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Assessment of farmers opinion towards agricultural extension service delivery in Esan Southeast and Esan Central Local Government Areas of Edo State, Nigeria

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ABSTRACT

This study focused on the opinion of farmers toward the delivery of agricultural extension services in Esan Southeast and Esan Central Local Government Areas of Edo state. A multi-stage sampling technique was used in the selection of three hundred (300) farmers for the study. Structured questionnaire was used to elicit information from the respondents and data obtained were analyzed using descriptive (frequency counts, mean, percentages) and inferential (Spearman's Rank Correlation) statistics was used to determine the relationship between the dependent and independent variables. The findings of the study showed that for crop production packages, frequent farmer-extension contact was evident, with mean scores indicating regular interaction in various stages such as site selection (3.82), harrowing (3.76), and crop protection (4.28). Similarly, livestock packages exhibit consistent contact, with mean scores emphasizing communication in areas like feed formulation/feeding (5.24) and provision of security (4.73). All the respondents willingly accepted extension packages, with none rejecting offers. Only few (13%) of the respondents independently seek information on improved extension packages, while 12.7% of the respondents trusted extension agents' judgement on extension packages provided. Additionally, more than half (54%) of the respondents supported mobile phone use for accessing improved extension packages. The study reveals a strong positive correlation ($r=0.844$; $p < 0.01$) between frequency of farmers contact with extension agents and farmers opinion towards effectiveness of extension services delivery, which implies that increasing the frequency of contact between farmers and extension agents could potentially improve farmers' perceptions of the effectiveness of these services. It is therefore, recommended that extension service providers should consider strategies to increase interactions with farmers in other to foster continuous positive results and outcomes.

Keywords: Assessment; farmers; opinion; extension; service delivery

INTRODUCTION

Agricultural extension services play an important role in providing farmers with knowledge and best management practices to help them improve their production and

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livelihoods. Fisher (2013) characterized extension as an educational system that goes beyond the classroom, reaching individuals on their farms and being accessible to every family member. He analyzed extension through a family approach system, where all family members are considered in planning the extension programs. According to Ojekaet, Effiong and Eko (2016) agricultural extension service is one of the agencies transforming subsistence farmers into modern and commercial agriculture which promote household food security. It is a crucial tool for promoting agricultural sustainability by serving as a bridge between researchers and farmers.

In order for the aims of extension agencies to be achieved in full potential, there is need for highly trained, qualified and skilled extension agents to convey extension messages to a variety of farmers who live primarily in rural areas (FAO, 2019). This is especially important in explaining the extension's role in assisting smallholder farmers, who face various challenges in their agricultural business, these include low productivity, climate change effects and poor market access (Kazeem *et al.*, 2017).

Agricultural Extension Agencies provides variety of services which includes: Farmers Training Workshops, Youth Empowerment Program, Women in Agriculture Program, Farm Visits and Demonstrations, Crop Advisory Services, Soil Testing and Analysis, Market Linkages, Value Addition Support, Market Information Services, Assistance in Agricultural Loans and Insurance Services, Technology Transfer from research bodies, Pilot Projects, Organic Farming Support, Water Management Programs, and Community Outreach Programs.

In Nigeria, agricultural extension services are provided free of charge by government through Federal and States agencies (Adejo, Okwu and Ibrahim, 2012). Farmers who are the users of the information gotten through continuous innovative research-generated information, achieved through huge funding and resource allocation need to be assessed on services gotten in order to know how best the information is utilized. The effectiveness of extension service is ultimately determined by farmers' acceptance and adoption of recommended technologies (Danso-Abbeam, Ehiakpor and Aidoo, 2018). Therefore, understanding farmers' attitudes and perspectives is key in promoting positive extension service delivery. Assessing the reasons for farmers' positive or negative attitudes towards agricultural extension services can provide valuable insights into improving service delivery methods. The ability of farmers to contribute and participate effectively towards agricultural development depends on their ability to optimize the services of agricultural extension agents.

Previous studies have indicated that there are little or no empirical studies about farmer's assessment of extension service delivery in Nigeria. This study was designed, therefore, to examine attitude of farmer towards the extension packages offered by the extension agents in the study area; and determine the frequency of extension contact to the farmers by extension agents.

METHODOLOGY

Study Area

Edo State is located in Nigeria's South-South Zone. Benin-city is the regional capital. The state was formed in 1991 from the old Bendel state, it lies on latitudes 05° 44′ N to 07° 34′ N and longitudes 05° 04′ E to 06° 45′ E. It has a land mass of 19,794km^2 and is bordered

to the North by Kogi State, to the East and South by Delta State, and to the West by Ondo State.

According to National Population Commission (2022), Edo state has a projected population of 4,777,000 with Esan South East having a projected population of 166,309 persons while Esan Central 155,500 persons.

The state has a tropical wet and dry or savanna climate with yearly temperature of 28.78°C (83.8°F) and it is -0.68% lower than Nigeria's averages. Edo typically receives about 183.49 mm (7.22 inches) of precipitation and has 265.91 rainy days (72.85% of the time) annually and at an elevation of 239.16 meters (784.65 feet) above sea level. Farmers make up the majority of the population of the state. Agriculture thrives in the state because of its favorable ecological and climatic conditions, numerous agricultural goods such as yam, cassava, cocoyam, maize, millet, guinea corn, palm produce, and other food produce can be grown in the state.

This research was carried out in Esan South East and Esan Central Local Government Areas, Edo State, where the fertile soil and abundant water supply provide great opportunities for livestock husbandry. Small farmers, marginal farmers, and agriculture laborers all benefit from arable crop production as a source of income and employment.

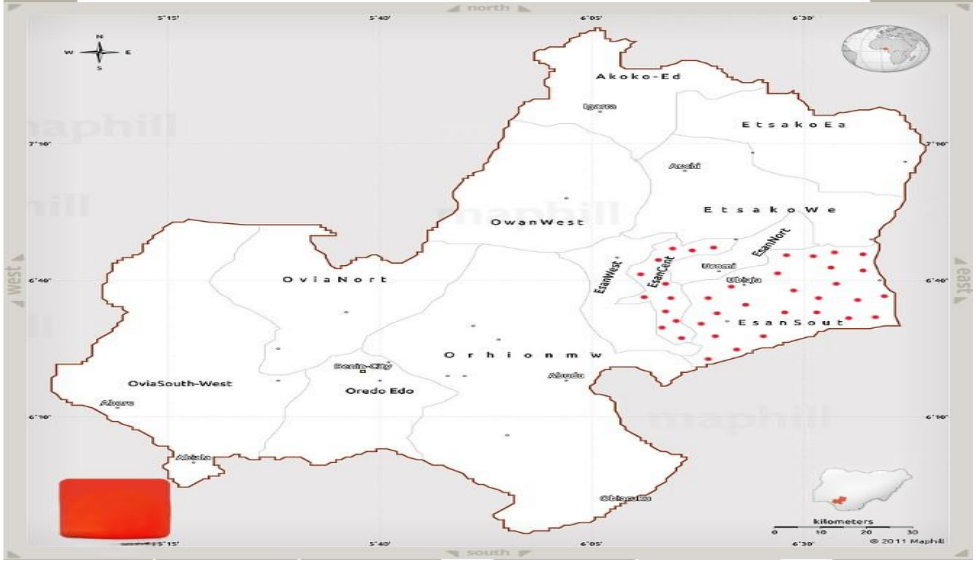

Fig: Map of Edo state, showing study area
Source: Map Graphics Revolution, 2013

Sampling Procedure and Sample Size of the Study

The target population for this study constituted the farmers of the two selected LGAs of Edo state, Nigeria, Esan South East and Esan Central Local Government Areas.

A multi-stage sampling technique was used for the selection of the respondents that were used for this study:

Stage 1: This involved the purposive selection of three (3) communities each that had active extension activities in the Local Government Areas for the study; this gave a number of six (6) communities. This selection was based on the list gotten from the Edo state ADP.

Stage 2: This involved a random selection of 30% of the farmers in each of the three communities, giving a sum of 170 respondents for Esan South East and 130 respondents for Esan Central, giving a total of three hundred (300) respondents for the study.

Data Collection

The primary data was obtained through the use of structured questionnaire through interview schedule questionnaire administration method. The secondary information was obtained from relevant literature works and existing literatures.

Measurement of the Study Variables

a. Opinion of the farmers toward extension packages offered by the extension agents: Respondents were asked to indicate their opinion toward extension packages and their responses were scored as either Yes or No. Mean value closer to 1 showed a high level of agreement/positive attitude while a mean value closer to 0 showed a low level of agreement/negative opinion .
b. Frequency of extension contact to the farmers by extension agents: Respondents were asked to indicate the frequency of contacts with extension agents in getting information on both crop and livestock subsector. This was measured on the basis of annually, monthly, forthnightly, weekly and daily visit. A mean value of $\geq$ 3.5 showed high frequency of extension contact.

Data Analysis

Descriptive (frequency counts, mean, percentage) and inferential (Spearman Rank correlation) statistics were employed to determine the relationship between the farmer's attitude toward extension services and frequency of extension visit to the farmers.

Model Specification

Spearman's rank correlation: It is a non-parametric measure of the strength and direction of association between two ranked variables. It assesses how well the relationship between two variables can be described using a monotonic function. The formula is stated below as:

$$Rs = 1 - \frac{6\sum D^2}{N(N^2-1)} \qquad (1)$$

Where:
Rs = Spearman rank correlation coefficient
D = Difference between the relevant variables (i.e between attitude toward extension services and frequency of extension visit to the farmers as well as between access to extension services and constraints faced by the farmers)

N = Number of estimated variables
∑ = Sigma of summation sign

RESULTS AND DISCUSSION

All the 300 study instruments administered were retrieved and considered useful for data analysis. These subsequent sections are based on this response, representing the results of the data analysis, followed by a detailed discussion on the implications of these findings.

Socio-economic Characteristics of the Farmers

Result in Table 1 shows that more than half (55%) of the farmers were males while 45% were females. This implies that farmers in the study area comprised of both males and females and hence farming in the study area is not gendered biased.

Table 1: Socio-economic characteristics of the farmers (n = 300)

Variables	Description	Freq.	%	Mean
Sex	Male	165	55.0	
	Female	135	45.0	
Age (Years)	≤ 40	97	32.3	
	41 – 50	160	53.3	43.10
	51 – 60	42	14.0	
	>61	1	0.3	
Marital status	Single	49	16.3	
	Married	218	72.7	
	Widowed	17	5.7	
	Divorced	16	5.3	
Household size	≤ 2	83	27.7	
	3 – 4	155	51.7	3members
	5 – 6	23	7.7	
	>7	39	13.0	
Farm size (ha)	≤ 2	167	55.7	
	3 – 4	105	35.0	2.45
	>5	28	9.3	
Educational level	No education	30	10.0	
	Primary education	110	36.7	36.7
	Secondary education	100	33.3	
	Tertiary education	60	20.0	
Farming experience (years)	≤10	133	44.3	
	11 – 20	153	51.0	12.16
	21 – 30	13	4.3	
	>31	1	0.3	
Monthly income (₦)	≤ 30000	108	36.0	
	30001 – 50000	156	52.0	
	50001 – 70000	21	7.0	
	70001 – 90000	14	4.7	
	>90001	1	0.3	

The age distribution of the farmers shows the mean age of respondents to be 43 years. This implies that majority of farmers were in their active and productive age group and hence can still perform effectively in farming and adopt improved practices disseminated by extension agents.

Majority (72.7%) of farmers were married while 16.3% were single. This implies that married individual constitutes farming household, and this has been reported to contribute significantly to household income, wellbeing and productivity.

The mean household size of 3 persons per household implies that farmers in the study have moderate household size. However, large household can significantly contribute to household productivity through provision of cheap and available family labor that improve production capacity.

Farm size of respondents as shown in Table 1 revealed that 55.7% of the respondents had farm size of less than 2 hectare, with a mean farm size of 2.45 hectare. This implies that a high number of farmers in the study area practice small scale farming.

Results in Table 1 shows that farmers in the study area obtained various forms of education. It was observed that 10.3% of farmers had no education, 36.7% obtained a primary school certificate, 33.3% obtained secondary school certificates and 20% had obtained tertiary education as their highest level of educational qualification. This implies that farmers are educated and hence will be able to appreciate the efforts of extension agents and will also be able to assess their effectiveness in terms of service delivery.

Results also shows the mean farming experience of 12 years. This implies that farmers are well experienced and hence can easily evaluate the effectiveness of extension agents in meeting their information and improved farm practice needs.

As shown in Table 1, a higher percentage of farmers earned between ₦30, 001 – ₦50, 000, while 36% earned less than ₦30, 000. This implies that farmers in the study area are low-income earners and might not be able to afford paid extension services and this can affect their perception on the effectiveness of extension services delivered by extension agents in the study area.

Farmers' Opinion towards Extension Packages

The results on assessment of farmers attitude toward extension services in Table 2 shows that the farmer showed high opinion level towards acceptance of extension packages (100%), willingness to pay for extension packages (87.3%) which shows that they place importance on the package, ability to interpret information about improved extension packages (89.7%) which shows their understanding about the package, willing to share new improved extension packages with other farmers (99.7%) which shows their level of collaboration towards one another.

Results of the study also showed low opinion level towards making personal enquire and search for improved extension packages (12.7%) which shows that they solely rely on the information given by the agents and are not interested in obtaining more information, owning a mini library for storing improved extension packages (20.0%) which shows that they are not interested in preserving and accessing information, giving feedback to provider of extension packages (12.7%) which shows lack of engagement and willingness to communicate with service providers, distance not preventing them from searching for improved extension packages (42.7%) shows lack of interest and determination, satisfaction

with available improved extension packages (41.7%) shows lack of contentment and approval with service provided.

Findings also revealed that the respondents showed moderate attitude level towards the other listed variables. Consequently, the findings of this study indicates that more work needs to be done by extension agencies in passing information to farmers as Elias, Nohmi, Yasunob and Ishida (2016) viewed extension as a series of embedded communicative interventions that are meant, among others to develop and/or induce innovations which supposedly help to resolve (usually multi-actor) problematic situations.

Table 2: Farmers' opinion towards extension packages (n = 300)

Farmers' opinion towards extension service delivery	No		Yes		Mean	Opinion Level
	Freq.	%	Freq.	%		
Willingly accept extension packages offered to me	0	0.0	300	100.0	1.00	High
Make personal enquire and search for improved extension packages	262	87.3	38	12.7	0.13	Low
Wait for improved extension packages to be brought to me	125	41.7	175	58.3	0.58	Moderate
Willing to pay for improved extension packages	38	12.7	262	87.3	0.87	High
Quickly acquire improved extension packages	128	42.7	172	57.3	0.57	Moderate
Ability to interpret information about improved extension packages	30	10.3	270	89.7	0.90	High
Listen to radio to learn about improved extension packages	101	33.7	199	66.3	0.66	Moderate
Use mobile phones to get information on improved extension packages	140	46.7	160	53.3	0.53	Moderate
Own a mini library for storing improved extension packages	240	80.0	60	20.0	0.20	Low
Can give feedback to provider of extension packages	262	87.3	38	12.7	0.13	Low
Distance does not prevent me from searching for improved extension packages	172	57.3	128	42.7	0.43	Low
Save money to purchase improved extension packages	116	38.7	184	61.3	0.61	Moderate
Satisfied with available improved extension packages	175	58.3	125	41.7	0.42	Low
Willing to share new improved extension packages with other farmers	1	0.3	299	99.7	1.00	High

Mean value closer to 1 = high level of agreement/positive attitude; Mean value closer to 0 = low level of agreement/negative attitude

Frequency of Extension Contacts

Services delivered by extension agencies usually covers technologies on crops and farming system, livestock farming and fisheries sub sector. For this study, a list of packages provided under the crop and livestock sub sector was studied.

Crop Production Packages

Results in Table 2 shows that farmers and extension workers were in frequent contact in delivering packages on improved site selection mechanism (mean = 3.82), site clearing (mean = 4.00), ploughing (mean = 3.760), harrowing (mean = 3.76), ridging (mean = 4.06), seed treatment (mean = 4.00), crop protection/use of pesticides (mean = 4.28). The results indicated that farmers and extension agents were actively engaged in addressing crop protection through the use of pesticides. These findings are in agreement with Oktoni *et al.* (2023) who in their study stressed the importance of effective pesticide use for crop protection.

Livestock Production Packages

Result in Table 3 also shows the frequency of extension contact between farmers and extension workers. Findings show that the respondents were in frequent contact with extension workers in disseminating and receiving information on some livestock production practices. The findings revealed that the farmers received frequent information on disinfection of pens/cages and equipment (mean = 4.22), provision of security (means = 4.73), animal identification (mean = 3.80), weighing (mean = 3.52), feed formulation/feeding (mean = 5.24) and sanitation (mean = 4.47). Feed formulation/feeding is a crucial aspect in livestock production, as it affects overall animal nutrition and growth. This finding is in line with Babić and Perić (2011) who emphasized the significance of balanced feed formulation for optimal livestock performance.

Relationship between the Farmer's Opinion toward Extension Services and Frequency of Extension Visit to the Farmers

Results in Table 4 shows the result of the Spearman rank correlation showing a strong positive correlation ($r=0.844$; $p<0.01$) between frequency of farmers contact with extension agents and farmers opinion towards effectiveness of extension services delivery. This implies that as farmers frequently come in contact with extension agents, they will experience more about the impact of the services rendered and hence change their attitudes towards the effectiveness of the services provided. This finding agrees with Ismail (2006) who reported that as farmers engage more frequently with extension agents, a positive shift in attitude towards the efficacy of the services provided becomes evident.

Table 4: Result of Spearman rank correlation showing the relationship between the farmer's opinion toward extension services and frequency of extension visit to the farmers

Variable	Coefficient	P-value
Frequency of extension visit	0.844**	0.000

**Correlation is significant at the 0.01 level (2-tailed).

Table 3: Frequency of Extension Contact (n = 300)

Extension packages	None		Annually		Monthly		Fortnightly		Weekly		Daily		Mean	Remark
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
CROP PROTECTION PACKAGES														
Pre-Planting Operations Packages														
Improved site selection mechanism	0	0.0	40	13.3	103	34.3	47	15.7	90	30.0	20	6.7	3.82	Frequent
Site clearing	11	3.7	38	12.7	27	9.0	87	29.0	137	45.7	0	0.0	4.00	Frequent
Ploughing	0	0.0	40	13.3	103	34.3	47	15.7	110	36.7	0	0.0	3.76	Frequent
Harrowing	0	0.0	40	13.3	103	34.3	47	15.7	110	36.7	0	0.0	3.76	Frequent
Ridging	0	0.0	40	13.3	103	34.3	47	15.7	20	6.7	90	3.0	4.06	Frequent
Seed treatment	0	0.0	40	13.3	103	34.3	47	15.7	20	6.7	90	30.0	4.00	Frequent
Planting Operation Packages														
Planting spacing	182	60.7	8	2.7	0	0.0	0	0.0	110	36.7	0	0.0	2.49	Not freq.
Seed rate	47	15.7	143	47.7	0	0.0	0	0.0	90	30.0	20	6.7	3.01	Not freq.
Mulching	33	11.0	144	48.0	0	0.0	13	4.3	110	36.7	0	0.0	3.08	Not freq.
Nursery practices	152	50.7	38	12.7	0	0.0	0	0.0	20	6.7	90	30.0	2.89	Not freq.
Transplanting	128	42.7	127	42.3	14	4.7	25	8.3	6	2.0	0	0.0	1.85	Not freq.
Post-planting Operation Packages														
Recommended herbicides/Weeding	0	0.0	178	59.3	32	10.7	90	30.0	0	0.0	0	0.0	271	Not freq.
Thinning	13	4.3	156	52.0	123	41.0	8	2.7	0	0.0	0	0.0	2.42	Not freq.
Use of recommended fertilizers	0	0.0	65	21.7	58	19.3	160	53.3	17	5.7	0	0.0	2.43	Not freq.
Crop protection/Use of pesticides	0	0.0	34	11.3	58	19.3	7	2.3	192	64.0	9	3.0	4.28	Frequent
Supplying of inputs	0	0.0	126	42.0	8	19.3	0	0.0	116	38.7	0	0.0	3.35	Not freq.
Harvesting	62	20.7	183	61.0	20	6.7	7	2.3	28	9.3	0	0.0	2.19	Not freq.

LIVESTOCK PRODUCTION PACKAGES														
Pen and Site Preparation Practices														
Improved site selection for the herbs	9	3.0	143	47.7	52	17.3	0	0.0	90	30.0	6	2.0	3.12	Not freq.
Structural plan/housing construction	9	3.0	166	55.3	0	0.0	0	0.0	111	37.0	14	4.7	3.27	Not freq.
Disinfection of pens/cages and equipment	9	3.0	55	18.3	0	0.0	38	12.7	192	64.0	6	2.0	4.22	Frequent
Installation of water system	9	3.0	162	54.0	19	6.3	0	0.0	20	6.7	90	30.0	3.43	Not freq.
Installation of heating system	9	3.0	169	56.3	12	4.0	0	0.0	20	6.7	90	30.0	3.41	Not freq.
Provision of bedding materials	9	3.0	175	58.3	26	8.7	0	0.0	0	0.0	90	30.0	3.26	Not freq.
Provision of security	22	7.3	53	17.7	20	6.7	0	0.0	0	0.0	205	68.3	4.73	Frequent
Routine Livestock Production Practices														
Mating	9	3.0	143	47.7	32	10.7	26	8.7	0	0.0	90	3.0	3.45	Not freq.
Weaning	9	3.0	143	47.7	26	8.7	116	38.7	6	2.0	0	0.0	2.89	Not freq.
Animal identification	0	0.0	97	32.3	67	22.3	26	8.7	20	6.7	90	3.0	3.80	Frequent
Weighing	70	23.3	0	0.0	97	32.3	0	0.0	102	34.0	31	10.3	3.52	Frequent
Feed formulation/feeding	22	7.3	0	0.0	1	0.3	0	0.0	115	38.3	162	54.0	5.24	Frequent
Sanitation	1	0.3	0	0.0	46	15.3	90	30.0	136	45.3	27	9.0	4.47	Frequent
Synchronization of Oestrus	105	35.0	0	0.0	70	23.3	91	30.3	27	9.0	7	2.3	2.85	Not freq.
Culling	38	12.7	0	0.0	152	50.7	90	30.0	0	0.0	20	6.7	3.25	Not freq.
Quarantine operations	123	41.0	0	0.0	177	59.0	0	0.0	0	0.0	0	0.0	2.18	Not freq.
Vaccination	80	26.7	0	0.0	220	73.3	0	0.0	0	0.0	0	0.0	2.47	Not freq.
Dipping and spraying	100	33.3	0	0.0	180	60.0	0	0.0	20	67	0	0.0	2.47	Not freq.
Breeding	135	45.0	90	30.0	0	0.0	0	0.0	0	0.0	75	25.0	2.55	Not freq.
Castration	134	44.7	9	3.0	0	0.0	0	0.0	0	0.0	21	7.0	2.29	Not freq.
Record/Stock keeping	19	6.3	55	18.3	105	35.0	0	0.0	0	0.0	121	40.3	3.90	Frequent
Slaughtering	25	8.3	157	52.3	15	5.0	0	0.0	0	0.0	103	34.3	3.84	Frequent

Frequent: Mean ≥ 3.5

CONCLUSION

In conclusion, the study provides a comprehensive understanding of farmers' opinion towards extension services, the frequency of their contact with extension agents, and the relationship between these factors. The findings show the need for improvement in extension service delivery in both crop and livestock production activities, in order to increase the reception of extension packages and unanimous willingness to accept interventions. The use of mobile technology and the farmers' independent search for information underscore the need for diverse communication channels. The significant relationship between the frequency of contact and farmers' opinion emphasizes the pivotal role of regular interactions in shaping positive perceptions of extension services.

Trainings should be given to extension workers on proper and effective way of passing information to the farmers in order to increase positive attitude towards extension packages.

Competent and reliable extension agents should be employed in rendering services to the farmers in order to meet the aim and objectives of extension programmes.

More extension workers should be employed, in order to increase the frequency of farmers' contact with extension agencies.

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