SOCIO-ECONOMIC FACTORS INFLUENCING THE USE OF FARM VISIT, RADIO AND MOBILE PHONE AS SOURCES OF AGRICULTURAL INFORMATION AMONG GROUNDNUT FARMERS IN WUKARI LOCAL GOVERNMENT AREA OF TARABA STATE

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ABSTRACT

The study assessed the socio-economic factors influencing the use of Farm visit, Radio and Mobile phone as sources of agricultural information among Ground nut farmers in Wukari local government area of Taraba State. The research used primary data collected from 216 smallholder groundnut growers. Frequency, percentages and chi-square was used in data analysis. The results indicated that farmers' place of residence (X^2 =169.417, df=15) and sex (X^2 =14.049, df=5) had a significant association with the farm visit extension pieces of advice. Also, significant associations were found between respondents' place of residence (X^2 = 169.417, df=15), sex (X^2 =14.049, df=5) and income (X^2 = 30.956, df= 15) with the use of radio. Furthermore, significant associations were found between respondents' place of residence (X^2 =103.417, df=15), sex (X^2 =13.777, df=5) and income (X^2 =22.973, df= 15) with the use of mobile phones. The article concludes that farmers' place of residence, sex and income have a significant effect on their preference to the use of extension visits, radio and mobile phone technology transfer mechanisms in the study areas. It is recommended for constant training and retraining of extension workers to enhance their information delivery skills. Also, government and other stakeholders should give financial and logistic support to the extension workers to make use of diversified information communication channels.

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INTRODUCTION

The world is rapidly changing and agriculture has become more complex, more intensive and demanding. The outcome of research has greatly been transferred from research institutes to the farmers through extension agents (Agbarevo and Machiadikwe, 2023). Adoption of innovation among the grassroots farmers is very low. The transfers of potentially beneficial new and underutilized technologies continue to lag. Also, the grassroots farmers see the change agents as government agents that have come to spy on them so that their land can be taken. According to Mittal and Mehar (2016) farmers need a wide variety of information on various issues such as availability of new inputs, technology or seed variety; disease outbreak or weather forecasts, market information and price information of both inputs and outputs for crop production and management, availability of agricultural support services or government schemes related to agriculture.

Livondo, Kipkoech, and Odwori, (2021), asserted that socio economic factors might influence farmers to adopt agricultural technologies if they receive correct information through the right sources. Information materials should thus include simple explanations to farmers on how the control measures work. Farmers access agricultural information from different sources and also as per the needs and demands of farmer (Abubakar, 2022).

All these contribute to low agricultural output since the farmers are still making use of old information coupled with the use of crude implements. In addition, the use of communication skills, media and methodologies is typically abhorred and fragmented. Too often, these are poorly integrated into the total extension programme. However, no study on groundnut production in Wukari LGA that integrates influence of socio-economics factors on three information dissemination sources i.e. farm visitation, radio and mobile phone extension communications as technology transfer channels to farmers. The study aim to address the following objectives; identify socio economic characteristics of respondents in the study area, determine the Influence of Farmers' Place of Residence, Gender, Age and Education on Extension Agent Farm Visit, determine the Influence of Farmers' Place of Residence, Gender, Age, Income and Education on Information Dissemination through Radio and determine the Influence of Farmers' Place of Residence Gender, Age, Income and Education in the Rating of Information Dissemination through Mobile Phone

Materials and methods

Study Area

The study was carried out in Wukari. LGA, Taraba State. It is located between latitude 7.5°N and 9.5° N and longitude 10°E and 12° E of greenwich meridian, it is bounded in the north by Ibi and Gasol Local Government Areas in the north east; in the south by Kastina-Ala (Benue State) and Takum Local Government Area; in the east by Donga local government and in the west by Nasarawa State. Wukari is dissected by the river Benue and has many smaller rivers as east, sheman kar and ankwe rivers on the right hand side, and the Taraba, Donga, Bantaje and Suntai rivers on the left hand side all following into the Benue river. The city has good climatic condition and rich agricultural soil (Sa'adu et al. 2022).

The study area has a land mass of about 4,308km^2 with the population according to the 2006 census, as reported by Nigeria bureau of statistics (NBS,2022), wukari has a population of 241,546 and it is now currently projected to be 318,400. The dry and rainy season common to tropical region are the dominants climatic features. The rainy season starts in April and ends in October while the dry season begins in November and ends in March. The people living in wukari local government area engage in agricultural production activities. The main crops which are grown in wukari L.G.A include maize, soya beans, sorghum, millet, rice, groundnuts, yam, cassava, potatoes, and vegetables and beniseed (NBS, 2022).

Methods of data Collection and analysis

primary data was used for the study. The primary data was collected through the use of well-structured questionnaire. Frequency, percentages and chi-square was used in the analysis

Sample Size and Sampling Procedure

The population of the study represents groundnut farmers in Wukari local Government Area. A multi-stage sampling technique was employed in this study to select a cross section of 216 farmers in the areas. In the first stage, four (4) wards were purposely selected from the ten (10) wards in the Local Government Area. (Bantaje, Chonku, Kente and Puje). In the second stage, six (6) villages were purposely selected from each of the four (4) wards making a total number of 24 villages in the sample. In the last stage, farmers were selected in each village based on the population giving a total of two hundred and sixteen (216) farmers in the study area (Table 1).

Table 1 Sampling techniques

L.G.A	WARDS	No of Villages	VILLAGE/COMMUNITIES	POPULATION	RESPONDENTS
Wukari	Bantaje	6	Dorowa	310	12
			Natride	170	8
			Nyakwala	201	9
			Nwuko	179	8
			Tunari	202	9
			Chediya	208	9
	Chonku	6	Chudan	105	2
			Kyaior	205	9
			Riti	137	8
			Nwukan	173	8
			Nwuban	220	9
			chonku	108	2
	Kente	6	Chinkai	295	12
			Andoyaku	145	8
			Warawa	135	9
			Sondi	258	10
			Igba	152	8
	Puje	6	Vaase	275	10
			Mission area	315	12
			Ando moto	250	10
			Hyuku 1	275	10
			Hyuku 2	253	10
			New site	312	12
			Abuja area	297	12
Total		24	24	5180	216

Results and discussion

Socioeconomic characteristics of the respondents

Findings of a quantitative analysis of the respondents' socioeconomic characteristics indicated that male farmers were more (69.9%) than the female counterparts (30.1%). The number of male farmers in this study was similar to the findings of (28) who reported similar dominance of male in both intervention and non-intervention programme (52.5% and 68.3%) on adoption of improved groundnut farmers in Tanzania. More so, farmers who were between ages 41 and 50 years represented 36.6% of the respondents, 13.6% were between 21 and 30 years. Respondents who were between 51 and 60 years were 21.5%, farmers who were between 31 and 40 years constituted 28.9%, while 1.2% and 3.2% were below 30 years are above 60 years respectively. The mean age of a typical groundnut farmer in the study area was 40 years. The bulk of respondents' age group is of those who are in productive age. This concur with (3) documented that male groundnut farmers constitutes the larger majority in all the states accounting for between 80.8% in Kebbi to 100% in Katsina states. Table 2, portrays that majority 94.1% of the respondents were married. Furthermore, the outcomes of farming experience deduced that 41.3% of the respondents have 6–10 years of groundnut farming experience, 23% have 1–5 years of groundnut production experience, and 20.4% have 11–15 years of experience. In comparison, 9.4% have 16–20 years of esssssxperience, while 5% have more than 20 years of experience. The mean years of experience are 15 years. This corroborated with (16) discovered they have spent 19 years in groundnut production. Educational level of the respondents' signified that 11.5%, 8.6%, 6.2% and 1.5% obtained tertiary education i.e. National Certificate of Education (NCE), Ordinary National Diploma (OND), Higher National Diploma (HND) and a Bachelor's Degree respectively. The report further indicates that 26.3% have not received any western education and 46% only had primary and post-primary education. Considering 72.3% of the respondents that constituted no western education, and primary and post-primary education, farmers have limited literacy to be much conversant with the technical aspects of the technology. The result contravened the empirical study that reported a propound effect of education on adoption level of groundnut technology among farmers (32). Also, the respondents' income distribution professed that the vast number of respondents (31.0%) have incomes between N=11.999–N=20.999, followed by 26.0% of those with incomes < N=10,000, while 25.1% have incomes > N=30,000, preceded 18% got incomes between N=21.999–N=30,000, and thus, infers that farmers' received fairly small incomes. On membership of association, it indicated that more than two-thirds of respondents (83.2%) have joined farmers' cooperatives, and this facilitate them to have access to institutional supports in terms of loan, inputs and information, and peer influence towards adoption of technology. The finding is in line with Mustapha et al., (2021) found that cooperative membership increased the probability of technology adoption. Furthermore, the outcome of the respondents' farm size cultivated revealed that majority of farmers (69.9%) cultivated between 1–5 hectares on groundnut production, and 8.8% of farmers between 6–10 hectares to produced groundnut, while, the minority proportion 0.6% cultivated between 11-15 hectares, and 20.7% of

have utilized a minimal farm size 0–0.9 hectares on groundnut production. It infers that greater majority cultivated between 1-5ha.

Table 2: Respondents demographic profile

Variable	Frequency (n =217)	Percent
Gender		
Male	237	69.9
Female	102	30.1
Age		
< 20	4	1.2
21-30	46	13.6
31-40	98	28.9
41-50	107	31.6
51-60	73	21.5
> 60	11	3.2
Marital status		
Married	319	94.5
Single	20	5.5
Farming experience		
1-5	81	23.9
6-10	140	41.3
11-15	69	20.4
16-20	32	9.4
> 20	17	5.0
Educational level		
No western education	89	26.2
Primary education	82	24.2
Post-primary education	74	21.8
NCE	39	11.5
OND	29	8.6
HND	21	6.2
DEGREE	5	1.5
Income		
< 10,000	88	26.0
10,999-20,000	105	31.0
20,999-30,000	61	18.0
> 30,000	85	25.1
Membership of cooperatives		
Yes	282	83.2
No	57	16.8
Farm size		
0.0.9	70	20.7
1-5	237	69.9
6-10	30	8.8
11-15	2	0.6

Influence of socio-economic factors (farming experience, sex, age, income and level of education) on extension agents farm visits

The farmers' farming experience has a major impact on having extension agent farm visit advice. The result in Table 3 indicates that there is a significant association (X^2 =169.417, df=15) between the respondents' farming experience and the extension agent farm visit. This corroborates with the findings of Tafida et al., (2022) ho found that the years of farming experience have frequent contact visits that contribute progressively to the adoption of agricultural technologies. Also, the sex of respondent's significant association (X^2 =14.049, df=5) with the extension agent farm visit. Thus, considering the custom and tradition, in a typical north-western rural settlement, males being the household head have benefited more in agricultural interventions comparable to women, which are domicile for the household upkeep. This concurred with Gao et al. (2021) that the perception of men as leaders of the households and women as helpers impedes women's ability to access agricultural information and production resources. Furthermore, the age of the farmers' had an insignificant (X^2 =16.700, df=25) association with the extension agent visit. This contravenes the previous empirical research which

pointed out that the number of years a farmer had in farming, offered him opportunities to have several contacts with the extension agents that persuaded his adoption decisions (Gao et al. 2020).

Additionally, the result of respondents' educational level reveals an insignificant association (X^2 =35.674, df=20) with the extension agent visit. This is indeed worrisome and it has been in existence since the advent of agriculture to date that more than two-thirds of the farming families had limited Western education, which makes them difficult to comprehend the technical aspects of production recommendations communicated. The result of the study deviates from Kassem et al. (2021) found a positive relationship between farmers' level of education and the use of extension pieces of advice in the adoption of agricultural technologies.

Table 3: Influence of socio-economic factors on extension agents farm visits

Variable	Parameter	Chi-square
Farming experience	X1	169.417*, df=15
Sex	X2	14.049*, df=5
Age	X3	20.446, df=25
Income	X4	30.956*, df= 15
Educational level	X5	35.674, df= 20

Influence of socio-economic factors (farming experience, sex, age, income and level of education) on Radio

Table 4 shows a significant association (X^2= 169.417, df=15) between farmers experience and the use of radio agricultural programme, and this could be due to the adequacy and proficiency of long years of farming experience, which created enthusiasm and patronage of the farming families to the radio programme aired. In the same context, Nyaplue-Daywhea et al. (2021) affirmed that radio has the potential in reaching wide geographical areas with educative messages that facilitate farmers' use of the practices. The sex of the respondents' portrayed a significant association (X^2 = 14.049, df=5) with the utilization of radio. Nevertheless, scholars have found mixed results, some were of the opinion that males were at the forefront in the patronage of radio agricultural information, whereas, others considered women to have an edge over their counterparts in the utilization of radio agricultural extension programmes. In line with this, Salik et al. (2021) observed that imaginative women between the ages of 18 and 50 listened to and were more conscious of and influenced by the radio program than males. More so, the result of the respondents' age depicts an insignificant association (X^2 = 20.446, df=25) with the usage of radio agricultural extension information. The insignificance of age to the use of radio could likely be that farmers have other means of receiving information such as peer groups, friends, relatives and neighbours. The result is in line with the empirical evidence found in the work of (Chen and Lu., 2020) that older farmers' accorded much priority to agricultural market information received from their colleagues, at the expense of other production information.

Further findings unveiled a significant association (X^2 = 30.956, df= 15) between respondents' income and radio, inferring that income generated from groundnut outputs motivates farmers' to seek more information, from within and outside, in order to enhance their production and productivity. Likewise, an insignificant association (X^2 = 35.674, df= 20) between farmers' educational level and the use of radio was documented. The result is concurrency with the findings of Das et al. (2020) reported a significant association between farmers' educational level and the use of radio agricultural information.

Table 4: Influence of socio-economic factors (farming experience, sex, age, income and level of education) on Radio

Variable	Parameter	Chi-square
Farming experience	X1	169.417*, df=15
Sex	X2	14.049*, df=5
Age	X3	20.446, df=25
Income	X4	30.956*, df= 15
Educational level	X5	35.674, df= 20

*P< 0.05.

Influence of socio-economic factors (farming experience, sex, age, income and level of education) on mobile Phone

The findings in Table 5 portray a statistically significant association (X^2 = 103.417, df=15) between the respondents' farming experience and the use of mobile phones. Undoubtedly, the majority of farming families reside in rural enclaves, and thus, the availability and accessibility of services to dominant food-producing areas will by no means enhanced food security. The significant association of mobile phones with the farming experience is consistent with Salik et al. (2021) who noted that adequate provision of mobile phone services

within the rural enclave has overwhelmingly enhanced effective agricultural extension communications that improved the production capacity of the rural dwellers. More so, the outcome of the analysis revealed a significant relationship (X^2 = 13.777, df=5) between respondents' sex and mobile phone usage, adducing that male being the head of the household has domination and control of the communication device, and even though, in some instances, the wife is in ownership position of the gadget, but other restrictions due to marriage rules in the study areas negate them from free communications with extension agent and other agricultural promotion agencies. This corroborates the findings of Gumucio et al. (2020) inadequate access of women to communication and decision-making processes in agriculture, has substantially limited their adoption of improved production practices communicated via mobile phones.

Likewise, an insignificant association (X^2 = 25.717, df=25) between the age of respondents and mobile phone use was documented, and apparently, young age is more enthusiastic to meet up with globalization, and such ego, drives them to learn the use of mobile phone applications. The finding of an insignificant correlation contradicts the findings of Nyaplue-Daywhea et al. (2021) that the age of the farmers had a positive association with the use of mobile phones. Also, the chi-square result between the farmers' income and mobile phone use revealed a significant association (X^2 = 22.973, df= 15) indicating that the more farmers reap the benefits of groundnut production the higher utilization of the communication device. Consistent with this, Hoang (2020) confirmed that farmers with high incomes have a greater tendency to adopt ICT tools (mobile phones) information for better fruit management practices and marketing. Consequently, the findings of farmers' educational level and the use of mobile phones reveal an insignificant association (X^2 = 29.897, df= 20) it apparently demonstrating that respondents had limited educational background to cope with the use of mobile phone applications. The research finding contravene the findings of Karim et al. (2020) that a significant association between farmers' level of education and utilization of mobile phones.

Table 5: Influence of socio-economic factors (farming experience, sex, age, income and level of education) on mobile Phone

Variable	Chi-square
Place of residence	X2 = 103.417*, df=15
Sex	X^2 = 13.777*, df=5
Age	X^2 = 25.717, df=25
Income	X2 = 22.973*, df= 15
Educational level	X^2 = 29.897, df= 20

*P< 0.05

Conclusion and Recommendation

Respondents' socioeconomic factors influenced their information requirements and preferences. Farmers' experience, sex and income have a significant association with the use of multiple information channels (farm visit, radio and mobile phone) in the implementation of improved groundnut practices. However, age and education portrayed insignificant associations with all three extension communication mediums utilized in the diffusion of groundnut practices. Results showed that respondents' socioeconomic factors illuminated the degrees of influence in information requirements and preferences. Farmers' experience, gender and income have a significant association with the use of multiple information channels i.e.(farm visit, radio and mobile phone) in the implementation of improved groundnut practices. However, age and education portrayed insignificant association with all the three extension communication mediums utilized in the diffusion of groundnut practices. The findings provided greater inferences to technology planners and extension agencies on the efficacy of harnessing diversified communication channels in technology transfer and to fill in the gaps that research of such nature was not integrated.

Recommendations:

It is recommended that selection of the media channels to be used by the extension agents should be guided by the existing institutional structure, complexity of the technology, farmers' socio-economic factors and the resources available. Government needs to minimize gender inequality embedded in the societal norms so that women could have access production and information sources. Government and other stakeholders need to join hands for greater improvements of farmers' education through adult literacy classes.

This research has also demonstrated some implications that can be felt directly by the policy-makers, stakeholders and end-users. The first implication is that sending identical messages via diverse but linked communication channels that have greater potentials to increase farmer's awareness and adoption of improved groundnut technologies. The second implication illustrated that despite the respondents' low ratings of the channels as very good and good in some instances, the Chi-square outcomes have demonstrated a significant association between farmers' place of residence, gender, and income in the use of groundnut practices diffuse

via farm visit, radio and mobile phone. The next implication is that the transfer of groundnut practices to farmers becomes favorable despite limited literacy, communication infrastructures and gender prejudice.

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