World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

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Assessment of communication channels in cocoa farming: Utilization, impact and constraints, in Ekiti West Local Government Area

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World Journal of Advanced Research and Reviews, 2025, 26(03), 1058-1072

Publication history: Received on 27 April 2025; revised on 05 June 2025; accepted on 07 June 2025

Article DOI: https://doi.org/10.30574/wjarr.2025.26.3.2243

Abstract

The study was established on primary data obtained from a multistage random sample of 185 Cocoa farmers selected from 6 political wards. Interview schedules and semi-structured questionnaire were used to elicit data from the respondents which was then analyzed using both descriptive and inferential statistics. The Mean age of farmers was found to be 36years and more than half of the respondents (50.81%) were married. Male Cocoa farmers were predominant at 61.19%. Results further showed that 89.5% of respondents were literate and the mean scores recorded for farming experience and household size were 4years and 6 persons respectively. The most accessible and frequently utilized channel was Mobile phones with a mean score of 2.82. Interpersonal channels like Group discussions (96.76%), Extension agent (96.22%) and On-farm demonstration (93.51%) were however the most widely preferred communication channels in the study area but not readily accessible. With regard to perceived effects of channels utilization on farming practices, respondents stated that Cocoa plantation management systems have been enhanced significantly with mean score of 3.99. The major constraint that affected communication channels utilization was identified to be inadequate enabling infrastructure (22.04%). The highest ranking with regard to the measures for enhancing communication channels utilization was provision of access roads, electricity and other enabling infrastructure (=3.94). The Chi-square ($\chi 2$) test of independent analysis showed that Chi-square ($\chi 2$) values of Education (68.287), Gender (49.250), Farm size (40.004) and Farming experience (57.258) had significant relationship with frequency of communication channel's utilization with $\chi 2$ at P <0 .05. These findings underscore the need for the provision of low cost micro credit facilities and provision of enabling infrastructure to ensure effective use of interpersonal and mass media channels, community resource centers establishment, employment and training of extension agents for frequent accessibility to Cocoa farmers Suggested measures include the expansion of digital infrastructure, capacity-building programs to improve technological proficiency among farmers, and policy reforms aimed at integrating modern communication tools into the agricultural extension framework.

Keywords: Utilization; Communication Channels; Cocoa Farmers; Constraints; Ekiti West

1. Introduction

Cocoa farming is a pivotal agricultural activity in Ekiti West Local Government Area of Ekiti State, Nigeria, contributing significantly to the local economy and livelihoods (Ekiti State Government., 2013). The dissemination of agricultural information through effective communication channels is essential for enhancing cocoa production and ensuring that farmers adopt improved practices. In this context, communication channels refer to the mediums through which information is transmitted to farmers, including radio, television, mobile phones, extension services, and social media platforms (Ogunlade, and Adebayo, 2021). Communication as defined by Rogers (2003) is the process by which

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participants create and share information/knowledge with each other with the aim of reaching a mutual understanding while communication channels are pathways through which information or message transmitted to an audience or receiver (Ogunremi, 2013). They are methods or vehicles by which information is transferred or received (Ariyo, et al, 2013). Some of the communication channels used in disseminating agricultural information include personal contacts; radio broadcasts; publications; field days; agricultural shows; demonstrations etc. These channels can be grouped into five categories. Physical channels which involve direct contact, this may include seminars, exhibitions. Non-physical channels, which include television, radio, phone calls, newspapers and other print media channels. Technical channels, this could be either physical or non-physical. Human discipline channel, for example, dress put on professionals such as farmers to predict the profession and last but not least, token of communication channels, which are channels in between physicals and non-physicals, this may include signals and gestures and other symbols (Ariyo, et al, 2013). Recent studies have highlighted the importance of these channels in agricultural extension services. For instance, research indicates that cocoa farmers often rely on informal sources such as fellow farmers and personal experience for information, while formal channels like extension services are underutilized (Ogunjobi, et al., 2023). In addition, the advent of social media has introduced new avenues for information dissemination, with studies showing that cocoa farmers have a moderate level of awareness and a neutral perception of agricultural information available on these platforms (Csoto, 2010). In Ekiti State, the assessment of extension communication channels among cocoa farmers revealed that a significant proportion of farmers are within the productive age bracket of 21-40 years, with an average age of 38 (Bello and Obinne, 2012). This demographic is crucial for the adoption of innovative farming practices. However, challenges persist in the effective utilization of communication channels, including inadequacies in the channels' reach and the timeliness of information delivery (Boz and Ozcatalbas, 2010). Understanding the utilization patterns of these communication channels by cocoa farmers in Ekiti West Local Government Area is imperative. Such insights can inform the development of tailored strategies to enhance information dissemination, ultimately leading to improved cocoa production and sustainable agricultural practices in the region.

1.1. Statement of the Problem

Over time, many innovations on Cocoa plantation management and improved farming techniques have been developed by Research Institutes in Nigeria (Adebo et al, 2015). The design of a highly productive, cost- efficient and environmentally friendly Cocoa pod-splitting machine and the release of improved Cocoa seedlings was first designed and released by the Cocoa Research Institute of Nigeria (CRIN) to increase productivity and quality of the export crop. The information on the utility of this technology and availability of improved seedlings for instance have been disseminated using a variety of communication channels including interpersonal and mass media channels like Radio, Televisions (TV), Computers, Mobile phones etc. However, acquisition and poor utilization of these channels by the farmers have led to the low rate of adoption of these innovations (Anifowose, 2013). Cocoa plantations are still ravaged by weeds, pests and soil degradation problems (Obinne, 2012). This low level of utilization of communication channels seems to be further fuelled by inadequate trained extension agents, inappropriate communication channels and mismatch of Cocoa farmers' abilities with the technical requirement for operating the various channels accessible to them and untimely broadcast of agricultural information (Okwu and Dauda, 2011)

Despite the recognized importance of effective communication in agriculture, cocoa farmers in Ekiti West Local Government Area face challenges in accessing and utilizing pertinent agricultural information. The underutilization of formal communication channels, such as extension services, coupled with a reliance on informal sources, may hinder the adoption of improved cocoa farming practices. Furthermore, while social media presents a modern avenue for information dissemination, its potential remains underexploited, with farmers exhibiting only moderate awareness and neutral perceptions towards it (Okwu and Iorkaa, 2011). These issues underscore a critical gap in the effective transmission of agricultural innovations to cocoa farmers, potentially impeding productivity and sustainability in the sector. Studies have shown that communication channels used for dissemination have a positive relationship with behavioral change and improved adoption rates among rural farmer (Mtega, 2012).These channels offer an opportunity for extension services to effectively disseminate recommended practices on cocoa production to the farmers who use them. There are numerous accessible channels available to farmers in Nigeria. They include radio, television (TV), training and visit (T and V), demonstration plots among others (Nyamba and Mlozi, 2012).Extension services in Nigeria have not been able to effectively use the available communication channels such as radio, TV, T and V, face-to-face, and demonstration plots to diffuse and disseminate recommended agro-forestry practices among farmers (Ayuba et al, 2012, Ben and Jude, 2015).). At present, most extension communication systems lack effective messages or are inappropriate and least preferred by farmers. Dissemination of quality and right information at the appropriate time among farmers is key to providing change in cocoa production activities (Mtega, 2012). Effective extension communication channels must constantly assess the impact of their information delivery system to farmers' and design communication strategies that are effective in informing farmers in a timely, clear, and effective manner to encourage awareness, acceptance, and use of innovations (Ariyo et al, 2013)

1.2. Justification for the Research

This study will provide a framework for understanding the social, cultural, economic and technical underpinnings of communication channels utilization by Cocoa farmers in the study area. It is hoped that the findings of this study will provide adequate knowledge to the government and the general public on the various communication channels applicable for effective dissemination (and feedback mechanisms) of agricultural and related information to Cocoa farmers. This study shall further help Cocoa farmers understand the perceived role of various communication channels and the impact of utilization on Cocoa production practices based on the reviews, observations, surveys, collected data and feedbacks from experienced farmers on the field. The result of this study will help policy makers, non-governmental organizations (NGO) and renowned research institutes know the challenges faced by farmers in accessing information and the measures for ameliorating those challenges to enhance Cocoa production and contribute to improving communication linkages among farmers and between agents of agriculture. It is also hoped that the recommendations of this study will improve communication channels utilization by farmers and improve Cocoa farming practices immensely with emphasis on determining the right communication channel culturally, technically and economically suitable for farmers in each locality rather than working on assumptions.

1.3. The objectives of the study are as follows:

- Identify communication channels frequently utilized in relation to the socio-economic characteristics of respondents;
- Identify the most preferred communication channels for receiving information on innovative Cocoa practices among farmers in the study area;
- Ascertain the perceived effect of communication channels utilization on Cocoa farming practices in the study area;
- Examine the constraints of the utilization of communication channels by Cocoa farmers in the study area; and,
- Identify the measures for enhancing the effective utilization of communication channels by respondents.

1.4. Hypothesis of the Study

The hypothesis of the study is stated in null form as follows

Ho: There was no significant relationship between the socioeconomic factors and farmers' perception of the effectiveness of the extension communication channels.

2. Materials and Methods

2.1. Study Area

The study was carried out in Ekiti State. The state is an agrarian state in southwest Nigeria with 16 Local Government Areas. It is located between longitudes 40° 51' and 50° 151' East of the Greenwich meridian and latitudes 70° 151' and 80° 51' North of the equator. The state has a total land area of 5887.89 sq km. The population is 8, 159, 476 people as at 2006 census figure with a projected growth rate of 3.2.[14]The state is further divided into three political (senatorial) zones, namely: Ekiti North; Ekiti South; and Ekiti Central.[15]The state also has abundant forest resources, notably timber due to the favorable climatic condition in the areas.

2.2. Description of the Study Area

This research was conducted in Ekiti-West Local Government area of Ekiti State, South West of Nigeria. Ekiti West L.G.A is characterized by "three agro-ecological zones, namely, the highlands (elevation of approximately 712m), midlands (elevation of 268m)" and low land with undulating topography (elevation of approximately 69.7m above sea level). The area is situated on latitude 70^{ι} 36^{0}N and longitude $50^{\iota}13^{0}$E. It receives an annual rainfall range of 1500mm to 2000m, with an average temperature of 29.6^{0}C (Oladosu and Yekinni ,2008). The area is bounded by Ifelodun/Irepolodun L.G.A on the East, Ijero L.G.A on the North, and Efon Alaaye and Ekiti South LGAs to the South. To the West, the area is bounded by Ila and Oriade LGA of Osun State. Ekiti West L.G.A occupies about 62,413 kilometers square and a human population of 179,892 (National Population Commission, NPC, 2006). The Local Government Area is a multi-cultural community which houses a plethora of ethnic groups including predominantly Yoruba, Ebira, Hausa, Ijaw among others. A number of languages are spoken in the area while the main religions practiced in the area are Christianity, Islam and traditional beliefs (Olomola, 2006).

Agriculture and specifically Cocoa (production) constitutes the main economic (cash) crop with about 79.5 percent of the entire farming population believed to be Cocoa farmers (Lawal 2009). Also, a substantial segment of the people not directly involved in Cocoa farming are engaged in various forms of trading on Cocoa products.

2.3. Population for the study

Cocoa farmers in Ekiti comprised the study population. The Local Government is divided into Eleven (11) political wards, these include; "Aramoko (Ward 1 and 2), Erio (Ward 3), Erijiyan (Ward 4 and 5), Ikogosi (Ward 6), Ipole-Iloro (Ward 7), Okemesi (Ward {A} 8, {B}) 9, {C} 10) and lastly Ido-ile (Ward 11)". The study randomly selected (Six) 6 political wards for the study. This is done to enable the selection of a representative sample size that cuts across the Eleven (11) political zones of the local government area.

2.4. Sampling Technique

The sample was drawn from the sampling frame comprising the population of Cocoa farmers in the State. Using multi-stage sampling technique, the first stage involved the selection of Six (6) wards out of the Eleven (11) political wards in the LGA. The second stage was a random selection of two (2) communities from each of the Six (6) selected wards making a total of Twelve (12) communities. These selected communities represent Twenty-five (25) percent of the total communities in the selected political wards. From the list of registered Cocoa farmers [obtained from Cocoa Farmers Association of Nigeria (CFAN)] in the selected communities, a proportionate random sampling technique (10% of the total registered farmers in each community) were selected, making a total of 210 respondents. Only data for 185 respondents were, however utilized for analysis. The others were discarded for incomplete information and inconsistency.

2.5. Data Analysis

Data for the study were obtained from primary sources collected using a semi-structured questionnaire. The questionnaire was designed to elicit information on socio-economic characteristics of the respondents, the various communication channels available and frequency of utilization, the most preferred communication channels, the perceived effects of communication channels utilization on Cocoa farming practices, Constraints influencing the utilization of communication channels and measures for enhancing the effective utilization of communication channels.

Data were analyzed with descriptive statistics; such as Likert scale, frequency distribution, percentages, means Inferential statistics used were Chi Square test of independence and Kendall's coefficient of concordance were used to describe the socio-economic characteristics of cocoa farmers. 5-Points Likert scale, namely, strongly agreed, Agreed, Disagreed, strongly disagreed. 4, 3, 2, and 0.1, respectively, was used to rate effectiveness of extension communication channels used. The effectiveness of extension communication channels used in the dissemination of innovative technology information to cocoa farmers was measured using Likert scale of Regularly = 3, Sometimes = 2 and Neve r= 1

Research objectives and Hypotheses were analyzed as follows

- **Objective 1:** The socio-economic characteristics of the Cocoa farmers were analyzed using frequency distribution tables, percentages and means.
- **Objective 2:** The frequency of utilization of communication channels by Cocoa farmers was measured using a rating scale. Respondents were asked to identify and rank the various communication channels available according to their frequency of use. The responses were then ranked into regularly, sometimes, never. Nominal values of 3, 2 and 1 were assigned to the ranks respectively. Mean scores were used for the analysis. A decision rule was adopted; any mean value < 2.00 was regarded as low utilization, while those ≥ 2.00 was regarded as high utilization.
- **Objective 3:** The most preferred communication channels for receiving information on innovative Cocoa practices among farmers was analyzed using frequency distribution tables and percentages.
- **Objective 4:** The perceived effect of communication channels utilization on Cocoa farming practices in the study area was measured using a rating scale. Respondents were asked to rank their perception on the perceived effects of communication channels on their Cocoa farming practices using "Strongly Agree, Agree, Disagree or Strongly Disagree". Values of nominal levels of 4, 3, 2 and 1 were assigned to the ranks respectively. Mean scores were used for the analysis. A decision rule was adopted as follows; any mean value < 2.50 showed that the respondent does not agree that communication channel utilization has an effect on his/her farming practices. However, mean values ≥ 2.50 indicated that the respondent agree that communication channel utilization has an effect on his/her farming practices.
- **Objective 5:** In examining the constraints of the utilization of communication channels by Cocoa farmers in the study area, frequency distribution tables and percentages were used for the analysis.

- **Objective 6:** A rating scale was used to analyze the measures for enhancing the effective utilization of communication channels by Cocoa farmers in the study area. Respondents were asked to identify and rank their responses into "Strongly Agree, Agree, Disagree or Strongly Disagree". Values in nominal levels of 4, 3, 2 and 1 were assigned to the ranks respectively. Mean scores were used for the analysis. A decision rule was adopted as follows; any mean value < 2.50 showed that the respondent does not agree that the measure in question can enhance effective communication channel utilization whereas mean values ≥ 2.50 indicate that the respondent agree that the identified measure can enhance effective communication channel utilization.
- **Hypothesis:** Chi square test of independence analysis was used to ascertain the relationship between the socio-economic characteristics of respondents and their frequency of communication channels utilization as expressed in objective Two (2). The Chi-Square mathematical model is given as

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where $\chi 2$= Chi square value

Σ = Summation

O = Observed frequencies

E = Expected frequencies

The dependent variable (frequency of communication channel utilization) was determined from the means calculated from the rating scale of utilization of each communication channel by each farmer. Any farmer whose mean score of communication channel usage recorded a figure < 2.00 was interpreted as Low, those with mean score ≥ 2.00 as High. Codes of 1 and 2 were assigned to Low and High Utilization respectively. Eight (8) independent variables (socioeconomic characteristics of respondents) were used for the analysis and were measured at nominal level, codes were assigned as follows:

- **Age**: ≤ 20 years (1), 21 – 30 (2), 31-40 (3), 41-50 (4), ≥ 51 (5).
- **Marital status:** Single (1), Married (2), Divorced (3), Widower (4).
- **Sex**: Male (1), Female (2).
- **Educational level:** No formal education (1), FSLC (2), SSCE (3), OND/NCE (4), HND/Degree (5), Postgraduate (6).
- **Household Size:** 1-4 (1), 5-8 (2), ≥ 9 (3).
- **Years of Farming experience**: <2 years (1), 2-4years (2), >4 years (3).
- **Income:** ≤20,000 (1), 20,001-60,000 (2), 60,001-100,000 (3), >100,000 (4).
- **Farm size**: <1 ha (1), 1 – 1.9 ha (2), 2 – 2.9 ha (3), 3 – 3.9 ha (4), ≥ 4 ha (5).

3. Results and Discussion

3.1. Sampling Procedures and Sample Size

The study encompassed several wards with varying numbers of registered farmers. Notably, Ikogosi Ward 6 had the highest number of registered farmers at 290, closely followed by Okemesi Ward (C) 10 with 233 members. ErioEkiti Ward 3 had the fewest registered farmers. This distribution indicates a higher concentration of farming activities in Ikogosi and Okemesi wards, which may be attributed to factors such as favorable agricultural conditions or more robust support systems in these areas.

3.2. Socio-Economic Characteristics of Respondents

The result in Table 2 shows that majority of the respondents (33%) were aged between 41-50 years, suggesting that cocoa farming is predominantly undertaken by middle-aged individuals who likely possess substantial experience and resources while marital Status indicated that a significant portion of the respondents (51%) were married, which may imply a stable family structure that supports farming activities. Most of the farmers interviewed constituted 69% of the respondents, indicating male dominance in cocoa farming within the study area. This could be due to cultural norms or the physically demanding nature of farming. According to their level of education, the most common educational

attainment was the Senior Secondary Certificate Examination (SSCE), held by 31% of respondents. This level of education may influence the farmers' ability to adopt new technologies and practices.

Table 1 Summary of Sampling Procedure and Sampling Size

Randomly Selected Political Wards	No of Communities	No of Sampled Communities	Name of Sampled Communities	Total No of Registered Farmers	Sample Size
Aramoko Ward 2	8	2	Ita Oko Aba Igbo iku	109 120	11 12
Erio Ekiti Ward 3	7	2	Oloro Anaye	101 191	10 19
Erijiyan Ward 5	9	2	Ajayi Oke Ajayi Odo	154 208	15 21
Ikogosi Ward 6	8	2	Aba Osun Olusegun	290 233	29 23
Okemesi Ward (C) 10	7	2	Asoju Ibidiran	182 111	18 11
Ido Ile Ward 11	9	2	Ita-Ido Ile Ona	160 247	16 25
Total	48	12		2,106	210

Source: Field Survey, 2022

Table 2 Distribution of the respondents based on their socio-economic characteristics

Socio Economic Variables	Frequency	Percent
Age		
≤ 20	18	9.73
21-30	37	20.00
31-40	59	31.89
41-50	61	32.97
≥ 51	10	5.41
Total	185	100.00
Mean	36 years	
Marital Status		
Single	60	32.43
Married	94	50.81
Divorced	11	5.95
Widower	20	10.81
Total	185	100.00
Sex		
Male	128	69.19
Female	57	30.81

Total	185	100.00
Educational Level		
No Formal Education	26	14.05
FSLC	38	20.54
SSCE	57	30.81
OND/NCE	19	10.27
HND/Degree	33	17.84
Postgraduate	12	6.49
Total	185	100.00

Source: Field Survey, 2022

Nearly half of the respondents approximately (50%) had household sizes ranging from 5 to 8 members as indicated in Table 3. Larger households may provide more labor for farming activities but also require more resources for sustenance. A substantial 70% of respondents had over four years of farming experience, indicating a seasoned farming population likely adept at managing cocoa cultivation challenges. The result showed that 47% of respondents reported an annual income exceeding #100,000 reflecting the economic significance of cocoa farming in the region. The result on the farm size **i**ndicated that the majority (52%) operated farms between 2 to 2.9 hectares, suggesting small to medium-scale farming operations.

Table 3 Demographic and Farm Characteristics of the Study Population

Socio Economic Variables	**Frequency**	**Percentage**
Household Size		
1 – 4	48	25.95
5 – 8	92	49.73
≥ 9	45	24.32
Total	185	100.00
Mean	6 persons	
Farming Experience		
< 2 years	14	7.57
2 - 4 years	42	22.70
> 4 years	129	69.73
Total	185	100.00
Mean	4 years	
Annual Income		
≤ 20,000	2	1.08
20,001 - 60,000	32	17.30
60,001 - 100,000	64	34.59
>100,000	87	47.03
Total	185	100.00
Mean	₦91,135.64	
Farm Size		

< 1 ha	21	11.35
1 – 1.9 ha	38	20.54
2 – 2.9 ha	96	51.89
3 – 3.9 ha	24	12.97
≥ 4 ha	6	3.24
Total	185	100.00
Mean	2.3 ha	

Source: Field survey, 2015

The result in Table 4 shows that cooperative associations were the predominant source of credit, utilized by 97% of respondents. This highlights the critical role of cooperatives in providing financial support to farmers, possibly due to more favorable terms compared to formal banking institutions while Inheritance was the primary mode of land acquisition, with 82% of respondents obtaining land through familial inheritance. This traditional practice may influence land management decisions and the implementation of modern farming techniques.

Table 4 Distribution of Respondents by Sources of Credit

Variables	**Frequency ***	**Percentage**
Government	30	16.22
Commercial banks	24	12.97
Cooperatives/Association	179	96.76
Private/volunteer lenders	119	64.32
Friends/family	121	65.41
Personal savings	152	82.16

Membership in the All-Farmers Association of Nigeria was nearly universal among respondents (98%), closely followed by cooperative societies popularly known as *Ifesowapo* at (96%). These associations likely offer essential services such as access to inputs, credit facilities, and information dissemination. Conversely, participation in the Elders Forum was minimal (23%), possibly due to its limited relevance to the broader farming community.

Table 5 Distribution of respondents by Land Tenure rights held

Variables	**Frequency ***	**Percentage**
Inheritance	151	81.62
Leasehold	60	32.43
Communal ownership	46	24.86
Purchase	32	17.30

Source: Field survey 2022, *Multiple response recorded

Table 6 Group Membership Patterns among Farmers in the Study Area

Variables	**Frequency ***	**Percentage**
All Farmers Association of Nigeria (ALFAN)	181	97.84
Cooperative society(*Ifesowapo*)	178	96.22

Religious groups	131	70.81
Elders forum (*Ekitikete*)	43	23.24
Youth Association (Egbe-Odo)	94	50.81

Source: Field survey 2022, *Multiple response recorded

3.3. Utilization of Communication Channels for Extension Services

Table 7 shows the utilization of communication channels by Farmers for Extension Services. The study assessed the regular use of various communication channels. The most accessible and frequently utilized channel was Mobile phones with a mean score of 2.82. Interpersonal channels like Group discussions (96.76%), Extension agent (96.22%) and On-farm demonstration (93.51%)were however the most widely preferred communication channels in the study area but not readily accessible. With regard to perceived effects of channels utilization on farming practices, respondents stated that Cocoa plantation management systems have been enhanced significantly with mean score of 3.99.

Table 7 Utilization of Communication Channels by Farmers for Extension Services

Communication Channels	**Extent of Utilization**		**Mean**	**Ranks**	
	Regularly (3)	**Sometimes (2)**	**Never (1)**		
Mobile phones	159	19	7	2.82	1
Bill Boards/Posters/Flyers	131	46	8	2.66	2
Seminars/workshop/symposiums	101	80	4	2.52	3
Informal contacts with peers	99	78	8	2.49	4
Books/Newsletters/Brochures	97	82	6	2.48	5
Group discussions	92	87	6	2.46	6
Television	42	93	50	1.96	7
Extension agents	46	62	77	1.83	8
Computers/Internet	41	60	84	1.77	9
Radio spots/call-in shows	21	77	87	1.64	10
Public Campaigns	31	50	104	1.61	11
Social Media Platforms	28	47	110	1.56	12
Contact farmers/Opinion leaders	14	71	100	1.54	13
On-Farm demonstrations	17	44	124	1.42	14
Excursion/Tours and field trips	-	-	185	1	15
Agricultural. Videos	-	-	185	1	15

Source: Field Survey, 2022. Decision rule: Mean Score < 2.00=Low utilization; ≥ 2.00 = High utilization

Table 8 Distribution of Respondents by Preferred Communication Method

Variables	**Frequency***	**Percentages**
Group discussion	179.00	96.79
Extension agent	178.00	96.22
On-farm demonstration	173.00	93.51
Mobile phones and SMS	169.00	91.35

Radio spots/call-in shows	167.00	90.27
Seminars/ workshop/ symposiums	163.00	88.11
Informal contacts with peers	130.00	70.27
Books/Newsletters/Brochures	75.00	40.54
Television	72.00	38.92
Public campaigns/enlightenments	70.00	37.84
Computers/internet	57.00	30.81
Bill boards/Posters/Flyers	48.00	25.95
Excursion/Tours and Field trips	47.00	25.41
Contact farmers/Opinion leaders	38.00	20.54
Social Media Platforms	34.00	18.38
Agricultural shows	12.00	6.49

Sources: Field Survey, 2022, *Note: multiple responses were recorded

Table 9. The major constraint that affected communication channels utilization was identified to be inadequate enabling infrastructure (22.04%)

Table 9 Perceived effect of Communication Channels on Cocoa production

Use of communication channels have helped you:	**(4) SA**	**(3) A**	**(2) D**	**(1) SD**	**Mean**	**Remarks**
Adopt new technology (like Cocoa Pod splitting technology and processing)	68	113	4	-	3.35	Agree
Source and acquire farm inputs easier.	82	74	20	9	3.24	Agree
Take more informed decision on pest, weed and disease prevention and control.	49	98	27	11	3.00	Agree
Increase your yield.	9	12	7	157	1.31	Disagree
Access to market information	81	77	22	5	3.26	Agree
Enhance your level of awareness to Cocoa plantation management (Timing, Shade management, etc)	183	2	-	-	3.99	Agree
Access more information on grants, subsidies and credit facilities	94	67	19	5	3.35	Agree
Improve efficiency in Cocoa processing and storage	71	100	14	-	3.31	Agree
Eliminate Cocoa production problems completely	11	-	20	154	1.29	Disagree
Strengthen your interest in Cocoa production practices (cultivation patterns and erosion control)	81	96	6	2	3.38	Agree
Better managed /recycle Cocoa by-products	52	116	-	17	3.10	Agree
Get adequate information on agricultural insurance policy	80	100	5	-	3.41	Agree
Strengthen the linkage between farmers-extension and research institutes.	67	103	10	5	3.25	Agree
Sell Cocoa beans to consumers easier	11	15	8	151	1.38	Disagree
Improve mechanization in Cocoa farming (machinery for tillage, application of inputs etc)	-	40	31	114	1.60	Disagree
Enhance your technical know- how on Nursery, Tree planting and regeneration.	93	86	-	6	3.44	Agree
Send feedback to agricultural agencies	75	90	16	4	3.28	Agree

Source: Field survey, 2022. Decision rule: Mean Score <2.50 = Disagree; ≥ 2.50 = Agree.

Table 10. The highest ranking with regard to the measures for enhancing communication channels utilization was provision of access roads, electricity and other enabling infrastructure ($\overline{X}$ =3.94). The Chi-square ($\chi 2$) test of independent analysis showed that Chi-square ($\chi 2$) values of Education (68.287), Gender (49.250), Farm size (40.004) and Farming experience (57.258) had significant relationship with frequency of communication channel's utilization with $\chi 2$at P <0 .05. These findings underscore the need for the provision of low-cost micro credit facilities and provision of enabling infrastructure to ensure effective use of interpersonal and mass media channels, community resource centers establishment, employment and training of extension agents for frequent accessibility.

Table 10 Constraints to Effective Use of Communication Channels

Constraints	**Frequency***	**Percentage**
Inadequate enabling infrastructure	160.00	86.49
Extension workers not readily available	152.00	82.16
Inadequate technical skill	89.00	48.11
Poor communication skills by extension agent	78.00	42.16
Lack of feedback/feedback challenges	63.00	34.35
Untimely/Insufficient Agric. Programs/news on broadcast/print media	46.00	24.86
Policy inconsistency by Government.	42.00	22.70
Religious and cultural barriers	32.00	17.30
Cost of accessing some channels	26.00	14.05
Inadequate education/enlightenment	21.00	11.35
Language barrier	17.00	9.19

Source: Field Survey, 2015, *Multiple responses recorded.

3.4. Strategies to Enhance the Use of Communication Channels

To overcome the identified constraints, several strategies were suggested by respondents (Table 11). The most strongly agreed-upon strategy was the provision of access roads, with 173 respondents who strongly agreed to this intervention. This is in line with studies by Akinbile et al. (2021), which emphasize that improved rural road networks enhance farmers' mobility and accessibility to extension services, thereby facilitating better communication. In areas where roads are poor, farmers often struggle to attend agricultural meetings or access information centers. The retraining of extension agents was another highly supported strategy, with 156 respondents who strongly agreed. This suggests that many farmers believe that better-trained extension workers will improve communication efficiency. Studies by Adeogun et al. (2020, (2021) indicate that periodic training programs for extension agents enhance their ability to simplify technical information, adopt participatory communication methods, and utilize ICT-based advisory tools effectively. Similarly, periodic training of farmers was strongly agreed upon by 111 respondents. This finding aligns with Ibitoye et al. (2023), Musa et al, (2021), who emphasized that continuous training on modern agricultural communication tools and platforms helps farmers maximize available resources. Training programs focusing on the use of mobile applications, radio, and community-based networks could significantly enhance information dissemination (Agbamu, 2020). Another key strategy supported by respondents was the provision of non-interest credit facilities and grants**,** with 90 respondents who strongly agreed. This corroborates findings by Alabi and Olorunfemi (2020), who noted that financial constraints limit farmers' ability to access information, especially when communication channels require subscription fees or internet access. Access to affordable credit would enable farmers to invest in necessary tools such as mobile phones or radios for better information access. Creating avenues for interaction and feedback was strongly agreed by 59 respondents. This strategy is crucial, as researched by Adewale et al. (2021), and Akinbile, (2021) suggests that two-way communication, where farmers can seek clarification and provide input, leads to better adoption of agricultural innovations. Establishing farmers' forums, interactive radio programs, and social media engagement platforms could significantly enhance feedback mechanisms.

Table 11 Strategies to Enhance the Use of Communication channels

Measures for enhancing the use of Communication Channels	(4) SA	(3) A	(2) D	(1) SD	Mean	Rank
Provision of access roads, electricity and other infrastructure.	173	12	-	-	3.94	1
More deployment/re-training of Extension Agents	156	19	10	-	3.79	2
Periodic training of farmers through workshops/seminars	111	67	6	1	3.56	3
Provision of low/non-interest credit facilities and grants.	90	68	21	6	3.31	4
Creating avenues for interaction and feedback	59	108	23	5	3.30	5
Transcription of print/broadcast material in local dialects	34	70	31	-	3.29	6
Cost Reduction for channels/channel subsidization	96	52	24	13	3.25	7
Mass education/literacy campaign	71	93	15	6	3.24	8
Building community resource canters	66	98	17	4	3.22	9

Source: Field Survey, 2022 Decision rule: Mean Score < 2.50 = Disagree; ≥ 2.50 = Agree.

3.5. Implications for Agricultural Extension and Policy

The findings of this study highlight the urgent need for policy interventions aimed at improving communication infrastructure, expanding extension service coverage, and adopting inclusive communication strategies. Government agencies and private stakeholders should prioritize road construction in agricultural communities, strengthen extension worker training, and implement participatory learning approaches for farmers. In addition, the integration of ICT-based communication platforms such as mobile advisory services, interactive radio programs, and digital extension services should be promoted. The adoption of digital solutions has been shown in other studies according to Agboola and Okonkwo, (2023) who stated the need to improve information flow and enhance farmers' responsiveness to innovations. Lastly, fostering public-private partnerships to fund and implement communication-enhancing initiatives could bridge existing gaps. By leveraging collaborative efforts between government, NGOs, and private agribusiness firms, more sustainable and farmer-friendly communication networks can be developed.

4. Conclusion

The study revealed that cocoa farmers in Ekiti West LGA face significant constraints in utilizing communication channels, primarily due to poor infrastructure, limited extension services, and inadequate training. However, strategic interventions such as road development, extension worker retraining, and farmer education can significantly enhance communication efficiency. Addressing these challenges through targeted policies and innovative communication solutions will play a crucial role in improving cocoa production and overall agricultural development in the region. The study reveals that while traditional structures like cooperatives and inherited land tenure systems are prevalent, there is a significant reliance on modern communication tools such as mobile phones for agricultural information.

This study has shown the extent of channel utilization by cocoa farmers and that a strong relationship exists between communication channel utilization and Cocoa production practices. The use of communication channels has positive influence on Cocoa production practices. Also, the utilization of channels is in part influenced by farmer's socio-economic characteristics relating to their Level of Education, Gender and Technical complexities. The use of communication channels among Cocoa farmers to access qualitative information on new research findings can be enhanced if stakeholders pursue policies that address rural farmers' education, computer literacy, provision of credit facilities, basic infrastructure and increased activities of extension agents in rural farming communities. In addressing these results, the government, private sectors, financial institutions, farmers and other relevant players in the agricultural sector must recognize the role of information and the communication channels in promoting cash crop production and agricultural development in Ekiti State and the nation at large.

Credence should be given to the preferred channels by farmers in any rural community in relation to compatibility with the cultural, economic and social standing before dissemination of agricultural information to ensure adoption of intended technology.

Recommendations

Based the findings, the following recommendations are made

- The provision of basic infrastructure like access roads, better power supply and rural television / radio booster stations by the government and non-governmental bodies should be embarked upon for efficient interpersonal channels and mass media.
- Number of extension agents recruited and deployed to the study area should be increased to improve their availability and coverage in those communities.
- Adequate training, re-training and provision of logistics to extension agents must be encouraged to enhance their communication skills and ensure motivation. This will further develop better interpersonal relationship and understanding between Cocoa producers and extension agents in Ekiti State.
- Efficient communication between Agricultural change agents and the Cocoa farmers should be encouraged by creating an avenue for meetings particularly between Extension agents and the Cocoa farmers. This forum will bring about interaction, feedback and subsequently promote confidence and trust among farmers to effectively utilize other communication channels and elicit valuable agricultural information which will in turn enhance Cocoa production practices in the State.
- Non-Governmental organizations and financial institutions could also assist the Government to organize farmers education programmes, adult literacy and public enlightenment campaigns as part of their Social Corporate responsibilities to provide and promote farmers awareness to low-cost micro credit facilities and Grants which will further ease acquisition and accessibility to some communication channels like ICT devices.
- Community resource centers, cyber cafes, public television viewing and radio listening centers should be established in these communities for accessibility to agricultural materials and programmes. Viewers/listener-group discussions should also be established by Agricultural agencies to further discuss the subjects of the programmes immediately after participation to encourage feedback. Broadcast should also be aired occasionally in common language to eliminate the challenge of language barriers.

Compliance with ethical standards

Acknowledgments

I am deeply grateful to everyone whose support, encouragement, and belief were instrumental in the successful completion of this publication.

This work would not have been possible without the invaluable contributions of the participants in Ekiti West Local Government Area. Your cooperation, shared experiences, and insights formed the cornerstone of this study. I wish to express my profound appreciation to Professor Augustine Angba, Dr. Friday Ogar Idiku, Dr. Oyewusi Kayode, Mr. Emmanuel Eremi, and Mr. Gerald Umeze for their unwavering support, belief in my work, and continuous encouragement throughout the research journey. Special thanks go to my beloved parents, Mr. and Mrs. Oyewusi Adeagbo Samuel, whose values of discipline, hard work, and faith have laid the foundation of all my achievements. Your love and prayers have continually uplifted me.

To my dear and supportive wife, Oyewusi Lydia Tomilayo and my wonderful Children; Tomiwa Michaiah, Tisheanu Mira and Tiaraoluwa Meghan, thank all you for your patience, understanding, and steadfast encouragement.

Above all, I give glory to Almighty God, whose divine wisdom, strength, and grace have guided me every step of the way.

Disclosure of conflict of interest

The authors (s) have no conflicts of interest relevant to this article.

Statement of informed consent

Informed consent was obtained from all individual participants included in this study.

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