

Analysis of the Constraints Faced by Rural Women Farmers in Vegetable Production in South-East Nigeria

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D.O.I: 10.56201/ijaes.v8.no4.2022.pg53.66

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 time. 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 the constraints faced by rural women farmers in vegetable production in south-east Nigeria was undertaken. Specifically, the study was guided by the following objectives; describing the type and level of constraints women face in vegetable farming; determining the perceived effects of such constraints on all round vegetable farming and describing the solution women vegetable farmers practice in reducing the constraint they face in all round vegetable. The hypothesis of the study was that the socio-economic characteristics of women do not significantly influence their level of constraint in all round vegetable farming in the area. A multistage random sampling method was used in the selection of respondents. Sample size comprised one-hundred and thirty-five (135) vegetable women farmers. Well structured questionnaire was the main tool for data collection. Data collected were analyzed using descriptive statistical tools, likert –scale rating and multiple regression analysis. Regrettably, most of the women farmers identified and perceived poor access to road and control of farm resources, e.g farmland ($\bar{x}=3.68$), insufficient education ($\bar{x}=3.11$), lack of credit ($\bar{x}=3.50$) and poor institutional support ($\bar{x}=3.59$) amongst others as the serious challenge they face in all round vegetable farming in the area. Additionally, the women farmers perceived and reported that the constraints they face has led to shortage of farm labour ($\bar{x}=3.63$) and is disrupting planting and harvesting season of their all round vegetable production ($\bar{x}=3.56$) amongst others. Diversification of agribusiness (99.26%) is one of the solutions they practice in reducing the constraint they face in all round vegetable. Estimated multiple regressions showed that the socio-economic characteristic of women farmers influences their level of constraint in all round vegetable farming and is significant at 1% level of probability. It was therefore recommended that the government should subsidize the price of farm inputs in order to make them accessible and affordable to women farmers. In the same vein, better access of women to farmland and agricultural extension services is very essential in promoting not just vegetable production but more women driving the production.

KEYWORDS: Constraints, Vegetable production and Women

INTRODUCTION

The importance of vegetables as major and efficient sources of micronutrients in African diet cannot be over stressed. Vegetables are nourishing foods because they contain a little of all the substances man needs: protein, mineral salts, sugars, vitamins, aromatics, colouring agencies, iron and essential oils that increase man's resistance to disease. In this class of food, man finds the wide range of nutritive elements he needs. Vegetables are therefore complementary foods of the first order, and are much more important for man's health than products of animal origin (Bilkisuet *al.*, 2016).

In the past women contribution to economic development especially in the developing countries was either not recognized or been seriously underestimated (Mahmood, 2011). Everywhere in the world, women have been actively involved in farming, food processing and preservation (Edeoghon, 2016).

In Nigeria, statistics have shown that majority of women are engaged in agriculture and they constitute about 60 percent. (Iyiola and Azuh, 2014; National Bureau of Statistics (NBS), 2016). The above findings is been strengthened by the study of Bilkisuet *al.*, (2016) who opined that women contribute significantly to vegetable production and have favourable attitude towards vegetable production in Nigeria. In doing so, they contribute to national agricultural output, maintenance of the environment and family food security (Muhammad *et al.*, 2018). In the similar way, empirical studies have indicated that women are faced with serious constraints in carrying out vegetable production activities in Nigeria. Iwuchukwu and Uzoho (2009) noted financial and agronomic/incentives, Imonikebe (2010) identified poverty, illiteracy, lack of storage facilities, poor health status. Women vegetable farmers face difficulties in obtaining credit, which is generally due to the lengthy and time consuming procedure, illegal demands of revenue staff and bank functionaries (Oladejoet *al.*, 2011). Inaccessibility of farm inputs is one of the primary constraints faced by women vegetable farmers. Nigerian women despite their participation in agricultural development, it has been observed that they are faced with many problems (Bidemiet *al.*, 2015). For instance, women access to the much needed farm productive resources have been identified to be very low due to marital, societal and religions reasons, lack of awareness caused by low literacy, lack of ownership and control of land, lack of sufficient and substantive collateral and inadequate knowledge of training in the use of improved innovations (Obiora, 2013; and Kughuret *al.*, 2018). Additionally, it has also been reported that inadequate information about the improved technologies was one of the constraints in vegetable production (Alabiet *al.*, 2016). Women do not have adequate access to agricultural information and innovations (Bilkisuet *al.*, 2016). Lack of separate land for women and inadequate contact with extension agents are serious constraints faced by women farmers (Obiora, 2013). Majority of the women use low yielding and unimproved planting materials, primitive and labour intensive farm implements, traditional farming practices, which have adversely affected agricultural production (Omeire, 2016).

. More so, women vegetable farmers have struggled with labour activities, market-price driven decisions, small-scale production, inadequate capital investments and exploitation by traders which in turn decline the hope of improving their main source of income (Levanet *al.*, 2013). However, empirical studies on the constraints facing women farmers in all round vegetable farming in Imo State are not just enough. This negative situation poses a serious challenge to the government; extension agent and interest group to know the method to initiate in helping women farmers increase their vegetable production, raise the income and standard of living in the area. It is on this background that it becomes necessary that the present study is carried-out.

Hypothesis of the Study

The null hypothesis tested was that the socio-economic characteristics of the women do not significantly influence their vegetable farming in the study area.

MATERIALS AND METHOD

The study was carried-out in South-East agricultural zone of Nigeria. The zone is made up of five states, namely, Abia, Anambra, Ebonyi, Enugu and Imo. It has an estimated land mass of 32,610 km² and a population of 22,583,076 (National Population Commission (NPC), 2006). The area lies between longitude 2°61¹ and 6°32¹ east and latitudes 6°74¹ and 8°15¹ North of Equator with the mean annual temperature ranges from 21.6°C to 32.4°C while the annual rainfall ranges from 720 mm to 1440 mm in the rainforest region (NIMET, 2015).

South-East Nigeria has fertile and well-drained soil and a good proportion of the population are essentially farmers. The population of this study includes all ADP rural women contact farmers in the Southeast region. Multistage sampling method was used to select respondents. First 5 States of Southeast were purposively selected. A random sampling of three states was made and in each, two agricultural zones were randomly selected. From each agricultural zone, three L.G.As were randomly selected and from each L.G.A, 9 communities were selected from each L.G.A., a total number of 5 women were selected from each community making it 45 women from each community. These gave a sample size of 135 vegetable crop farmers studied.

Data was collected through primary source. The primary data was obtained using validated questionnaires that was administered through face to face interview schedules. Descriptive statistics namely ; frequency distribution , percentage, means and Likert scale type was used to realize objectives .

RESULT AND DISCUSSION

Type and Level of Constraints Women Face in Vegetable Farming

The result of the women farmers distribution based on type and level of constraints face in vegetable farming in the study area is displayed in Table 1. The various attributes were rated in a 3-point likert scale type questions of Very Serious (VS) (3); Serious (S) (2); and Not Serious (NA) (1). Using the method of mean score analysis, a discriminatory mean of 2.00 was produced which divided the distribution into three scale. The mean value of each attribute equal to or above ($\bar{x} \geq 2.00$) was regarded as being an accepted decision while attributes with mean value less than ($\bar{x} \leq 2.00$) was regarded as a rejected decision.

The values of standard deviation (SD) denote the degree of variation in the responses of the farmers. Standard deviation with values between 0.50 and above indicates high variances in women farmers response regarding level of seriousness of the constraint identified. Additionally, all the items were rated high and had an acceptable overall discriminatory score ($\bar{x} \geq 2.00$). This result strongly confirmed that the women farmers are facing all the identified challenged seriously and remedy has to be provided urgently.

The women identified lack of credit as a serious challenge. Rural women in Imo State have very little opportunity to access credit, which is important for them in order to expand their vegetable production or earn more income to purchase other households food. Special credit facilities for women are limited, and some of the major impediments to women's access to credit are poor infrastructure, female illiteracy, the lack of education and information, tradition and custom, and the absence of collateral, especially in the form of landownership (Obinna and Maduka, 2017).

Similarly, education is one of the most critical areas of empowerment for women and

enhances their contributions to vegetable production. The relationship between vegetable production and education stems from the fact that educated women farmers are more likely to have access to and use information and technology to produce more food, and are more likely to take advantage of extension services and credit facilities (Nakweet *et al.*, 2018; Muhammad *et al.*, 2018).

An educated woman is also more likely to provide better health care and nutrition to her family members, and to encourage her children to pursue education (Omeire, 2016). Therefore, it becomes clear that rural women vegetable farmers face too many challenges, addressing this constraint will not just promote large scale vegetable production but increase more women involvement and production of other staple food such as rice in the study area and perhaps beyond.

Table 1 :Type and Level of Constraints Women Face in Vegetable Production n = 135

S/No	Type and Level of Constraints	VS (3)	S (2)	NS (1)	Mean (\bar{x}) (≥ 2.00)	SD	Decision
1	Poor access to and control of farm resources, e.g farmland	131 (97.04)	3 (2.22)	1 (0.74)	3.68	0.93	Accepted
2	Insufficient education	65 (48.15)	47 (34.81)	23 (17.04)	3.11	0.56	Accepted
3	Lack of credit	120 (88.89)	9 (6.67)	6 (4.44)	3.50	0.73	Accepted
4	Poor institutional support	125 (92.60)	7 (5.19)	3 (2.22)	3.59	0.75	Accepted
5	Poor visit by agricultural extension agent	111 (82.22)	20 (14.81)	4 (2.96)	3.40	0.69	Accepted
6	Negligence of farm women in becoming involved in farm decision	115 (85.19)	17 (12.60)	3 (2.22)	3.46	0.70	Accepted
7	Multiple domestic responsibilities coupled with vegetable farming	113 (83.70)	14 (10.37)	8 (5.93)	3.40	0.69	Accepted
8	Lack of collateral security to secure loans to support farming	128 (94.81)	5 (3.70)	2 (1.48)	3.64	0.64	Accepted
9	Lack of extension programmes directed to women farmers' needs	117 (86.67)	11 (8.15)	7 (5.19)	3.46	0.71	Accepted

SD: Standard Deviation; Discriminatory index: Cut off point $\bar{x} \geq 2.00$ Accepted; *Figures in parenthesis are percentage; Field Survey Data, 2021

Key; vs: very serious, S; Serious ,NS; Not serious

Perceived Effects of Constraints in Vegetable Production

The result of the women farmers distribution based on perceived effects of constraints on all round vegetable farming in the study area is shown in Table 16. The various attributes of were rated in a 4- point likert scale type questions of Strongly Agreed (4); Agreed (3); Disagreed (2) and Strongly Disagreed (1). Using the method of mean score analysis, a discriminatory mean of 2.50 was produced which divided the distribution into four scales. Additionally, all the items were rated high and had an acceptable overall discriminatory score ($\bar{x} \geq 2.50$). This result strongly confirmed that the women farmers rightly perceived that the constraints they face is affecting their all round vegetable production negatively in the area. A very salient finding was that is the constraint they face is disrupting planting and harvesting season of their all round vegetable production ($\bar{x} \geq 3.56$).

The result also showed that the constraints are decreasing women farmers vegetable production yield and aggregate farm income ($\bar{x} \geq 3.54$). The study therefore identified the need for governments at all levels in the country to design a sustainable policy in such a way that women farmers should have access to affordable farm credit, land as well as subsidized agricultural inputs in order to increase their ability and flexibility to change in production strategies in response to the constraint they face.

Table 2 : Perceived Effects of Constraints in Vegetable Production

n =135

S/No	Items	Strongly Agreed	Agreed	Disagreed	Strongly Disagreed	Mean (\bar{x}) (≥ 2.50)	SD	Decision
1	The constraints we face has led to a shortage of farm labour	94 (69.63)	33 (24.44)	7 (5.185)	1 (0.74)	3.63	0.68	Accepted
2	The constraints we face is disrupting planting and harvesting season of our all round vegetable production	91 (67.41)	32 (23.70)	9 (6.67)	3 (2.22)	3.56	0.56	Accepted
3	The constraints we face is disrupting the distribution, marketing and sales activities of our vegetable produce	86 (63.70)	35 (25.93)	10 (7.41)	4 (2.96)	3.50	0.53	Accepted
4	The constraints we face is decreasing supply chains for purchase of inputs because of the poor transportation system and long distance between farm and market	98 (72.60)	21 (15.56)	13 (9.63)	3 (2.22)	3.59	0.58	Accepted
5	The constraints we face has led to a decrease in the provision of basics food for our children	101 (74.81)	27 (20.00)	5 (3.70)	2 (1.48)	3.68	0.65	Accepted
6	The constraints we face is decreasing our vegetable production yield and aggregate farm income	92 (68.15)	29 (21.48)	9 (6.67)	5 (3.70)	3.54	0.53	Accepted
7	The constraints we face have greatly increased our aggregate vegetable production cost	89 (65.93)	32 (23.70)	10 (7.41)	4 (2.96)	3.53	0.52	Accepted
8	The constraints we face is negatively drawing us back in adapting and mitigating to climate change	83 (61.48)	41 (30.37)	10 (7.41)	1 (0.74)	3.53	0.52	Accepted
9	The constraints we face is negatively affecting our access farm credit, grants and	113 (83.70)	15 (11.11)	6 (4.44)	1 (0.74)	3.78	0.75	Accepted

10	loan The constraints we face is negatively affecting our access Agricultural extension services and other government support	110 (81.48)	15 (11.11)	6 (4.44)	3 (2.22)	3.70	0.71	Accepted
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SD; Standard; Discriminatory index: Cut off point $\bar{x} \geq 2.50$ Accepted; *Figures in parenthesis are percentage; Field Survey Data, 2022

Women Vegetable Farmers Practice in Reducing the Constraint They Face in Vegetable

Production

The result of the women farmers distribution based on solution they practice shown in Table 3: It shows that about 99.26% use diversification of agribusiness as the solution they practice in reducing the constraint they face in all round vegetable. Diversification of agribusiness is based on cultivating, marketing, sales and promoting more than one agribusiness enterprise in a given area. Diversification of agribusiness is one way of developing a resilient agricultural system, especially where communities depend largely on agricultural products for their livelihoods (Makateet *al.*, 2016).

Approximately, 97.78%, 95.56%, 93.33% and 89.63% of the women identified use of family farm resources (eg: equipment, land and labour), use of membership of cooperative society to access fund, grant, loans and information, enrollment to adult education and agricultural training and use of farm gate sales to avoid spoilage due to poor rural road network and long distance between farms and market respectively as solution they practice in reducing the constraint they face in all round vegetable.

Furthermore, about 88.15%, 86.67% and 85.19% of the women identified use of improved breeds of vegetable, use of well acclimated vegetable breed and use of campaign, rallies and awareness respectively as solution they practice in reducing the constraint they face in all round vegetable.

Additionally, the use of letters, campaign, rallies and awareness withdraw collateral and interest rate for loan from banks and government lending institution and use of mobility and call support to extension agents for on-field and off-field technology innovation training were identified by about 74.81% and 71.11% of the women respectively as solution they practice in reducing the constraint they face in all round vegetable. The finding becomes clear that the women understand the challenges they face and have started practicing several measures on their own to help themselves in all year round vegetable production in the area.

Table 3: Solution Women Vegetable Farmers Practice in Reducing the Constraint They Face in Vegetable Production

S/No	Solutions	Frequency	Percentage (%)
1	Diversification of agribusiness	134	99.26
2	Use of family farm resources (Eg: equipment, land and labour)	132	97.78
3	Use of Membership of Cooperative society to access fund, grant, loans and information	129	95.56
4	Enrollment to adult education and agricultural training	126	93.33
5	Use of Farm gate sales to avoid spoilage due to poor rural road network and long distance between farms and market	121	89.63
6	Use of improved breeds of vegetable varieties to avoid insect and pest attack	119	88.15
7	Use of well acclimated vegetable varieties to mitigate climate change impact	117	86.67
8	Use of campaign, rallies and awareness to be captured in the technology development phase and other agricultural decision making process	115	85.19
9	Use of Letters, campaign, rallies and awareness withdraw collateral and interest rate for loan from banks and government lending institution	101	74.81
10	Use of mobility and call support to extension agents for on-field and off-field technology innovation training	96	71.11

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

Estimated Influence of Women Farmers Socio-economic Characteristic on Level of Constraint in Vegetable Production

The result of the women farmers distribution based on estimated influence of women farmers socio-economic characteristic on level of constraint in vegetable production in the study area is presented in table 18. A multiple regression analysis was estimated in four functional forms (linear, semi log, double log, and exponential forms). Based on the statistical significance of the coefficients, goodness of fit and the economic theory that supports socio-economic model, the double-log regression function was chosen as the lead equation. The double-log regression function was chosen as the lead equation based on the value of R^2 (0.811), F-Ratio value (6.483), conformity of the signs with *a priori* expectations of the model and has the highest number of significant explanatory variables. The coefficient of multiple determinations (R^2) was found to be 81.10% and was statistically significant at 1% level of probability. This implies that the women farmers socio-economic characteristic on had a significant influence on the level of constraints they encountered in all round vegetable farming and that the regression model has a very high and strong explanatory power. This is an indication that 81.10% of the variation in the level of constraints they encountered in all round vegetable farming was explained by the explanatory variables while the remaining 18.90% was explained by the stochastic variables.

Table 4 : Estimated Influence of Women Farmers Socio-economic Characteristic on Level of Constraint in Vegetable Production

S/No	Solutions	Frequency	Percentage (%)
1	Diversification of agribusiness	134	99.26
2	Use of family farm resources (Eg: equipment, land and labour)	132	97.78
3	Use of Membership of Cooperative society to access fund, grant, loans and information	129	95.56
4	Enrollment to adult education and agricultural training	126	93.33
5	Use of Farm gate sales to avoid spoilage due to poor rural road network and long distance between farms and market	121	89.63
6	Use of improved breeds of vegetable varieties to avoid insect and pest attack	119	88.15
7	Use of well acclimated vegetable varieties to mitigate climate change impact	117	86.67
8	Use of campaign, rallies and awareness to be captured in the technology development phase and other agricultural decision making process	115	85.19
9	Use of Letters, campaign, rallies and awareness withdraw collateral and interest rate for loan from banks and government lending institution	101	74.81
10	Use of mobility and call support to extension agents for on-field and off-field technology innovation training	96	71.11

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Estimated Influence of Women Farmers Socio-economic Characteristic on Level of Constraint in Vegetable Production

The result of the women farmers distribution based on estimated influence of women farmers socio-economic characteristic on level of constraint in vegetable production in the study area is presented in table 18. A multiple regression analysis was estimated in four functional forms (linear, semi log, double log, and exponential forms). Based on the statistical significance of the coefficients, goodness of fit and the economic theory that supports socio-economic model, the double-log regression function was chosen as the lead equation. The double-log regression function was chosen as the lead equation based on the value of R^2 (0.811), F-Ratio value (6.483), conformity of the signs with *a priori* expectations of the model and has the highest number of significant explanatory variables. The coefficient of multiple determinations (R^2) was found to be 81.10% and was statistically significant at 1% level of probability. This implies that the women farmers socio-economic characteristic on had a significant influence on the level of constricts they encountered in all round vegetable farming and that the regression model has a very high and strong explanatory power. This is an indication that 81.10% of the variation in the level of constraints they encountered in all round vegetable farming was explained by the explanatory variables while the remaining 18.90% was explained by the stochastic variables.

Table 4 : Estimated Influence of Women Farmers Socio-economic Characteristic on Level of Constraint in Vegetable Production

Explanatory Variables	Linear	Semi-Log	Double-Log	Exponential
Constant	31.471 (10.440)***	51.593 (5.258)***	5.849 (12.487)***	-4.591E14 (-7.727)***
Age (X_1)	0.073 (1.409)*	2.688 (1.075)*	0.0113 (2.178)**	-3.994E-18 (-0.906)
Educational Level (X_2)	-0.736 (-0.856)	-0.760 (-0.835)	-0.027 (-2.778)***	-5.462E7 (-0.317)
Farming Experience (X_3)	-1.952 (-1.060)*	-0.093 (-1.129)*	-0.003 (-2.491)	-2.941E7 (-2.166)*
Marital Status (X_4)	-6.846 (-3.609)***	-1.82 (-3.795)***	-0.068 (-3.684)***	-1.103E13 (-1.922)*
Household Size (X_5)	0.078 (1.497)	8.058 (.0730)	0.001 (2.044)**	-2.019E-8 (-0.359)
Farm Income (X_6)	-0.299 (-1.648)*	-2.325 (-1.744)*	-0.094 (-2.846)***	-1.822E7 (-0.210)
Membership Of Cooperative (X_7)	-0.040 (-2.586)***	-1.637 (-2.180)**	-0.059 (-2.050)**	-4.114E-57 (-0.210)
Extension Contact (X_8)	-0.186 (-0.239)	-1.011 (-1.353)*	-0.038 (-2.339)**	-1.433E12 (-0.666)
Farm Size (X_9)	-0.134 (-1.942)	-0.639 (-1.029)	-0.028 (-2.545)***	-13644.805 (-1.089)*
Access to Information (X_{10})	-0.756 (-2.012)**	-0.923 (-2.500)***	-0.036 (-2.556)**	-2.257E11 (-0.631)

R ²	62.00	72.30	81.10	62.40
F-Ratio	3.041***	5.637***	6.483***	4.852***

Source: Computer Printout of SPSS (2020); values in Parenthesis are t-values *Statistically Significant at 10%; **Statistically Significant at 5%; * Statistically Significant at 1%**

CONCLUSION AND RECOMMENDATION

Conclusively, vegetable farming has been a source of livelihood for the women in the area. The women

farmers perceived and reported that the constraints they face has led to shortage of farm labour ($\bar{x}=3.63$) and is disrupting planting and harvesting season of their all round vegetable production ($\bar{x}=3.56$) amongst others. Diversification of agribusiness (99.26%) is one of the solutions they practice in reducing the constraint they face in all round vegetable. Estimated multiple regressions showed that the socio-economic characteristic of women farmers influences their level of constraint in all round vegetable farming and is significant at 1% level of probability. The study therefore encouraged the women farmers to form or join cooperative society in order to get not just financial support but input and labour support from government, interest group and formal financial institutions to boost vegetable production in the study area, and increase return on investment.

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