



IMPACT OF FARM INSTITUTES AND TRAINING CENTERS ON SPINACH PRODUCTION AND LIVELIHOOD OF RURAL DWELLERS IN NIGER STATE, NIGERIA

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ABSTRACT

The study assessed impact of farm institutes and training centers on spinach production and livelihood of rural dwellers in Niger State, Nigeria. A multi-stage sampling technique was used to select 206 of rural dwellers. Data were collected using structured questionnaire and interview scheduled and analyzed using descriptive statistics (percentage, frequency and mean) and Chow test. The result revealed 89.8% of the respondents were males while the mean age of the respondents was 34 years. Also, 83.5% of the respondents were married while 74.7% had secondary education. The result of the output revealed that the Chow F-calculated was 149.87, while F-table value at 10 degree of freedom with sample size of 206 is 1.85 at 5% level. The Chow F-calculated for income was 3.952, while the F-table value at 10 degree of freedom with the sample size of 206 was 1.85 at 5% level of probability. The Chow F-calculated for level of living was 24.24 and F-table value at 10 degree of freedom with sample size of 206 was 1.85 at $P \leq 0.05$ level of probability. The major constraints encountered by the respondents were untimely delivery of inputs (100.0%) and cost of equipment (97.1%). It was recommended that provision of inputs should be made available to spinach producers timely and speedily and good seedlings should be provided to farmers by farm institutes and training centers (FITC) in order to enhance their outputs

Keywords: Farm Institutes, Impact, Livelihood, Production, Spinach.

INTRODUCTION

Agricultural production is central to the overall well-being of Nigeria rural farming populace because of its roles in the provision of food, income for farmers, raw materials for industries, employment opportunities and foreign exchange earnings. However, there has been a decline in agriculture contribution to the economic development for the past four decades as a result of inadequate attention from government since the emergence of the oil sector in Nigeria. This has led to the neglect of agriculture and over dependence on oil sector (Ugwu and Kanu, 2012). Farm institutes were created by Niger State government in order to address the problems of food insecurity. The Farm Institutes have been established to provide opportunity for the school leavers, retired civil servants and women folk to be trained in agriculture and also to acquire skills in crafts, tailoring and value addition on agricultural crops produce such as: cassava shea butter soya beans and sesame (Niger State Geographical Information System, 2015). Since establishment the farm institutes have trained and graduated students in various disciplines who are engaged in different economic endeavours. Farm institutes and training centers perform the following functions; to provide employment opportunities in agriculture and other skills based economic activities, enhance economic situation of the participants after graduation who would be engaged in different economic walk of life including agriculture as a business and Improve agricultural productivity to address food security challenges. Spinach is



a versatile and widely grown vegetable throughout the world (Niger State Geographical Information System, 2015). The crop is grown in wet and dry season thereby contributing to national requirement, though bulk production is from the dry season cropping system grown yearly under irrigation. Spinach contributes to the share of agriculture in national economy, but possesses a great potential and comparative advantage to compete in the liberalized economy. This study seek to address this objectives describe the socio-economic characteristics, assess the impact of farm institutes and training centers on income and livelihood of rural populace and constraints associated with effectiveness of farm institutes and training centers.

MATERIALS AND METHODS

The Study Area

Niger State is located in the Guinea Savannah ecological zone of Nigeria. In terms of land mass, it is the largest State in Nigeria. It covers a total land area of 74,224km² accounting for about eight percent of Nigeria's land area. About 85% of its land area is good for arable crops production (Niger State Geographical Information System, 2015). It is located within Latitudes 8– 10°N and Longitudes 3 – 8°E with a population of about 3,950,249 (NPC, 2006) and with a growth rate of 3.2%, the State has an estimated population of 5,586,000 in 2017 (Niger State Geographical Information System, 2015). Niger State experiences two distinct season dry and wet seasons with annual rainfall varying from 1,100mm in the Northern part to 1,600mm in the Southern parts. The average annual rainfall is about 1,400mm. The duration of the rainy season is approximately 180 days. The wet season usually begins in April/May to October, while the dry season starts from November to March. The State has maximum temperature of 29°C, average temperature of 22°C and minimum temperature of 26°C. The mean average temperature is around 32°C. Dry season commences in October (Niger State Geographical Information System, 2015). Most of the communities in the State are predominantly agrarian. Vegetables grown in the State are, Spinach, Pumpkin, bitter leaf and water leaf leave. Tree crops grown are mango, citrus, coconut, cashew, banana and pawpaw. Other non-agricultural activities engaged by the people include blacksmithing, leatherwork, mat and basket making and trading. Women on the other hand engaged in technical handicraft and trading

Sampling Procedure and Sample Size

Multi-stage sampling technique was used for the study in both States. The first stage involved selection of all the Agricultural zones in the State. At the second stage, one (1) Local Government Area (LGA) from each agricultural zone was randomly selected. The third stage involved random selection of four communities from the selected Local Government Areas (LGAs). At the fourth stage, 10% of the farmers were randomly selected from the sampling frame of each community. In all, a total of 206 respondents were selected from the State as the sample size for the study.

Method of Data Collection and Analytical Techniques

Primary data was used for the study, the data were collected by researchers and trained enumerators using structured questionnaire complimented with interview schedule. The data obtained were analyzed using descriptive statistics such as (frequency distribution, percentage mean) and chow test.



RESULTS AND DISCUSSION

Socio-economic Characteristics of Respondents

Table 1 revealed that 89.8% of the respondents were males while 10.2% were females. This shows that male dominate spinach production in the study area. This might be attributed to the ownership of land system that prevails in the study area, which allows males member of the society to inherit land. This finding agreed with Ayandiji and Adeniyi (2014) who reported that male are dominance in vegetable in Western part of Nigeria. Table 1 indicated that 72.8% of the respondents had age range of 31-40 years while 21.1% of the respondents had age range of between 41-50 years. The mean age of the respondents was 34 years, implying an active and productive age in which spinach production is high. This agreed with Ayandiji and Adeniyi (2014) who stated that age bracket of 30-40 years is an indicator of good supply of agile workforce in vegetable production. Table 1 further revealed that majority (83.5%) of the respondents was married while 10.7% were single. This implies that since majority were married; it therefore suggests higher engagement and commitment towards their sustainable livelihood. They also tend to have access to more family labour in spinach production.

Table 1: Socio-economic Characteristics of the Respondents (n = 206)

Variables	Frequency	Percentages
Sex		
Male	185	89.8
Female	21	10.2
Age		
20-30	14	6.8
31-40	150	72.8
41-50	25	12.1
>50	17	8.2
Mean	34	
Marital status		
Married	172	83.5
Single	22	10.7
Widow	12	5.8
Educational attainment		
Non formal education	4	1.9
Quranic education	11	5.3
Adult education	11	5.3
Secondary	154	74.7
Tertiary	26	12.6
Household size		
3-5	7	3.4
6-8	161	78.2
9-11	34	16.5
>11	4	1.9

Sources: Field survey, 2019

Table 1 also revealed that 74.7% of the respondents had secondary education while 12.6% had tertiary education. This result revealed a high preponderance of the educated respondents having one form of formal education or the other. The implication of this is that



education provides a platform for adoption of innovations and easy access to information. This agreed with Mohhiuden *et al.* (2015) who observed that literacy had its own merits and contribution towards the process of modernization of agricultural revolution. Further to Table 1, 78.2% of the respondents had household size of between 6-8 persons while 16.5% had household size of between. This implies that the availability of family labour for spinach production in the study area.

Impact of Farm Training Institutes and Training Centers on the Output of Participant

The result from Table 2 revealed that the Chow F calculated was 149.87, while F-table value at 10 degree of freedom with sample size of 206 is 1.85 at 5% level of probability. Since the F-calculated was greater than the F-table value it therefore implies that there is a significant impact of farm institutes and training centers on the output of the after participation in the study area. This agreed with Chukwuemeka (2012) in his study of impact of Agricultural Development Project (ADP) in Imo State revealed that the project assisted programmes help in promoting small-scale autonomous enterprise. It also tackled many aspect of agriculture, which includes increased production, marketing, infrastructure and training. The impacts of farm institutes and training centers was supposed to reflect positively on all assets of the beneficiaries income and productivity due to the upper hand they have in acquiring and using some productive inputs provided by the project.

Table 2: Impact of Farm Training Institutes and Training Centers on the Output of Participant

Group samples	R ²	Residual sum of square	N	K	F-cal	F-tab
Pooled samples	0.738	118547474.121	206	10	149.87	1.85
Before	0.458	19606179.872	206			
After	0.521	3072658.231	206			

Sources: Field survey, 2019

Impact of farm institutes and training centers on the income of participants

Table 3 revealed that the Chow F-calculated was 3.952, while the F-table value at 10 degree of freedom with the sample size of 206 was 1.85 at 5% level of probability implying a significant impact of farm institutes and training centers on income of the participant before and after in the study area since the F-calculated was greater than the F-table value. This agreed with Agwunobi (2014) who revealed in his assessment of impact of evaluation of shell petroleum Agricultural extension programme in Imo State stated that there was higher annual income for participating farmers than non-participating farmers. This is also in agreement with Tologbonse (2013) who observed that the mean income of participants was (134,389.04) which was discovered to be much higher than that of the mean income of non-participants which amounted to (5,605.35). This means that participants have higher output and income than the non-participants from their agricultural enterprise.



Table 3: Impact of Farm Institutes and Training Centers on the Income of Participants

Group samples	R ²	Residual sum of square	N	K	F-cal	F-tab
Pooled samples	0.041	3060353513.642	206	10	3.952	1.85
After	0.176	1288868664.061	206			
Before	0.058	1464532002.645	206			

Sources: Field survey, 2019

Impact of Farm Institutes and Training Centers on the Level of Living of the Participants

The result in Table 4 show chow test determination of coefficients from two regression analysis. However, three linear regressions were carried out comprising of the pooled, after and before and separate linear regression for after and before participation, respectively. The residual sum of square of each of the three regression was used to compute the chow test. The decision was that that if Chow F-statistics is greater that F-table, there is impact FITC on level of standard of living and structural differences after and before participation in term of standard of living, if otherwise there is no impact of FITC. The result from Table 4 showed that the Chow T-calculated was 7.23 with sample size of 206 was 1.97 at 5% level of probability, implying a significant impact of FITC on level of living in the study area since the T-calculated was greater than the F-table. This is because the result of t-test further confirms the significant impact of FITC on the level of living in the study area. This implies that farmers have enjoyed some forms of assets in terms of increased household items with the consumption or economic goods such as food, motor-cycle, bicycle and cars.

Table 4: Impact of FITC on the level of Living of Farmers

Group of farmer	Mean	Sample size	Std. error	t-cal	t-critical
After	72742.71845	206	14804570069	7.23	1.97
Before	9486.40	206	359514741.2		

Sources: Field survey, 2019

Constraints Encountered in Farm Institutes and Training Centers

Table 5 indicates that participating farmers attributed their major problem to untimely supply of input which accounted for 100.0% of the constraints. Also, 97.1% indicated high cost of purchasing the equipment. This implies that untimely supply of inputs and high cost of purchasing equipment were the major problems faced by respondents in the study area. Also 86.4% indicated that they encountered inadequate access to water for irrigation farming while 64.1% lack access capital in form of credit which plays a crucial role in the transformation of agriculture. This is because FITC did not involve credit service provision in the project. This also agreed with Mahewari *et al.* (2008) who revealed in his study of precision farming technology, adoption decisions and productivity of vegetables in resource poor environments that lack of finance and credit facilities were the most important reasons for non-participation and adoption of precision farming technology in a resource poor environment.



Table 5: Constraints Encountered in the Farm Institutes and Training Centers Project

Constraints	Frequency	Percentage
Untimely delivery of input	206	100.0
Mixture of seedling with low quality ones	78	37.9
Cost of equipment	200	97.1
No access to loan	132	64.1
Poor attitude staffs	95	46.1
No access to water	178	86.4
No ready-made market to absorbed the output	62	30.0

Sources: Field survey, 2019

CONCLUSION AND RECOMMENDATIONS

The assessment study shows that majority of the respondents were young, married and had one forms of formal education or others. From the findings of the study, it has been established that during FITC project, the output income and level of living after participation increased significantly. However, participation in spinach production has increase the socio-economic status and livelihood of spinach producers in the study area.

1. Provision of inputs should be made available to spinach producers timely and speedily.
2. Good seedlings should be provided to farmers by FITC in order to enhance their outputs.
3. Irrigation should be provided to farmers in order to produce all year round.

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