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Full Length Research Paper

Determinant of Adoption of Export Standard Practices (ESP) among Coffee Farmers' in Kogi State, Nigeria

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The study investigated the determinant of adoption of Export Standard Practices (ESP) among Coffee farmers' in Kogi State, Nigeria. Specifically, the study described the socio-economic characteristics of the respondents, assessed the sources of farmers' knowledge on ESP, examine the information sources of coffee farmers' and looked onto the constraints faced by the coffee farmers' in adoption of ESP in the study areas. Multistage random sampling was used to select two hundred and twenty seven (227) coffee farmers. Data was collected using validated interview schedule while frequency count and percentages, weighted mean score and binary logistic regression were used for data analysis. The results revealed that 43.74 is the mean age of the respondents, majority of the respondent were male (84.1%), married (86.8%) with mean household size of 8.52 persons and mean farm size 5.8ha. Coffee farmers knowledge of ESP/tasks in Coffee production and processing is low following the fact that 43.2% and 53.3 did regular harvesting of bury every two weeks and every week at the period and they sorted out the bury after harvest, respectively. Also, 100.0% of the farmers had knowledge of fermentation and turning of beans once daily during fermentation. Only 30.4% of them were knowledgeable about the storage room ventilation conditions while about 35.7% had knowledge of thickness of layers of drying materials. The prominent information sources among Coffee farmers in the study area were: Coffee Farmers' Association (88.5%), and Fellow farmers (94.7%) while information from ADP extension agents (26.9%) and electronic media such as radio (19.8%), and Television (12.8%) were among the least indicated. Inadequate availability and acquisition of adequate land (87.7%), inadequate financial supports (88.5%), old age of Coffee farms (69.2%), inadequate extension visits (97.4%), inadequate training and capacity building (70.9%), inadequate storage facilities (64.8%) and poor dissemination of information (78.9%) were the major constraints to the adoption of ESP among farmers. Therefore, update on coffee development such as technologies, training and sensitization on new coffee development should be disseminated to farmers through adequate source and there should be assistance in the areas of coffee farmers' constraints.

Keywords: Determinants, adoption, awareness, coffee, farmer, export standard practices.

INTRODUCTION

Coffee is also the world's widely traded tropical agricultural commodity accounting for exports worth estimated US$ 15.4 billion in 2009/2010 when 93.4 bags were shipped (ICO, 2013). Coffee production by small scale farmers supports about 25 million people around the world (Waston and Achineli, 2008). Over 600,000-700,000 smallholders are engaged in coffee production commanding a 48% share of the market. Coffee production has been on a declining trend since 1987/88 when a record 130,000 MT of clean coffee was produced compared to 1990s, country's 2 production of 77,514 MT on average of clean coffee which is 40% less than what was being produced in 1987/88 and the

decline in production is more pronounced in smallholder farms where it declined by 47% during the same period.

Coffee is one of the most important cash crops across the world and a major source of export earnings. It is second only to crude oil as the most important internationally traded commodity in monetary value (FAO, 2004). In spite of high export earnings from coffee globally, coffee produced in most African countries fetch low prices compared to coffee from other continents due to relatively lower quality coffee (Bibangambah, 1989). As a result, most coffee farmers get lower incomes from coffee sales, which make very little difference in helping them out of poverty.

Coffee is ranked second in value only to oil as a source of foreign exchange in many of the major producing countries. Along its channel of production and marketing, various activities provide employment for hundreds of millions of people worldwide. The coffee cherry as it is harvested cannot be used fresh. It has to be processed to obtain marketable green or clean coffee product (Awodunmila et al, 2020).

In the last decade, coffee growers have been hit by low prices worldwide (Osorio, 2002; 2003; 2004; 2005). Crisis in the coffee sector is mainly felt by the producer and little by the main consumer countries at the end of the marketing chain (CIRAD, 2009). According to Osorio (2005), the decline in coffee prices contributes to increase poverty and makes it more difficult to reach the Millennium Development Goals. In many developing countries, including Nigeria, low pricing of coffee has led to abandonment of coffee farming for readily marketable crops.

Kogi State is known as the major producers of Coffea robusta in Nigeria. Income generated from production and marketing of coffee in the State has contributed immensely to sustenance of livelihoods and development of communities. It is unfortunate that marketing of coffee is no longer lucrative in the State (Idrisu et al, 2012). A lot of factors have been suggested to cause crisis in coffee trade; however, the issue in marketing chain and low price were considered paramount. As reported by CIRAD (2009), when coffee prices are low, many farmers can no longer earn a living from their coffee production.

The social consequences are often dramatic: temporary migration, exodus and abandoned plantations; consequently, most smallholders and their families only manage to survive on other sources of income. Both the producers and the marketers of coffee berries and beans in Kogi State are abandoning the sector and in search of more lucrative business (Idrisu et al, 2012). This calls for urgent attention in order to make necessary intervention to forestall the declining trend of coffee trade. The study therefore determinant of factors associated with adoption of export standard practices (ESP) among coffee farmers' in Kogi State, Nigeria.

Objectives

1. To describe the socio-economic characteristic of coffee farmers' in the study area,
2. To examine the information sources of coffee farmers in study areas,
3. To assess the sources of knowledge on ESP,
4. To look into the constraints faced by the farmers in adoption of ESP in study areas.

MATERIALS AND METHODS

Kogi state is purposively selected for this study because the state is the highest producer of coffee in Nigeria (Akinpelu and Oluyole, 2020; Idrisu *et al.* 2012). Hence, the population for the study will comprise of all the coffee farmers in Kogi State, Nigeria.

A three stage sampling procedure was used to select coffee farmers. The first stage was random selection of four Local Government Areas (LGAs) with the highest production of coffee in recent times. Second stage, was random selection of four (4) communities with prominence in coffee production chosen in each LGAs selected. According to National Coffee Farmers and Tea Association of Nigeria (NACOFTAN) and Kogi State Agricultural Development Programme, (NACOFTAN and KADP, 2020). The third stage was selection of respondents coffee farmers out of 631 coffee farmers who are members of Coffee Farmers Association (CFA) in selected communities in the study area. The selection was based on the Research Advisors table, (2006) and Krejcie and Morgan (1970) table with 95% confidence, Margin of Error 5.0% and the scientist will be able to handle the population. The list of members of Coffee Farmers Association in each community is retried from Kogi state Agricultural Development Project office who will determine the respondents. In all, a sample size of about 300 coffee farmers will be selected for the study.

The primary data was collected through field survey. Respondents' was interviewed through the well-structured questionnaire and it was supplemented by information through focus group discussion with the coffee farmers' group leaders. The questionnaire was designed to obtain information relevant to the objectives of the study. The questionnaire was divided into 4 sections. Section A sought information about socio-economic characteristics of coffee farmers in the study areas, section B assess the sources of knowledge on ESP, section C examine the information sources of coffee farmers in study areas and Section D look into the constraints faced by the farmers in adoption of ESP in study areas. The questionnaire was designed and presented for modification before experts in Economics and Extension Services to ensure its validity. This was

being done alongside with the objectives of the study. The overall result showed that the correlation coefficient (r) was obtained as 0.71 and this showed that the research instrument was reliable and consistent.

This study considered two paramount sets of variables which are independent and dependent variables. The dependents variable of this study is factors associated with the adoption of coffee export standard practices (ESP) while independent variable includes: socio-economic characteristics of the respondents such as age, sex, marital status, household size, religion, years of education, primary and secondary occupation, years of coffee farming experience, income of the farmers', farm size, awareness of ESP, profitability of ESP to adopters and non-adopters, farmers', assess the sources of knowledge on ESP, examine the information sources of coffee farmers in study areas and look into the constraints faced by the farmers in adoption of ESP in study areas

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Coffee Farmers

Variables	Freq., n = 227	%	Mean
Age (Years)			
<30	8	3.5	
30 - 49 yrs	97	42.7	43.74
50 - 59 yrs	87	38.3	
60 years and above	35	15.4	
Sex			
Male	191	84.1	
Female	36	15.9	
Marital status			
Single	17	7.5	
Married	197	86.8	
Divorced	9	4.0	
Widowed/widower	4	1.8	
Level of education			
No formal education	41	18.1	
Primary education	53	23.3	
Secondary education	104	45.8	
Tertiary education	29	12.8	
Religion			
Traditional	39	17.2	
Islam	89	39.2	
Christianity	99	43.6	
Household Size			
<5	59	26.0	
5 - 10	103	45.4	8.52
11 persons and above	65	28.6	
Experience in cultivating coffee			
<10	19	8.4	
10 -19 yrs	27	11.9	
20 - 29 yrs	87	38.3	21.51
30 yrs and Above	94	41.4	
Size of land (ha) for coffee production			
<2.5	9	4.0	
2.5 - 5ha	81	35.7	5.76
5 ha and Above	137	60.4	

Source: Computed from Field Survey, 2021.

Table 1 indicates that majority (84.1%) of the respondents were male while women constituted less than one-quarters (25%) of the coffee farmers in the study area. The reason for this may not be farfetched as women and youth are less likely to allocate farmland for tree crops in many parts of Nigeria due to cultural implications of land ownership (Chigbu, 2020). Also, Kidido and Lengoiboni (2019) asserted that the fear of selling farmland by the youth and the impatience of the youth for the gestation period of most tree crops were responsible for the limited access given to youth with respect to farmland. However, both women and youth

may be encouraged through mixed farming and communal land ownership as this would curtain the traditional fear of transferring ownership of farmland to women and the fear of youth selling the farmland if they are given the full ownership.

Also, Table 1indicate that the mean age of the respondents was approximately 44 years; hence, the farmers are still in their economically productive ages and can therefore withstand the rigour associated with plantation farming. Specifically, only 3.5% of the respondents were less than 30 years of age, while 42.7% were between 30 and 39 years and 38.3% were found between 50 and 59 years, with about 15.4% at 60 years and above. The implication of these findings is that farmers would be active enough to know the significance of export standard practices of tree crops on the quality of produce and pricing. This is because research has confirmed that learning reduces with an increase in age (Kelemen, 2014) and adoption of farming related practices has been documented to be influenced by age (Serebrennikov, Thorne, Kallas and McCarthy, 2020, Wauters and Mathijs, 2014 and Liu; Bruins; Heberling, 2018).

The studies showed that older farmers' level of adoption of farming related practices is lower than the adoption level and rate among the younger farmers. This implies that the findings of this present study are in line with the extant findings in literature as presented above. It was also observed from the analysis that only about 7.5% of the respondents were single, 4.0% and 1.8% were either divorced or widowed/widower while majority (86.8%) were married. This shows that most of the respondents were married. Marital status is a measure of commitment as opined by Aderolu et al. (2014) and according to the same study 100% of the Coffee farmers in Kogi State were married.

Similarly, Akinpelu and Oluyole (2020) findings on the marital status of coffee farmers in Kogi State reported that over 60% of the farmers were married and the married status was a significant variable in their involvement in coffee production. This findings therefore, conform to the existing literature that majority of farmers who cultivate Coffee in Kogi State are married. The high marital status may be useful in the area of family labour and commitment to the production of the crop. This would have significant contributions to the adoption of export standard practices as coffee is primarily produced for export in Nigeria. Table 1 further show that about 18.1% and 23.3% of the respondents had no formal education and primary education, respectively while 45.8% had secondary education and only 12.8% had tertiary education. The findings show that most of the coffee farmers had between primary and secondary education while few had tertiary education. The level of education is adequate to promote awareness and adoption of practices that may enhance their mean of livelihood such as coffee farming.

This is because education has been researched as a significant determinant of adoption of farming practices by extant literature such as Akinpelu and Oluyole (2020), Adinoyi and Attanda (2016) and Mohammed, Ayanlere and Ekenta (2013) in their various studies on adoption. This implies that with this moderate level of education in which majority had between primary and secondary education, the level of awareness and adoption may be high if other various are assumed to be constant. Based on the results of analysis of the findings, it was revealed that 39.2% and 43.6% of the farmers who produced Coffee in Kogi State were either Muslims or Christians while relatively high proportions believe in the traditional way of worship. The findings show that Islam and Christianity are the dominant religion practice by the respondents, although few of them were still found in the traditional religious belief system. The finding is in consonant with the findings of Agwu, Ndakotsu and Ifeonu (2019) that reported that the ratio between Christians and Muslims farmers in Kogi State was about 50:40 as the findings specifically stated that about 54.2% and 45.8% of the farmers were Christians and Muslims, respectively.

The mean household size for the farmers is approximately 9 persons. The implication of this is that farmers with large household size enjoy cheap labour for coffee production and processing method. This is in consonance with the reports of Onuk et al. (2013), as they found household labour supporting farm power needs of farmers in Enugu State, Nigeria.

Table 1 show that farmers had huge experience in Coffee production as the mean years of experience was found as approximately 22 years and about 38.3% and 41.4%, respectively had between 20 and 29 years and 30 years and above as their years of experience in the production of Coffee. This means that the experience of the farmers may come to play in the awareness and adoption of practices that will ensure that the crops, being an export crops are internationally recognized and accepted, provided the information of the export standard practices are sought for by the farmers. The finding conforms with the findings from the various authors such as Agwu, et al. (2019) that reported that in Kogi State the average farming experience recorded by the Coffee farmers was 19 years, while Akinpelu and Oluyole, (2020) asserted that Coffee farmers in the State had approximately, on average, 29 years of farming experience and Mohammad, et al. (2013) affirmed that about 78% of the Coffee farmers in the state had over 30 years of farming experience.

Farm size was measured in hectares as the standard of measurement and report from the study shows that the average farm size by the farmers was about 5.76 hectares while only 4.0% of the farmers had less than 2.5 hectares of farmland, 35.7% had between

2.5 and 5 hectares and 60.4% had 5 hectares and above as the size of the farms dedicated for Coffee production. The findings show that Coffee farmers in the study area operate medium scale farming as most of them operate on a farm land that is more than 5 hectares. In Africa, due to land tenure system, farm land ranging from 1 – 5 hectares are classified as small scale while between 5 hectares and above are classified as medium scale according to Lowder and Raney (2016). This implies that most of the farmers in this study operate at medium scale farming with 5.76 hectares as the average farm size. The finding conforms to the previous findings by Akinpelu and Oluyole (2020) whose results showed that farmers cultivated about 5 hectares of farmland for Coffee production while Aderolu *et al.* (2014) posited that the average farm size dedicated for Coffee production in Kogi State was approximately 6.1 hectares.

Table 2: Socio-economic characteristics of respondents (Cont'd)

Variables	**Freq., n = 227**	**%**	**Mean**
Type of coffee cultivated			
Robusta coffee	204	89.9	
Arabica coffee	23	10.1	
Mode of farmland acquisition			
Rent	22	9.7	
Gift	17	7.5	
Purchase	79	34.8	
Inheritance	109	48.0	
Type of labour used**			
Family labour	24	10.6	
Hired	182	80.2	
Both	88	38.8	
Average income from coffee (Naira)/year			
<700,000	27	11.9	
700,000 - 800,000	55	24.2	
800,001 - 900,000	21	9.3	795,500.14
900,001 - 1,000,000	63	27.8	
1,000,000 and Above	61	26.9	
Contact with extension agent	61	26.9	
Access to farm credit	96	42.3	
Awareness of ESP in coffee production	12	5.3	

Source: Computed from Field Survey, 2021.
****Multiple responses given**

Table 2 below indicates that almost 90% (89.9%) of the Coffee farmers in Kogi State cultivated Robusta species of the tree crop while only 10.1% cultivated Arabica type. The findings show that the most common type of Coffee cultivated in the study area is the Robusta type. This is in line with the previous findings by authors like Aderolu et al. (2014) that reported that 100% of farmers in Kabba Local Government Areas of Kogi State cultivated Coffea Robusta, Alli, Adesanya, Agboola-Adedoja, Adelusi, Ogunwolu, Ugwu and Akinpelu (2021) revealed that although two types of Coffee are cultivated in Nigeria but Coffea Robusta was the common cultivate species suitable for the soil and other climatic conditions in Nigeria.

On the mode of farmland acquisition, report shows that most of the respondents, a little below

average (48.0%) acquired their farmland by inheritance, 34.8% acquired farmland by outright purchase while 9.7% rented and 7.5% were gifted their farmland used for Coffee farming. This shows that most of the respondents used family land inherited from their family members for the Coffee plantation. Usually, land is a critical factor in the production of economic tree crops in Nigeria due to the undue pressure on land as a result of land tenure system. Therefore, the easiest way of securing a land for such permanent crops is through inheritance because land ownership is in the hands of individual and community as an entity, hence, individual and community control the ownership of land. In situation where a farmer has enough money to purchase, it is always difficult to acquire large expanse of farmland due to the communal and family influence that usually generate into crisis for the buyers. This finding is in tandem with the studies of Aderolu et al. (2014) and Mohammed et al. (2013) that reported that 90.0% and 87.0% of the coffee farmers in Kogi State acquired their farmland by inheritance while only 10.0% and 8.0% were respectively reported by the authors as those that purchase their farmland. This simply means that land by inheritance is the viable mode of land acquisition for plantation farming like Coffee.

Evidence in Table 2 shows that most of the Coffee farmers used hired labour as slightly above 80% (82.2%) reported the use of hired labour for Coffee production while only 10.6% indicated that they used family labour. Similarly, about 38.8% of the farmers used both family and hired labour. This means that hired labour is the common form of labour used. The use of family labour for farming has been affected by rapid migration of youth out of rural areas to urban areas due to lack of basic amenities that could make them to stay (Ajaero and Onokala, 2013). This has been a major set-back to farming in Nigeria as farming primarily takes place in rural areas due to less pressure on land for building construction and other industrial uses (Yusuf, 2018).

Results in Table 2 also show that on average farmers earned about ₦795, 500.14 from the sales of Coffee annually. This means that on a monthly basis, a farmer earns about ₦66, 291.00 as an income from the sales of Coffee. This shows that Coffee farmers in Nigeria earn far more above the monthly minimum wage income of ₦30, 000.00 per month and ₦360, 000.00 per annum. This implies that Coffee production may be profitable just like every other tree crops in Nigeria. Though, cost of inputs and other factors of production may grossly affect the farmers' income under adequate cost and returns analysis of Coffee production. Even with this, it could be observed from the above analysis that Coffee farming enterprise is profitable. This is in conformity with the finding of Mohammad et al. (2013) that stated that the profitability index of Coffee farmer was 0.29; an indication that Coffee farmers earn 0.29 on every naira invested into production and this low level of profit was attributed to the high cost of labour. This is because the study submitted that the cost of labour takes about 95.16% share of the total variable cost. This may be attributed to the scarcity of family labour in rural areas where farming takes place; hence, farmers have no choice than to depend on hired labour.

The finding reveals that contact with extension agents was very poor as just about a quarter (26.9%) of the farmers indicated that they had contact with extension agents. This shows that extension visit to coffee farmers was poor and the implication of this is that coffee farmers may be poorly updated with respect to technologies that would be used for optimal production and information that could enhance the quality of coffee beans, most especially information on the export standard practices that may promote and encourage the production of high quality coffee beans that would be internationally recognized and accepted by the international communities, hence, better earnings. The finding support the study of Aderolu et al. (2014) that submitted that only 15.0% of Coffee farmers received information from extension agents in the Kogi State.

Access to credit is also another critical factor of production in farming. Based on the findings of this study, it was observed that less than the average (42.3%) of the farmers had access to credit in form of either loan or grants. This shows that farmers may be unable to manage large hectares of farmland if they are to depend on their own finance without assistance from external sources such as the government, NGOs, and other stakeholders in agriculture. Similarly, Ntshangase et al (2018) indicated that only about 10% of farmers in South Africa could access credit for farming while Ajah (2017) posited that farmers in Nigeria only access credit within their self-built effort such as cooperative society and other forms of self-help mechanism as government pays less attention toward improving agricultural productivity in terms of credit and grants to farmers.

Results in Table 2 indicates that very few (5.3%) of the respondents indicated their awareness of Export Standard Practices in Coffee production. The findings show that awareness of ESP among Coffee farmers was low despite the introduction of these practices by CRIN with a view to increasing farmers' profitability in coffee production in line with the guideline of International Coffee Organization (ICO, 2018) Coffee Exporter's Guide for coffee processing. The implication of this finding is that Coffee farmers may still be using old technique for Coffee production. The low awareness of the export practices in Coffee production and processing may be attributed to the poor extension contact earlier recorded. This may have negative significant implication on the quality of Coffee beans and farmers' profit in

the study area.

Farmers' knowledge level of ESP of coffee production

Information in Table 3 shows that Coffee farmers knowledge of ESP/tasks in Coffee production and processing is low following the fact that 43.2% and 53.3 did regular harvesting of bury every two weeks and every week at the period and they sorted out the bury after harvest, respectively. Also, 100.0% of the farmers had knowledge of fermentation and turning of beans once daily during fermentation. Only 30.4% of them were knowledgeable about the storage room ventilation conditions while about 35.7% had knowledge of thickness of layers of drying materials. The findings show that respondents had low knowledge of the parameters used in measuring export standard practices. This may be attributed to their low contact with extension agents. The low knowledge of the respondents in the ESP should have been improved upon as a result of their high experience in the cultivation of the crop.

Table 3: Farmers' knowledge of ESP/Tasks in Coffee production

Knowledge of ESP/tasks	Freq.	%
Regular harvesting of ripe burry every 2 weeks and every week at peak periods.	98	43.2
The burry is sorted out after harvesting and either of the processing technique is carried out (Dry and Wet processing).	121	53.3
Fermentation must be covered and protected from rain and/or cold.	227	100.0
Turning of beans once daily fermentation.	136	59.9
Drying of beans on a raised slab.	76	33.5
Thickness of layer of drying should be between 3 to 5 cm.	81	35.7
Regular turning during drying.	201	88.5
Dried beans should be packed into clean jute bags.	105	46.3
The bagged beans should be stored off the ground and away from walls.	195	85.9
The storage house should be well ventilated.	69	30.4
Store beans away from strong odours e.g. smoke	55	24.2

Source: Computed from Field Survey, 2021

Sources of Information to Coffee production and level of search

Evidence in Table 4 shows that the prominent information sources among Coffee farmers in the study area were: Coffee Farmers' Association (88.5%), and Fellow farmers (94.7%) while information from ADP extension agents (26.9%) and electronic media such as radio (19.8%), and Television (12.8%) were among the least indicated. This is an indication that farmers used intrapersonal and informal information sources to help themselves in their farming business. The implication of this is that they would only assist one another with the available information within their reach. Another implication of this finding is that modern technologies emanating from research findings that should be picked up by extension agents and disseminate to farmers may be out of reach of the farmers; hence, their productivity as well as the quality of their produce may be affected. Ordinarily, CRIN extension agents should be in constant contact with these farmers if productivity and export standard practices introduced are to be adopted with the aim of assisting farmers to make more profit and recognizing the quality of the Coffee beans from Nigeria. However, the limited number of extension agents and funding related issues have a the problem of extension since the withdrawal of World Bank support in 1995 as opined by Adebayo and Idowu (2008) in their study of the aftermath of the withdrawal of the World bank counterpart funding for Ogun State Agricultural Development Programme in Nigeria.

Interestingly, farmers' level of search for information in Coffee production was high for ADP extension agents (Mean = 2.63), Cocoa Research Institute of Nigeria (Mean = 3.24), Licensed Buying agents (Mean = 2.59) and Coffee Certification agencies (Mean = 2.55) considering the fact that their means are

higher than 2.5 used as benchmark to categorize the level of search as either low or high. The implication of this finding is that farmers are making efforts to ensure that they obtain information on Coffee production, especially on the Export Standard Practices and how best they would make more profit in the production of Coffee through their positive search behaviour as recorded above.

Table 4: Information sources and level of search

	Sources		Level of Search	
Sources**	**Freq, n = 227**	**%**	**Mean**	**Std. Dev**
Kogi State ADP agents	61	26.9	2.63	0.37
Cocoa Research Institute of Nigeria	37	16.3	3.24	0.25
Coffee Farmers' Association of Nigeria	201	88.5	2.46	0.51
Fellow farmers	215	94.7	2.17	0.44
Licensed Buying Agents	97	42.7	2.59	0.53
Coffee Certification Agencies	112	49.3	2.55	0.41
Agro-dealers	99	43.6	2.31	0.45
Radio	45	19.8	2.14	0.19
Television	29	12.8	1.45	0.31
Newspaper	33	14.5	1.32	0.17
Social media	41	18.1	2.19	0.33
Non-governmental organization	69	30.4	2.61	0.19

Source: Computed from Field Survey, 2021.
****Multiple responses given**

Constraints of farmers to adoption of ESP of coffee production

Table 5 shows that availability and acquisition of adequate land (87.7%), inadequate financial supports (88.5%), old age of Coffee farms (69.2%), inadequate extension visits (97.4%), inadequate training and capacity building (70.9%), inadequate storage facilities (64.8%) and poor dissemination of information (78.9%) were the major constraints to the adoption of ESP among farmers. However, inadequate financial supports (Mean = 2.79), poor extension visits (Mean = 3.06), inadequate training and capacity building (Mean = 2.64), inadequate storage facilities (Mean = 2.50) and poor dissemination of current information on coffee (Mean = 2.76) were the serious constraints among the identified major constraints. Furthermore, Cost of inputs (Mean = 2.57), poor market price (Mean = 3.99), poor government policies (Mean = 3.58) and pests and diseases (Mean = 3.06) were also found as serious constraints to adoption of export standard practices.

The identified constraints are very critical to the adoption of ESP as they determine the quantity and quality of the produce that would be produced by the farmers. For example, inability to access farm land will limit the expansion of farm land and poor access to finance and information could also hinder scaling up of farms, thereby reducing yield (Uiaene, Arndt and Masters, 2009 and Genius *et al.*, 2010). Inadequate information may be misleading and farmers have high tendencies to mis-interpret by diagnosing it in their own way. Similarly, Mohamed and Temu (2008) posited that access to credit is an important stimulus to the adoption of technologies. Also, Uaiene et al. (2009) stressed the significant of farm size which could be proxy by the access to land in the adoption of technology in agriculture while studies like the ones conducted by Uematsu and Mishra (2010), Mishra and park (2005); Mishra, Williams and Detre (2009), Rahm and Roberts *et al.* (2004) stressed the important of current information dissemination to the adoption of technologies among farmers.

Table 5: Constraints to the adoption of ESP and level of seriousness

Constraints	Constraints		Level of Seriousness	
	Freq.	%	Mean	Std. Dev
Availability of improved seeds/seedlings	59	26.0	1.45	0.93
Availability and acquisition of adequate land for coffee production	199	87.7	1.63	0.16
Low cost of farm input for adoption of ESP	81	35.7	1.88	0.52
Inadequate financial support for ESP	201	88.5	2.79*	0.62
Old age of coffee farm	157	69.2	1.51	0.53
Inadequate visit of extension agents or worker	221	97.4	3.06*	0.12
Inadequate sensitization of farmers on coffee ESP	105	46.3	1.27	0.83
Inadequate training on coffee processing	161	70.9	2.64*	0.32
Inadequate capacity building on coffee ESP	161	70.9	2.64*	0.15
Inadequate storage facilities for coffee ESP	147	64.8	2.50*	0.26
Poor dissemination of current info on coffee ESP	179	78.9	2.76*	0.33
Cost of labour and other inputs	186	81.9	2.57*	0.41
Climate factor (Insufficient sun, etc)	129	56.8	2.39	0.28
Theft	88	38.8	2.16	0.14
Poor market price	208	91.6	3.99*	0.25
Poor government policies	212	93.4	3.58*	0.21
Pests and diseases	171	75.3	3.06*	0.19

Source: Field Survey, 2021
***Mean > 2.5 = Serious Constraints**

Results in Table 6 show that the binary logistic regression model was able to explain about 42.1% variation in the level of adoption of export standard practices in Coffee production and processing among farmers (R = 0.421). Also the model classified correctly 69.27% cases while the remaining 30.73% was not predicted by the model. Specifically, the findings revealed that level of education (Odd ratio = 6.129), experience in coffee cultivation (Odd ratio = 5.008), labour used (Odd ratio = 13.722), income from other sources (odd ratio = 26.07), access to credit (odd ratio = 8.77) and awareness of ESP (Odd ratio = 15.16) were the significant variables that influenced adoption of ESP among farmers in the study area at both 0.05 and 0.01 levels of significance. Given the odd ratio of 6.129 for level of education implies that being educated increases the odd of adopting ESP by 6 times; meaning that educated farmers are more likely to adopt ESP 6 times more than the non-educated farmers. This is in consonant with the studies of Mignouna *et al.* (2011); lavison (2013); Namara *et al*. (2003) and Okunlola *et al.* (2011) that found that level of education was a positive determinant of adoption in their various findings.

Furthermore, experience in the cultivation of Coffee with a odd ratio of 5.008 is an indication that farmers with high experience has the likelihood of adopting ESP five times more than those with low experience proxy by the number of years cultivating and processing Coffee. Also, type of labour used was significant at P<0.01 while income from other sources with a odd ratio of 26.076 signifies that farmers who have other sources of income would be 26 times better in the adoption of ESP than those without other income sources while contact with extension (odd ratio (odd ratio = 5.108) and access to credit (odd ratio = 8.77) as well as awareness of ESP (Odd ratio = 15.16) imply that farmers who have contact with extension agents have the chance of adopting ESP five times faster than those without extension contact and those that had awareness of ESP would be 15 times probability to adopt than those who have never heard about it. The findings conform to the studies of Akudugu, *et al.* (2012) and Genius *et al.* (2010) that found the significance of extension contact to adoption of technology and Mohamed and Temu, (2008) who submitted that access to credit is significant determinant of technology adoption among farmers.

Table 6: Determinants level of adoption of ESP in Coffee production and processing

	Coeff (B)	Wald	Odd Ratio	Decision
Age (Years)	0.691	0.912	1.996	NS
Sex	0.048	1.732	1.049	NS
Level of education	1.813	3.916*	6.129	S
Household Size	0.196	1.073	1.217	NS
Experience in cultivating coffee	1.611	2.881*	5.008	S
Size of land (ha) for coffee production	0.519	1.534	1.680	NS
Mode of farmland acquisition	0.092	0.729	1.096	NS
Type of labour used	2.619	4.133**	13.722	S
Income from other occupation	3.261	5.125**	26.076	S
Contact with extension agent	2.103	3.019*	5.108	S
Access to farm credit	2.172	3.162*	8.776	S
Awareness of Export SP in coffee	2.719	4.129**	15.165	S
Constant	4.419	15.772**	83.013	S

Source: Field Survey, 2021
Nakerkalke R –Square = 0.421, log-likehood = 0.8151, Overall percentage prediction= 69.27
*Significant at 0.05, ** Significant at 0.01

CONCLUSION AND RECOMMENDATION

The findings showed that farmers who produce and process Coffee in Kogi State are still in their active age and they could still learn very fast if the opportunity is presented before them with the aim of increasing productivity and ensuring that Nigerian Coffee beans are among the best in the world. Male dominated the enterprise and most of them had between primary and secondary education which could make adoption of technologies easier. Robusta type of Coffee was popularly cultivated but most of the farmers operate at a medium scale level with about 5 hectare of farmland obtained mostly through inheritance. Even with the limited size of farmland, they make approximately ₦66, 291.00 as monthly income from Coffee production and about ₦507, 590.44 annually from other economic activities.

Though, the major information sources are intra-personal such as fellow farmers and Coffee Farmers' Association. However, very few of these farmers had high knowledge of the parameters used to determine export standard practices in Coffee production and the adoption of these practices was abysmally low, hence the reasons for the poor quality of Nigerian Coffee at the internally markets. Level of education, experience in coffee cultivation, labour used, income from other sources, access to credit and awareness of ESP were the significant determinants of adoption of ESP among farmers in the study area. Also, information sources like Cocoa Research Institute of Nigeria (CRIN), fellow farmers and radio could be used to increase adoption of ESP among Coffee farmers in the study area. The identified constraints are very critical to the adoption of ESP as they determine the quantity and quality of the produce that would be produced by the farmers.

Therefore, more young hands should be encouraged and motivated to developed interest on coffee production. There should adequate information sources for coffee farmers' to get and be update on important information on coffee and the extension agents of ADP in the States or CRIN who have the mandate on coffee and radio and televisions should be equipped by all means to disseminate vital information all the time. Capacity building on coffee production (pre-planting, post-planting and post-harvest handling of the produce) training should be organized for farmers to boost their knowledge and experience on coffee. Adequate solution to the constraints should be looked into and taken care off as expected.

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