



ASSESSMENT OF MAIZE FARMERS' PERCEPTION AND EXTENT OF UTILIZATION OF AGRICULTURAL EXTENSION SERVICE DELIVERY IN KADUNA STATE, NIGERIA

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ABSTRACT

The study assessed maize farmers' perception and extent of agricultural extension service delivery utilization in Kaduna State, Nigeria. A multi-stage sampling procedure was used to select the 334 maize farmers. Data were collected using questionnaire and analyzed using descriptive statistics. The study reveals (72%) of the maize farmers had some level of education and (50%) had 1- 8 years of experience in maize farming. With an average experience of 10 years. The study further reveals that the majority (53%) had contact 1-3 times with the extension agents while (37%) had no contact with the extension agents in the study area. The result shows the maize farmers' perceptions of agricultural extension service delivery (4.04%) had positive responses and satisfaction with planting spacing (3.52%), fertilizer application (3.27%), mulching (3.62%), weed control and harvesting (3.56%). The result further showed that demonstration of improved maize production practices (4.08%), and access to maize extension information (3.87%) were effectively utilized. The result further reveals that politicization, inadequate supply of farm inputs, unavailability of extension agents, and difficulty in accessing loans which were ranked 1st, 2nd, 3rd and 4th respectively. In conclusion, these clearly show that the maize farmers were satisfied and effectively utilized the advice, which had a significant influence on their productivity and level of living. Thus, recommended the need for more knowledge on physical innovation to enhance the perception of the maize farmers, public-private partnerships approach to facilitate inputs distribution and extension service delivery, and financial linkages in the study areas.

Keywords: Delivery, Extension, Farmers, Maize, and Utilization.

INTRODUCTION

Agriculture is generally accepted as the foundation stone of the economy of many countries in the world. It is the spine of the economy in Nigeria as in most developing countries in terms of employment and export earnings (Food and Agricultural Organisation (FAO), 2013; Mwangi and Samuel, 2015). Globally, agricultural extension service delivery is concerned with communicating research findings, technological transfer, and improved agricultural practices to maize farmers.

A general perception of agricultural extension systems in Nigeria is that they have not been able to spawn and stimulate much adoption of agricultural technologies and improvement of agriculture and rural life (Khalid, 2014; Naswem *et al.*, 2018). In Kaduna State there is a paucity of empirical research done on maize farmers' perception and extent of utilization of agricultural extension services as observed from the literature reviewed unlike on factors influencing the utilization of these services; and the impact they have on agricultural productivity. However, maize farmers have little influence and control over the agricultural extension systems for which they are the clientele. Rather, maize farmers are treated as ignorant



recipients and consumers of information, and not knowledgeable associates in technology transfer (Maingangwa *et al.*, 2010).

Thus, this study assessed maize farmers' perception and extent of utilization of agricultural extension service delivery in Kaduna State, Nigeria. Specifically,

- i) describe the socio-economic characteristics of the maize farmers,
- ii) examine the maize farmers' perception of the agricultural extension service delivery, and
- iii) assess the extent of maize farmers' utilization of agricultural extension services in the study areas.

MATERIALS AND METHODS

The Study Area

The study was carried out in Kaduna State, North West Nigeria. Kaduna State is located between latitudes 09⁰ and 11⁰ N and longitude 06⁰ and 09⁰ E. The state occupies an area of about 46,053 square kilometers, with a projected population of 8,789,003 in 2019 at an annual growth rate of 3.2 percent (National Population Commission, and National Bureau of Statistics, 2016).

Rain starts in the area by mid-April and ends by October, the annual rainfall varies from 1107mm in the north to 1286mm in the south. The length of rainfall varies from 150 days in the north and 190 days in the southern part. Relative humidity is low ranging between 60 and 80% in July. The soil pH (level of acidity/alkalinity) ranges from 5.5 and 6.5 characterizing the soil which may be generally described as sandy-loam soil. Agriculture is the major economic activity, producing food and cash crops, livestock, and poultry. Crops such as maize, cowpea, sorghum, soya beans, and vegetables are grown. The people also engage in trading, artisans, and other off-farm activities. There are twenty-three (23) Local Government Areas (LGAs) and four (4) agricultural zones including Maigana, Lere, Samaru, and Birnin Gwari zones (Kaduna State Agricultural Development Agency (KADA), 2018).

Sampling Procedure and Sample Size

A multi-stage sampling procedure which involved a combination of purposive and random sampling techniques was adopted for this study to obtain the sample size. In the first stage, Lere Maigana and Samaru agricultural zones were purposefully selected due to their ease of accessibility, high maize production history, and safety. The second stage, involved the random selection of one L.G.A in each of the three agricultural zones selected using a simple balloting system of selection. This gives a total of three (3) LGAs 10 percent of villages from each of the LGAs were randomly selected and this gives 3, 7, and 6 villages from Soba, Lere, and Jaba respectively. The final stage involved random selection at a 16.5% chance of being sampled from each village to get the sample size. Therefore, a total of three hundred and thirty-four (334) maize farmers out of two thousand and twenty (2020) were randomly selected for the study.

Method of Data Analysis

Data collected were analyzed using descriptive statistics such as frequency, percentage, and mean.

RESULTS AND DISCUSSION

Socio-economic Characteristics of maize farmers

The results presented in Table 1 show the sex distribution of maize farmers indicated that the majority (63%) were male while (37%) were female, and (75%) of the respondents were married. This implies that maize farming is more prominent among married men than women in the study area, with a mean age of 37 years. This showed that the majority of maize



farmers in the study area are in their prime age as defined by the Food and Agricultural Organization. The results further reveal that the majority (72%) of the maize farmers had some form of education. This also indicates that any kind of extension service delivered will to a large extent help the maize farmers in their farming activities.

Table1: Socio-economic Characteristics of Maize Farmers

Variables	Frequency	Mean	St. Dev	Percentage
Sex				
Male	210			63
Female	124			37
Marital status				
Married	249			75
Single	85			25
Age				
17-26	37			11.1
27-36	147			44.0
37-46	87	37	11.16	26.0
47-56	34			10.2
57-66	29			8.7
Educational level				
No school	24			7.2
Adult education	36			10.8
Primary school	74		1.96	22.2
Secondary school	35			10.5
Qu'ranic education	64			19.2
Other (Bible school)	6			1.8
Polytechnic/NCE	26			7.8
University	69			20.7
Total	334			100

Source: Field Survey, 2023

Perception of Maize Farmers to Agricultural Extension Contacts and Service Delivery

The result in Table 2 shows the maize farmers' perceptions of agricultural extension contact and service delivery. The result indicates that maize farmers had positive responses and satisfaction with planting spacing (4.04%), fertilizer application (3.52%), mulching (3.27%), weed control (3.62%) and harvesting (3.56%). Maize farmers, however, were indifferent in the areas of linkage to the Bank of Agriculture (2.47%) and commercial bank (2.14%), timely distribution of implements (2.37%) and medium of information delivery through a print medium (2.40%) in the study areas.

The results further indicated that the majority (82%) of the maize farmers were satisfied with the timely distribution of planting materials (seeds), (73%) were satisfied with the linkage to the microfinance bank and (75%) received information from the extension agents verbally in the study areas. The implication is that there is good engagement and built trust



between the extension agents and maize farmers' working relationships which translates to the farmers' increased productivity and livelihoods.

Table 2: Distribution of maize farmers according to the perception of responses to agricultural extension service delivery

Statements(n = 334)	SS	S	I	NS	SNS	WS	WMS	Percentage
Training on:								
Planting spacing	124	111	91	4	4	1349	4.04***	81
Fertilizer application	50	99	167	13	4	1177	3.52***	70
Mulching	45	75	147	59	8	1092	3.27***	65
Weed control	68	100	142	18	6	1208	3.62***	72
Harvesting	96	72	107	41	18	1189	3.56***	71
Linkage with credit institutions:								
Bank of agriculture	36	17	120	56	105	825	2.47**	49
Commercial bank	11	12	127	46	138	714	2.14**	43
Microfinance bank	120	43	126	16	29	1211	3.63***	73
Others (cooperative society)	74	26	190	9	35	1097	3.28***	66
Timely distribution of inputs:								
Planting materials (seeds)	149	88	84	4	9	1366	4.09***	82
Fertilizer	44	130	121	26	13	1168	3.50***	70
Agro-chemicals	25	117	135	32	25	1087	3.25***	65
Implements	12	18	150	56	98	792	2.37***	47
Medium of information delivery:								
Print medium	25	20	124	58	107	800	2.40***	48
ICT (radio, television, internet and Telephone)	64	124	120	18	8	1220	3.65***	73
Extension agent (verbal)	121	63	99	40	11	1245	3.73***	75
Fellow maize farmers (verbal)	51	121	123	29	10	1176	3.52***	70

Strongly Satisfied= SS, Satisfied=S, Indifferent=I, Not Satisfied=NS, Strongly Not Satisfied=SNS. WS (Weighted Score) and WMS (Weighted Mean Score) Not Satisfied* (mean score of <2.00), ** Indifferent (mean score of between 2.00 and 2.99), and *** Satisfied (mean score of >3.00)

Level of Utilization of Extension Service Delivery by Maize Farmers

The result in Table 3 shows that the level of utilization of extension service by maize farmers is mostly on demonstration of improved maize production practices with (4.08%), linkages to sources of farm inputs (3.77%) linkages to credit sources (3.81%) and access to maize extension information (3.87%) were effectively utilized, while some of them were indecisive utilizing the information on the viable market outlet sat (2.66%) respectively, with the grand mean of (3.64%). This implies that the maize farmers are constrained in accessing information on the market or viable market outlets for maize farmers in the study area. The probable reason might be due to the unavailability of extension agents to provide relevant information on viable market outlets. This result is a clear indication that the extension agents in the study areas have not done much in terms of information delivery on viable market outlets. This result is in line with the finding of Owolabi and Okunlola (2014), which reveals that the



ratio of agricultural extension agents to the population of maize farmers in Africa especially Nigeria is low.

Table 3: Distribution of maize farmers by extent of utilization of extension service delivery

Statements (n = 334)	VEU	EU	U	LE	NEU	WS	WMS	Percentage
Demonstration of improved maize production practices	148	77	100	7	2	1364	4.08**	82
Linkages to sources of farm inputs	63	142	122	2	5	1258	3.77***	75
Linkages to credit sources	68	143	117	2	4	1271	3.81***	76
Information on the market or viable market outlets	13	18	183	83	37	889	2.66**	53
Access to maize extension information	92	113	125	1	3	1292	3.87***	77

Very Effectively Utilized=VEU, Effectively Utilized=EU, Undecided=U, LE, Not Effectively Utilized=NEU. WS (Weighted Score) and WMS (Weighted Mean Score) Not Effectively Utilized * (mean score of <2.00), ** Undecided (mean score of between 2.00 and 2.99), and *** Effectively Utilized (mean score of >3.00)

Constraints faced by Maize Farmers in the Utilization of Extension Services Provided

The result in Table 4 indicates the constraints and ranked to include the politicization of fertilizer delivery and distribution (87%), inadequate and late supply of farm inputs (85%), unavailability of extension agents (73%) and difficulty in securing loans (70%) are the major constraints to the utilization of extension services by maize farmers in the study areas. By implications politicizing inputs allocation and distribution means depriving real maize farmers of benefitting from the system. The finding is in line with Adesina (2012), who noted that the e-Wallet system initiative aimed to reform the fertilizer distribution system which was riddled with corruption. Thus, if the bottleneck persists could hamper the goal of achieving sustainable food and raw material production in Nigeria. This is also agreed with the study by Hamisu *et al.* (2017); Adetimehin *et al.* (2018); Vihi *et al.* (2020), thought that the most difficult and challenging policy issue facing the agricultural extension service delivery to maize farmers today is inadequacy in number of extension agents, instability of funding for extension agents, and poor government management and policies.

Table 4: Constraints faced by maize farmers in the utilization of extension services

Constraints to the utilization of extension services	*Freq.	Percentage	Ranking
The politicization of fertilizer delivery and distribution	292	87	1 st
Inadequate and late supply of farm inputs	284	85	2 nd
Unavailability of extension agents	244	73	3 rd
Difficulty in securing loans	235	70	4 th
Lack of financial capacity to purchase farm inputs	225	67	5 th
Lack of cooperation among maize farmers	218	65	6 th
Lackadaisical attitude on the part of extension agents	130	39	7 th
Ineffective communication between extension agents and maize farmers	110	33	8 th

Source: Field Survey, 2023. *Multiple responses



CONCLUSION AND RECOMMENDATIONS

In conclusion, the study has clearly shown that maize farmers were satisfied with the extension services delivered by the extension agents. They effectively utilized and demonstrated the recommended maize production practices. However, maize farmers were constrained by the process of utilizing the extension services delivered by the extension agents which hampered to an extent their productivity. Thus, the study recommends.

- i. Strengthening maize farmers' knowledge of physical innovation using agricultural shows and field days.
- ii. Adopt public-private partnerships to complement inputs distribution for easy accessibility to maize farmers when due.
- iii. Create more value addition via cooperative society to maintain nutritional security in Nigeria.
- iv. Employ public-private partnerships in agricultural extension management.
- v. Create more financial linkages to facilitate loans for farmers.

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