



Information Sources to Cocoa Farmers on Indegenious Knowledge (IK) Utilisation in Ogun State, Nigeria

Awodumila D. J. ^{a*}, Orimogunje O. A. ^a, Ogunjobi T. E. ^a,
Dada O. A. ^a, Rahman S. B. ^a, Adelusi A. A. ^a
and Mustopha F. B. ^a

^a Department of Economics and Extension, Cocoa Research Institute of Nigeria (CRIN),
Ibadan, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/CJAST/2022/v41i413995

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here:
<https://www.sdiarticle5.com/review-history/88380>

Original Research Article

Received: 20/04/2022

Accepted: 28/06/2022

Published: 23/11/2022

ABSTRACT

The study assessed information sources to Indigenous Knowledge utilization among cocoa farmers in Ogun State. One hundred and fifty-two respondents were randomly sampled from two randomly selected communities in two local government areas of Ijebu North. Both primary and secondary data were used for the study. The data collected from the field were analyzed using descriptive statistics such as frequency and percentage distributions. Also chi-square statistics was used in the data analysis for this study. The result of the finding on personal characteristics of the respondents revealed that 50.6 percent of the respondents were within the age range of 41 – 60 years and 84.2 percent were male. Also, 67.1 percent were married. The findings also revealed that 74.2 percent had above five hectares of cocoa farm and 85.5 percent of the respondents got information about Indigenous Knowledge through grandparents and parents. Some major constraints to the use of

*Corresponding author: E-mail: awodumiladavid@gmail.com;

Indigenous Knowledge include high cost of Indigenous Knowledge, religious belief, inadequate information on Indigenous Knowledge and gender. The result of chi-square analysis revealed a significant relationship between age and information source to IK utilization also, there is a significant relationship between sex and information source to IK utilization among cocoa farmers in the study area. It is therefore recommended that Cocoa farmers should be encouraged to practice indigenous knowledge also, efforts should be geared towards documentation of indigenous knowledge so that it can be transferred from generation to generation.

Keywords: Farmer; information source; indigenous knowledge; cocoa; utilization.

1. INTRODUCTION

Nigeria is one of the producer of cocoa beans in the world with Cote d'Ivoire being the highest. Other important producers are Ghana, Ecuador, Cameroon and Indonesia contributing to the enterprise [1].

The crop serves as the single largest non-oil foreign exchange income earner contributing significantly to the nation's Gross Domestic Product (GDP). It provides employment for over 200,000 households in Nigeria that grow the cocoa [2]. Cocoa is the largest agricultural commodity that contributes 2% of the nation's export earnings. It is being grown in 14 states in Nigeria [3].

Cocoa serves as an important crop around the world: cash crop for growing countries and a key import for processing and consuming countries. Cocoa has a high food value because it contains as much as 20 percent protein, 40 percent carbohydrate, and 40 percent fat. It is also mildly stimulating because of the presence of theobromine, an alkaloid that is closely related to caffeine [1] Cocoa production over the years has declined due to neglect as a result of crude oil discovery in early 1960s.

According to Ojo (2005), cocoa farmers abandoned their farms and shifted focus to other areas which adversely affected cocoa industry; in the area of yield, marketing and price of cocoa hence most cocoa plantation in Nigeria is characterized by the presence of old cocoa trees having very low yield.

In an attempt to solve the various problems associated with cocoa farming, cocoa farmers engage in indiscriminate use of chemicals such as insecticides, fungicides, and fertilizer which have always led to environmental hazards and pollution. Instead of continuous usage of chemical in controlling insect/pest of cocoa and

to boost production, farmers can practice indigenous knowledge technique in cocoa production which is less harmful to farmers and the environment.

Indigenous knowledge is the unique knowledge confined to a particular culture or society. It is also known as local knowledge, folk knowledge, people's knowledge, traditional wisdom or traditional science [4,5]. This knowledge is generated and transmitted by communities, over time, in an effort to cope with their own agro-ecological and socio-economic environments. It is generated through a systematic process of observing local conditions, experimenting with solutions and readapting previously identified solutions to modified environmental, socio-economic and technological situations. Indigenous knowledge is passed from generation to generation, usually by word of mouth and cultural rituals, and has been the basis for agriculture, food preparation and conservation, health care, education, and the wide range of other activities that sustain a society and its environment in many parts of the world for many centuries [6].

There is a reservoir of valuable and largely untapped natural resources and indigenous knowledge that could be developed and used towards pests and diseases control and to boost cocoa production in Nigeria [7]. Despite the importance of indigenous knowledge in cocoa production, it is still under-utilized as many farmers still rely solely on the use chemical for cocoa production. Information on Indigenous Knowledge practices have been on decline due to lack of appropriate documentation and oral transfer of information from one generation to the next [8]. It is also to be noted that indigenous information that is being lost could provide basis for many scientific study and solution to problems of decline in cocoa production among farmers in Nigeria. It is to this end that this study is designed to answer the following questions.

1. What are the socio-economic characteristics of cocoa farmers in the study area?
2. What are the sources of information on indigenous knowledge (IK) utilization in the study area?
3. What are the cocoa farmer's perception of effectiveness of Indigenous knowledge practices over modern technology?
4. What are the Constraints to the use of Indigenous Knowledge Practices among cocoa farmers in the study area?

Objectives of the study are to:

1. Describe the socio economic characteristics of cocoa farmers in the study area.
2. Examine sources of information by cocoa farmers on indigenous knowledge utilization.
3. Ascertain cocoa farmers' perception of effectiveness of Indigenous knowledge practices over modern technology.
4. Identify constraints to the use of Indigenous Knowledge Practices among cocoa farmers.

1.1 Hypothesis of the Study

There is no significant relationship between socioeconomic characteristics of the respondents and the sources of information on indigenous knowledge utilization among farmers.

2. MATERIALS AND METHODS

Ogun State is one of the 14 cocoa producing States in Nigeria. Multistage sampling technique was used for this study. First stage involved the purposive selection of Ijebu-Igbo and Ago-Iwoye in Ijebu North Local Government Area in Ogun State Nigeria. The selection was based on the cocoa production because of predominance of cocoa farmers. The second stage, Japara village was purposively selected in Ijebu-Igbo because record showed it is the highest producer of cocoa in the local government, while Oke-Ogbe was also purposively selected in Ago-Iwoye because of high record of cocoa production. Third stage, simple random sampling was used to select seventy-six respondents from each of the village making a total size of 152 respondents.

2.1 Measurement of the Variables

Respondents' perception of the effectiveness of Indigenous knowledge practices over modern technology: The respondents were presented with a list of eight perceptual statement. It was measured on a 5 –point likert-

scale of 'Strongly disagree', 'Disagree', 'Undecided', 'agree' and 'Strongly agreed' with scores of 0, 1, 2 3 and 4 assigned respectively. The mean score for each perceptual statement was obtained and a grand mean calculated therefore, any mean score that is less than or equal to grand mean implies disagreement while any mean above grand mean implies agreement.

Constraints to indigenous knowledge utilization by farmers:

A list of nine perceived constraints was developed and respondents were asked to indicate which of the constraint affect them according to its severity. It was measured on a 3-point scale of 'Not a constraint', 'Mild constraint' and 'Severe constraint', with scores of 0, 1 and 2 assigned respectively. The mean score for each constraint was obtained and used to rank them in order of severity.

3. RESULTS AND DISCUSSION

Socioeconomic characteristics of the respondents:

Results in Table 1 revealed the mean age of the respondents to be 34years. it means the respondents in the study area are still in their active age, they still have physical strength and energy to carry out farming work. The table also revealed 84.2% of the respondents are male while 15.8% of respondents are female. It means male dominated cocoa farming in the study area. This corroborate the findings of Olodipupo et al. [9] that farm work is skewed towards men because of gender inequalities. Male dominance could also be as a result of the tedious nature of cocoa farming which can only be coped with by man. Majority (67.1%) of the respondents were married while 19.7%, 7.9% and 5.3% of the respondents are single, Widowed and divorced respectively. The implication of this is that marriage is highly cherished in the study area. Majority of the respondents were Christians (46.7%), 45.4% of the respondents were Muslims, while 7.9% were African traditionalists. More than half of the respondents (55.9%) had farm size between 1 to 5 hectares of cocoa plantation, 36.9% had between 6-10 hectares of land while only 3.3% had above 15 hectares of farm land. This implies that cocoa farmers in the study area are still small holders. Respondents with household size of between 1 and 5 persons were 25.6%, 47.3% had household size of between 6 and 10 persons, while 26.9% had above 10 persons. This implies that farmers with large household size will help in terms of family labour.

3.1 Farming Experience of the Respondents

Farming experience of the respondents as shown in Table 1b reveals that 9.8% of the respondents had between 1 to 10 years farming experience while 15.1% and 25.6% had farming experience of between 11 to 20 and

21 to 30 years respectively. It was also revealed that greater percentage (29.7) of the respondents had between 41 to 50 years of farming experience. Farmers with more years of experience in cocoa farming is expected to practice IK as the year of farming experience count more than educational attainment.

Table 1. Distribution of respondents based on socio-economic characteristics N = 152

Variables Categories	Frequency	Percentage
Age (years)		
< = 30	20	13.2
31 – 40	25	16.4
41 -50	57	37.5
51 -60	20	13.2
Above 61	30	19.7
Mean Age 34 years		
Sex		
Male	128	84.2
Female	24	15.8
Marital Status		
Single	30	19.7
Married	102	67.1
Widowed	12	7.9
Divorced	8	5.3
Religion		
Christianity	71	46.7
Islam	69	45.4
African Traditional Worship	12	7.9
Farm Size (ha)		
1 – 5	85	55.9
6 – 10	51	33.6
11 – 15	11	7.2
Above 15	5	3.3
Household Size		
1 – 5	39	25.7
6 – 10	72	47.4
Above 10	41	26.9
Mean = 9.1		

Source: Field Survey, 2022

Table 1b. Distribution of the respondents based on year of farming experience

Farming Experience	Frequencies	Percentage
1-10	14.9	9.8
11-20	22.9	15.1
21-30	38.9	25.6
31-40	30.2	19.8
41-50	45.1	29.7
Total	152	100

Source: Field Survey, 2022

3.2 Educational Qualification of Respondents

The results in Fig. 1 revealed that the educational status of the respondents is low. Majority of the respondents (72.2%) had between attempting primary education and completed secondary education, 7.8% do not have any formal education while few (19.7%) attempted and completed tertiary education.

Respondents' source of information on indigenous knowledge utilization: It could be observed in Table 2 that a good number (85.5 percent) of the respondents obtained Information on Indigenous Knowledge practices from their grandparents and parents. This may be as a result of close relationship that exist between parents and children and that indigenous knowledge is a local knowledge that can most time be gotten in an informal setting. Also, 5.9 percent of the respondents got it through friends and 5.8 percent got it through radio. The table also revealed that 0.7 percent of the respondents got it from television, 5.3 percent of respondents got it through extension agents. It further shows that 1.3 percent of the respondents got it from other sources. According to Famuyiwa et al. [10], information is the acquisition of knowledge on an interest issue. Information seeking behaviour is vital in agricultural development.

Respondents' perception of the effectiveness of Indigenous knowledge practices over modern technology: From Table 3 it was shown that 32.2 percent strongly agreed that the use of Indigenous Knowledge practices in cocoa farming is more effective than modern technology, 37.5 percent agreed, 9.2 percent were undecided, 9.2 percent disagreed and 13.8 percent strongly disagreed. The mean score is 3.15. This means that the respondents agreed that the use of IK in cocoa production is more effective than modern technology.

The table also revealed that 26.3 percent of the respondents strongly agreed that modern technology is costlier than Indigenous Knowledge, 54.6 percent agreed, 7.2 percent were undecided, 5.3 percent disagreed and 6.6 percent strongly disagreed. The mean score is 3.89 i.e. respondents agreed that modern technology is costlier than Indigenous Knowledge.

About 28.3 percent of the respondents strongly agreed that Indigenous Knowledge practices is more accessible than modern technology, 46.7 percent agreed, 9.2 percent were undecided, 7.2 percent disagreed and 8.6 percent strongly agreed. The mean score is 3.79 i.e. the respondents agreed that Indigenous Knowledge practices is more accessible than modern technology.

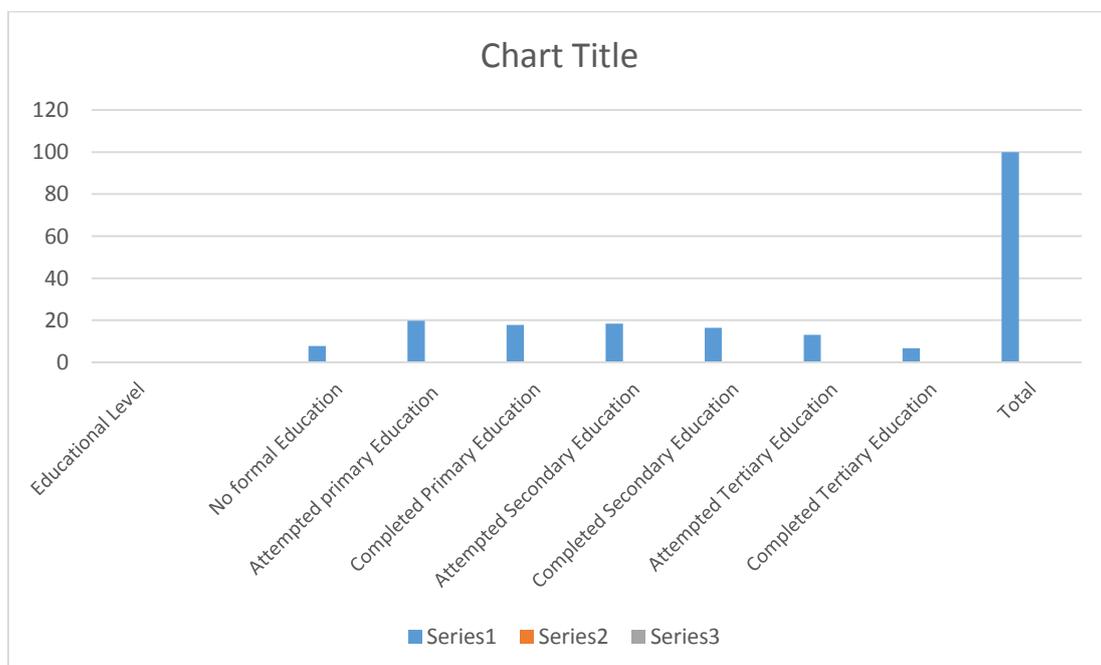


Fig. 1. Showing educational qualification of the respondents
Source: Field Survey, 2022

Table 2. Distribution of respondents by their source of information

Source of Information	Frequency	Percentage
Grandparents + parents	130	85.5
Friends	15	9.7
Radio	5	3.3
Farmers Association	10	6.6
Research Institute	2	1.3
Television	2	1.3
Extension agents	9	5.9
Others	1	0.6
Total	152	100.00

Source field Survey 2022

Table 3. Respondents' perception of effectiveness of Indigenous practices over modern technology

Statement	SD	D	UD	A	SA	MEAN
	%	%	%	%	%	
The use of Indigenous Knowledge practices in cocoa farming is more effective than modern technology	13.8	9.2	7.2	37.5	32.2	3.65
Modern technology is costlier than Indigenous Knowledge	13.8	9.2	7.2	37.5	32.2	3.65
Indigenous Knowledge is more accessible than modern technology	8.6	7.2	9.2	46.7	28.3	3.79
Indigenous Knowledge practices is more complex than modern technology	17.8	59.2	9.2	6.6	7.2	2.26
Prolong usage of modern technology has health hazard on farmers than Indigenous knowledge practices	9.2	3.3	7.2	16.4	53.8	4.22
Use of Indigenous Knowledge in controlling disease and pest has residual effect on cocoa beans like modern technology	9.2	54.6	7.2	11.8	52.6	2.03
Level of education of farmer does not have anything to do with usage of Indigenous Knowledge and modern technology.	9.2	9.9	16.4	11.8	52.6	3.89

Source: Field survey 2022

Grand mean = 3.39

NB: Any mean score that is less than or equal to grand mean implies disagreement while any mean above grand mean implies agreement

As shown in the table, 7.2 percent of the respondents strongly agreed that Indigenous Knowledge practices are complex than modern technology, 6.6 percent agreed, 9.2 percent were undecided, 59.2 percent disagreed and 19.8 percent strongly disagreed. The mean score is 2.26 i.e. the respondents disagreed that Indigenous Knowledge practices are complex than modern technology.

Majority of the respondents (63.8 percent) strongly agreed that prolong usage of modern technology has health hazard on farmer than Indigenous practices. 16.4 percent agreed, 7.2 percent were undecided, 3.3 percent disagreed and 9.2 percent strongly disagreed. The mean score is 4.22 i.e. the respondents agreed that prolong usage of modern technology has health hazard on farmer than Indigenous practices.

According to the table, 52.6 percent of the respondents strongly agreed that the use of Indigenous Knowledge practices in controlling disease and pest has residual effect on cocoa beans like modern technology. 11.8 agreed, 7.2 percent were undecided, 54.6 percent disagreed and 28.9 percent strongly disagreed. The mean score is 2.03. This means that respondents disagreed that use of Indigenous Knowledge in controlling disease and pest has resident effect on cocoa beans like modern technology.

Also, 52.6 percent of the respondents strongly agreed that level of education of farmers does not have anything to do with use of Indigenous Knowledge and modern technology, 11.8 percent agreed, 16.4 percent were undecided, 9.9 percent disagreed and 9.2 percent strongly disagreed. The mean score is 3.89. That means the respondents agreed that the level of education of farmer does not have anything to do with use of Indigenous Knowledge and modern technology.

Respondent’s Constraints to Indigenous Knowledge utilization:

Table 4 shows that the most severe (major) constraints encountered by the respondents on IK utilization is the high cost of Indigenous Knowledge with mean 2.64. The respondents are of the view that it will take time to get enough used torchlight batteries to be buried inside cocoa farm. It is also tedious to get enough dead dogs and cassava slummy (fufu) to be buried inside cocoa plantation in order to control termites. Also, Farm size with mean 2.51 ranked 2nd in order of constraints to IK utilization. Farmers with large farm size will find it difficult to practice some of these indigenous knowledge activities. Religious belief with mean 2.35 ranked 3rd in order of constraints to IK utilization. The influence of Christianity and Islamic into our society has great effect on traditional practices. Some belief that boosting production with local deities is fetches. This result corroborates with the findings of Guy B.N [11] that religion belief has influenced on agricultural performances. Inadequate information on IK with mean 2.13, gender with mean 2.12 and farmers experience with mean 2.11 ranked 4th, 5th and 6th order of constraints to IK utilization. Age of farmers with mean 2.05 and level of education attained with mean 2.03 also ranked 7th and 8th constraint to IK utilization.

Chi square analysis showing relationship between personal characteristics of cocoa farmers and information sources on IK utilization by cocoa farmers:

Table 5 revealed a significant relationship existed between age and information sources on IK utilization ($X = 13.18$ $p=0.00$) the implication of this is that, the older farmers may have more access to information on IK utilization than younger farmers since IK is a knowledge transferred from parent to children they must have understudied their parents and grandparents on how to utilize indigenous knowledge for cocoa production.

Table 4. Rank order of constraints to Indigenous knowledge utilization on cocoa production

S/N		Means	Ranks
1	High cost of Indigenous Knowledge	2.64	1 st
2	Religious belief	2.35	3 rd
3	Gender	2.12	5 th
4	Inadequate Information on Indigenous Knowledge	2.13	4 th
5	Age of the farmer	2.05	7 th
6	Farmer’s experience on Indigenous Knowledge	2.11	6 th
7	Farm size	2.51	2 nd
8	Level of education attained	2.03	8 th

Source: Field survey 2022

Table 5. Chi square analysis showing relationship between personal characteristics of respondent and information sources on IK utilization

Variable	X	DF	P-value	Decision
Age	13.18	3	0.00	Sig
Sex	7.60	2	0.01	Sig
Religion	10.80	4	0.08	Not sig
Year of farming experience	4.31	3	0.15	Not sig

Source: Field survey, 2022

Also, there is a significant relationship between sex and information sources on IK utilization ($X=7.60$, $p=0.01$). The implication of this is that men are stronger and are more involved in cocoa farming than their female counterpart, this make them to be closer to their parent. Since information on IK is not usually gotten in a formal setting, the closeness of men to their parents in terms of cocoa production might make them to get information on IK utilization faster than their female counterpart.

4. CONCLUSION AND RECOMMENDATIONS

The findings revealed that majority of the respondents got information about Indigenous Knowledge utilization through grandparents and parents. Some major constraints to the use of Indigenous Knowledge utilization include high cost of Indigenous Knowledge, religious belief, inadequate information on Indigenous Knowledge and gender.

The chi-square mode was used to determine the significant relationship between some related socio-economic characteristics of the farmer and the sources of information to IK utilization. The result revealed a significant relationship between age and information source to IK utilization also, there was a significant relationship between sex and information source to IK utilization among cocoa farmers in the study area. It is therefore recommended that Cocoa farmers should be encouraged to practice indigenous knowledge.

Also, efforts should be geared towards documentation of indigenous knowledge so that it can be transferred from generation to generation.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. ICCO. ICCO Quarterly Bulletin of Cocoa Statistics. Cocoa year (2019/2020). International Cocoa Organization on 6-03-2020 International Cocoa Organisation 2012. Introduction to cocoa market supply production. 2020;XLVI:1. Available:<http://www.icco.bloomberg.com/news/2012-01-17>
2. Popoola OA, Ogunsola GO, Salman KK. Technical efficiency of cocoa production in Southwest Nigeria. International Journal of Agricultural and Food Research. 2015; 4(4):1–14.
3. NCDC, NCDC. A handbook of the 4th National Cocoa day held in Akure, Ondo State, Nigeria. Published by NCDC; 2008.
4. Awoyemi AO, Aderinoye-Abdulwahab SA. Assessment of the use of cocoa production management practices among cocoa farmers in Ekiti State, Nigeria. Agro-Science. 2019;18(2):37-41.
5. Aboh CL, Effiong JB. Adoption of different weed management techniques among cocoa farmers in Akamkpa Local Government Area, Cross River State, Nigeria. Global Journal of Pure and Applied Sciences. 2019;25(1):7-12.
6. Sennayake SG. Indigenous knowledge as a key to sustainable development. Article in Journal of Agricultural Sciences – Sri Lanka; 2006. DOI: 10.4038/jas.v2i1.8117
7. Okunlola JO. Analysis of indigenous approach to pests and diseases in Ekiti and Niger States, Nigeria, Unpublished PhD Thesis, Department of Agricultural Extension Services, University of Ibadan, Ibadan, Nigeria. 1997;15-23.
8. Owolabi KE, Okunlola JO. Farmers' Utilization of Indigenous Knowledge Techniques for the Control of Cocoa Pests and Diseases in Ekiti State, Nigeria. Asian Journal of Agricultural Extension, Economics & Sociology. 2015;4(3):247-258.

- Article no. AJAEES.2015.025 ISSN: 2320-7027
9. Oladipupo FO, Kareem OW, Adereti FO, Abubakar HN Gender discrimination among the rural household in Edu Local Government Area of Kwara State, Nigeria. Journal of Agriculture and Rural Development. 2010;6.
 10. Famuyiwa BS, Oduwole OO, Malik MB, Williams OA. Assessment of sharp practices among Famers in cocoa farming in Nigeria; Implications for sustainable improvement of cocoa production and trade. Nigerian Journal of Rural Sociology. 2015;16:1.
 11. Guy BN. Religious faith and agricultural growth: Exploring some correlations in Africa. International Institute of Tropical Agriculture (IITA, Ibadan-Nigeria). C/O LW Lambourn &Co, Carolyn House 26 Dingwall Road, Croydon CR93EE, United Kingdom; 2007.

© 2022 Awodumila et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle5.com/review-history/88380>