

International Journal of Agriculture Extension and Social Development

Volume 5; Issue 1; Jan-Jun 2022; Page No. 48-53

Received: 25-11-2021
Accepted: 27-12-2021

Indexed Journal
Peer Reviewed Journal

Exploring the access of agricultural extension services among small-scale garden egg farmers in Abaji area council, Abuja

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DOI: <https://doi.org/10.33545/26180723.2022.v5.i1a.123>

Abstract

The study was carried out to ascertain exploring the access to agricultural extension services among small-scale garden egg farmers in Abaji Area Council, Abuja. The research was carried out in Nigeria's Federal Capital Territory, Abuja. The study was directed by three objectives. The research was conducted in the form of a survey. Respondents for the study were selected using a multi-stage sampling process. The first stage was the purposive selection of three zones from the territory's six ADP zones. Gwagwalada, Kwali, and Abaji were the zones chosen. The second stage consisted of selecting three blocks from each of the three zones, for a total of nine blocks. In the third stage, two cells from each of the nine blocks were chosen, for a total of 18 cells. The fourth and final stage was the random selection of 20 respondents from each of the cells. The total number of respondents for the study was 360. Primary data were used for the study and these were collected using well-structured questionnaires which were administered by the researcher with the help of trained ADP enumerators who are familiar with the study area. Descriptive statistics like frequency, percentage and mean were used to achieve the objectives of the study. The result revealed that the most available extension service in the study area was "advisory services", as indicated by 93.6% of the respondents. Age, Gender and education are some of the factors that can significantly influence the productivity of farmers. Therefore, the following recommendations were made, Regular training should be organized for extension workers to build their technical abilities and ensure that they are equipped with the latest trends in agricultural innovations. The government and other extension service providers should ensure that more extension workers are recruited. Modern technologies like social media, telephone and the likes should be leveraged on to promote the efficient delivery of extension services to farmers.

Keywords: Exploring, access, farmers, agricultural extension services, small-scale

Introduction

The goal of agricultural extension services in Nigeria is to facilitate acceptance by farmers while the main goal of agricultural extension is to improve the living standard of farmers through the transfer of improved farming practices to the rural people (Okwoche & Asogwa, 2012) ^[1]. Agricultural extension service has the capacity to improve the yield of farmers. Inadequate extension agents hinder the full exploitation of extension services in Nigeria. Agricultural extension agents are responsible for using various strategies to encourage farmers to adopt agricultural innovations. Some of the strategies include farm settlement schemes, the establishment of farm institutes, experimental farms, extension work station, and visit to various farms among others.

In Nigeria, extension services are delivered and funded by the government. The three tiers of government, federal, state and the local government play varying roles in the delivery and funding. The Federal government provides coordination, policy direction through the Federal Ministry of agriculture and natural resources, which is carried out by the National Food Reserve Agency (NFRA) formerly

known as Project Coordinating Unit (PCU). It was initially known as Federal Agricultural Coordinating Unit (FACU), which was merged with its sister department, the Agricultural Projects Monitoring and Evaluation Unit (APMEU) and called Project Coordinating Unit (PCU). The FACU and APMEU were established together with the state ADPs and the World Bank's support in the early 1980s. The ADPs are the State institutions with the mandate to carry out extension services to raise agricultural production and improve rural living conditions. The ADPs are the extension arm of the State Ministries of Agriculture and Rural Development (William, 2004) ^[12]. The 774 Local government authorities were created under a 1976 Law, to decentralize development program to the local level. The decree establishing them specifies that they should have major responsibilities for delivering extension services (William, 2004) ^[12]. Despite the fact that all local government authorities have agricultural department and some staff, there is no indication that extension delivery is one of their major activities. Advocate.

The ADPs started in three pilot sites, Funtua, Gombe and Gusau in 1975 known as enclave projects (Arokoyo, 2018)

[2]. Their activities then included road and Dam construction, rehabilitations and maintenance of rural roads, provision of production inputs, in addition to the provision of technical advisory services to farmers. The overwhelming successes recorded influence the establishment of six more enclave at Ayangba, Lafia, Bida, Illori, Ekiti-Aroko, and Oyo north between 1979 and 1982. This led to the creation of the first set of state-wide ADPs in Bauchi 1981, Kano in 1982, Sokoto in 1983 and Kaduna in 1984 (Oladele & Fawole, 2007) [4].

One of the strong mechanisms in extension delivery is a linkage between agricultural research, extension and the farmers. Training and Visit (T&V) extension system remains the basic strategy for public extension delivery; the Research-Extension-Farmers-Inputs-Linkage-System (REFILS) is the management mechanism being used to bring together stakeholders in agricultural development as equal partners (Arokoyo, 2018) [2]. The institutions involved include the ADPs, the National Food Reserve Agency (NFRA), and a department under the Federal Ministry of Agriculture and Water Resources (FMA & WR) responsible for the coordination of the multilateral Donor supported Agricultural Development Projects (ADPs). The National Agricultural Extension Research and Liaison Services (NAERLS) is the planning and coordinating agency for agricultural extension liaison nationwide and for conducting research on technology transfer and adoption. Zonal REFILS activities are coordinated by zonal coordinating research institutes. The Institute for Agricultural Research (IAR) of Ahmadu Bello University, Zaria, is responsible for the Northwest zone. Lake Chad Research Institute (LCRI) Maiduguri is in charge of the North-East zone.

Eggplant (*Solanum melongena*) also known as aubergine or brinjal, belongs to the family of Solanaceae (nightshade family), which comprises over 3,000 species that are well distributed across 90 genera (Knapp *et al.*, 2013) [14]. Production of garden-egg is highly concentrated with 85% of the output coming from five countries: China, India, Egypt, Turkey and Indonesia. Meanwhile, more than 2,048,788 ha are devoted to the cultivation of garden egg. In the United States of America, Georgia is the largest producing State. African garden-egg is one of the most commonly consumed fruit vegetables in Tropical Africa, in quantity and value and probably, the third after tomatoes and onions (Anyaegebu *et al.*, 2013) [5].

In Nigeria, garden egg is a very important vegetable crop grown on a commercial scale in some parts of the country. However, small-scale growers account for at least 86% of the total production. In the South Eastern part of Nigeria, especially, in Abia State, garden-egg popularly called “Mikimiki” is grown in commercial quantity. “Mikimiki” is the big sized green variety of garden egg with very deep and sweet “endocarp”. However, in the savannah zone of Nigeria; the yellow, white and thick green skinned varieties are grown on large scale. In Abuja, the Federal Capital Territory of Nigeria, appears to be a lucrative venture for the smallholder farmers, with production being an all-year-round activity (Anyaegebu *et al.*, 2013) [5].

Eggplant is the third most important crop from the Solanaceae family after Potato and Tomato. It is a highly valuable vegetable due to its nutrient composition and

medicinal properties. It is also regarded as one of the healthiest vegetables for its high vitamins, minerals and bioactive compounds for human vitality. Eggplant is a fairly good source of iron, calcium, phosphorus, potassium and vitamins A and C. It is listed among the top 10 vegetables with oxygen radical absorbance capacity (Naujeer, 2009) [6]. Correspondingly, eggplant is a novel source of anthocyanin, which is the main phenolic compound in eggplant and is the most significant antioxidants with ranges of different physiological capacities, for example, anti-mutagenesis, anti-cancer and vision enhancement. Tissue extracts from eggplants have been used to treat asthma, cholera, dysuria and bronchitis while its fruits and leaves are used in lowering blood cholesterol levels (Naujeer, 2009) [6]. Therefore, the purpose of this study is to find out the accessibility of agricultural extension services among small-scale garden egg farmers in Abaji Area Council, Abuja. The specific objectives of this study are to:

1. Describe the socio-economic characteristics of the small-scale eggplant farmers in the study area.
2. Determine the agricultural extension services accessible to small-scale garden egg farmers in the study area.
3. Find out the challenges faced by the small-scale eggplant farmers in accessing extension services in the study area.

Materials and Methods

The research was carried out in Nigeria's Federal Capital Territory, Abuja. The Federal Capital Territory of Abuja is Nigeria's capital city. The Federal Capital Territory Abuja (FCT) was established in 1976 from sections of the states of Nassarawa, Niger, Kaduna, and Kogi. It is situated in the country's central belt. The area is located near the confluence of the Niger and Benue rivers, approximately north of Lokoja. It is bordered on the west and north by Niger, on the northeast by Kaduna, on the east and south by Nasarawa, and on the southwest by Kogi. Abuja is located in the geographic centre of the country, between latitude 9.083 and longitude 7.533. The landmass of the Federal Capital Territory is roughly 923,768 km². It is located in the Savannah region, which has a moderate climate. The Gbagyi language is spoken by the indigenous people of Abuja, as are Bassa, Gwandara, Gade, Ganagana, and Koro. Cassava, yam, sweet potato, sorghum, maize, millet, onions, tomatoes, pepper, rice, peanuts, cowpea, eggplant, and other staple crops are farmed in the area. Because of the high population of youth farmers in these zones, three of the six zones will be sampled: Abaji, Gwagwalada, and Kwali. Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali are the six agricultural zones that make up the region (FCT ADP 2018).

The population of the study and research design

The population for the study was small-scale eggplant farmers in Federal Capital Territory, Abuja. The survey design was used for this study. Survey design is a sub-category of descriptive research. The design employs questionnaires and interviews to determine the opinion, preferences, attitudes and perceptions of people about

issues. Questionnaires were used to collect data for the study.

Sampling Size and Sampling Techniques

Respondents for the study were selected using a multi-stage sampling process. The first stage was the deliberate selection of three zones from the territory's six ADP zones. Gwagwalada, Kwali, and Abaji were the zones chosen. In the second stage, three blocks were selected from each of the three selected zones making a total of 9 blocks. In the third stage, 2 cells were selected from each of the 9 blocks making a total of 18 cells. The fourth and final stage was the random selection of 20 respondents from each of the cells. The total number of respondents for the study was 360.

Data Collection

Primary data were used for the study and these were collected using well-structured questionnaires which were administered by the researcher with the help of trained ADP enumerators who are familiar with the study area.

Method of Data Analysis

To meet the study's goals, descriptive statistics such as frequency, percentage, and mean were used.

Results and Discussion

Socio-Economic Characteristics of the Respondents

Presented in Table 1 is the result for the socio-economic characteristics of the eggplant farmers in the study area. The gender distribution of the respondents revealed that 80% of the farmers were male while only 20% of them were female. This implies that there are a lot more males involved in eggplant production than females in the study area. This aligns with the assertions of Kimaro *et al.* (2015)^[7] which stated that the reason for more involvement of men than women in agricultural activities is because of its high physical demands. Most (91.9%) of the respondents were married, while the rest were unmarried.

The household distribution of the farmers in Table 1 revealed that the majority (47.1%) of them had a household size of 1-5 persons. Also, 42.0% had between 6-10 persons in their household while 9.8% had a household size ranging from 11-16 persons. Meanwhile, the average household size of eggplant farmers was 6.52. According to Saliu *et al.* (2016)^[8] farmers with large households often employ the use more family labor than hired labour for their farming activities.

The result in Table 1 further reveals that 35.8% of the

farmers were within the age bracket of 31-40 years, 32.5% were within the age of 41-50 years, and 16.4% of them were between the ages of 51 and 60. The average age of the respondents was 42.00 years. This implies that the majority of the respondents were relatively young and within their active and productive age, meaning that they can effectively participate in farming activities. Age is a factor that can significantly influence the productivity of the farmers and according to Nuhu *et al.* (2014)^[9] the most active farming population consists of young and middle-aged farmers.

Most (39.6%) of the farmers had in involved in eggplant production for 1 to 5 years, 34.8% of them had been cultivating the crop for 6-10 years, while about 16.4% had been involved in eggplant farming for 11-15 years. The average years of experience of the farmers in eggplant production was 8.57 years. The result for the educational qualification of the respondents showed that most (30.4%) of them had secondary school education 26.7% of the farmers had tertiary education while 16.2% had primary school education. Meanwhile, 26.7% of them did not have any formal education. This implies that most of the farmers had formal education. Farmers with good levels of education possess the ability to be more innovative because they are able to access and understand information (Bawa *et al.*, 2010)^[10].

The result in Table 1 shows that 63.9% of the eggplant farmers had a farm size ranging between 1-3 hectares, 30.0% of them had a farm size of less than 1 hectare while 6.1% of the farmers indicated that they had at least 4 hectares of farmland. However, the average farm size of the respondents was 1.37 hectares. This implies that most of the farmers were small-scale farmers, and their level of production could influence their ability to access credits. The result further revealed that the majority (42.1%) of the farmers had an annual income of N 100,001-N 200,000, 24.2% had an annual income ranging from N200,001 and N300,000 while 15.6% of them had an annual income of N300,001-N400,000. The average income of the respondents was N233733.56.

Table 1 shows that most (78.1%) of the respondents had at most one contact with extension agents while the farmers that had at least two contacts with extension agents in a farming season was 21.9%. Extension services consist of various training and advisory services offered by extension officers. These services ensure that farmers are properly equipped to carry out their agricultural activities. Akpan *et al.* (2015)^[11] stated access to extension services by farmers determines farmers' level of productivity.

Table 1: Socio-Economic Characteristics of the Respondents

Socio Economic Variables	Frequency (N=360)	Percent (%)	Mean
Gender			
Male	288	80.0	
Female	72	20.0	
Marital status			
Married	329	91.9	
Not married	29	8.1	
Household size			
1-5	169	47.1	
6-10	151	42.0	6.52
11-15	35	9.8	
16 or more	5	1.5	

Age (years)			
30 and less	47	13.1	
31-40	129	35.8	
41-50	117	32.5	42.00
51-60	59	16.4	
60 and above	8	2.2	
Farming experience (years)			
1-5	142	39.6	
6-10	126	34.8	8.57
11-15	59	16.4	
16-20	26	7.2	
21 and above	7	3.0	
Educational qualification			
No formal education	96	26.7	
Primary education	58	16.2	
Secondary education	109	30.4	
Tertiary education	96	26.7	
Farm size (hectares)			
less than 1	108	30.0	
1-3	230	63.9	1.37
4 or more	22	6.1	
Income (N)			
100000 or less	35	9.9	
100001-200000	146	42.1	
200001-300000	85	24.2	233733.56
300001-400000	55	15.6	
400001-500000	24	7.8	
500001-600000	5	1.4	
600001-700000	2	0.6	
Number of Extension Visits			
At most once	281	78.1	
More than once	79	21.9	

Computed from field data, 2021

Agricultural Extension Services Accessible to Small Scale Garden Egg Farmers in the Study Area

Figure 1 presents the result for the agricultural extension services accessible to eggplant farmers in the study area. The result revealed that the most available extension service in the study area was “advisory services”, as indicated by 93.6% of the respondents. Also, the result shows that “information on access and usage of agrochemicals” was accessible to 86.7% of the farmers. Improved planting

materials were accessible to 84.4% of eggplant farmers while 76.4% of them accessed services that lead to the “formulation of cooperative societies”. Meanwhile, 45.3% of eggplant farmers in the study area had access to a “tractor hiring service”. This means that the most accessible agricultural extension service among the farmers was “advisory services” while the least accessible extension service in the study area was “tractor hiring service”

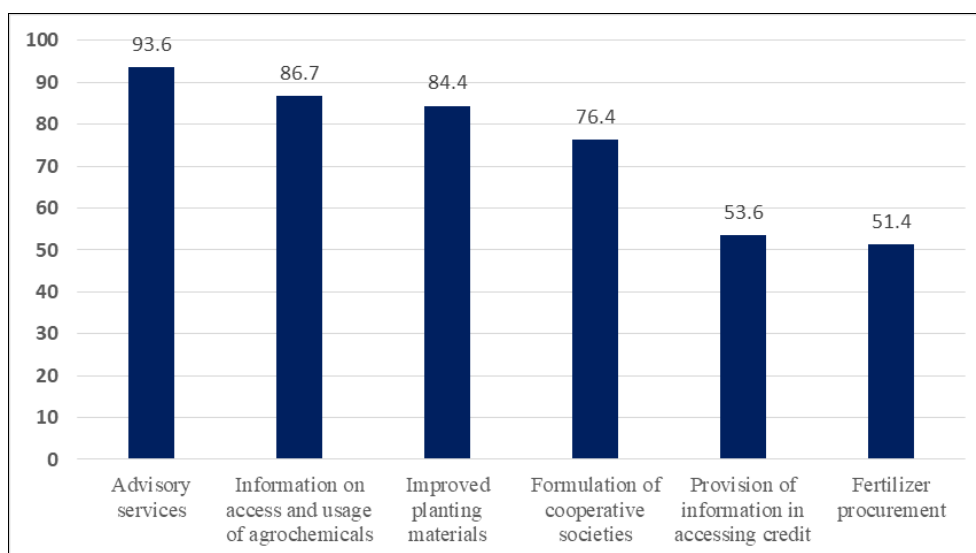


Fig 1: Agricultural Extension Services Accessible to Small-Scale Garden Egg Farmers in the Study Area

Challenges faced by the Small-Scale Eggplant Farmers in Accessing Extension Services in the Study Area

Presented in Table 2 is the result of challenges faced by eggplant farmers in the study area. The result revealed that the “absence of technical support from extension agents” was the biggest constraint faced by the farmers in the study area according to 94.7% of the responses. One of the major needs of farmers is access to technical support from extension workers either through the provision of relevant information or providing solutions to agricultural challenges they may have. In the absence of these services, it may leave the farmers inadequately equipped with the right technical support they require.

The result also indicated that an “inadequate number of extension agents” with 63.3% of responses is another major challenge faced by the respondents in the study area. Farmers require extension services but an extension worker can only attend to a few people at a time. So, when there is an inadequate number of extension agents to attend to farmers, some farmers may be denied access to extension services. Still in Table 2, according to 60.6% and 59.4% of the farmers, “high cost of hiring or accessing tractor” and “high cost of inputs” were constraints to cassava in line with the findings of this study, the following recommendations were made:

1. Regular training should be organized for extension workers to build their technical abilities and ensure that they are equipped with the latest trends in agricultural innovations. This will help them in providing adequate technical support to farmers when they need it.
2. The government and other extension service providers should ensure that more extension workers are recruited. This will help manage the problem of an inadequate number of extension workers to attend to the needs of farmers.
3. Modern technologies like social media, telephone and the like should be leveraged on to promote the efficient delivery of extension services to farmers. Also, farmers should be enlightened on the use of these devices and how they can access extension services through them.

Inputs like tractors, improved seeds, agrochemicals and other farm machinery should be readily accessible to farmers at affordable prices by seed production companies and input dealers. This will lead to an increase in the productivity of farmer’s production in the study area. Tractors and other farm inputs ensure that farmers are able to cultivate more land areas, and they are able to increase their productivity. However, if these inputs are inaccessible to farmers, it may lead to a decrease in productivity.

Table 2: Challenges faced by the Small-Scale Eggplant Farmers in Accessing Extension Services in the Study Area

Challenges	Frequency*	Percent (%)
Absence of technical support from extension agents	341	94.7
Inadequate number of extension agents	228	63.3
Incompatibility of new technologies with existing tools and cultural practices	144	40.0
High cost of inputs	214	59.4
High-cost hiring or accessing tractor	218	60.6
Complexity of innovations	131	36.4
Others (Indicate)		

Computed from field data, 2021 *Multiple responses allowed

Conclusion

The essence of this study is to ascertain the various factors affecting exploring access to agricultural extension services among small-scale garden egg farmers in the study area. Findings from this study had shown that the most accessible extension service by eggplant farmers is advisory service. The most effective method of extension service delivery among farmers in the study area is through individual extension services. Access to credit, fertilizer and market were the major benefits derived by the farmers from agricultural extension service delivery. However, the biggest challenges faced by eggplant farmers in accessing extension service delivery is the absence of technical support from extension agents, the inadequate number of extension service and the high cost of hiring or accessing a tractor.

Recommendations

In line with the findings of this study, the following recommendations were made

1. Regular training should be organized for extension workers to build their technical abilities and ensure that they are equipped with the latest trends in agricultural innovations. This will help them in providing adequate technical support to farmers when they need it.

2. The government and other extension service providers should ensure that more extension workers are recruited. This will help manage the problem of an inadequate number of extension workers to attend to the needs of farmers.
3. Modern technologies like social media, telephone and the like should be leveraged on to promote the efficient delivery of extension services to farmers. Also, farmers should be enlightened on the use of these devices and how they can access extension services through them.

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