

Effects of Socio-Economic Factors on Organic Tomato Production among Farmers in Zuru Local Government Area of Kebbi State Nigeria

¹Mshelizah R. J; ²Hassan S. U., ³Muhammad A. M; ⁴Dabai, E. C.; ⁵Kanah N. M. & ⁶Harande I. S.

¹Department of Agricultural Extension and Management, College of Agriculture, Kebbi State

²Department of Agricultural Economics and Extension, Kebbi State University of Science and Technology, Kebbi State

³Department of Agricultural Technology, College of Agriculture, Kebbi State

⁴Department of Science, College of Agriculture, Zuru, Kebbi State, Nigeria

⁵Department of Home and Rural Economics, College of Agriculture, Zuru, Kebbi State

⁶Department of Animal Health Production, College of Agriculture, Zuru, Kebbi State

Email: rejoicejames19@gmail.com

Corresponding Author: Mshelizah R. J

ABSTRACT

This study examines the Socio-economic factors affecting organic tomato production in Zuru Local Government Area (L.G.A) of Kebbi State, Nigeria. The study specifically investigated the socio-economic factors of organic tomato farmers and determines the relationship between farmers' socio-economic factors and their level of output. Data were collected from 4 districts in the L.G.A. The sample size was purposively selected from the sampled areas based on the level of organic tomato production. The data were analyzed using descriptive statistics and regression analysis. The regression result shows that there is significant relationship between the socio-economic factors of the organic tomato farmers and their level of output at 1%, 5% and 10% levels of significance. The findings further revealed that socio-economic factors such as: educational level, primary occupation and farming season has great influence on organic tomato production. While age and farm size of the respondents has no significant relationship with the production of organic tomato in the study area. The study encourage farmers to get either formal or informal education as this will help them know more about their organic farming activities and thereby help in boosting their production capacity to meet the demand, not only of the study area but the State and the Nation at large.

Keywords: Socio-economic factors, Organic Tomato farming, Kebbi State

INTRODUCTION

Vegetables can be defined as plants or part of plants cultivated for human consumption or livestock feeding such as potatoes, carrots, cabbages and so on. Some fruits, for example tomatoes, cucumbers and some seeds (peas and beans) are considered vegetables. They can be consumed fresh, raw or processed directly without substantial extraction such as sugar beets. Vegetables are perishable products with active metabolism during the post-harvest period (Obaosegba, 1973). Tomato crops are very important sources of income. They can be dried and processed, for example, into tomato paste and juice. Tomatoes can also be eaten inform of salad, soup and stew. Organic tomato production is a system that excludes the use of synthetic fertilizer, pesticide and growth regulators. Organic farmers rely heavily on crop rotations, crop residues, animal manure, legumes, green manures, organic waste and mineral bearing rocks to feed the soil and supply plant nutrients. Insects, weeds and other pests are managed by mechanical cultivation and cultural, biological and bio-rational controls (USDA, 1980).

Organic certification emerged as a marketing tool during the 1970s and 80s to ensure that food produced organically met specific standards of production. In early 1998, the USDA released a draft of the new standards for public comment and public opposition to these proposed standards was vocal, sending a message to the USDA that work was necessary (USDA, 1980).

A new definition of “organic agriculture” as proposed by the national organic standard board is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activities. It is based on minimal use of off-farm inputs and management practices that restores, maintain and enhance ecological harmony. Organic farming (agriculture) is a labeling term, which denotes products produced under the requirements of the organic foods production Acts (USDA, 1992).

The primary role of organic agriculture is to optimize the health and productivity of the interdependent communities of soil life, plants, animals and people. The principal guidelines for organic production is to use materials and practices that enhance the ecological balance of natural systems and integrate the parts of the farming system into an ecological whole. Organic agricultural practices can ensure that products are completely free from chemical residues; however, other methods are used to minimize pollution from the air, soil and water. Organic food standard handlers, processors and retailers adhere to

standards that maintain the integrity of organic agricultural products (USDA, 1980).

Growers chose organic methods for a variety of reasons. One of the attractions of organic production is that, it sometimes brings a 10-30 percent premium in the market price (Davis and Jeannine, 1989). As organically grown produce becomes common, however, those premiums may be the exception rather than the rule and motivation beyond market premiums should be considered. Incentives may include the possibility of reduced input costs, farm safety, reduced negative environmental impact and a better functioning agro-ecosystem (Davis and Jeannine, 1989). The use of organic fertilizer in production of tomatoes in the study area is very low, and the study area is predominantly practising the production of tomatoes using synthetic fertilizer and other chemicals such as pesticide and growth regulators. This is based on the conviction that the use of chemical fertilizers gives higher yields of tomatoes. This has made the farmers in the study area to withdraw from the use of organic fertilizer to the use of synthetic fertilizer, pesticides and growth regulators. There is need to reorient the tomato farmers on the need and importance of organic tomato farming. Therefore, the general objective of this study is to examine the effect of socio-economic factors of organic tomato farmers on their output in Zuru LGA of Kebbi State. The specific objectives are, to determine the socio-economic factors of the organic tomato farmers and to determine the relationship between farmers' socio-economic factors and their level of output.

MATERIALS AND METHOD

Population and Sample Size

The population of the study comprises of both male and female that practise organic tomato farming in the study area. Zuru LGA is made up of four (4) administrative districts, namely; Rikoto, Rafin-Zuru, Dabai and Manga. These four districts were purposively selected due to their active participation in tomato farming. The sample frame is 136 tomato farmers in the four districts (32 in Rikoto, 38 in Rafin-Zuru, 36 in Dabai and 30 in Manga). Sixty eight (68) organic tomato farmers were randomly selected as the sample size for the study, which accounted to 50% of the sample frame. Table 1 below shows the distribution of the study area includes, LGA, districts, sample frame and sample size.

Table 1: Distribution of Study Areas and Sample Size

LGA	Districts	Sample frame	Sample size (50% of sample frame)
Zuru	Rikoto	32	16
	Rafin-Zuru	38	19
	Dabai	36	18
	Manga	30	15
Total	4	136	68

Analytical Techniques

Descriptive statistics such as frequency counts and percentages were used to describe farmers' socio-economic factors. Regression analysis was used to test the relationships between socio-economic factors of the organic tomatoes farmers and their level of outputs.

Regression Model

The regression model used to identify the factors that influence organic farming by farmers is as stated below.

$$Y = f(X_1, X_2, X_3, X_4, D_1, D_2, \& D_3)$$

Where;

Y= output

X₁= age (years)

X₂= educational level (years)

X₃= farm size (hectare)

D₁ = 1 if occupation is farming, and 0 otherwise

D₂ = 1 if occupation is trading and fishing, and 0 otherwise.

D₃ = 1 if occupation is hand crafting and hunting, and 0 otherwise.

D₄ = 1 if season of farming is dry season, and 0 otherwise.

RESULTS AND DISCUSSION

Age

Table 2 revealed about 37% of the respondents that fall within the age range of 31-40. This indicates that most of the respondents were at their productive stage of life. The result shows that about 15% of the respondents fall within the age group of 15-20 years. This shows that most young people at this age find it difficult to participate in organic tomato farming. This could be as a result of their in-experience in organic farming activity. Twenty nine percent

(29.4%) of the respondents fall within the age range of 21-30, while 19.12% fall within the age range of 41-50.

Educational Level

Education is one of the most important factors that improve the economic conditions of the society. Education does create favorable mental atmosphere for the acceptance of improved farm practices among farmers. The result of educational level revealed that about 37% of the respondents had primary education, 29.4% had secondary education, 10.3% had NCE, 14.7% had diploma, while only about 9% of the respondents had degree. "Education" apart from its importance in improving the living standard of the society and its influence on the acceptance of improved organic farming practices among organic farmers, it also help the organic farmers to plan to meet the specific demand of the masses. Therefore, educational programmes have to be provided to the farmers, so that they can have good knowledge for planning production and processing of their products in order to meet the demand of the increasing population. The study also recommends that proper education about organic tomato farming be given to the respondents.

Primary Occupation

Primary occupation entails the major activity that the organic tomato farmers were engaged in. It is often important to be engaged in a particular occupation at a time, as this will help one to perform the major function of the occupation effectively. The result of primary occupation indicates that about 53% of the respondents engage themselves in organic tomato farming as a full time occupation, while about 15%, about 9%, about 9% and about 15% of the respondents stated that their primary occupations were trading, handcrafting, hunting and fishing respectively. This finding concludes that most tomato farmers' primary occupation is farming. Therefore, their devotion to organic tomato farming is full and complete without any other activity diverting their attention.

Season of Farming

For plants to actively grow, it must be able to transpire freely. This means that adequate moisture and low to moderate humidity and good air circulation should be adequately provided. The result of season of farming unveiled about

78% of the respondents that grow their tomato plants during the dry season. This is because during the dry season, plant transpiration is more adequate and the humidity is low as compared to the rainy season. The major sources of water for irrigation during the dry season farming are rivers, ponds, dams, boreholes and wells. While 22.1% of the respondents revealed using rainy season for their organic tomato cultivation. Rainy season proves to be the season where supply of tomato product is less. This is evident in our markets nowadays, as the prices of fresh and dry tomatoes tend to shoot up during the rainy seasons.

Farm size

The result of farm size revealed that 29.4% of the respondents cultivate 6-10 hectares of land, about 27% and about 27% of the respondents cultivate 1-5 and 11-20 hectares of land respectively, while about 18% cultivate 21 and above hectares of land. Farmers should invest more in organic tomato farming so as to enable them raise their living standards and they should increase sizes of their organic tomato farms so as to achieve the desired levels of production, so as to reach the demands of the Nations' population both in season and out of season production.

Table 2: Description of Farmers' Socio-Economic Factors

Age group (years)	Frequency	Percentages (%)
15-20	10	14.7
21-30	20	29.4
31-40	25	36.8
41-50	13	19.12
Total	68	100%
Educational level		
Primary	25	36.8
Secondary	20	29.4
NCE	7	10.3
Diploma	10	14.7
Degree	6	8.82
Total	68	100%
Primary occupation		
Trading	10	14.7
Handcrafting	6	8.82
Hunting	6	8.82
Farming	36	52.9
Fishing	10	14.7
Total	68	100%
Season of farming		
Dry season	53	77.9
Rainy season	15	22.1
Total	68	100%
Farm size (ha)		
1-5	18	26.5
6-10	20	29.4
11-20	18	26.5
21 & above	12	17.6
Total	68	100%

Regression Result

Effects of the Relationship between Farmers' Socio-Economic Factors and their Outputs

Regression analysis was used to test the relationship between the dependent variable (Y) and the independent variables (Xi, Di). The regression result shows that socio-economic factors of the organic tomato farmers were significant in explaining the level of output of tomato at 1%, 5% and 10% levels of significance. Table 3 shows the regression results of the socio-economic factors that affect organic tomato production output. The Table revealed that

handcrafting and hunting (D₃), age (X₁) and farm size (X₃) have no significant relationship with the level of output from organic tomatoes farm. But trading and fishing (D₂), season of farming (D₄) and educational level (X₂) shows significant relationships with their level of output at 5% 10% and 5% levels of significance respectively. Primary occupation, age and farm size of the respondents has no significant relationship with the output of organic tomato in the study area. Therefore, Government of the federation should provide educational facilities and extension agents to mobilize farmers to educate them on the need and importance of organic farming so as to boost their production capacity. Season of farming have to be observed adequately so as to maintain good farming periods that could ensure better yields of their tomato crops.

Table 3: Regression analysis of socio-economic factors that affect organic tomato production

Model	Standardized Coefficients (Beta)	t.	F.
1 Constant		4.492***	
D ₂	.013	2.328**	5.867***
D ₃	-.054	-.706	
D ₄	-.412	-2.006*	
X ₁	.095	.403	
X ₂	.510	2.986**	
X ₃	-.195	-.840	

* Significant at 10% level

** Significant at 5% level

*** Significant at 1% level

CONCLUSION AND RECOMMENDATION

The study revealed significant relationship between trading and fishing, season of farming and educational levels with their level of output. Therefore, these variables are considered as the socio-economic factors that positively affect organic tomato production. The study recommend that proper education about organic tomato farming be given to the farmers, farmers should invest more in organic tomato farming so as to raise their standard of living and organic farmers should increase sizes of their tomato farm to achieve the desired levels of

production. Season of farming have to be observed adequately so as to maintain good farming periods that could ensure better yields of their tomato crops.

REFERENCES

- Akinerele, O. I. and Edward, E. T. (1973). *Historical Background and Future Prospect of Fruits and Vegetables in Nigeria*. Osu Extension Fats NO 6019 Cooperative Extension Services. Oklahoma State University P8.
- Davis, S. T. and Jeannine, O. I. (1989). "Review Your Tomato Cultural Practices" *American Vegetable Grower*. August, P.36.
- Obaosegba, G. O. (1973). Situational Report on Fruits and Vegetables in Nigeria. Report for anti-inflation. Ibadan, Oyo State.
- USDA. (1980). *Report and Recommendations on Organic Farming*: USDA Study Team on Organic Farming U.S. Department of Agriculture, Washington, D.C.
- USDA. (1992). *U.S. Tomatoes Statistics, 1960-1990*. U.S. Department of Agriculture, Washington, D.C.

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