



Environmental Technology & Science Journal (ETSJ)

VOLUME 7

No. 1

JUNE 2016

ISSN NO: 2006-0459



PUBLISHED BY:

**School of Environmental Technology (SET),
Federal University of Technology**

P.M.B 65 MINNA, NIGER STATE
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**Environmental Technology and Science Journal (ETSJ)
Volume 7 No. 1, June 2016. ISSN-2006-0459**

Published by:

**School of Environmental Technology (SET), Federal University of Technology,
P.M.B. 65, Minna, Nigeria.**

E-mail: etsjournal2006@yahoo.com

ISSN: 2006-0459

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ASSESSMENT OF URBAN WOMEN FARMERS' CONTRIBUTIONS TO POVERTY ALLEVIATION IN SMALL TOWNS OF KWARA STATE, NIGERIA

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Abstract

Urban agriculture is a strategy to food security, poverty reduction and urban environmental management. This study assesses the contributions of women farmers to poverty alleviation in small towns of Kwara State. Specifically, it identifies the poor urban women; examines the features of urban agriculture; examines the ways urban food production by women farmers helps improve nutritional development and determines the impact of urban food production on women farmers' poverty alleviation. Primary and secondary sources of data were employed in order to achieve the stated objectives. A multistage sampling technique was employed to select 1,801 women farmers for questionnaire administration. Foster Greer and Thorbecke poverty measure was used to examine the poverty situation of the respondents. ANOVA was used to examine the features of urban agriculture between settlements in order to show if there are variations in urban farming in the sampled settlements. Multiple regression analysis was used to determine the socio-economic impacts of urban agriculture on women farmers' poverty alleviation. The findings revealed that the 93.1% of the respondents earn less than N50, 000 annually, 62.6% are into part-time farming while only 37.4% are into full-time. Only 19.7% are household heads. Also, 92.3% are poor based on the income from their main occupation. Significant differences only existed in the roles performed by women and types of crops grown between settlements. Multiple regression analysis revealed three variables (expenditure on household items expenditure on food and value of assets acquired) contribute about 67.6% to poverty alleviation. Recommendations made include urban agriculture should be given official recognition; urban agriculture should be retained as a part of the city's economy and land tenure system should be organized to allow women access to land and full right on use of land.

Keywords: Urban Agriculture, Food Security, Poverty, Environmental Management and Small Towns

Introduction

The population of Nigeria is increasing such that food supply does not meet with the demand. A lot of people live in hunger and poverty. Sharp increases in food and fuel prices over the past years have raised and eroded the purchasing power of poor households and raised serious concern about food insecurity, poverty and malnutrition in many countries including Nigeria (Quisumbing, Meinzen, Bussett, Ustruck, Pandolfell, Morden, and Alderman, 2008.). Accessibility to adequate and nutritious food supply constitutes a serious problem for many Nigerian households and the situation is

gradually approaching food crisis. High food prices affect nearly everybody that even salary earners appear worse-off because most of their income goes into food and other basic services that they have to pay for (Adedayo and Tunde, 2009).

Nigeria is a very rich country in terms of oil and other resources, but despite this, the country still ranks 156 out of the 187 countries of the world in terms of quality of life (United Nation Development Programme, 2010). "More than 70 percent of the population is classified as poor, with 35 percent living in absolute poverty" (Global Action on Aging, 2008).

According to a nationwide living standard measurement survey conducted in 2004, Kwara State is among the six poorest in Nigeria (National Bureau of Statistics, 2006). About 83percent of the population of the State was classified as being poor (NBS, 2006) and women represent a greater proportion of the poor as a result of their ascribed and acquired roles. Consequently, majority of these women move into urban agriculture.

The World Bank (1996) reported that women constitute two-third of the agricultural labour force and produce about 60percent of the total food grown and consumed in Nigeria. They shoulder the responsibility in the provision of food and welfare for their households despite their access to little productive resources (Anosike and Fasona, 2004). Similarly, Amali (1989) added that women's labour input is highest in food production, processing and the marketing of both raw and processed agricultural commodities. Women are often the farmers who cultivate food crops and produce commercial crops alongside the men. However, women farmers in the country are among the voiceless, especially with respect to influencing agricultural policies aimed at increasing food security and food production (Ogunlela and Muktar, 2009).

In Kwara State, most women participate in almost all farm activities in addition to family welfare services (Adedayo and Tunde, 2009). Despite all these contributions to agriculture and socio-economic development of the nation and the state in particular, women still suffer socio-cultural and policy biases. It is clear that gender discrimination, rather than ignorance, is one of the reasons for the lack of women participation in agriculture. This study therefore assesses the contributions of women farmers to poverty reduction in small towns of Kwara State. The specific objectives pursued include identifying the poor urban women; examining the features of urban agriculture; examining the ways urban

food production by women farmers help improve nutritional development and determining the impact of urban food production on women farmers' poverty alleviation.

Urban Agriculture and Food Security

Food security is an objective of every family and household in both the urban and rural areas. A household is food secure if it can reliably gain access to food of adequate quality and in quantities that allow all its members to enjoy a healthy and active life. Food insecurity is when livelihood systems (i.e their capabilities, assets and activities required for a decent means of living) change or fail to adapt to the challenges and shocks of their external environment. These shocks include sudden price increases and unavailability of food, emanating from environmental, socio-economic and political reasons. To combat these shortages, most household will engage in food acquiring activities or change their eating habits. Urban agriculture is an important tool for food security in the developing world. It serves to augment food security of urban households too poor to have the purchasing power to buy the food from the market. Urban farmers who are predominantly women, now amount for a whopping 800 million people worldwide (World Resource Institute, 2008). They grow fresh and different kinds of food and so they eat healthier meals that are rich in proteins and vitamins.

Feeding the family is the first priority of urban poor; they spend up to 80% of their income on food. To complement their income, urban agriculture serves as a means of income generation and it is a critical supplier of foods that are rich in micronutrient, such as fresh greens and vegetables. In most developing world, some of the factors responsible for food shortages include political instability, climate change, market globalization etc. Whenever there is food crisis, women and children in the urban areas are more

affected than the rural counterparts; urban farming therefore serves as immediate solution to food crisis problems. Urban and peri-urban agriculture has been viewed by women as a way of securing a degree of food security for their households (Food and Agriculture Organisation, 1991).

Veenhuizen (2006:3) pointed out that the contribution of urban agriculture to food security and healthy nutrition is probably its most important asset. He stressed further that food production in the city is in many cases a response of the urban poor to inadequate, unreliable and irregular access to food, and lack of purchasing power. According to FAO (2001) urban and peri-urban agriculture can contribute to food security in three ways.

Firstly, urban agriculture helps in providing direct access to fresh home-produced food and vegetables, hence reducing food insecurity. The reason for this is because poor urban dwellers do not have the purchasing power to acquire enough food. During food crisis period, urban farming serves as emergency supplies of food. Secondly, there is an increasing overall variety and nutritional value as a result of access to fresh and perishable foods through urban and peri-urban agriculture. It is important to note that food produced by consumers or in close proximity to them is often fresher than food that travels long distance to the markets. Thirdly, it provides employment in a sector with low barriers to entry. Worldwide, it was estimated that 800 million urban residents practiced urban farming for income earning and food producing.

Women and Food Production

The role of women in food production and marketing in the developing world is being recognized and quantified by resource economists and development experts. In Asia and Africa countries for example, women toil long hours in the farms, tend domestic livestock and vegetable gardens, pick fruits, gather fuel wood, fetch water,

prepare and cook food and take care of children (Ziso 2009:315). According to UNFPA (2001) women usually work longer 13hours than men each week in Asia and Africa. In Uganda, while women work as long as 50hours a week, men work for 23hours (Sadik, 1994). In Indonesia, women work 78hours a week while men work 61hours; in the Philippines they work 66 hours, compared with men's 41hours. Men usually produce cash crops, and at times hire out their labour.

Women are responsible for producing food for the family as well as for local consumption. They grow and sell 80 to 90 per cent of food in Sub-Saharan Africa (UNSCN-SCN, 2009). In Asia they produce 50 to 60 per cent of food consumed, 46 per cent of Caribbean's food and more than 30 per cent of Latin America's food. Furthermore, women and children are responsible for processing of up to 80 per cent of all fish and shellfish caught by local, artisan fisher folk in tropical Africa, Asia and the Pacific. Women are usually responsible for poor families' nutrition. However, most of this work is not included in national income accounts, yet without it most societies would fall apart. According to UNFPA (2001), if women's work around the house were monetized, their collective contribution to the world economy would easily top \$4 trillion a year as reckoned by the International Labour Organization (ILO).

Since women are food producers and providers, therefore, they should have equal access to education and training, extension services, technologies and credit, and equal rights to land tenure and inheritance just like their counterparts. This can only be achieved with the support of men. Women's roles in the wider community must be recognized by men they must accept their responsibility in parenthood and the family. Hence, one of the keys to food security is equity and equality.

Women and Poverty

In Nigeria and most developing countries, women's human rights have not been realized as a result of poverty. Women right came first among the critical issues for women of the world at the world conference on women in Beijing, China in 1995. At the Beijing Declaration it was estimated that 70% of more than one billion people in the world today are poor women who live in unacceptable conditions of poverty, mostly in developing countries. For instance, statistics on poverty in Nigeria indicate that 70 per cent of poor Nigerians are women who are concentrated among small farm households, households headed by informal sector workers, women and elderly persons without social safety nets (Federal Office of Statistics, 1998). A large proportion of Nigerians lack adequate health care, shelter and remunerative jobs. Poverty affects households as a whole, as a result of gender division of labour and responsibilities for household welfare. Women bear a disproportionate burden, attempting to manage households' consumption and production under conditions of increasing scarcity. Nigerian women are the most affected being marginalized in decision-making process, employment, economic opportunities and access to credit. Most of them suffer from illiteracy, high maternal mortality, low income and poverty (Central Bank of Nigeria/World Bank, 1999). Anytime there is food shortage from poor harvest linked to weather problems, women are the last to eat in their households prioritizing the food needs of male household members and children over their own. This is despite the fact that Nigerian women perform the majority of the work in food processing and dominate the rural and urban informal sector activities. Despite that less than 20per cent of women own their own farm, lands, fewer than 5 per cent have access to agricultural credits to enhance their productivity and incomes

(UNDP, 1998). This is because most of them do not have knowledge on what is involved in applying for credit and also because of the fear of being refused credits by financial institutions.

Methods of Study

Study Area

The study area for this research work includes the small urban areas of Kwara State as shown in figure 1. The State shares boundary with Niger State to the North, Kogi and Ekiti States on the East, Osun and Oyo States in the South and International boundary with the Republic of Benin in the West. Kwara State is located between latitudes 8° and $10^{\circ}04'N$ and longitudes $2^{\circ}45'E$ and $6^{\circ}12'E$ of the equator and occupies of $36,825\text{km}^2$ of land. The State has a tropical climate of distinct dry season of about four months between November to February and rainy seasons of between March and October. Annual rainfall ranges from 1,000-1,500mm while the mean maximum temperature ranges between 33°C and 36°C and the mean minimum temperature ranges between 19°C and 24°C for a greater part of the growing season (November – March). The absolute minimum and maximum temperature during this period ranges between 15°C – 20°C and 35°C respectively (Ajibade, 2002).

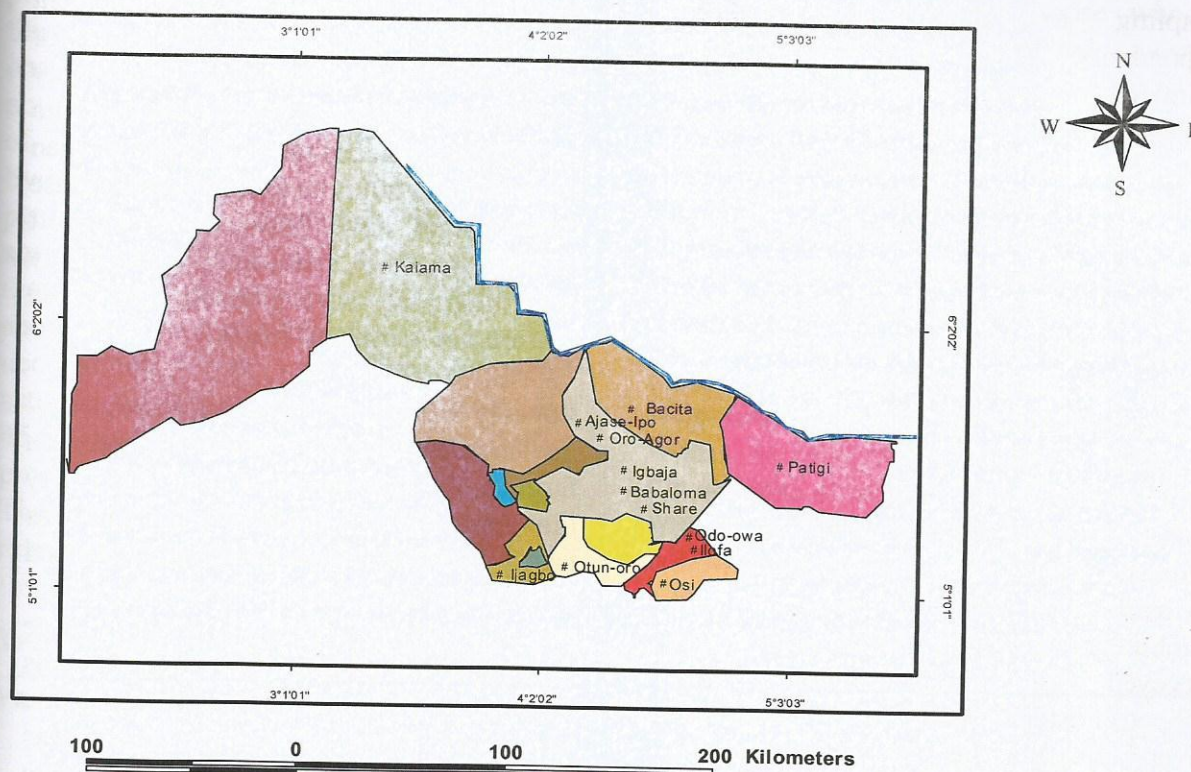


Figure 1 The Sampled Small Urban Areas in Kwara State

Source: Kwara State Ministry of Lands and Housing. Ilorin. 2010.

The vegetation is characterized by open grassland with scattered drought resistant trees in the northern part, orchard bush land in the middle belt and rainforest in the southeastern fringe (Kwara State Ministry of Agriculture and Natural Resources, 1989). Ferruginous tropical soils which have sufficient calcium, potassium, magnesium and phosphorus that can be tapped by crops grown are found here. These soils are well-leached topsoil with loamy sand texture mainly comprising nutrients that support the growth of food crops. National Population Commission (2006) reported that the population of the State was 2,371,089 people with 1,229,581 males and 1,150,508 females. Agriculture is the mainstay of the economy of the state. Crops grown include maize, yam, guinea corn, sorghum, cassava, sweet potatoes, ground nuts, beans and rice among others. The nomadic

Fulani and few residents in the state rear cattle, and keep other livestock such as local breeds of goats, sheep, pigs, poultry, bees and fish.

The 1991 population (the only officially available and reliable data for planning research activities) projected to 2001 revealed that there are forty-one (41) settlements with a population of between 5,000 and 20,000 people from thirteen (13) Local Government Areas of Kwara State. The sampled respondents for this study were drawn from these settlements and a multistage sampling technique was used. The first stage involved using the thirteen (13) local government areas as the sampling frame, then all the small towns with a population of between 10,000 and 20,000 people were selected. In the second stage, five percent (5%) of the households in these selected settlements was chosen

for the questionnaire administration using random sampling procedure.

The third stage involved the use of random sampling to obtain the required respondents. There are about 36,014 estimated numbers of households using average household size of five persons. This is in line with the national average reported by National Bureau of Statistics (NBS), 2006 and five percent of this gave 1,801 respondents that were sampled. In this context, only households with women farmers were sampled and one woman farmer per household was used as the target population. The first building on all the major roads and foot paths in each town were randomly selected to examine a household while the second was skipped. Similarly, the 3rd, 5th and nth building were systematically selected. (i.e all odd numbered houses with woman farmer were surveyed while the even numbers were skipped). Foster Greer and Thorbecke poverty measure was used to examine the poverty situation of the respondents. ANOVA was used to examine the features of urban agriculture between settlements in order to show if there are variations in urban farming in the sampled settlements. Multiple regression analysis was used to determine the socio-economic impacts of urban agriculture on women farmers' poverty alleviation.

Result and Discussion

Socioeconomic Characteristics of Sampled Women Farmers

From the study, findings revealed that the 93.1% of the respondents earn less than N50, 000 annually. This is generally low when considered in the context of the national minimum income of one dollar per day as estimated by the United Nations. The amount is inadequate to sustain a family on food purchase in addition to other services that they have to pay for. This means most of the women farmers are poor and need more income from urban agriculture to lift them from their poverty situation 62.6% are into part-

time farming while only 37.4% are into full-time. This is expected since most of the respondents are involved in agricultural production so as to supplement income, for food security and for employment purposes among others. Only 19.7% are household heads. Women who are household heads tend to be poorer than those that are not household heads because they do not have husbands to support them. Therefore alleviating poverty by them might be more difficult than those that are not household heads.

Poverty Situation of Women Farmers

To measure poverty level of women farmers, the income-based relative poverty line approach was employed and this was based on the non-farming income realized by the farmers. Hence, the Foster, Greer and Thorbecke (FGT) model (See Appendix) measure of poverty was employed. The international poverty line of one U.S dollar per day per person was adopted for the study. The exchange rate of a Dollar to Naira varies between N153 to N155 during the period of survey. Therefore the average of N154 (One hundred and fifty-four naira) was taken, and this was for thirty days hence, N4, 620 per month and N55, 440 per annum. Meaning that a household was considered poor if the per capital income per annum falls below N55, 440 or N4, 620 per month.

The result revealed that 92.3% of the respondents in the study area are poor based on the non-farming income realized annually. Therefore P₀ is 1662 women farmers while poverty incidence is 92.3%. For instance in Osi, nobody earn up to N55, 440 annually from their main occupations. The highest income earned by the women farmers here is N55, 180 per annum while only 3 respondents indicated that they earn above N55, 440 annually in each of Babaloma and Share. Also, in Odo-owa and Patigi, only 4 and 5 respondents respectively earn above the poverty line. The percentage of poor

people in the study area corroborates the UNDP (2010) publication that over 70% of Nigerians live below the international poverty line of one U.S. Dollar per day. Supporting this, is Oriola's (2009:135) observation that majority of Nigerians do not have access to the quantity and variety of food needed for a healthy living and are living below poverty line of less than \$1 per day. This prompted them into agricultural production in order to reduce their poverty situation. Only 7.7% earns above ₦55, 440 annually from their main occupations from all the sampled settlements. The poverty gap (P_1), is 45.5% and this gives ₦25, 242 below the poverty line.

The non farming income of the respondents based on the poverty line was

however employed to classify them into four levels of poverty. Those whose income is greater than the poverty line are considered as "non-poor", those whose income falls between 2/3 of the poverty line (₦36, 960- ₦55, 440) are termed "poor". Those whose income fall between 1/3 and 2/3 of the poverty line (₦18, 480- ₦36, 960) are considered as "moderately poor", Those whose income fall below 1/3 of the poverty line, that is, ₦18, 480 are termed "very poor". The result of the classification is presented on Table 1. A greater percentage (34.9%) of the respondents fell into the moderately poor class. The non-poor constitute 7.7%% of the sample, implying that 92.3% of the women farmers are poor based on their non-farming income.

Table 1: Distribution of Respondents by Poverty Levels

Poverty Level	Frequency	Percentage	Cumulative Percentage
Very poor	618	34.3	34.3
Moderately poor	628	34.9	69.2
Poor	416	23.1	92.3
Non-poor	139	7.7	100.0
Total	1801	100.0	

Source: Author's Research 2012

This study suggests that urban agriculture is a strategy to poverty reduction (Table 1). When the Foster Greer and Thorbecke model was employed to measure the poverty level of the women farmers based on the income from their main occupation, it was discovered from Table 1 that majority 34.9%, 34.3% and 23.4% are moderately poor, very poor and poor respectively.

Analysis of Variance on Features of Urban Women Agricultural Production

Hypothesis relating to some features of urban women agricultural production were tested. These include years of involvement

in agricultural production and tasks performed on the farm. Some of the data on features of urban women agricultural production were used as data input.

The following hypotheses were tested:

H_0 : There is no significant difference between urban women farmers' involvement in agricultural production and poverty alleviation.

H_1 : There is a significant difference between urban women farmers' involvement in agricultural production and poverty alleviation.

Years of involvement in Agricultural Production and Poverty Alleviation

The years of involvement in agricultural production by women depicts the amount of experiences that farmers have. Analysis of variance was therefore used to

determine whether there are significant differences in the years of involvement of women farmers in agricultural production between the different types of settlement sampled in the study area.

Table 2: Analysis of Variance on Years of Involvement in Agricultural Production

Settlements	Sum of Squares	Df	Mean square	F	P-Value
Between Group	2915.864	12	242.987	0.421	0.948
Within Group	30035.600	52	577.608		
Total	32951.446	64			

Source: - Computer output, 2012

Table 2 shows the years of involvement in agricultural production by women farmers in the study area. Analysis of variance shows that calculated P-value is 0.948 and this is more than 0.05, therefore the null hypothesis H_0 is accepted while the alternative hypothesis H_1 is rejected. This means that there are no significant differences between the settlements sampled in terms of years of involvement in agricultural production by women farmers in the study area. The implication

of this is that women farmers will be able to use the experience had to improve their agricultural practices.

Tasks Performed by Women Farmers on the Farm

From the study area, women performed different roles on the farm. The analysis of variance was employed to test whether there are significant differences on the roles performed on the farm by women farmers.

Table 3: Analysis of Variance on the Tasks Performed by Sampled Urban Women Farmers between Settlements

Settlements	Sum of Squares	Df	Mean square	F	P-Value
Between Groups	20669.595	12	1722.466	2.532	0.007
Within Group	53067.843	78	680.357		
Total	73737.438	90			

Source: Computer output (2012)

The result of the analysis of variance revealed that significant difference exists between settlements in terms of roles performed on the farm by women farmers. The calculated P-value is 0.007 which is less than 0.05 (Table 3). In Bacita for instance, women performed all the activities on the farm while in some other settlements they only performed some of the activities such as planting, harvesting transporting, processing and marketing among others. The focus group discussion held with them also revealed that some women farmers are involved in processing aspect alone. This means that significant differences existed in terms of agricultural roles performed by the women farmers in the study area. The H_0 is thus rejected while H_1 is accepted. The implication of this is that women farmers that performed all the farm activities will spend less on hired labour.

Urban Food Production for Nutritional Development

Vegetables and Fruits Production

One of the contributions of urban women farmers is in the area of nutritional development. A substantial number of women cultivate different types of vegetables such as spinach, fluted pumpkin, amaranths, bitter leaf, water leaf, okro, tomatoes, pepper, garden egg, lettuce and onions among others. Some women are involved in orchards production reserved essentially for fruits such as oranges, banana, pineapple, plantain and lemon.

Findings reveal that 30.8% cultivate vegetables and 14.0% grow fruits. These are high nutritious foods that are needed to relieve undernourishment in poor households, and invariably contribute to household food security. Some of the crops grown by women farmers are

consumed for medicinal purposes. Bitter leaf for example is said to be very good for curing pile. According to the women farmers, they produce these foods in order to be food secured. This is because deficiencies in micronutrients can be much more noticed among the lower-income than among higher-income households. Women farmers involved in backyard vegetable and fruits production indicated that apart from having access to fresh vegetables and fruits, they still have excess for sale and income realized from these are thus used to purchase other food stuffs and satisfy important needs of their households. This implies that urban agriculture enhances utilization of food and assist in poverty reduction among women farmers' households.

Consumption of fresh leafy green vegetables and fruits are supplementary to the diet of urban households. The respondents' accessibility to food, fruits and vegetables has impacted on their health and nutritional status. For example, in Igbaja, Otun-Oro and Ijagbo 30.8% of women farmers grow vegetables and orchards on large hectares of land as well as in their backyards.

Impacts of Urban Agriculture on Poverty Alleviation

In order to determine the socio-economic impacts of urban agriculture on wealth status and poverty alleviation of women farmers' household, seven variables were examined using stepwise multiple regressions. Impact is measured by proportion of the average monetary value from agricultural production annually (as a surrogate measure of poverty alleviation). This will explain how much of Y (Poverty alleviation level) is explained by the X variables. The independent variables are X_1 - X_7 .

a = intercept

e = error terms

bx_1 - bx_n = regression coefficient

X_1 = Median family income

- X₂ = Expenditure on food
- X₃ = Savings and thrift
- X₄ = Expenditure on household items
- X₅ = Loan/debt servicing
- X₆ = Profits from production
- X₇ = Value of assets acquired

The choice of the above two sets of variables was based on the listing by the respondents and similar past works. Also, it was based on the reconnaissance survey carried out in the study area. From the independent variables, the initial correlation matrices were first computed in order to examine the relationship between

the variables. Results and interpretation of initial correlation matrices in this section were computed. Table 4 gives the matrix of simple correlations that were obtained between the input variables for the socio-economic impacts of urban agriculture on poverty alleviation.

Table 4: Correlation Matrix of Socio-economic impact of Urban Agriculture Variables on Poverty Alleviation

Variable	X1	X2	X3	X4	X5	X6	X7
X1	1.000						
X2	-0.048	1.000					
X3	0.174	0.054	1.000				
X4	0.928	-0.008	0.134	1.000			
X5	0.113	0.046	0.485	0.068	1.000		
X6	0.155	0.097	0.166	0.164	0.117	1.000	
X7	0.132	0.023	0.534	0.045	0.067	0.807	1.000

Note: Correlations that exceeded 0.6000 are significant at the 1% confidence level

Source: Computer output, (2012)

The highest correlation of 0.928 exists between median family income (X₁) and expenditure on household items (X₄). This relationship generally explains that the higher the median family income, the more the propensity to procure household items among urban women farming households. Another important thing to note is that when a household is food secure through agricultural production, other incomes can be used for non-food items. Correlation also exists between variables profit (X₆) and value of assets acquired (X₇) 0.807. This means that the higher the profit

realized from agricultural production, the higher the ability to acquire more assets. Other notable relationship could be observed between variable savings and thrift (X₃) and loan (X₅) 0.485. To assess the impact of urban agriculture on wealth status and poverty alleviation of women farmers in the study area, multiple regression analysis reveals that out of the seven variables three variables expenditure on household items (X₄), expenditure on food (X₂) and value of assets acquired (X₇) (Table 5).

Table 5: Stepwise Multiple Regression on Socio-economic impact of Urban Agriculture on Poverty Alleviation

Variables	Parameter estimates	Standard Error	R	R ²	Cumulative Percentage	Percentage of contribution
Intercept	5.375	2.566				
X4	1.837	0.883	0.511	0.262	26.2	26.2
X2	-1.677	0.878	0.708	0.501	50.1	24.0
X7	1.219	0.805	0.822	0.676	67.6	17.4

Source: Computer Output, (2012)

Expenditure on household items (X₄) is perhaps the best factor that can explain socio-economic impact of urban agricultural yield on women farmers' poverty alleviation. It has a correlation coefficient of 0.511 and a coefficient of determination of 0.262. This indicates that about 26.2% variation in urban agricultural yield is explained by the difference in expenditure on household items. This is because whatever is being realized from the sales of agricultural produce will affect proportionately the amount to be expended on household items. Again, since through agricultural production the food consumed by the family has been taken care of, then the amount realized from the sales of the remaining produce are usually used to purchase other non-consumables household items and assets. This is an important aspect of the impact of urban women farming to general welfare upliftment.

Similarly, X₂ (expenditure on food) also appeared to be another important factor of socio-economic impact of urban agriculture on poverty alleviation in the study area. It has a joint correlation (R) of 0.708 and coefficient of determination (R²) of 0.501. This means that 50.2% of the variation in annual urban agricultural yield is jointly explained by variables X₄ and X₂. However, expenditure on food (X₂) has an additional 24% contribution to the total

variance. One can thus infer that one of the impacts of urban women farming production is seen in the proportion of expenditure on food. The higher the income realized from urban agriculture, the less the expenditure on food items since farmers would have separated family consumption before selling the surplus. In the same vein, X₇ (Value of assets acquired) is another variable that is related well with urban agricultural yield. It has a coefficient of correlation (R) of 0.822 and coefficient of determination (R²) of 0.676. This also means about 67.6% variations in urban agricultural yield is explained by the difference in value of assets acquired. An additional 17.4% is however contributed by value of assets acquired.

Therefore the multiple regression equation could be written as:

$$Y_2 = 5.375 + 1.837 X_4 - 1.677 X_2 + 1.219 X_7$$

$$Res = 67.6\% \text{ S.E} = 2.566$$

The implication of this is that the more income received from urban agricultural production within a year, the more the ability of urban women farmers to meet the needs on household items, food items and assets acquired. An increase in their income from farming will definitely improve their standards of living and hence poverty alleviation. This is contrary to Bongajum (2015) discovery that urban agriculture is lagging behind because of the use of rudimentary tools in Bamenda.

Conclusion and Recommendations

Urban agriculture is very crucial in the lives of women farmers in small towns of Kwara State. In terms of food security, the practice provides foods for nutritional development. It also provides income for purchase of crops not produced by them and other important non consumable items and assets thereby improving women farmer family's livelihood. Conclusion can therefore be drawn that urban agriculture by women could be used as panacea for poverty alleviation, boost food security and improve the standard of living of women farmers and their households especially in the developing countries. Based on the findings from the study, recommendations made include: urban agriculture should be given official recognition; urban agriculture should be retained as a part of the city's economy and land tenure system should be organized to allow women to have more and better access to land and full right on use of land.

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Appendix

Foster Greer and Thorbecke (FGT) Model is written thus:

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^q \left(1 - \frac{y_i}{z} \right)^{\alpha} \dots\dots\dots 1$$

Where P = poverty index

α = non-negative parameter which takes the value 0, 1 and 2 and indicates the headcount ratio, the poverty gap and the squared poverty gap respectively.

n = total number of farmers

q = number of poor farm households

z = poverty line relative to a given income unit

y_i = farm household per capital income

In this study $\alpha = 0$ and 1 were considered and are given as:

$$P_0 = \frac{q}{n} \dots\dots\dots 2$$

$$P_1 = \frac{1}{n} \sum_{i=1}^q \left(\frac{Z - y_i}{Z} \right) \dots\dots\dots 3$$