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## **ANALYSING COCOA FARMERS' PERCEPTION ON THE USE OF PRINT MEDIA FOR EXTENSION DELIVERY IN ADANSI ASOKWA, GHANA**

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### **ABSTRACT**

Community extension agents have been using various print materials like books, posters, flip charts, brochures, leaflets, newspapers, journals, magazines, and additional livelihood books to transfer improved agricultural technologies and information to cocoa farmers. However, the perception of farmers on these materials in aiding the adoption of innovations is unknown. A quantitative research approach was employed, and a structured questionnaire was used to collect data from 310 respondents. The study utilized both descriptive and inferential statistical techniques to achieve its research objectives. Results indicate that cocoa farmers perceive there are low levels of print media availability, utilization, preferability, and effectiveness. Despite the low perception of effectiveness, print media remains highly accessible to cocoa farmers and is a cost-effective method for delivering extension services. Its longevity and high engagement also contribute to its effectiveness. Factors such as household size, farm distance, marital status, years of cocoa cultivation, years of cooperative membership, economic activity, and educational level have a positive and significant influence on cocoa farmers' accessibility, utilization, and effectiveness of print media. Farmers are challenged by the infrequent and delayed delivery of print media. Agricultural agencies must therefore prioritize the timely delivery of print materials for extension activities to ensure that farmers can use them effectively.

### **KEY WORDS**

Accessibility, availability, effectiveness, preferability, print media, utilization.

Agricultural extension agencies have a primary focus on providing agricultural education, information, and skill development to farmers. Education is a comprehensive process that results in desired changes in human behavior. In the case of farmer education, the focus is on providing the latest agricultural knowledge, teaching relevant skills, and shaping attitudes towards contemporary agriculture (FAO, 2017). To fulfill the requirements of both local consumption and export market, cocoa farmers need to improve their skills, acquire more knowledge, and achieve exceptional levels of production and quality. Achieving these goals is contingent on the effective adoption of the latest mechanisms by cocoa growers (Farooq et al., 2007).

Effective communication in modern agriculture involves delivering messages to large audiences through various channels. Effective communication plays a pivotal role in driving progress and change in agriculture. The mass media is a potent instrument for communicating agricultural innovations to rural communities (Norton and Alwang, 2020). The rapid growth of mass media has made it an essential means of information dissemination. Agricultural extension personnel are influential agents of change in rural areas and can effectively communicate information about agricultural development (Prokopy et al., 2017).

Mass media can be classified into two main categories: print media and electronic media. Electronic media transmit spoken, visual and written visual information from the



source to the viewer, listener, or reader, making it a powerful means of reaching a large audience and inspiring action. Print media, on the other hand, uses words, pictures, and diagrams to convey accurate and comprehensible information to a vast audience. It is feasible for farmers to utilize printed materials repeatedly as a permanent reminder of the information provided (Devkota et al., 2020). To be effective, print media must be customised to the desires and preferences of the intended audience, provide alternatives and support in decision-making processes, promote the adoption of technology that suits local conditions, address sustainability concerns related to technical aspects, and furnish information on the financial and economic impacts of recommended technologies including any associated risks and uncertainties. When print media addresses actual problems faced by farmers and provides practical solutions, it gains popularity and interest among the target audience. In addition to other communication methods, agricultural extension workers can facilitate farmers' learning by offering them printed materials (Farooq et al., 2007).

The media industry is rapidly expanding, offering a wide range of options for targeting specific demographics. Print media encompasses hardcover and paperback books, journals, newspapers, magazines, pamphlets, brochures, and other publications with visual elements (Hassan et al., 2010; Starre, 2015). It plays a crucial role in disseminating technology to local-level farmers and field workers who can read and write (Kughur et al., 2018; Solanki and Verma, 2019). Moreover, it may benefit uneducated farmers who have literate neighbors or children (Kughur et al., 2018).

As agricultural development is crucial for a more prosperous nation, various organisations are engaged in providing agricultural advisory services or extension services to support agricultural producers, link them to markets and other participants in the agricultural supply chain and enhance their knowledge and abilities to enhance their quality of life. The Ministry of Food and Agriculture and the Ghana Cocoa Board (COCOBOD) are among the organisations that print publications, including booklets, brochures, and bulletins, to disseminate agricultural information to farmers. To enhance agricultural knowledge among farmers, it is important to publish and distribute more print media materials. Updating printed materials can also improve farmers' understanding of agricultural information. Some professionals use photographs during smallholder meetings to facilitate verbal communication. Printed materials are also used alone or in combination with other approaches to disseminate agricultural information. Community extension agents (CEAs) have transferred improved agricultural technologies and information to cocoa farmers through various printed materials, such as Farm Business School (FBS) handbooks, newspapers, additional livelihood books, visuals, flip charts, journals, and posters. However, despite these efforts, there has been little change in the adoption of innovations among cocoa farmers (Akhter et al., 2021).

Numerous studies have examined the efficacy of printed materials in delivering agricultural knowledge to cocoa cultivators. Farooq et al., (2007) found print media to be effective in disseminating information, particularly when introducing novel technologies. Ayaz (2005) and Farooq et al., (2007) suggested that printed materials are an efficient means of presenting novel ideas, concepts, and technologies to farmers, thereby encouraging them to seek further information from CEAs or their peers. Shaikh et al., (2020) observed that printed materials have a lasting impact and are the most effective medium for disseminating information about farming technologies. Kughur (2018) further observed that print media remains an effective method of conveying and disseminating agricultural knowledge to farmers. Ravichamy et al., (2020) demonstrated the significance and effectiveness of printed materials in disseminating agricultural knowledge to farmers in Tamil Nadu. Notwithstanding the low levels of literacy in exurban areas, Rehman et al., (2013) and Yaseen et al., (2016) found that a considerable number of people in rural areas perceive printed materials as reliable sources of information.

Identifying the available and preferred printed materials among cocoa farmers as a means of acquiring agricultural information is crucial. Nevertheless, it is important to assess the perception of farmers on these information sources and identify the factors that influence their accessibility, utilization, and preference among rural cocoa farmers. Therefore, the



study aims to assess the perception of printed materials in delivering agricultural information to cocoa growers in the Adansi Asokwa District of the Ashanti Region of Ghana. The study aims to achieve the following objectives: 1) identify how print media is perceived in terms of its availability, accessibility, utilization, preferability, and effectiveness; 2) assess print media features that are perceived to facilitate the adoption of agricultural innovations; 3) determine the factors that affect the accessibility, usage, and preference of printed materials among cocoa farmers; 4) identify the limitations encountered by cocoa farmers in obtaining and utilizing print media.

## METHODS OF RESEARCH

The investigation was carried out in the Adansi Asokwa District of Ghana's Ashanti region, which is situated in a semi-arid climate zone and covers an area of approximately 713.30 sq km. The district is adjacent to Adansi North District to the north, Adansi South District to the south, Bosome Freho District to the east, and Obuasi East District to the west. It has inhabitants of 71,844 individuals, embracing 35,944 men and 35,900 women. The area experiences two cropping seasons, a major and a minor, due to the double maxima rainfall pattern.

The researchers opted for a descriptive research design as it allowed them to amass extensive information gathered from a diverse array of subjects, enabling them to obtain a more comprehensive understanding of the topic at hand. Moreover, this design facilitated the assessment of the efficacy of printed material in disseminating farming details related to cocoa farmers.

To determine the size of the sample used in this study, the Yamane formula was used, given the documented number of cocoa growers in the area, which is approximately 10,332. The formula is as follows:  $n = N/[1+N(0.05^2)]$ , where;  $n$  is the sample size,  $(0.05^2)$  is the error margin of error, and  $N$  is the sampling frame.  $n=10,322/[1+(10,322 \times 0.0025)]$ ,  $n=10,322/26.805$ . Therefore,  $n=385.08$

Data were collected in multiple stages. The first stage involved purposively selecting the district. It was followed by the selection of 10 different communities in the district using random sampling. Lastly, 310 cocoa farmers were randomly selected. The researchers employed these sampling techniques to prevent biases and guarantee that each person in the population had an equivalent opportunity of being chosen to take part in the study.

Primary data was gathered from the respondents using a structured questionnaire. The questionnaire was self-administered to enhance the precision of the data collected. To guarantee the precision of the data collection instrument, the questionnaire underwent authentication by other experts from the Department of Agricultural Economics, Agribusiness and Extension, Kwame Nkrumah University of Science and Technology (KNUST) and Cocobod. Furthermore, the study enlisted the services of four field assistants who were well-trained to assist in the data collection process.

The data in this research were examined utilising SPSS software, specifically version 20. The data was first cleaned to ensure consistency. Various methods of analysis were utilized to achieve the results for the various research objectives. Descriptive statistics such as standard deviation, mean, percentage and frequency, were used to analyze the different types of print media based on their availability, accessibility, usage, preference and effectiveness, using a three-point Likert scale. In the context of this research, the term "availability" denoted the tangible existence of print media and was measured as: not available=1, somewhat available=2, available=3, while "accessibility" pertained to the capability of cocoa farmers to locate information through different types of print media and was measured as: not accessible=1, somewhat accessible=2, accessible=3. "Utilization" referred to the practical employment of print media by the farmers and was measured as: not utilized=1, somewhat utilized=2 and utilized=3. "Preferability" indicated the degree to which a specific print medium was favored by respondents and was measured as: not Preferable=1, somewhat preferable=2, preferable=3. Finally, "effectiveness" related to the extent to which the print media succeeded in accomplishing its intended purpose when utilized by cocoa



farmers and was measured as: not effective=1, somewhat effective=2 and effective=3 (Sumang et al., 2017).

The research employed a binary probit model to identify the variables that affect cocoa farmers' perceived accessibility, utilization, and preference of print media. The predictor variables were: years of formal education (continuous), age of farmers (continuous), cocoa farm size (acres), years of farming experience (continuous), household size (count), monthly farm income (Ghana Cedis), farm distance (kilometres), number of household economic active members (count), years of cooperative membership (years), marital status (1-married, 0-others), gender (1-male, 0-female), residential status (1-indigene, 0-settler), credit access (1-yes, 0-no), household head (1-yes, 0-no) and religion (1-Christian, 0-others). To measure the three dependent variables, two categories were established: 'No', indicated by a mean score within the range of 0.0 to 2.49, and 'Yes' signified by a mean score within the range of 2.5 to 5.0 (Sumang et al., 2017).

The difficulties encountered by cocoa farmers in obtaining and utilizing print media were identified and ranked using the Kendall coefficient of concordance. The formula is:  $W = [12(\sum d^2)]/[m^2(n)(n^2-1)]$ ; where  $m$  = total number of respondents,  $A = \sum R/n$ ,  $n$  = total number of challenges being ranked,  $R$  = sum of ranks given to a particular challenge,  $D = R - A$ .

## RESULTS AND DISCUSSION

The participants' socioeconomic attributes in the research are presented in Table 1. The mean age of the cocoa farmers was 46 years, with a range of 23 to 79 years. As age can influence a person's outlook and ability to deal with issues within their experience, it can be deduced that cocoa farmers can obtain information about their cocoa farming practices from print media (David and Cobbah, 2008). On average, cocoa farmers had nine (9) years of formal education, and the educational attainment levels of the participants ranged from zero (no formal education) to 18 years of education i.e., (tertiary education), with the latter being the highest. The average education suggests that cocoa farmers have a certain degree of literacy skills, which could be beneficial in their pursuit of information. Education can improve their capability to understand and express themselves in the agricultural field (Ogunlade, 2007).

The mean cocoa farming experience of the farmers is 16 years. The maximum age recorded is 65 years, while the minimum age recorded is one year. The high level of experience indicates that farmers possess significant knowledge and expertise in cocoa farming, which is relevant to the adoption and use of agricultural technologies (Tadesse, 2008). On average, cocoa farmers possess 10 acres of land for cocoa farming and earn a monthly income of 1,602 GHC from their farms. Their households consist of an average of 7 people, with a minimum of one and a maximum of 20 individuals. Averagely, cocoa farmers have three economically active members in their household and four dependent household members. The average distance cocoa farmers travel to their farms is 12 kilometers, and their average years of cooperative society membership is three (3) years.

Table 1 above displays that of the total participants in the study, 70.30% were males and the remaining 29.70% were females. This suggests that men dominate cocoa farming in Ghana, which is consistent with the discoveries of Nunoo et al., (2014), Ankuyi et al., (2022) and Owiredu et al., (2022) who also reported a higher number of male cocoa farmers. The reason behind this finding might be that cocoa farming involves strenuous activities that are more suitable for men than women. Furthermore, the majority of cocoa farmers (70.60%) were married, while a mere 6.50% were unmarried. These findings align with those of Antwi-Agyei and Stringer (2021), Tham-Agyekum et al., (2023) and Frimpong-Manso et al., (2023) who revealed that the majority of Ghanaian cocoa farmers are married. According to them, most farmers in Ghana get married to have a helping hand in their farming activities to reduce labour costs and save money for their family's expenses.

The information presented in Table 1 confirms that a significant proportion of cocoa farmers (74.50%) adhered to Christianity, followed by Muslims (21.30%) and traditionalists (4.20%). Indigenous cocoa farmers constituted 51.90% of the participants. This implies that



more than half of the respondents were native to the study area. Approximately 73.5% of the farmers were considered household heads. The results further indicate that 66.10% of the farmers were members of a cooperative society while 33.90% were not. Additionally, 93.20% of the farmers cultivated other crops besides cocoa while only 6.80% focused solely on cocoa farming. The majority of the cocoa farmers (73%) did not have credit access, whereas 27% had. Among the 83 cocoa farmers who had access to credit, the main sources were family members (47.0%), banks (39.80%), friends (8.40%), and cooperative societies (4.80%).

Table 1 – The Socioeconomic Characteristics of Individuals Engaged in Cocoa Farming

Variables	Freq.	Percent	Min.	Max.	Mean	Std. Dev.
Years of formal education	-	-	0	18	8.79	6.10
Age of farmers	-	-	23	79	46.23	13.02
Years of cocoa farming experience	-	-	1	65	16.17	11.07
Monthly farm income	-	-	450	4200	1602.38	903.28
Cocoa farm size	-	-	2	24	9.66	5.33
Number of household economic active members	-	-	1	9	2.55	1.25
Farm distance (kilometers)	-	-	1	39	11.94	11.38
Household size	-	-	1	20	6.70	3.34
Years of cooperative membership	-	-	1	7	2.90	1.36
Number of dependent household members	-	-	0	15	4.15	2.59
<i>Gender</i>						
Male	271	70.30	-	-	-	-
Female	114	29.70	-	-	-	-
<i>Religion</i>						
Christianity	287	74.50	-	-	-	-
Islam	82	21.30	-	-	-	-
Traditional	16	4.20	-	-	-	-
<i>Marital status</i>						
Single	82	21.40	-	-	-	-
Married	303	78.60	-	-	-	-
<i>Household Head</i>						
Yes	283	73.50	-	-	-	-
No	102	26.50	-	-	-	-
<i>Residential Status</i>						
Indigene	200	51.90	-	-	-	-
Settler	185	48.10	-	-	-	-
<i>Cultivation of other crops aside from cocoa</i>						
Yes	359	93.20	-	-	-	-
No	26	6.80	-	-	-	-
<i>Membership in a cooperative society</i>						
Yes	254	66.10	-	-	-	-
No	131	33.90	-	-	-	-
<i>Source of credit</i>						
Bank	153	39.80	-	-	-	-
Family member	182	47.00	-	-	-	-
Friend	32	8.40	-	-	-	-
Cooperative society	18	4.80	-	-	-	-

Source: Field Data, 2022.

Table 2 – How Print Media is Perceived in Terms of its Availability, Accessibility, Utilization, Preferability and Effectiveness

Types of Print Media	Availability		Accessibility		Utilization		Preferability		Effectiveness	
	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.	Mean	Std Dev.
Billboards	1.81	0.76	1.74	0.73	2.34	0.86	2.18	0.84	2.10	0.80
Posters	2.92	0.32	2.89	0.35	2.91	0.33	2.87	0.37	2.89	0.35
Magazines	1.74	0.66	1.66	0.67	2.49	0.79	1.67	0.66	1.97	0.75
Newspapers	2.18	0.88	2.05	0.89	1.94	0.78	2.10	0.88	2.07	0.88
Farmer's handbook	2.16	0.92	2.23	0.91	1.79	0.69	2.28	0.89	2.23	0.91
Books	2.41	0.87	2.42	0.85	2.01	0.79	1.87	0.77	2.52	0.64
Flip charts	1.26	0.64	1.22	0.56	2.28	0.90	1.30	0.64	1.34	0.60
Banners	2.92	0.30	2.88	0.37	1.87	0.77	2.85	0.42	2.76	0.46
Periodicals	1.23	0.54	1.29	0.57	1.30	0.64	1.32	0.56	1.58	0.63
Pamphlets	1.24	0.56	1.29	0.58	1.74	0.74	1.31	0.57	1.60	0.64
Leaflets	2.43	0.82	2.49	0.79	2.05	0.89	2.50	0.79	2.49	0.79
Stickers	1.77	0.71	1.77	0.69	1.66	0.68	2.14	0.83	2.24	0.81
Flyers	2.05	0.83	2.00	0.79	2.23	0.91	2.09	0.83	2.25	0.85
<i>Index</i>	<i>2.01</i>	<i>0.68</i>	<i>1.99</i>	<i>0.67</i>	<i>2.05</i>	<i>0.75</i>	<i>2.04</i>	<i>0.70</i>	<i>2.16</i>	<i>0.70</i>

Source: Field Data, 2022.



Table 2 shows that posters and banners both with a mean of 2.92 are the print media available to farmers. Leaflets (Mean=2.43), books (Mean=2.41), newspapers (Mean=2.18), farmer's handbook (Mean=2.16), flyers (Mean=2.05), billboards (Mean=1.81), stickers (Mean=1.77), and magazines (Mean=1.74) are moderately available to cocoa farmers. Nonetheless, pamphlets (with a mean score of 1.24), flip charts (with a mean score of 1.26), and periodicals (with a mean score of 1.23) are not available to cocoa farmers. The average score of 2.01 implies that print media is reasonably available to cocoa farmers. This finding aligns with Padre et al.'s (2003) assertion that, even though print media remains a vital source of information in many regions worldwide, not everyone can obtain or utilize them.

From Table 2, posters (Mean=2.89) and banners (Mean=2.88) were accessible to cocoa farmers. Leaflets (Mean=2.49), books (Mean=2.42), farmer's handbooks (Mean=2.23), newspapers (Mean=2.05), flyers (Mean=2.00), stickers (Mean=1.77), billboards (Mean=1.74) and magazines (Mean=1.66) could be accessed to a certain extent, while flip charts (Mean=1.22), pamphlets (Mean=1.29) and periodicals (Mean=1.29) were not within the reach of cocoa farmers. The accessibility index of 1.99 indicates that cocoa farmers can access print media to a certain degree. This result aligns with Chukwuji et al.'s (2019) study that reported newspapers and pamphlets as less accessible agricultural information outlets for farmers in Nigeria compared to other outlets.

According to Table 2, posters (M =2.91) are the most used print media type, while magazines (Mean= 2.49), flip charts (Mean=2.28), billboards (Mean= 2.34), newspapers (Mean= 1.94), flyers (Mean= 2.23), books (Mean= 2.01), leaflets (Mean=2.05), banners (Mean=1.87) and farmer's handbook (Mean =1.79) are utilized to a certain degree by cocoa farmers. Cocoa farmers do not utilize pamphlets (Mean= 1.74), periodicals (Mean=1.30) and stickers (Mean= 1.66). A utilization index of 2.05 indicates that printed materials are fairly utilized by cocoa farmers. The findings are consistent with the notion that print media is a dependable source of information about agricultural technology transfer (Hamid, 2006). However, Chinchmalatpure et al., (2010) discovered that print media was the least used communication media by farmers in India.

According to Table 2, cocoa farmers have a preference for three types of print media: banners (Mean=2.85), posters (Mean=2.87), and leaflets (Mean=2.50). This finding aligns with Ifran's (2005) research, which found that banners and posters were the chosen types of print media among farmers. Cocoa farmers displayed a certain amount of preference for other print media such as billboards (Mean=2.18), farmer's handbooks (Mean=2.28), newspapers (Mean=2.10), flyers (Mean=2.09), stickers (Mean=1.77) and books (Mean=1.87). On the other hand, Cocoa farmers showed less inclination towards flip charts (Mean=1.30), pamphlets (Mean=1.31), and periodicals (Mean=1.32). Cocoa farmers exhibit some degree of preference for print media, as indicated by the preferability index of 2.04.

According to Ayaz (2005) and Samad (2005), print media can effectively communicate the latest technology to increase agricultural production. Table 2 points to the fact that books (Mean=2.52), posters (Mean=2.89) and banners (Mean=2.76) are the most effective types of print media. Leaflets, billboards, newspapers, farmer's handbooks, flyers, stickers, pamphlets, and periodicals are somewhat effective, while flip charts were found to be ineffective according to the respondents (M=1.34). The data suggest that print media is somewhat preferable among cocoa farmers (preferability index of 2.16). The findings align with Hameed's (2009) and Ashraf's (2001) earlier research, which established that magazines were the most effective medium for sharing agricultural information, followed by books/booklets, newspapers pamphlets leaflets and posters.

Table 3 – How Print Media is Perceived in Terms of Availability, Accessibility, Utilization, Preference, and Effectiveness Level

Level	Availability		Accessibility		Utilization		Preferability		Effectiveness	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
No	253	65.8	21	5.5	222	57.7	231	60.0	174	45.2
Yes	132	34.2	364	94.5	163	42.3	154	40.0	211	54.8
Total	385	100.0	385	100.0	385	100.0	385	100.0	385	100.0

Source: Field Data, 2022.



Of the 385 respondents, 34.2% answered "yes" when asked if print media was available to them, while 65.8% answered "no". This suggests that print media may be limited in its availability. With those available, 94.5% of the respondent answered "yes" when asked if they were accessible to them. This suggests that, for those who do have access to print media, it is not difficult to obtain. The high accessibility could be attributed to the prevalence of print media as a common communication channel worldwide (Ashraf et al., 2008; Moyo and Salawu, 2019). On the other hand, 42.3% answered "yes" when asked if they had used print media. This suggests that, although the item or service may be accessible, it is not necessarily being widely used. This is due to the infrequent use of indigenous language and inadequate extension agents' follow-up actions being the main issues (Ajayi, 2003; Moyo and Salawu, 2019). Additionally, 60% of respondents do not prefer the variable. This indicates that a significant portion of the respondents may have negative feelings towards the variable. This may be possibly due to their low levels of education and older age as per socioeconomic characteristics in Table 1. Individuals who utilize print media are typically literate and are capable of reading and comprehending agricultural information, which contributes to their usefulness (Padre et al., 2003; Kughur et al., 2018). The majority (55%) of the respondents perceive print media to be highly efficient in delivering agricultural information and new technologies.

Table 4 – Print Media Features that are Perceived to Facilitate the Adoption of Agricultural Innovations

Statements	Disagree N (%)	Neutral N (%)	Agree N (%)	Mean	Std Dev.
The print media is published punctually	341 (88.7)	40 (10.3)	4 (1.0)	1.12	0.36
Print media caters to the requirements and preferences of farmers	385 (100.0)	0 (0.0)	0 (0.0)	1.00	0.00
Print media materials are secure for usage.	385 (100.0)	0 (0.0)	0 (0.0)	1.00	0.00
Print media considers the literacy of farmers	381 (99.0)	4 (1.0)	0 (0.0)	1.01	0.10
Information provided on print media is credible	196 (51.0)	54 (13.9)	135 (35.2)	1.84	0.92
Information provided on print media is comprehensive	165 (42.9)	211 (54.8)	9 (2.3)	1.59	0.54
The design of the content in print media is attractive	160 (41.6)	45 (11.6)	180 (46.8)	2.05	0.94
Print media provides quality information	60 (15.5)	203 (52.6)	122 (31.9)	2.16	0.67
Print media provides new information	103 (26.8)	159 (41.3)	123 (31.9)	2.05	0.77
Colour usage in print media is suitable	138 (35.8)	62 (16.1)	185 (48.1)	2.12	0.91
The images in print media are easy to understand and uncomplicated.	65 (16.8)	148 (38.4)	172 (44.8)	2.28	0.73
The utilization of images in print media is suitable	111 (30.0)	92 (23.9)	177 (46.1)	2.16	0.86
The presentation of print media is more attractive compared to other options	17 (4.5)	203 (52.6)	165 (42.9)	2.38	0.57
The use of written content in print media is suitable	67 (17.4)	124 (32.3)	194 (50.3)	2.33	0.76
Print media can be reread	60 (15.5)	123 (31.9)	202 (52.6)	2.62	0.67
Print media provides accurate information	47 (12.3)	77 (20.0)	261 (67.7)	2.55	0.70
Print media has longevity	4 (1.00)	0 (00.00)	381 (99.00)	2.98	0.20
Print media is durable	15 (3.9)	0 (0.0)	370 (96.1)	2.96	0.19
Print media is affordable	4 (1.0)	0 (0.0)	381 (99.0)	2.99	0.10
Print media is highly engaging	0 (0.00)	4 (1.00)	381 (99.00)	2.99	0.10
Overall Mean=2.11					

Source: Field Data, 2022.

Table 4 displays the identified features of print media that are perceived to facilitate the acceptance of agricultural innovations among cocoa farmers. The outcomes indicate that most farmers concur that print media offers precise information (Mean= 2.55), has longevity (Mean= 2.98), is durable (Mean= 2.96), is affordable and highly engaging (Mean= 2.99). However, farmers are undecided on some characteristics such as whether print media presents novel information (M = 2.05), has an appealing design of content (Mean=2.05), or offers information of high quality (Mean= 2.16). They also disagreed on some aspects like the safety of print media materials (Mean=1.00), if print media satisfies the necessities and concerns of farmers (Mean=1.01), and if print media takes into account the literacy levels of farmers (Mean=1.12). The overall mean of 2.11 indicates that farmers were undecided on the features of print media. The neutral attitude of farmers towards the features of print media could be due to its low availability (Table 3). Additionally, the low utilization and preference (Table 3) can be attributed to farmers' perception of its attributes, which is neutral.

The present study affirms previous research by Rehman et al., (2011) which demonstrated that print media is an effective, prompt, and affordable approach to technology transfer. According to Austin and Husted (1998) and Hassan et al., (2010), print media is an efficient means of delivering agricultural messages since they can be reused, duplicated, cut



out, and distributed. In addition, print media helps to introduce innovations to farmers and encourages them to seek additional details from extension officers and fellow farmers (Ayaz, 2005). Additional factors that are believed to contribute to the acceptance of agricultural innovations via printed media are the freshness and excellence of the information provided, farmers' level of interest, promptness of publication, ease of accessibility, suitability of the information, farmers' literacy levels, comprehensiveness of the material, and affordability (Rehman et al., 2011).

Table 5 – Socio-Economic Factors that Influence Cocoa Farmers' Ability to Access Print Media

Variables	Coef.	Std Error	T	df	Sig.
Years of cocoa cultivation	0.08**	0.04	2.00	1	0.05
Credit access	0.28	0.88	0.32	1	0.75
Age	-0.07**	0.03	-2.33	1	0.02
Farm distance	-0.05*	0.03	-1.67	1	0.09
Years of formal education	0.03	0.07	0.43	1	0.68
Gender	-0.24	0.79	-0.30	1	0.76
Marital status	0.42	0.72	0.58	1	0.56
Household head	-0.26*	0.85	-0.31	1	0.08
Residential status	-0.37	0.76	-0.49	1	0.63
Economic active people	-0.42**	0.41	-1.02	1	0.03
Household size	0.39*	0.23	1.70	1	0.09
Years of Membership	-0.05	0.27	-0.19	1	0.84
Religion	0.15	0.75	0.20	1	0.84
Monthly income	0.00	0.00	0.00	1	0.38
Cocoa farm size	-0.07	0.06	-1.17	1	0.25
Constant	21.35	16784.44	0.00	1	0.99

Source: Author's Construct, 2022. \*10%, \*\*5%, \*\*\*1%.

A binary probit regression model was used to analyse how socioeconomic factors affect cocoa farmers' access to print media. The significance of the explanatory variables used in the model can be determined by examining the p-values presented in Table 5. After analyzing the estimated parameters of the variables in the model, it became clear that there was a significant positive correlation between the accessibility of print media and both the number of years spent in cocoa farming and household size (with p-values less than 10% and 5%, respectively). It can be inferred that when the number of years spent on cocoa farming and household size increase, so does the access to print media, and conversely, a decrease in those factors would result in a decrease in print media accessibility.

Table 6 – Socio-Economic Factors that Influence the Utilization of Print Media

Variables	Coef.	Std Error	t	df	Sig.
Years of cocoa cultivation	0.01**	0.02	0.50	1	0.05
Credit access	0.31	0.34	0.91	1	0.37
Age	-0.02	0.02	-1.00	1	0.32
Farm distance	-0.00	0.01	0.00	1	0.75
Years of formal education	0.06**	0.03	2.00	1	0.04
Gender	-0.17	0.34	-0.50	1	0.62
Marital status	0.30	0.37	0.81	1	0.43
Household head	-0.02	0.36	-0.06	1	0.95
Residential status	0.34	0.33	1.03	1	0.30
Cooperative membership	1.03	1.15	0.90	1	0.37
Household size	-0.09	0.07	-1.29	1	0.21
Years of Membership	0.28**	0.12	2.33	1	0.02
Economic active people	0.27***	0.18	1.50	1	0.01
Religion	0.08	0.35	0.23	1	0.83
Monthly income	0.00	0.00	0.00	1	0.92
Cocoa farm size	-0.02*	0.03	-0.67	1	0.06
Constant	-2.50	1.59	-1.57	1	0.12

Source: Author's Construct, 2022. \*10%, \*\*5%, \*\*\*1%.

On the other hand, the number of economically active individuals, the age of a farmer, household head and farm distance, had a negative and significant effect on the access to print media and was found to be statistically significant with p-values of less than 5%, 5%, 10%, and 10%, respectively. The findings indicate that as a farmer ages, the number of





economically active people, and the distance of the farm increase, there is a reduction in access to print media, and vice versa. Additionally, the negative coefficient on the household head implies that cocoa farmers who are not heads of households are more likely to have access to print media. Comparable studies (Yaseen et al., 2016; Hameed, 2009; Rehman et al., 2013) have reported similar results, including a strong correlation between age, the number of years of farming, distance to farming, and the level of print media accessibility among the respondents.

To investigate how socioeconomic factors influence the use of print media among cocoa farmers, a binary probit regression model was used. The p-values presented in Table 6 allowed for an assessment of the importance of the variables incorporated in the model. The findings indicated that the number of economically active individuals, years of cooperative membership, years of formal education and years of cocoa farming were all positive and significant factors influencing the use of print media among cocoa farmers ( $p < 10\%$ ,  $p < 5\%$ ,  $p < 5\%$ , and  $p < 5\%$  respectively). Thus, as these factors increase, so does the utilization of print media. This conclusion is consistent with Sumang's (2017) findings that formal education and farming experience affect the use of print media. Conversely, the size of the cocoa farm had a negative and significant impact on print media use ( $p < 10\%$ ), suggesting that larger farms are associated with reduced utilization of print media among cocoa farmers. Larger farms may be more likely to have formal links with cooperatives, extension officers, and other agricultural service providers who may provide direct assistance and information, making the use of print media less necessary. This finding contradicts Sumang's (2017) assertion that increased land tenure positively impacts the acceptance of print media and other innovations.

Table 7 – Socio-Economic Factors that Affect Cocoa Farmers Preference for Print Media

Variables	Coef.	Std. Error	T	df	Sig.
Years of formal education	0.04*	0.03	1.33	1	0.10
Age	-0.00	0.02	0.00	1	0.83
Residential status	-0.04	0.33	-0.12	1	0.89
Economic active people	0.13**	0.18	0.72	1	0.04
Religion	0.08	0.36	0.22	1	0.84
Monthly income	0.00	0.00	0.00	1	0.33
Cocoa farm size	-0.03	0.03	-1.00	1	0.42
Years of cocoa cultivation	0.01	0.02	0.50	1	0.81
Farm distance	0.00	0.01	0.00	1	0.85
Years of Membership	0.23**	0.12	1.92	1	0.05
Gender	-0.49*	0.34	-1.44	1	0.10
Credit access	-0.24	0.35	-0.69	1	0.49
Marital status	0.92**	0.39	2.36	1	0.02
Household head	0.22	0.37	0.59	1	0.56
Household size	-0.04	0.07	-0.57	1	0.62
Constant	-2.06	1.53	-1.35	1	0.18

Source: Author's Construct, 2022. \*10%, \*\*5%, \*\*\*1%.

A binary probit regression model was used to analyse the socioeconomic factors that influence the preference for print media among cocoa farmers. The control variables' significance level in the model was determined using the p values. The results in Table 7 show that educational level, number of economically active people, marital status, and years of cooperative membership significantly and positively influence the preference for print media ( $p < 10\%$ ,  $p < 5\%$ ,  $p < 5\%$ , and  $p < 5\%$  respectively). This indicates that when these factors experience an upsurge, the cocoa farmers' inclination towards print media also intensifies, and conversely. The respondents' openness to embracing innovation was found to be significantly influenced by their level of education. Therefore, increasing the farmers' reading and writing skills through education will enhance the influence of print media. The findings validate Aroyewun et al.'s (2014) assertion that education is a crucial instrument for effecting the desired changes in behaviour. Marital status was also found to affect the effectiveness of print media, with married cocoa farmers experiencing greater effectiveness compared to unmarried farmers. Nonetheless, the research revealed that gender has a significant negative impact on favorability towards print media ( $p < 0.10$ ), indicating that female cocoa



farmers exhibit a lesser preference for print media in contrast to their male counterparts. Women often have more domestic responsibilities than men, including child-rearing and household chores. According to Mohammed et al., (2023), women carry out the majority of the reproductive roles, aside from those that are naturally assigned to them, such as those related to pregnancy, childbirth and breastfeeding. This can limit their time for information-seeking and other activities outside the home.

Table 8 – Prioritization of Obstacles Encountered by Cocoa Farmers in Obtaining and Utilizing Print Media

Limitations	Mean Rank	Ranking
Free printed agricultural materials do not arrive on schedule and frequently	3.11	1 <sup>st</sup>
Buying print media is expensive	3.38	2 <sup>nd</sup>
Accessing printed agricultural media is difficult	4.62	3 <sup>rd</sup>
I mislay print media frequently.	4.86	4 <sup>th</sup>
Reading is boring	5.74	5 <sup>th</sup>
Lacking enthusiasm	5.79	6 <sup>th</sup>
Eye discomfort makes reading difficult.	6.22	7 <sup>th</sup>
language is difficult to understand	7.64	8 <sup>th</sup>
Obtaining print media is challenging	7.90	9 <sup>th</sup>
Sometimes the diagram in the write-ups is unclear	8.28	10 <sup>th</sup>
Not all writings are always readable.	8.46	11 <sup>th</sup>
Observations: 310		
Chi-Square: 1017.72		
Kendall's Wa: 0.33		
df:10		
Asymp. Sig.: 0.00		

Source: Field Data, 2022.

Table 8 outlines the primary obstacles in obtaining and utilising print media. This includes poor visibility of writings, confusing diagrams, limited availability of print media materials, difficult language, untimely and infrequent delivery of free agricultural print media, difficulty accessing agricultural print media, uninteresting reading material, eye strain, lack of interest, expensive cost of print media, and frequently misplacing print media (ranked in order from least to most frequently cited). Previous research by Ayaz (2005), Apata (2010), and Mwombe et al., (2013) have also identified similar challenges in utilising print media, including limited education levels, unclear writing, infrequent provision, high print media costs, and irrelevant content.

## CONCLUSION

Print media such as posters, banners, and leaflets were accessible to cocoa farmers, with posters being the most utilized. However, the overall availability, utilization, and preference for print media among cocoa farmers were low. The study shows that print media is an effective means of providing information to cocoa farmers. Factors such as marital status, household size, farm distance, educational level, years of cocoa cultivation, years of cooperative membership and economically active people positively influenced farmers' utilization, accessibility and preference for print media. On the other hand, farm size, gender, age, economically active people, household head and farm distance had a negative and significant effect on farmers' utilization, accessibility and preference for print media. Constraints such as the irregular and untimely provision of free agricultural print media, the high cost of purchasing print media, and difficulty in accessing agricultural print media were identified as major hindrances to the accessibility and utilization of print media by cocoa farmers.

NGOs, agricultural development agencies and extension services should prioritise the utilization of posters and banners as means of dispensing information and providing training. Policymakers should consider the factors that affect farmers' utilization, accessibility and preference for printed materials when developing policies. There should be a promotion of farmer business schools and adult education to improve farmers' reading skills and interest in print media. The cost of print media should be reduced to make it more affordable for



farmers. Designers of extension materials should consider the characteristics that aid farmers' adoption of innovations, including attractive and understandable information with a balance of text and images. The value of pictorial information on extension training materials may require further investigation. Finally, extension service providers should ensure the timely delivery of print materials to farmers for effective use.

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