision of water sources, good transportation networks, agro-inputs, equipment and means of preservation and storage will improve the marketability of their produce. The farming system prominent in these areas as confirmed from this study is smallholder farming because the quantity of crop produced is only enough to feed the household and sold out to earn a small amount of income for living. With this, the ability of farmers to increase productivity is near impossible. In line with this finding, [7] poverty contributes to poor agricultural productivity, as many farmers cannot afford to purchase necessary farm inputs such as fertilizer, pesticides and improved seeds, which would bring about increased productivity. It was also found from this survey that majority of the farmers consume only 10 – 30 % of the crops they produce, and while cucumber is the main crop produced, it is not the chief crop consumed but tomato. Possible reason for the low consumption of cucumber among the farmers could be that the farmers do not appreciate it in cooking their local meals and so have eluded the nutritive value of the crop even though they have it at their disposal.

IV. Conclusion

Vegetable farming in rural communities of Jos has provided a means of employment and sustainable livelihood for many of the rural populace. Besides providing a means of livelihood and enhancing food security in rural areas, urban communities also largely depend on crops produced in the rural areas for food. With the low income farmers earn from relatively small quantity of produce through strenuous labour, it will be difficult for them to increase yield without intervention from government and private sectors. Smallholder farming could be a powerful tool in eradicating poverty in rural areas if relevant strategies are put in place to improve productivity of this agricultural sector. Innovations of improved farming techniques and interventions in form of loans, grants and technical support will improve productivity in smallholder farming which in turn will enhance food security and economic growth of the country.

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