

Assessment of Sorghum Farmers' Perception of the Effectiveness of Extension Service Delivery Methods and Willingness to Pay for the Services in Kaduna State

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Abstract

The study aimed at assessing farmers' perception of the effectiveness of methods used in extension service delivery in Kaduna State. Multistage sampling procedure was used to select 140 sorghum farmers in Sabon Gari and Giwa LGAs for the study. Structured questionnaire was used to source data, while descriptive statistical tools were used for variable measurement and data analysis—the tools included a 3-point Likert scale for measuring farmers' perception, as well as frequencies, mean and percentages for describing their socioeconomic characteristics and willingness to pay for extension services. The results revealed that 87.14% of the farmers were male; over 91% were married; and average household size was ten (10). The mean age of sorghum farmers was 52 years, and average cultivated farm was 3 hectare. About 87% of the farmers had access to extension agents, with over 66% having access to credit sources. Of all the extension methods employed by service providers, only the internet was found not to be effective among the farmers; and majority (87.14%) of farmers were willing to pay for extension services. Some of the recommendations proffered were the need to ensure that extension officers are supervised, trained and re-trained for effective knowledge dissemination; and extension methods the farmers perceived as most-effective should be prioritized for better service delivery.

Keywords: Effectiveness, sorghum, extension services

Introduction

The role of agriculture in providing food and employment for the teeming population reduces poverty and serves as a framework for economic development (Aker, 2010). It was posited by Maxwell (2001) that about 70% of the labour force in sub-Saharan Africa (SSA) gain their daily needs from agriculture and about 67% of the labour force in South Asian are employed in the same sector. It is as a result of its importance that several countries in SSA have put efforts to improve the sector. These efforts include the provision of extension services to change farmers' attitude so as to enhance productivity.

Agricultural extension plays an important role in increasing farmer's

quality of production and output (Hossein et al., 2008). Extension is therefore a process of extending new and proven idea to farmers. The role of extension agents is mostly that of changing farmer's mindset towards better agricultural practices. The agents work together with farmers to achieve better results in the form of increased yields and improved livelihood. Extension activity is usually a difficult and expensive venture that's why it is mostly provided by government and a times with some private partnership. Its difficulty and in some cases lack of both intrinsic and extrinsic motivation led to its failure in most developing nations. Different extension methods exist, they includes extension through print

materials such as newspaper, bulletins, extension guides, posters. It could also be through media that uses either radio, video, satellite, computers or mobile phones.

Anna, (2013) posited that the lack of adoption to series of technologies being passed to farming community has always been the results of so many researches, this is some cases due to farmers conservatism, or insufficient enlightenment on the knowledge to be transferred.

The belief is that, the moment farmers adopt the knowledge brought forth by extension field agents it will in most cases result to increased output, income and living standard. This is not so true as reiterated by Asiabaka, *et al* (2001) that for farmers to adopt a new technology, they must have the feeling of being carried along in the process of identifying what is good for them, they must be aware of the technology, have a valid and up-to-date information on the technology, the applicability of the technology to their farming system and receive the technical assistance necessary for the technology.

Nigeria ranks as the top sorghum producing country in Africa, and the 3rd Sorghum producer in the world. FAOSTAT, (2014) estimated that the average production of sorghum in Nigeria was 7.4 million metric tons, almost equaling India, which ranks second with 7.5 million metric tons. The savanna climate in Nigeria was among the major reason why the crop does well within the country. Sorghum in Nigeria is mostly grown for food, while other minor uses includes livestock food and industrial raw material for production of malt and beer. The objectives of the study are to: assess the perception of sorghum farmers on effectiveness of extension methods; describe sorghum farmers' socioeconomics characteristics; and describe sorghum farmers' willingness to pay for extension service delivery.

Methodology

Kaduna state is located between latitude 10°20'N and longitude 7°45'E. The population of the state is about

6,113,503 (NPC, 2006) with an annual growth rate of 3.2% the projected population as of 2016 is 8,069,824 with an increase of 195,632 per annum. The state has 23 Local Government with it headquarter in Kaduna. It has a total land area of 46,053 km² and two distinct seasons which are dry and wet seasons. The rainfall extends from April to October and average annually between 1000 to 1250mm per annum, with a mean temperature ranging from 27.2° C to 38°C in the month of April. It reaches to as high as 38°C in the month of February to April and falls to as low as 14.6°C in cold season in the month of December, under normal conditions the temperature ranges 24.9°C-30.2°C.

A multistage sampling procedure was used. First is the purposive selection of Sabon Gari and Giwa LGA's because they fall among the area where Sorghum is cultivated in high quantities. The second stage involves random selection of two (2) villages each from the list of areas which grow sorghum the most (Sakadadi, and Shika from Sabon Gari LGA and Nasarawan Buhari, and Biye from Giwa LGA). Final stage, involves the random selection of 35 sorghum farmers from each villages. A total of 140 sorghum farmers were interviewed for the study. The data used were primary data, sourced through questionnaire.

Descriptive statistics tools such as frequency and percentages were used to capture respondents' socioeconomic and institutional factors. A three-point type Likert scale ranked on very effective, fairly effective and ineffective (measured with 3, 2, and 1 respectively) was used to achieve objective i. It is achieved by having the frequencies of individual extension method, after which the weighted sum and averages was computed for every extension method. An average lesser than 2 is regarded as Low (Ineffective), while an average ranging from 2.0-2.50 is considered average effectiveness; greater than 2.50 is high (very effective). Objectives 2 and 3 were analysed using frequencies, mean and percentages.

Results and Discussion

Results on table 1 revealed that, 87.14% of the farmers are male of which 90.7% of them are married. Majority (74.9%) of the respondents in the study area attended at least primary school, while 25.1% had no formal education. This implies that farmers in the study sites can accept, understand and practice new innovation communicated to them through print media (magazines, pamphlets, bulletins among others which are most written in the local language of the people therein) as they can read and follow simple written instructions attached to the new innovation.

Interestingly, the study further revealed that majority (86.4%) of the farmers had contact with extension agent and this has manifested on their skills, knowledge and attitude. This has kept informing the thought of the farmers and might as well influence their perception in regards to the effectiveness of various methods of extension service delivery. However, only 13.6% had no contact with the extension agents.

Credit accessibility has been among the important factors that help farmers to absorb shock and in improving their standard. The study revealed that 65.71% of the sorghum farmers had access to credit, this implies that majority of the farmers can afford to take risk and this will give them better chance to recover from the unforeseen circumstances that might be a courtesy for the acceptance of the new practice. The result agrees with Mosimabale (2011) and Oyekale (2009) on the little participation of youth in farming and also the high (58%) of participation of farmers within the age bracket of 40–59 years respectively. The results, however, counter Oyekale (2009) on the average age of 48 years in his study.

Results from Table 2 shows that the average age of sorghum farmers in the study area is 52 years. Majority (45.7%) falls within the age bracket of 46–60 years and the least (6.4%) are within the 15–30 years bracket. This shows that, majority of farmers in the area have passed their productive age bracket and

this clearly indicated that the business might be unsustainable as there will be no succession due to less participation of youths in farming activity. The mean household size of 10 persons per household indicates some level of polygamous marriage in the study area. Majority (39.29%) fell within the group of 6-10 and the least (7.86%) fell within the household size of 21-25 group. An average farmer in the study area has farm size of approximately 3ha under cultivation with around 36% cultivating between 2.6-5.0 hectares and 4.29% cultivating around 7.6-10 hectares of land.

Results from Table 3 revealed that all the methods of extension services delivery identified by the research were very effective and reliable methods for dissemination of innovation as they all have a weighted average of above 2.00 (bench mark average) but internet was found to be Ineffective having had a weighted average of 1.95 which is a lesser than the benchmark of been effective (2.00). This is might be due to the lack of available internet facilities and highly skilled knowledge associated with the use of internet facilities, because large numbers of the people interviewed were old age and can't cope up with the use of internet either in computers or smart phones. This result agrees with the findings of Hassan (2014) who reported that radio, extension agent visit and print materials are well perceived and effective methods of service delivery, it however, counters the findings of (Charles, 2013) which reported that maize farmers had a negative perception on the effectiveness of agricultural extension agents.

Finally, results from Table 4 shows that 87.14% of the respondents were to pay for extension service and thus, were willing to pay for an effective extension service while 12.86% were not willing to pay for extension services. This implies that, sorghum farmers' within the study area have a good perception on extension methodologies as evident from Table 3, and a such a large number of them are willing to pay for extension services

probably knowing the extent to which they can pay might give room for further research.

Conclusion and Recommendations

Agricultural extension is highly perceived in the study area. There were both male and female sorghum farmers in the area, many of which are married and have at least went through formal system of education. All extension methodologies were found to be effective except for internet which was ineffective. Majority of the sorghum farmers in the study area were willing to pay for extension service delivery. The following are recommended:

1. More priority should be given to extension methods that are more perceived by farmers so as to smoothen the flow of information from extension organizations to farmers and also it can further increase farmer's willingness to pay for services rendered.
2. Efforts should be made to ensure that extension officers are supervised, trained and retrained so that information and knowledge are more effectively disseminated to farmers. This would lead to improved sorghum production and income.
3. More in-depth research should be conducted to know how much sorghum farmers are willing to pay for extension services in a given unit of land.
4. Youths should be encouraged to take agriculture as a profession, as this study has shown that the average age of sorghum farmers is 52 years. This implies an aged farming population and not good for the future of agriculture in the country.

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Table 1: Respondent Socioeconomic Factors (n = 140)

<i>Variable</i>	<i>Frequency</i>	<i>Percent</i>
Gender		
Female	18	12.86
Male	122	87.14
Marital Status		
Divorce	1	0.71
Married	127	90.71
Single	9	6.43
Widow	3	2.14
Educational Background		
Non Formal	35	25
Primary	31	22.14
Secondary	43	30.71
Tertiary	31	22.14
Contact with Extension		
Yes	121	86.43
No	19	13.57
Access to Credit		
Yes	92	65.71
No	48	34.29

Source: Field survey, 2016

Table 2: Description of Age, Household Size and Land Size of Sorghum Farmers (n = 140)

<i>Variables</i>	<i>Frequency</i>	<i>Percent</i>	<i>Mean</i>	<i>Min</i>	<i>Max</i>
Age					
15-30	9	6.43	52.20	42	67
31-45	50	35.71			
46-60	64	45.71			
61-75	17	12.14			
Household size					
1- 5	27	19.29	9.65	6	24
6-10	55	39.29			
11-15	21	15.00			
16 – 20	26	18.57			
21 – 25	11	7.86			
Farm size					
0.5-2.5	49	35.00	2.85	2	25
2.6-5.0	50	35.71			
5.1-7.5	14	10.00			
7.6-10.0	6	4.29			
Above 10.0	21	15.00			

Source: Field Survey, 2016

Table 3: Effectiveness of Extension Methods among Sorghum Farmers (n = 140)

<i>Extension Methodology</i>	<i>Weighted Sum</i>	<i>Weighted Mean</i>	<i>Decision</i>
Extension Agent/Field Facilitator visit	392	2.80	Very Effective
Radio	371	2.65	Very Effective
TV	357	2.55	Very Effective
Posters/Bulletins	329	2.35	Fairly Effective
Farmer-Farmer	385	2.75	Very Effective
Field Day	378	2.70	Very Effective
Internet	273	1.95	Ineffective
Friends n Family	385	2.75	Very Effective
News papers	336	2.40	Fairly Effective
Mobile phones	336	2.40	Fairly Effective

Source: Field Survey, 2016

Table 4: Willingness to Pay for Extension Services among Sorghum Farmers (n = 140)

<i>Willingness to Pay</i>	<i>Frequency</i>	<i>Percentage</i>
Willing	122	87.14
Not willing	18	12.86
Total	140	100.00

Field Survey, 2016