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ANALYSIS OF VEGETABLE PRODUCTION AMONG RURAL WOMEN FARMERS IN IMO STATE NIGERIA

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ABSTRACT

Globally, vegetable forms a most valuable part of every household's diet and are used to increase the quality of the soup. It has also become the most important crop grown by farmers in recent times. However, vegetable farming is not without production challenges. Regrettably, there is an acute shortage of empirical studies to substantiate this claim. It was against this backdrop that the study on analysis of vegetable production among rural women farmers in Imo State, Nigeria was undertaken. Specifically, the study was guided by the following objectives; describing the socio-economic characteristic of women in the study area; identifying the types of vegetables produced by women; identifying women's intent/reason for all-round vegetable farming. A multistage random sampling method was used in the selection of respondents. The sample size comprised one-hundred and thirty-five (135) vegetable women farmers. Well, a structured questionnaire was the main tool for data collection. Data collected were analyzed using descriptive statistical tools, likert –scale rating, and multiple regression analysis. Results show that the mean age was 44.00 years. The majority (71.11%) were married with an average household size of 6 persons. Average educational level, farming experience, farm size, and monthly farm income were 12 years (equivalent to secondary school education), 21.00years, 1.20ha, and ₦101, 200 respectively. About 82.96% and 71.85% of the women farmers were visited once per month by extension agents and were members of cooperatives respectively. As types of vegetable crops produced by the women Approximately, 98.52%, 96.30% 91.85%, 89.63%, and 68.15% were also involved in Fluted pumpkin (*Telfairiaoccidentalis*), pepper (*Capsicum annum*), Scent leaf (*Ocimumgratissimum*), Waterleaf (*Talinumfruticosum*) and Okra (*Abelmoschusesculentus*) respectively amongst others. The result shows that about 99.26%, 96.30%, and 95.56% identified personal intentions, wanting autonomy, and unstable income respectively as intent/reasons for all-round vegetable farming. Radio and farmers' cooperative societies were identified by approximately 98.52% and 95.56% as sources of information on all-around vegetable farming among other sources. The study concludes that most of the women are involved in the cultivation of almost all the vegetables and therefore recommends that the extension agents should increase their visits/training to the rural vegetable farmers as results show low extension visits which affected them in the choice of vegetable planted as recent technologies has made it possible for farmers in the southeast to plant most of the vegetables formerly believed to survive only in the northern area of the country.

KEYWORDS

Vegetable production, Rural women, Farmers



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INTRODUCTION

The term “Vegetables” are used to describe plants or plant parts that are usually eaten with meal and are commonly salted, boiled or used as desserts and salad and have been a major component for human diets all over the world (United State Agency for International Development (USAID), 2019). These may be root (carrot), fresh pod (green beans), immature fruit (okra), ripe fruits (tomato), tender leaf (*Amaranthus*), shoot (bamboo), immature flower (cauliflower), shoot or bulb (onion) (Kughuret *al.*, 2018). Additionally, vegetables, in their fresh form, contain high percentage (75%) of water, and 25% of dry matter (Ajayi and Nwalieji, 2010). They include edible leaves of different colours with less starch content (Agbugba. 2014).

Vegetables are rich sources of many essential micronutrients and are loaded with health-related phytochemicals and anti-oxidants (De la Rosa *et al.*, 2010). They are of great nutritive value and are important sources of vitamins, minerals, proteins, carbohydrates and dietary fibres, thus essential components of the human diet (Aju and Popoola, 2010). Some roots and tubers are consumed in the case of carrots as vegetable, fresh pods as in vegetable cowpea; immature fruits as in *Okra*; ripe fruits as in tomato; tender leaves as in green; young shoot as in *Ora*; immature flower as in cauliflower; and whole shoots as in elephant grass or in bulbs for e.g. onions to improve the vitamin and mineral intake in the body (Anoma and Thamilini, 2016). In Nigeria, vegetable production has been on-going for decades, providing employment and income for increasing population especially during the long dry season (Agbugba *et al.*, 2013). They can give high yield per unit area of land and hence generate high income for the vegetable farmers. In spite of good potentials of vegetable, its production is constrained by inadequate infrastructure, agronomic and socio-economic variables (Omowumi and Olatomide, 2015).

MATERIALS AND METHOD

The study was carried out in Imo State, Nigeria. Imo State is located in the eastern zone of Nigeria. The State lies between Latitudes 4°45'N and 7°15'N and Longitude 6°50'E and 7°25'E (Nigerian Meteorological Agency (NiMET) NIMET, 2016). It is bounded on the east by Abia State, on the west by the River Niger and Delta State; and on the north by Anambra State, while Rivers State lies to the south. Imo State covers an area of about 5,067.20 km², with a population of 4,927,563 (National Population Commission (NPC), 2017; National Bureau of Statistics (NBS), 2017) and population density of about 725km² (Ministry of Lands Owerri, 2015).

The sample for the study was drawn from women farming households in the study area. A multi-stage and purposive random sampling procedure was adopted in the selection of respondents for the study. Purposive random sampling was used to select 135 women who were only involved in vegetable farming from Orlu, Owerri and Okigwe agricultural zone.

Data were collected through the use of structured questionnaire and it was supplemented with interview schedule in places where the respondents could neither read nor write. Descriptive statistics namely; frequency distribution, percentages, means and likert scale type was used to realize objectives.

RESULT AND DISCUSSION

The socio-economic characteristics studied include age, marital status, and educational level, household size, farming experience, access to credit, extension contact, farm size, membership of cooperative, average monthly income and access to information (Table 1).

The mean age was 44.00 years. This result implies that there is great prospect for increased and sustainable vegetable production among the younger women farmers in the study area. The finding is in line with the study of Muhammad *et al.*, (2018) who reported that these age groups of women have the much-needed energy to be in vegetable production all season round than older women who are usually associated with weakness and frequent leg aches.

The result of the rural women vegetable farmers distribution based on marital status is presented in Table 1. It shows that greater proportions (71.11%) of the rural women were married. The study of Nakwee *al.*, (2018) reported that married women are not only responsible for managing family but also farming activities

such as vegetable gardening, cassava farming, raising chickens, which are also designed to increase the family's food resources and income.

The mean educational level was 12.00 years and equivalent to secondary school. This shows that most of the women had basic education and therefore are able to read, write and comprehend basic instructions.

The mean household size was 6.00 persons. The finding implies that the women in the area have a relatively high household size which could serve as a proxy for family labour that way they do not spend much money to employ labour.

Distribution based on farming experience as presented in the Table shows the mean farming experience as 21.00 years. The women had a reasonable year of farming experience in farming activities and a strong indication that the women have been in farming for a long period of time.

Greater proportion (75.56%) of the women in the area do not have access to farm credit while about 24.44% of the women have access to farm credit. The finding implies that the rural women vegetable farmers do not have access to farm credit and these may negatively affect their all round vegetable production.

The mean number of visits per month was 1.0 times. It is evident from the result that the women farmers are poorly visited by extension agents to stimulate or encourage the development of vegetable production activities in the study area. The implication of the findings is that women farmer use of modern vegetable farming method might be low and thereby affecting their production capacity negatively.

The mean farm size was 1.20 hectares. The average farm size is relatively low. This is true as women are reported to have low access and utilization of farmland (Badmus and Yekini, 2011).

Greater proportion (71.85%) of the women in the area belong to one form of cooperative society or the other, while about 28.15% of the women do not belong to any cooperative society. Farmers who belong to cooperative society have access to relevant and up-to-date information on organic farming, farm credit and exchange of labour.

The mean monthly farm income of the rural women vegetable farmers is ₦101,200. This shows a relatively high monthly farm income and even above the Nigeria Government Minimal wage which is pegged at ₦35,000. The above indicates that the women have been making significant profit in vegetable farming and strengthens the need for the women to be encouraged more as the consumption of vegetables increases in Nigerian homes.

Greater proportion (74.81%) of the women in the area has access to information while about 25.19% of the women have access to information. The finding implies that the rural women vegetable farmers have access to information and therefore may have been practicing measures that can help them increase their production capacity in all round vegetable production in the area.

Table 1: Socio-economic Characteristics of Respondents (Mean 135)

Socio-economic Variables	Frequency	Percentage (%)	Mean
Age (Years)			
21-30	12	8.89	
31-40	16	11.85	
41-50	94	69.63	44.00
51-60	9	6.67	

61-70	4	2.96	
Marital Status			
Married	96	71.11	
Single	23	37.10	
Widowed	11	22.00	
Divorced	5	11.36	
Educational Level (Years)			
No formal education	7	5.19	
Primary Education	28	17.95	12
Secondary Education	92	41.82	
Tertiary Education	8	5.88	
Household size (No. of Persons)			
1-6	95	75.56	6
7-12	33	24.4	
Farming Experience (Years)			
1-10	7	5.19	
11-19	41	30.37	
20-29	62	45.92	21
30-39	22	16.30	
40-49	3	2.22	
Access to Credit			
Access	33	24.44	
No Access	102	75.56	
Extension Contact (Per Month)			
0-1	112	82.96	1
2-3	23	17.04	
Farm Size (Hectre)			
0.10-1.00	33	24.44	
1.01-1.50	72	53.33	
1.51-2.00	21	15.56	

2.01-2.50	9	6.67
Membership of Cooperative Society		
Member	97	71.85
Non Member	36	28.15
Average Monthly Farm Income (₦)		101,200
Access to Information		
Access	101	74.81
No Access	34	25.19

Source: Field Survey Data, 2021

Types of Vegetables Produced by Women

The result of women farmers' distribution based on types of vegetables produced by women is displayed in table 12. It indicates that about 98.52% of the rural women are involved in fluted pumpkin (*Telfairiaoccidentalis*) production. In Nigeria and also in Imo State, the herbal preparation of the plant has been employed in the treatment of sudden attacks of convulsion, malaria, and anaemia (Oluwatoyin and Abdurashed, 2014). Approximately, 96.30% were also involved in pepper (*Capsicum annum*) production. Besides being used as a condiment, providing characteristic pungency, colour and flavour, the pepper-derived ingredients could be used for the preservation and extension of industrial products' lifespan, as well as additives or technological ingredients with antioxidant and antimicrobial activities (Baenasaet al., 2019). Furthermore, scent leaf (*Ocimumgratissimum*) and waterleaf (*Talinumfruticosum*) were produced by about 91.85% and 89.63% respectively of the rural women. *Ocimumgratissimum* is grown for the essential oil in its leaves and stems. Additionally, approximately, 68.15% and 33.33% identified okra (*Abelmoschusesculentus*) and cucumber (*Cucumissativus*) respectively. Okra is a very good source of dietary fiber, magnesium, manganese, potassium, vitamin K, vitamin C.

The result showed that the rural farmers seldomly produced the following vegetables; eggplant (20.01%), sweet potatoes (18.51%), tomatoes (14.81%), beet green (11.11%) and the least of all is lettuce, cabbage, onion and watermelon (1.48%). Tomatoes, lettuce, cabbage, onions, sweet potato, egg plants, watermelon and beet greens had very low percentage and this may be due to low extension visit as recent technology has made it possible for farmers in the southeast to plant most of the vegetables formerly believed to survive only in the northern area of the country so these technologies were not disseminated to the rural farmers.

Ultimately, the finding indicates that the women farmers are involved in one or more vegetable production enterprise. This could be a way of diversification of enterprise as well as to have streams vegetable sources and/or income for the family upkeep.

Table 2: Types of Vegetables Produced by Women

Vegetables	Frequency	Percentage (%)
Fluted pumpkin (<i>Telfairiaoccidentalis</i>)	133	98.52
Pepper (<i>Capsicum annum</i>)	130	96.30
Scent leaf (<i>Ocimumgratissimum</i>)	124	91.85

Waterleaf (<i>Talinumfruticosum</i>)	121	89.63
Okra (<i>Abelmoschuseculentus</i>)	92	68.15
Cucumber (<i>Cucumissativus</i>)	45	33.33
Egg Plant (<i>Solanummelongena</i>)	27	20.01
Sweet Potato (<i>Ipomoea batatas</i>)	25	18.51
Tomato (<i>Solanumlycopersicum</i>)	20	14.81
Beet Greens (<i>Beta vulgaris</i>)	15	11.11
Lettuce (<i>Lactucasativa</i>)	02	1.48
Cabbage (<i>Brassica oleracea</i>)	02	1.48
Onions (<i>Allium cepa</i>)	02	1.48
Watermelon (<i>Citrulluslanatus</i>)	02	1.48

***Multiple Responses were recorded; Source: Field Survey Data, 2021**

Women Intent/Reason in Vegetable Production

The result of women farmers distribution based on intent/reason for engaging in vegetable production is showed in Table 13. It reveals that about 99.26%, 96.30% and 95.56% identified personal intention, wanting autonomy and unstable-income respectively as intent/reason for all round vegetable farming. Approximately, 94.07%, 91.11% and 88.89% identified current economic hardship, access to good source of fund and distance between home location and market area respectively. Additionally, access to farmland, access to huge labour, cooperative society support for women farmers and access encouraging vegetable production information were reported by about 82.22%, 77.04%, 74.07% and 67.41% respectively of the women. The positive identification of all the above drives may be attributed to the need for self realization, experience in entrepreneurial activities, training in entrepreneurial activities, good home location, access to substantial source of fund and little or no distance between home location and market area which could enhance positive decision to pick up vegetable production in the study area.

The implication of the finding is that increase in the above drive would automatically increase women farmers vegetable production drive in agribusiness in the study area.

Table 3: Women Intent/Reason in Vegetable Production

S/No	Women Intent/Reason	Frequency	Percentage (%)
1	Personal intension	134	99.26
2	Wanting autonomy	130	96.30
3	Unstable income	129	95.56
4	Current economic hardship	127	94.07
5	Access to good source of fund	123	91.11
6	Distance between home location and market area	120	88.89
7	Access to farmland	111	82.22

8	Access to huge labour	104	77.04
9	Cooperative society support for women farmers	100	74.07
10	Access encouraging vegetable production information	91	67.41

**Multiple Responses were recorded; Source: Field Survey Data, 2021*

Women Source of Information in Vegetable Production

The result of women farmers distribution based on source of information in production is showed in Table 14. It shows that about 98.52%, 96.30%, 95.56% and 92.59% identified radio, mobile phone/SMS, farmers cooperative society and social gathering as their source of information on all round vegetable farming. Radio is considered one of the oldest information technologies, and is one of the most popular in the developing world, partly due to its accessibility and affordability (Adamides and Stylianou, 2013). The mobile phone has tremendously been diffused even into the marginalized and underdeveloped farming communities because of its flexibility, affordability and user-friendly nature as compared to other ICTs tools (Osabutey and Jin, 2016).

Furthermore, social gathering, religious gathering, contact farmers and community women leaders were identified by 92.59%, 91.11%, 88.15% and 82.22% of the farmers as their source of information on vegetable farming. Additionally, approximately 25.92% and 25.19% of the women reported extension agents and Agricultural journal/manuals/newsletters as their source of information on vegetable farming. Therefore, the finding implies that the women have various sources of information in the vegetable farming but low information from extension agent in the area.

Table 4: Women Source of Information in Vegetable Production

S/No	Sources of Information	Frequency	Percentage (%)
1	Radio	133	98.52
2	Mobile phone/bSMS	130	96.30
3	Farmers Cooperative society	129	95.56
4	Social gathering	125	92.59
5	religious gathering	123	91.11
6	Contact farmers	119	88.15
7	Extension agents	35	25.92
8	Community women leader	111	82.22
9	Agricultural journal/manuals/news letters	34	25.19

**Multiple responses were recorded; Source: Field Survey Data, 2021*

CONCLUSION AND RECOMMENDATION

From the findings, average educational level, farming experience, farm size and monthly farm income were 12 years (equivalent to secondary school education), 21.00years, 1.20ha and ₦101,200 respectively. About 82.96% and 71.85% of the women farmers were visited once per month by extension agents and were members of cooperative respectively. As type of vegetable crop produced by the women Approximately, 98.52%, 96.30% 91.85%, 89.63% and 68.15% were also involved in Fluted pumpkin (*Telfairiaoccidentalis*), pepper (*Capsicum annum*), Scent leaf (*Ocimumgratissimum*), Waterleaf (*Talinumfruticosum*) and Okra (*Abelmoschusesculentus*) respectively amongst others.

The study therefore recommends that; better access of women to farmland and agricultural extension services is very essential in promoting not just small-scale vegetable production but large scale and more women driving the production. Secondly, the extension agents should increase their visits/trainings to the rural vegetable farmers as results show low extension visit which affected them in the choice of vegetable planted as recent technologies has made it possible for farmers in the south east to plant most of the vegetables formerly believed to survive only in the northern area of the country.

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