



Effect of Communication Channels on the Use of Tree Crops Development Units' Services among Cocoa Farmers in Oyo State, Nigeria

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Authors' contributions

This work was carried out in collaboration of the four authors. Authors AOA and TOA managed the literature searches, analysed the data, discussed the findings and wrote the final draft of the manuscript. Authors JOO and OAA designed the study, wrote the protocol and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Use of cocoa rehabilitation innovations can only be ensured if information about it is effectively communicated to cocoa farmers. This study therefore was to determine the effect of communication channels on the use of Tree Crops Development Units' (TCDU) services among cocoa farmers in Oyo State. The population of the study included all cocoa farmers who registered with the TCDU in Oyo State. Proportionate and simple random samplings were used to select Local Government Areas and 144 respondents for the study. Data was summarized using descriptive statistics and analysed using inferential statistics. Result of analysis indicated that farmers source most of TCDU's information from farmers' group and radio. Many of the farmers were not well informed about TCDU because they did not expose themselves to available communication channels. Majority of the cocoa farmers had a favourable perception of the communication channels employed by the Unit and often use TCDU services. Many of the farmers

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already had another means of sourcing inputs. Discontinued use of the Unit's services was due to the Unit's inadequacy, untimely reports and lack of dynamism. The higher the use of communication channels the lower the use of TCDU services. Likewise, the higher the farmers' perception of the communication channels, the lower the use of the services. It is recommended that agricultural programmes should be dynamic enough to keep farmers' interest. Also, enabling social, economic, and infrastructural environment should be created to facilitate the use of innovations.

Keywords: Information dissemination; Cocoa; agricultural programmes; tree crop.

1. INTRODUCTION

Cocoa production is of a veritable economic value; it generated foreign exchange for Nigeria in the colonial era as well as post independence era [1]. However; the discovery and exploitation of petroleum led to the decline in the economic significance of cocoa. According to Ayoola et al. [2]; the country neglected a versatile; renewable and sustainable avenue for generating foreign exchange and employment. Nevertheless; the crop still remains the second largest foreign exchange earner after petroleum. Africa accounts for 76 percent of the world's cocoa production and Nigeria is ranked the fourth world's largest producer behind Cote d'Ivoire; Ghana and Indonesia [3]. Cocoa production declined to 80;000 tonnes in 1986 but gradually rose to 170;000 tonnes in 1999 and reached 460;000 tonnes in 2006 [3]. Cocoa currently occupies an enviable position in the world economy because of its health and economic value. Majority of the national cocoa output comes from Ondo; Ogun; Osun and Oyo States; while the remaining comes from Edo; Kwara; Benue and the Eastern States.

In order to sustain and increase cash crop production in Oyo State; Tree Crops Development Unit was set up in 1971. Between 1971 and 1983; Oyo State benefited from a World Bank loan for the development of cocoa through the State Cocoa Development Unit. During this period; millions of hybrid cocoa seedlings were raised annually with the provision of loans in cash and kind for the establishment and maintenance of cocoa farms at the rate of 2 acres (0.8 hectares) per farmer [4]. The project; though successful could not continue after the World Bank withdrew its participation. However; the inauguration of the National Cocoa Development Committee (NCDC) by President Olusegun Obasanjo on 2nd December 1999 revitalized the activities of the Unit.

Oyo State Tree Crop Development Unit was charged with the following functions: to increase

the production of cocoa and other tree crops; production of hybrid and disease resistant varieties of tree crops seedlings; and economic improvement of cocoa and other tree crops. Their activities are therefore to: rehabilitate old productive cocoa tree crops farms; production and distribution of disease resistant and early maturing and yielding hybrid seedlings of cocoa and other tree crops at highly subsidized prices; distribution of agrochemicals (Endofalm; Ridomil plus; Copper sulphate pentahydrate) to tree crops farmers; establishment of cocoa seed garden to provide planting materials for raising hybrid cocoa seedling. Others are: visits by the Unit officials to the farmers to ensure adequate maintenance of their farms; distribution of inputs to farmers at highly subsidized prices; provision of technical advice to farmers on pre-planting; planting and post-planting operations; and providing feedback of farmers' reports on the seedlings/inputs provided to them by the Cocoa Research Institute of Nigeria through the Unit [5].

The Unit has established 80 hectares plantations as at 2006 for cocoa and other tree crops farmers following a two-year moratorium before repayment for a period of five years. The Unit also established Young Graduate Farmers Poverty Alleviation Scheme in 2004; to reduce poverty among young agricultural graduates by establishing 1 hectare of cocoa plantation for each interested participant; in fourteen cocoa growing Local Government Areas; selected on the basis of economic comparative advantage and soil suitability.

Fulfilling these duties involve extensive agricultural extension services that necessitate the use of effective communication channels in transmitting technology to users [6]. A communication channel is the means by which messages get from one individual or group to another individual or group [7]. As a result of improved methods of communication; a great variety of new materials and ideas have been generated and brought within the reach of extension workers. The rates at which farmers

get informed and learn of innovations and adopt them however differ greatly from one communication channel to the other [8]. Communication channels are divided into mass media and interpersonal. Mass media are characterized by mediums such as television; newspaper or websites while interpersonal communication is defined as a two-way exchange of information between two or more people; usually in a face to face setting [9].

According to CRIN [10]; effective communication between the extension personnel and the farmers will increase the level of adoption of the services being offered to them. The use of right communication channels is therefore important in information dissemination if the receiver (farmers) must make a meaning out of the message received [11]. The communication channels used by the Unit include radio; extension agents; bulletins; handbills; co-farmers and farmer's associations on a weekly; bi-monthly and monthly basis. According to Abimbola [12]; despite the range of services provided by the TCDU; the level of adoption of cocoa farmers is still relatively low. Communication experts have often emphasized that the message we send through various channels are not always the message received [13].

This study therefore seeks to answer the following research questions: What are the socioeconomic characteristics of the cocoa farmers in Oyo State? What are the communication channels used by TCDU to reach the cocoa farmers? What is the cocoa farmers' perception of the communication channels? What is the level of use of the services provided by TCDU by cocoa farmers? The hypotheses of the study are: there is no significant relationship between selected socioeconomic characteristics of cocoa farmers and their use of TCDU services; there is a no significant relationship between cocoa farmers' perception of TCDU communication channels and their use of TCDU services; and there is a no significant relationship between cocoa farmers' use of TCDU communication channels and their use of TCDU services.

2. METHODOLOGY

Oyo State has 33 Local Governments out of which 19 are remarkably into cocoa production. The vegetation types of these Local Government

Areas are the thick rainforest and the derived-savannah belts. The climate of Oyo state is tropical and the mean annual temperature is 32°C. The rainfalls around these areas vary from 155mm to 1800mm per annum. The planting season is from May to June and harvesting takes place from September to December. Oyo State covers an area of approximately 2.79 million hectares of land out of which 332,667 hectares can support cocoa production. It has 174,986 hectares under cocoa cultivation out of which 24,852 hectares need to be replanted and 54,800 hectares is yet to be covered [5]. Oyo State produces up to 37,904 metric tonnes of cocoa annually; from about 75,000 - 85,000 effective hectares. A total of 40,890 hybrid cocoa pods were collected from Cocoa Research Institute of Nigeria many years ago to plant the cocoa nurseries sited across the 19 cocoa producing Local Government Areas of the State. In 2007/08 planting season; the State Government produced 1,500,000 hybrid cocoa seedlings which are expected to be distributed by the Tree Crops Development Unit to cocoa farmers.

The population of the study included all cocoa farmers in Oyo State who registered with the TCDU. The total number of cocoa farmers registered with TCDU is 1434 and they were also members of the Cocoa Farmers Association of Nigeria (CFAN) Oyo State branch. The farmers cut across the nineteen cocoa producing Local Government Areas in the state. The nineteen cocoa producing Local Government Areas (LGAS) consist of two groups; the major (rainforest) and the minor (derived savannah) producers respectively. There are six LGAs from the rainforest and thirteen LGAs from the derived savannah. Proportionate and simple random sampling technique was used in selecting 60% of the Local Governments from each to give four LGAs from the former and eight LGAs from the latter. Proportionate random sampling was also used to select ten percent of the farmers' population in the selected LGAs to give a total number of 144 respondents as shown in Table 1. Data was collected from both primary and secondary sources. The primary data was collected through a well structured interview schedule with both open ended and close-ended questions. Focus Group Discussions were also done with cocoa farmers in each selected LGA. The interview schedules were administered to the 144 respondents; but 140 of them were useable. Data were summarized using descriptive statistics and analysed using

inferential statistics. The annual income of the cocoa farmers was calculated by multiplying the annual cocoa output in tonnes and the average cocoa price per tonne.

Table 1. Sampling procedure and sample size

Local Government Areas	Population of cocoa farmers	Cocoa farmers sampled (10%)
Major (Rainforest)		
Ona-Ara	202	20
Oluyole	208	20
Iddo	204	20
Egbeda	102	11
Minor (Derived Savannah)		
Iseyin	156	16
Ibarapa Central	120	12
Oyo West	93	9
Iwajowa	61	6
Afijio	63	7
Orire	69	7
Surulere	85	9
Oyo East	71	7
Total	1434	144

Source: (TCDU; 2008)

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics

The mean age of cocoa farmers in Oyo State was 55years; agreeing with Daramola [14] who stated that cash crop farmers in southwest Nigeria are in their fifties. This reflects the aging of the farming communities. Almost all the cocoa farmers were males. This reveals that it is mostly men that are active in cocoa production. FGDs show that cocoa production activities are laborious and requiring large financial investment that discourages women from engaging in it. Also; the waiting period of harvesting of cocoa is discouraging for women who their primary desire is to meet household food needs. This is in agreement with Akindehinde [15] who stated that Nigerian women are mainly involved in cultivating; harvesting; processing; and trading of arable crops. All the cocoa farmers interviewed were married. According to Akindehinde [15]; marriage is a positive factor as the spouses and children will reduce the labour cost of cocoa production.

The study showed that 71.43% of the farmers had basic literacy and numeracy skills. This is

expected to increase their innovativeness and thereby increase their use of research and extension services. This is because it is easier for farmers with higher educational status to understand packaged messages meant to promote adoption of improved practices and hence increase production. More than half of the farmers had more than twenty years experience in cocoa farming. In addition; 76.43% of the farmers had been registered with TCDU for more than 5 years; showing that they had been exposed to the services of the Unit long enough to evaluate the Unit's communication channels.

The study showed that 49.29% of the farmers got an average output of 2 tonnes per year. This indicates that most of the cocoa farmers registered with the Unit are medium scale producers of cocoa and shows cocoa production in Oyo State is not yet optimum despite the services of TCDU. Pricing of cocoa varies locally; depending on cocoa quality and market information and skills of cocoa farmers. Eighty percent of the cocoa farmers sell a tonne of cocoa between ₦240, 000 and ₦250, 000 (about \$1,500). Poor pricing has been revealed as a major constraint to agricultural growth and development in Nigeria because it dampens the morale of farmers to continue to invest in farming activities. Nevertheless; according to Akinwande [13] group action improves farmers' knowledge on new practices and favours adoption of innovations. All the respondents of this study were members of the Cocoa Farmers Association of Nigeria (CFAN). It is therefore expected that they would be socially equipped to make good use of cocoa production services targeted towards them.

3.2 Use of TCDU's Communication Channels

Information is a vital resource input in agriculture; mostly because of the crucial factor of timeliness in farming activities. Table 3 shows that farmers got most of TCDU information from their professional groups (farmers' group) and radio; corroborating [8]. FGDs revealed that the cocoa farmers got information from the radio through: *Eje ka roko* (let us farm); which is aired on Wednesdays between 6.30pm – 7pm on BCOS radio; Ibadan and *Agbe loba* (farmers are kings) which is aired on Fridays between 6.30pm-7.30pm on Premier FM; Ibadan.

Table 2. Distribution of cocoa farmers' socioeconomic characteristics

Variables	Frequency	Percentage
Age in years		
40-44	13	9.29
45-49	24	17.14
50-54	30	21.43
55-59	26	18.57
60-64	31	22.14
65-69	11	7.86
>70	5	3.57
Mean = 54.77		
Sex		
Male	131	93.57
Female	9	6.43
Marital status		
Married	140	100.00
Religion		
Christianity	84	60.00
Islam	56	40.00
Educational status		
Non formal	40	28.57
Primary	41	29.29
Secondary	36	25.71
Tertiary	23	16.43
Cocoa farming experience in years		
1-5	10	7.14
6-10	17	12.14
11-15	21	15.00
16-20	21	15.00
21-25	21	15.00
> 25	50	35.71
No of Years Registered with TCDU		
1-5	33	23.57
6-10	58	41.43
11-15	41	29.29
16-20	8	5.71
Average annual cocoa output in Tonnes		
1	17	12.14
2	69	49.29
3	48	34.29
4	5	3.57
10	1	0.71
Price of 1 Tonne of cocoa in Naira		
170;000	1	0.71
220;000	6	4.29
230;000	20	14.29
235;000	1	0.71
240;000	54	38.57
245;000	2	1.43
250;000	56	40.00
Social affiliation		
CFAN	140	100.00

Source: field survey; 2008

It is impressive that majority (92.86%) of the farmers agreed to meet with TCDU extension agents fortnightly. On the other hand; print media was almost not utilized at all. Although 33.96% of

the cocoa farmers got informed from most of the channels daily; many of them (43.81%) are deformed with information dearth because they did not expose themselves to available communication channels.

Table 3. Percentage distribution of use of TCDU's communication channels

Communication Channels	No	Yes			
		Monthly	Fortnightly	Weekly	Daily
Television	66.43	-	-	-	33.57
Newspaper	75.00	-	-	-	25.00
Co-farmer	7.14	-	1.43	-	91.43
Extension Agent	4.29	1.43	92.86	-	1.43
Journals	95.71	-	4.29	-	-
Bulletins	95.00	5.00	-	-	-
Groups	2.86	92.14	2.86	-	2.14
Friends	42.86	-	-	-	57.14
Radio	5.00	-	-	-	95.00
Total	43.81	10.96	11.27	-	33.96

Source: field survey; 2008

Table 4. Percentage distribution of perception of TCDU's communication channels

Perception statements	SA	A	U	D	SD
The message from the radio is very accurate on the services of the Unit.	84.29	13.57	2.14	-	-
The extension agents have the most accurate information on the services of the Unit.	67.86	32.14	-	-	-
My fellow farmers give me the right information on TCDU services	50.71	49.29	-	-	-
The farmers' association gives timely report of the services provided by the Unit	85.00	15.00	-	-	-
The extension agents are not skilled communicators	-	-	-	49.29	50.71
Use of language of radio presenters of agricultural programmes is confusing	-	1.43	2.14	46.43	50.00
Co-farmers odd benefiting information to keep the gains to themselves	-	5.71	1.43	52.14	40.71
Executives and officials of farmers' associations are insincere with information	46.43	46.43	2.86	4.29	-
Extension agents are the most accessible of all the channels	46.43	50.71	2.86	-	-
Farmer's group gives clear and detailed information on the services of the Unit	83.57	16.43	-	-	-
Radio is the best communication channel of the services rendered by the Unit because I can listen to the radio anytime	90.00	8.71	1.43	-	-
Information dissemination through farmers' group is good because farmers debate on it together	86.43	13.57	-	-	-
Information from extension agents are sometimes belated	20.00	74.29	-	4.29	-
Disorderliness of farmers' group meeting discourages attendance and makes one miss out on some information	8.57	18.57	-	24.29	-
Total	50.11	25.88	0.96	13.53	9.52

Source: field survey; 2008

Table 5. Level of perception of TCDU’s communication channels

Perception	Frequency	Percentage
Favourable	99	70.71
Unfavourable	41	29.29
Total	140	100

Source: field survey; 2008

Table 6. Percentage distribution of the use of TCDU services

S/N	Services	Rarely	Sometimes	Often	Discontinued
1	Purchase of insecticides such as Endofalm; Gammalin 20 for spraying cocoa trees	-	3.57	96.43	-
2	Purchase of fungicides such as Caocobre; Copper Sulphate; Pentahydrate for spraying cocoa pod	-	4.29	95.71	-
3	Best farm practices in cocoa production	-	1.43	98.57	-
4	Market and pricing information from research stations	35.71	7.86	10.71	45.71
5	Rehabilitation of old productive cocoa farms	0.71	2.14	80.00	17.14
6	Purchase of f1 and f2 hybrid Amazon seedlings	-	2.86	87.14	10.00
7	Economic management of cocoa value chain	1.43	3.57	92.14	2.86
8	Pre-planting; planting and post-planting strategies	2.14	2.86	95.00	-
9	Establishment of cocoa seed gardens	3.57	5.00	83.57	7.86
10	Loan; credit and subsidy services	44.29	30.71	19.29	5.71
11	Agricultural fairs and shows	58.57	25.00	12.14	4.29
12	Land acquisition; preparation and tillage services	5.00	9.29	83.57	2.14
13	Agrochemical use training	10.71	25.00	62.14	2.14
14	Training of farmers in the use of farm machines	21.43	22.86	54.29	1.43
	Total	13.12	10.46	69.34	7.09

Source: field survey; 2008

3.3 Perception of TCDU’s Communication Channels

The perception was measured on a Likert scale as found on Table 4. The mean of the distribution on Table 4 was used to compute Table 5: all respondents with index below the mean were categorized as unfavourable and those with index of mean and above were categorized as favourable. Majority (70.71%) of the cocoa farmers had a favourable perception of the communication channels employed by the Unit. The distribution of their responses to the perception statements in Table 4 shows that they had more preference for radio and farmers group as revealed in Table 3. This implies that the

channels were good in conveying messages about the Unit.

3.4 Use of TCDU’s Services

Table 6 reveals that 69.34% of the cocoa farmers often use TCDU services. This is an indication that the services are relevant to the need of these farmers. Also; it could mean that these services are accessible and affordable; at least from the perspective of the farmers. It is obvious from Table 6 that the farmers rely on TCDU services for agrochemicals and improved farm practices. However; the marketing and pricing information and services of the Unit were not favourably perceived by the farmers; many of

them rarely use them and some have discontinued using them.

3.5 Reasons for Discontinued Use of TCDU Services

Result of analysis in Table 7 indicates that TCDU's relevance to the farmers' production was gradually fading away. Many farmers already had another means of sourcing inputs. Some also stated that their discontinued use of the Unit's services was due to the Unit's inadequacy; untimely reports and lack of dynamism. The report is supported by Ekoja [16] that stated that agricultural programmes in Nigeria lose credibility

with farmers for lethargic reasons. Project managers and workers tend to keep doing the same thing; the same way for too long; and thereby lose farmers' interest.

3.6 Chi-square Result of Analysis

Table 8 reveals that cocoa farmers' use of TCDU's services was irrespective of their sex; religion; education; farming experience and number of years registered with the Unit. Thus; there was no significant relationship between the selected socioeconomic characteristics of cocoa farmers and their level of use of the Unit's services.

Table 7. Percentage distribution of reasons for discontinued use of TCDU services

S/N	Reasons	Yes	No
1	The loans provided by the Unit were not adequate for my cocoa farm needs	73.57	26.43
2	I stopped attending training workshops and seminars on the application of chemicals because I could now apply them myself in the right proportions.	15.00	85.00
3	I had rehabilitated all my old productive cocoa tree crops.	62.14	37.86
4	I have no old productive cocoa tree crops because I planted new hybrid crop varieties.	70.00	30.00
5	I can manage my farm more efficiently and effectively without supervision.	61.43	38.57
6	I have no interest in agricultural fairs and shows because there's nothing new to see.	9.29	90.71
7	I can get information about innovations in cocoa production and management from other sources.	-	100.00
8	I can handle and use the equipments on my farm effectively	9.29	90.71
9	I don't have problems of fungi infection on my cocoa pods.	37.86	94.29
10	I have purchased more than enough hybrid Amazon seedlings for my farm.	5.71	94.29
11	The research stations do not give us timely response on the information we seek.	4.29	95.71
12	The problems of insects infestation on my farms have been greatly reduced due to proper farm management	50.00	50.00
13	I can get fungicides at a more reduced price from other agencies/sources.	-	100.00

Source: field survey; 2008

Table 8. Chi-square relationship between selected socioeconomic characteristics and level of use of TCDU's services

Variables	X ² value	df	p-value	Decision
Sex	0.01	1	0.90	Not significant
Religion	1.07	1	0.30	Not significant
Education	5.62	3	0.13	Not significant
Farming experience	10.08	5	0.07	Not significant
Number of years registered with Unit.	6.36	3	0.09	Not significant

Source: Field survey; 2008; Not significant: P>0.05

Table 9. Correlation analysis

Variable	r-value	p-value	Decision
Age vs. use of TCDU's services	-0.02	0.78	Not significant
Output vs. use of TCDU's services	-0.07	0.39	Not significant
Income vs. use of TCDU's services	0.10	0.21	Not significant
Use of communication channels vs. use of TCDU's services	-0.18	0.03	Significant
Perception of communication channels vs. use of TCDU's services	-0.27	0.001	Significant

Source: field survey; 2008

3.7 PPMC Result of Analysis

Result of analysis in Table 9 shows that there was a negative relationship between cocoa farmers' ages and their use of TCDU's services. The older the farmers; the less they used the services. The situation was same with the relationship between cocoa output and the use of the Unit's services. The higher the output of farmers; the lower was their use of the Unit's services. This might be because the older and the more the outputs of an individual; the more independent the individual feels. Result also indicates the lack of dynamism in the services of TCDU because many farmers had concluded that there was nothing new to benefit from. On the other hand; there was a positive relationship between cocoa farmers' income and their use of the Unit's services. However; there was no significant relationship between the three variables (age; output and income) and use of TCDU's services. This indicates that the relationship was weak and of no major consequence.

There was a significant negative relationship between the use of communication channels and the use of TCDU's services. This indicates that the higher the use of communication channels the lower the use of TCDU services; showing that the farmers that were attentive to TCDU's information were the ones that do not use the services. This is corroborated by the fact that there was also a significant negative relationship between cocoa farmers' perception of the communication channels and their use of the services. The higher the farmers' perception of the communication channels; the lower the use of the services. This indicates that there were other factors that influence the use of the services other than the perception and usage of the communication channels.

Result negates Abimbola [12] who stated that usage of any agricultural research innovation and

extension service is a function of how informed farmers are about them. Farmers' choice of farm practices may be more dependent on edaphic; climatic and other environmental and social factors. Kuponiyi and Oladosu [17] stated that farmers are smart enough to adapt the agricultural information they collect to their specific environmental; social and economic context without adopting the information package in its entirety. The null hypotheses two and three are therefore accepted.

4. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that farmers source most of TCDU's information from farmers' group and radio. Many of them are not well informed about TCDU's news and reports because they did not expose themselves to the available communication channels. Majority of the cocoa farmers had a favourable perception of the communication channels employed by the Unit and often use TCDU services. Many farmers already have another means of sourcing inputs. Discontinued use of the Unit's services was due to the Unit's inadequacy; untimely reports and lack of dynamism. Cocoa farmers' use of TCDU's services is irrespective of sex; religion; education; farming experience and number of years registered with the Unit. Also; age; output and income do not influence the use of TCDU's services. The higher the use of communication channels the lower the use of TCDU services. Also; the higher the farmers' perception of the communication channels; the lower the use of the services. It is recommended that agricultural programmes should be dynamic enough to keep farmers' interest. Lethargy in these programmes breeds complacency in farmers. Also; getting farmers informed of available agricultural products and services is not going to ensure their use of these products and services. Therefore; enabling social; economic and infrastructural environment should be created to facilitate the

use of innovations. Lastly; government agricultural programmes should offer apparent incentives such as innovations that obviously solve farmers' felt needs; well subsidized inputs; and timely informative reports.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Anyanwu AC, Anyanwu BO, Anyanwu VA, (eds). Textbook of agricultural science for colleges (6th Edition) Onistha: Africana-Fep Publishers Ltd. 2001;404-405.
2. Ayoola B, Fashina KB, Aikpokpodion P. Development of Nigerian cocoa industry - Current issues and challenges for research and production. Proceedings of the 13th International Cocoa Conference; Sabah; Malaysia. 2000;1367-1373.
3. Opeke LK. Introduction of cocoa to West Africa - Tropical commodity Tree Crop. Ibadan: Spectrum Books Limited. 2005;91.
4. Tree Crops Development Unit of Oyo State. Information Handbook of Tree Crops Development Unit. Ibadan: TCDU. 2005;3-5.
5. Tree Crops Development Unit of Oyo State. Information Handbook of Tree Crops Development Unit. Ibadan: TCDU. 2008;1-10.
6. Okwu JO, Obinne CPO, Agbulu ON. A paradigm for evaluation of use and effect of communication channels in agricultural extension services. Journal of Social Sciences. 2006;3(1):31-36.
7. Onuekwusi O, Gideon C. Mass media agencies and information programming for agricultural development in Imo State; Nigeria. Research Journal of Applied Sciences. 2007;2:141-145.
8. Onasanya AS, Adedoyin SF, Onasanya OA. Communication factors affecting the adoption of innovations at the grassroots level in Ogun state; Nigeria. Journal of Central European Agriculture. 2006;7(4): 601-608.
9. Yahaya MK. Development communication - Lessons from change and Social Engineering Projects. Ibadan: Corporate Graphics Ltd. 2003;17.
10. Cocoa Research Institute of Nigeria (CRIN). Information Booklet of Cocoa Research Institute of Nigeria. Ibadan: CRIN Press. 2006;5-10.
11. Arokoyo I. ICTs in the transformation of agricultural extension - The case of Nigeria. Wageningen; Netherlands: ICTA. 2003;20-26.
12. Abimbola OA. Effects of communication channels on the adoption of tree crops development units services among cocoa farmers in Oyo State. An unpublished M.Sc thesis in the Department of Agricultural Extension and Rural Development; University of Ibadan; Ibadan. 2004;79.
13. Akinwande AJA. Visual and spoken communication handbook. Department of Adult Education; University of Ibadan; Ibadan. 2008;2-3.
14. Daramola MA. Competitiveness of Nigerian agriculture in a global economy: Any dividends of democracy? Inaugural Lecture Series 36; Federal University of Technology Akure; Nigeria. 2004;30.
15. Akindehinde AE. Farm renting; farm pledging and shared cropping as correlates of poverty status among Farmers. An unpublished M.Sc thesis in the Department of Agricultural Extension and Rural Development; University of Ibadan; Ibadan. 2003;20.
16. Ekoja I. Farmers' access to agricultural information in Nigeria. Bulletin of the American Society for Information Science and Technology; August. 2003;21-23.
17. Kuponiyi FA, Oladosu IO. Element of agricultural extension and rural sociology. Ogbomosho: Lautech Press. 2000;3-4.

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