

Agricultural Extension Needs of Maize and Guinea Corn Farmers in Zuru Emirate, Kebbi State, Nigeria

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Abstract

This study analyzed agricultural extension needs of maize and guinea corn farmers in Zuru Emirate, Kebbi state, Nigeria. A structured questionnaire was used to randomly sample 105 respondents used for this study. Descriptive statistics such as frequency distribution count and percentage and a three-point Likert-type scale were used to analyse the data. The results showed that the farmers had little or no access to information on maize and guinea corn production, with a mean score of 2.90 while they had limited access to information on mechanized method of harvesting maize and guinea corn, with mean score of 1.07. Therefore, the study recommends that extension agencies should provide up-to-date information on new and improved technological aid to maize and guinea corn farmers such as implement like shellers, tractors, threshers among others, for maize and guinea farmers.

Keywords: Agricultural Extension Needs, Maize and Guinea Corn Farmers, Zuru Emirate, Kebbi State

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INTRODUCTION

Information is vital to human and societal development. Specifically, extension information is relevant to agricultural practices and development. Consequently, rural farmers play prominent role in dissemination and utilization of extension information (Bruce and Hofisi, 2019). Sources of extension information available to farmers are diverse and numerous. Generally, extension information is sourced through extension worker, the mass media (i.e. radio and television in particular), printed publications (e.g. newspapers, magazines, bulletins, newsletters, fliers, journals, handbills) and other human groups (i.e. village heads, fellow farmers and traders).

Governments in Nigeria at Federal, State and Local levels have had to intervene or play one role or the other toward ensuring that research-based technologies and recommendations reach the end-users (farmers). However, the farmers in general, indeed the rural farmers in particular, are usually confronted with the

problem of identifying the relevant and appropriate sources of extension information on the one hand, and the extent of utilizing the information received from such sources can be optimally used in achieving the so much desired productivity (Eastwood *et al.*, 2017). Maize (*Zea May L.*) and Guinea corn (*s.vulgare*) are crops popularly grown in many parts of the world. They are staple food crops found in the diets of many families in Nigeria in general and in the Guinea savannah ecological zone in particular. vegetative parts of maize and guinea corn are used in making silage for ruminants and the maize and guinea corn crop residues are also a useful source of feed for cattle during the dry season. Maize and guinea corn are cultivated largely in Nigeria by farmers on subsistence and commercial levels taking about 1.8 million hectares of land, which yields an estimate of 1.5 metric tons (representing about 15% of Nigeria's total grain production). Guinea corn and maize takes the third position in terms of cultivation and consumption of cereal

crops i.e. after rice (Gaffney, 2019). Over the years, maize and guinea corn farmers depend on indigenous farming system instead of practicing the new improved system. Although, today there have been numerous varieties of new and improved information on maize and guinea corn farming systems, however, such information will not be utilized if it is not accessible. Information may be physically accessible but may not be intellectually accessible (Lin and Oping, 2019). This is because a host of social, economic and psychological factors influence the rate of agricultural information use (Akande, 1999)

METHODOLOGY

Description of the study Area

Southern Kebbi State (Zuru Emirate), Nigeria is one of the four Emirates in Kebbi state which comprises of four Local Government Areas (LGAs) namely; Danko-Wasagu, Fakai, Sakaba and Zuru. The Emirate is located at latitudes 11° and 12° N and longitudes 4° and 5° E of the equator and in the extreme south-eastern part of the state on a 9,000 square kilometers landmass. Southern Kebbi is hilly and bounded to the north by Gummi Local Government Area of Zamfara State, North-west by Koko Local Government Area, South-west by Yauri Local Government Area, North-east by Bukkuyum Local Government Area of Zamfara State, south by Rijau Local Government Area of Niger state and a population of 582, 106 people (NPC, 2006).

The area is inhabited by the following ethnic groups; Dakkarkari, Fakkawa, Dukkawa, Kelawa, Kambarawa, Katsinawan Ika and Achifawa. Other settlers in the area are the; Hausa, Fulani, Yoruba, Igbo etc. The different religions found in the area are Islam, Christianity and traditionalist. However, the traditional worship of different deities is still upheld in the area with many festivals celebrated at various times of the year. The climate is marked by both wet and dry seasons of which wet season dominates between April to October and dry season between November and February. Average rainfall is between 1025mm and 1050mm/annum, mean temperature range between 31°C and 38°C and soil type is sandy loam which is suitable for agriculture. Animal husbandry is practiced side by side with crop production, on limited scale. The people of Zuru Emirate depend largely on the pastoral Fulani for meat, milk and butter. Hunting is an important economic activity after crop production and a supplement for meat production, hides and skin for shoes, warfare robes and local drums. Other economic activities are pot-making and weaving by women and blacksmithing by men.

Data Collection Procedure

Both primary and secondary data were used for the study. Primary data were obtained with the aid of structured questionnaire designed in line with the objectives of the study. The copies of which were administered to the respondents selected for the study. Secondary data was collected from relevant textbooks, journals, seminar, conference articles, annual reports and other relevant materials.

Analytical Technique

Data collected were collated, tabulated and analyzed using descriptive statistics. Descriptive statistics such as frequency distribution count, percentages, mean and ranking were used to analyze the data. Similarly, 3 point Likert Scale was also used for data analysis.

Table 1: Distribution of the respondents by their access to agricultural information on maize and Guinea corn production

Technique in Production*	frequency	Percentage
Use of tractor for land clearing	84	80
Method of fertilizer application	98	93.3
Use of tractor for ploughing	85	81.0
Use of tractor for ridging	79	75.2
Use of tractor for harrowing	76	72.4
Pest and Disease		
Improve maize and guinea corn varieties	102	97.1
Selection and rate of chemical application for weed control	98	93.3
Treated maize and guinea corn seeds	104	99.0
Improved method of Controlling pests and diseases of maize and guinea corn	84	80.0
Improved method of preventing pests and diseases of maize and guinea corn	85	81.0
Marketing		
Better record keeping on sales produced	49	46.7
Market outlet for harvested maize and guinea corn	97	92.4
Marketing of maize and guinea corn produced through cooperatives	15	14.3
Prevailing maize and guinea corn prices in the market	77	73.3
Loan acquisition/credit facilities	40	38.1
Preservation and Storage		
Mechanized method of shelling maize and guinea corn grains	40	38.1
Storage of maize and guinea corn in modern silo	12	11.4
Payment of compensation for crop	3	2.9
Soil management practices	63	60.0
Mechanized method of harvesting maize and guinea corn	3	2.9
Erosion/Flooding		
Weather forecast information on maize and guinea corn planting	82	78.1
Environmental protection on land	25	23.8

Source: Field Survey, 2022. * **Multiple Responses were recorded**

Table 2: Distribution of respondents by levels of access to agricultural information on maize and Guinea corn crops

Agricultural Information	Regularly	Often	Rarely	Weighted score	Mean score	S.D	Rank
Improve varieties	96(91.4)	8(7.6)	1(1.0)	304.5	2.90	0.326	1 st
Treated seeds	92(87.6)	11(10.5)	2(1.9)	300.3	2.86	0.403	2 nd
Method of fertilizer application	71(67.6)	25(23.8)	9(8.6)	272	2.59	0.646	3 rd
Selection and rate of chemical application for weed control	69(65.7)	26(24.8)	10(9.5)	268.8	2.56	0.664	4 th
Use of tractor for ploughing	65(61.9)	21(20.0)	19(18.1)	256	2.44	0.784	5 th
Market outlet for harvested crops	65(61.9)	20(19.0)	20(19.0)	255.15	2.43	0.795	6 th
Use of tractor for land clearing	64(61.0)	21(20.0)	20(19.1)	254	2.41	0.817	7 th
Weather forecast information on maize and guinea corn planting	63(60.0)	22(21.0)	20(19.0)	253.05	2.41	0.793	8 th
Improved method of Controlling pests and diseases of maize and guinea corn	60(57.1)	26(24.8)	19(18.1)	250.95	2.39	0.778	9 th
Improved plant spacing for maize and guinea corn	63(60.0)	20(19.0)	22(21.0)	250.95	2.39	0.814	10 th
Improved method of preventing pests and diseases	59(56.2)	26(24.8)	20(19.0)	248.85	2.37	0.788	11 th
Prevailing maize and guinea corn prices in the market	66(62.9)	5(4.8)	34(32.4)	128.1	1.22	0.519	12 th
Use of tractor for ridging	47(44.8)	25(23.8)	33(31.4)	224	2.13	0.867	13 th
Use of tractor for harrowing	47(44.8)	25(23.8)	33(31.4)	224	2.13	0.867	14 th
Soil management practices	40(38.1)	21(20.0)	44(41.9)	205.8	1.96	0.898	15 th
Mechanized method of shelling maize and guinea corn grains	34(32.4)	9(8.6)	62(59.0)	181.65	1.73	0.923	16 th
Loan acquisition/credit facilities	31(29.5)	3(2.9)	71(67.6)	170.1	1.62	0.913	17 th
Soil fertility testing	17(16.2)	25(23.8)	62(59.0)	162.75	1.55	0.772	18 th
Environmental protection on land	11(10.5)	36(34.3)	58(55.3)	161.07	1.54	0.694	19 th
Better record keeping on sales produced	12(11.4)	28(26.7)	65(62.0)	156.45	1.49	0.709	20 th
Marketing of maize and guinea corn produced through cooperatives	4(3.8)	16(15.2)	84(80.0)	128.1	1.22	0.519	21 st
Government policies on land acquisition	3(2.9)	12(11.4)	89(84.8)	121.8	1.16	0.463	22 nd
Storage of maize and guinea corn in modern silo	6(5.7)	1(1.0)	98(93.3)	115.5	1.10	0.479	23 rd
Payment of compensation for crops	5(4.8)	1(1.0)	99(94.3)	114.45	1.09	0.441	24 th
Mechanized method of harvesting maize	4(3.8)	100(95.2)	1(1.0)	112.35	1.07	0.399	25 th

Source: Field Survey, 2022.

Table 3: Distribution of respondents by sources of information used for Maize and Guinea corn farming

Sources of information	Yes	No
Radio	105 (100)	0(0)
Television	72 (68.6)	33(31.4)
Mobile phone	30 (28.6)	75 (71.4)
Extension Agent	57 (54.3)	48 (45.71)
Non-government organization/Research institute	9 (8.6)	96 (91.4)
Newspaper	5 (4.8)	100(95.2)
Friends and Neighbours	69 (65.7)	36 (34.3)
Agricultural pamphlets	9 (8.6)	96 (91.4)
Cooperative Society	11 (10.5)	94 (89.5)
Contact farmers	49 (46.7)	56 (53.3)

Source: Field Survey, 2022.

Table 4: Agricultural Extension needs of Maize and Guinea corn farmers

Percentage of S/N	Variable	Score	Category	Answers	
				Frequency	%
1	Extension needs on the use of superior seeds.	2,87	Very effective	91	100
2	Agricultural extension needs on rotation of crop varieties.	2,45	Very effective	85	93,4
3	agricultural extension on land management	2,73	Very effective	91	100
4	Agricultural extension needs about spacing.	1,75	Effective	80	87,9
5	Agricultural extension needs on fertilizer application.	2,21	Effective	91	100
6	Agricultural extension about the need to irrigate during dry spell.	1,85	Effective	89	97,8
7	Agricultural extension about weeding techniques.	1,93	Effective	75	82,4
8	Agricultural extension on pest and disease control.	2,55	Very effective	91	100
9	Agricultural extension about harvesting.	2,96	Very effective	89	97,8
10	Agricultural extension on post-harvest handling of crops.	2,65	Very effective	85	93,4
	Amount	23,95	Very effective		

Source: Field survey, 2022

Access of maize farmers to agricultural information

Table 1 reveals that the farmers have access to information on the technique of production which include the use of tractors for land clearing (80%), ploughing (81%), ridging (75.2%), harrowing (72.4%), and application fertilizer (93.3%). This implies that maize and guinea corn farmers are well informed on the techniques of production. The table also shows that majority of the respondents indicated that they had access to agricultural information on the control of pest and diseases such as improved maize and guinea corn varieties (97.1%), selection and rate of chemical application for weed control (93.3%), treated maize and guinea corn seeds (99%), improved method of controlling of pests and diseases of maize and guinea corn (80%), and improved method of preventing pests and diseases of maize and guinea corn (81%). This implies that the maize and guinea corn farmers are conversant with the pest and diseases that poses threat and challenge to their production. The result is in line with the works of Makate and Marshall (2019) and Moyo and Abiodun (2018) that discovered that pesticides have substantially contributed to the controlling of pests and increasing crop yields in meeting the food demand of escalating population and control of vector-borne diseases.

On marketing, it was discovered that (92.4%) of the farmers have access to information on market outlet for harvested maize and guinea corn while 73.3% of the respondents indicated to have access to prevailing maize and guinea corn crop prices in the market. About 46.7% of the farmers indicated to have access to information on record keeping, 14.3% indicated to have access to information on marketing of maize and guinea corn through cooperatives, while 38.1% reported to have access to information on loan acquisition/credit facilities. This implies that the farmers are not well informed on record keeping and other marketing outlets. This may be as a result of the farmers not keeping record of their produce and only depend on open market for the sales of their produce, as a result, may not be eager to find out information on these areas. Oluwasusi and Akanni (2014) found that access to market information can enhance farmers' access to markets through better negotiation and meeting market demands. Furthermore, Adebayo and Adekunle (2016) discovered that marketing information and market prices guide the farmer in making informed decisions, and assist farmers for planning at pre-planting stage and to sell the surpluses that have been produced. In the absence of marketing information, the retail end of the industry does not respond to supply and demand and the pricing is artificially static or unchanged (Adedoyin, 2016).

On preservation and storage, it was revealed that 60% of the respondents have access to information on soil management practices, while 38.1% of the respondents have access to information on mechanized

method of shelling maize and guinea corn grains, only 2.9% have access to information on payment of compensation for crop, also 2.9% have access to information on mechanized method of harvesting maize and guinea corn and 11.4% respondents have access to information on storage of maize and guinea corn in modern silo. This implies that the maize and guinea corn farmers are not well informed on preservation and storage. This can be as a result of the farmers not using mechanized implements and modern storage facilities. On erosion and flooding, the result shows that 86.7% of the farmers have access to information on improved plant spacing for maize and guinea corn while 78.1% of the respondents have access to weather forecast information on maize and guinea corn planting. 33.3% of the farmers have access to information on soil fertility testing, 23.8% have access to environmental protection on land and 1.9% of the farmers have access to information on government policies on land acquisition. This result implies that majority of the farmers have access to information on erosion and flooding especially in the area of improve plant spacing and weather forecast maybe because this serves as major threat to them. However, the farmers have inadequate access to information on soil fertility testing, environmental protection on land and government policies on land acquisition.

Level of access of maize farmers to agricultural information

In Table 2, farmer's response to level of access to agricultural information was rated on a 3point Likert type scale. The results reveal a positive response to access to agricultural information on some technique of production, marketing and control of pest and disease. The most prominent response as ranked by the farmers were statements that they have 'access to information on the use of treatment for land clearing' (2.41), 'method of fertilizer application' (2.59), 'improved maize and guinea corn varieties' (2.90). This may be because the respondents are aware of the optimum yield production and increase in income which makes a positive influence on their way of living. The findings of Adesiji *et al.*, (2012) showed that rural agricultural development could be enhanced through adequate access to knowledge and information in areas of new agricultural technologies, early warning systems (drought, pests, diseases etc), improved seedlings, fertilizer, credit, market prices among others.

It was discovered that 'Selection and rate of chemical application for weed control' (2.56), 'treated maize and guinea corn seeds' (2.86) also has prominent rank result in level of access to agricultural information. This implies that most of the respondents have high level of access to agricultural information and this maybe because they have been enlightened on the benefit of

using it like protection on seedlings and optimum harvest.

Sources of information used by the respondents

Table 3 shows that (100%) of the maize and guinea corn farmers in the area use radio as their main source of information medium. This may be due to the fact that radio is cheap, mobile and affordable to the farmers. This result supports the findings of Abdulrahman and Kolawole (2016) in a study carried out in Kenya which showed that 80% of the populations were radio listeners. Moreover, Aina *et al.*, (2015) found that the radio remains the most important medium for communicating with the rural populations of developing countries. The percentage of respondents using television as source of information is high (68.6%). This may be because television is an audio-visual device which is very effective in disseminating information and aids easy and fast understanding because of its two-way effect and this goes in line with Aina *et al.*, (2015) who asserted that television, audiovisuals, print technology among others would be of great help to farmers in this information age. The result further shows that 28.6% use mobile phone as source of information. This implies that most of the farmers do not use mobile phone contact as a means of accessing information. This may be because of the cost of buying the phone or the airtime cost they are to use when they want to ask for any information that is high call rates. Also, the result shows that 54.3% of the farmers obtain information through the extension agent.

Effectiveness of Agriculture Extension at the Corn Intensification Program

The results of the research in Table 4 show that agricultural extension on maize and guinea corn farming is Very Effective (23.95), meaning that the implementation of agricultural extension needs was enhanced towards changing the mindset of farmers, especially from aspects of knowledge, skills and attitudes of farmers on maize and guinea corn production.

The effectiveness of agricultural extension on maize and guinea corn production is carried out in a participatory manner through adjusting to the needs and interests of farmers. This is supported by the role of agricultural extension workers' performance in motivating, facilitating, educating and communicating that can create a collaborative and participatory mindset in supporting the maize and guinea corn production.

The results of research of Adedoyin (2006) explain that agricultural extension is one form of agricultural development in an area through programs that are adjusted to the needs of the target community with the aim that the community participates in agricultural development programs. The research of Eastwood *et al.*, (2017) explain that the main function of agricultural extension is to serve as a motivator, educator, dynamist,

communicator, and an advisor to farmers in implementing sustainable agricultural development programs that are specific to the location and can increase farmers' income.

Conclusion and recommendations

The study revealed that maize and guinea farmers have limited access to agricultural information. This is because most of the information they have access to are majorly on technique of production, control of pest and diseases, market outlet and price. However, the farmers have limited information on record keeping, improved storage and preservation methods, control of erosion and flooding. The study, therefore, recommends that extension agents should provide farmers with up-to-date information and technology that can improve their skills in all these areas that they are deficient in relevant information. Based on the results of this research, the conclusions of this study are that the performance of agricultural extension as motivators, facilitators, educators, and communicators in the promotion of maize and guinea corn production should be sustained.

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