



ASSESSMENT OF SHARP PRACTICES AMONG FARMERS IN COCOA FARMING IN NIGERIA: IMPLICATIONS FOR SUSTAINABLE IMPROVEMENT OF COCOA PRODUCTION AND TRADE

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ABSTRACTS

The study investigated various areas of sharp practices among cocoa farmers in Nigeria, in an attempt to deduce the implications to sustainable improvement of cocoa production and trade. More specifically, it examined the socio-economic characteristics, determines levels of sharp practices, and establish the relationships that exist between cocoa practices and their yield, quality and health. A set of pre-tested questionnaire was used to solicit information from 600 respondents that were selected through multistage sampling procedure from five geo-political zones where cocoa on commercial grown basis. Results showed that majority (94%) male dominated cocoa farming while 81.5% were literate and a mean age of 48.6 ± 14.0 years. It also revealed that 67.5% acknowledged to high level sharp practices. However, there were negative and significant relationship between sharp practices and yield $r = -0.138$; quality $r = -0.172$; and health $r = -0.156$; at $p < 0.01$. This implies that as cocoa farmers' sharp practices increases, their yield, quality and health decreases. Though increase in sub-standard bean yield has a negative consequence to sustainable cocoa farm practices and trade, hence efforts should be made to change farmers' operational behaviour for improved yield.

Keywords: Sharp practices, cocoa farming, sustainable, improvement, production and trade

INTRODUCTION

The term sharp practices is described by Wikipedia (2015) as a pejorative phrase to describe sneaky or cunning behaviour which is within technical rules and law. Some other studies described it as misrepresentation, trickery, illegal and dishonesty in business operations. Ladele and Fadairo (2013) likened it to corruption, while Friedrich (1989) in his study described corruption as a kind of behaviour that deviates from socially agreed norms and value. This term can however, be applicable to agriculture and more specifically farming; this means misrepresentation and cutting corners in farming operations. It can also be said that sharp practices in every form of the qualifying terms along the value chain of all agricultural products and most especially cocoa. In farm practices, sharp practices have been identified to cause serious economic, social, and environmental problems. Hence its actions are at variance with the objectives of sustainability.

Cocoa is one of the cash crops from the non-oil sector that contributes to the nation's Gross Domestic Product (GDP). It contributed 5% to the world market as stated by the Nigeria Investigative Reporting Project (NIRP, 2015) and serves as means of employment to over 2 million farm families while some agro-allied industries rely on cocoa beans as their raw materials. Cocoa has been discovered to play major roles in human health. It prevents heart disease, fights fatigue, prevents diabetes, prevents hypertension, prevents breast cancer, arrests persistent cough, boosts your brain power, reduces the risk of blood clot and boosts libido (Cocoa Producer Alliance, COPAL 2007, ICCO, 2008, and NCDC, 2008).

In spite of all these qualities and opportunities of its production to improve the nation's economy,

it has been established in separate studies by Asogwa and Dongo (2008), Lawal *et al* (2005) and Ogunjimi and Farinde (2012) that farmers face a lot of operational challenges such as pests' infestations, soil infertility and climate change. Attempt to solve these problems have led to indiscriminate use of chemicals and other pesticides; which are equally described as sharp practices. Sosan and Akingbohunge (2009) identified traces of pesticide residue in the blood serum and breast milk of some surveyed cocoa farm families. It has also been discovered that farmer practices in cocoa plantation if unguided, can damage the environment (Wikipedia, 2015). A study by Famuyiwa (2013) established a positive relationship between farmers' operational habits and their farm yield. In another study by Sosan, Akingbohunge, Durosimi and Ojo (2010) they attributed some health related issues such as prostate cancer, developmental effect, reproductive defect, endocrine problems, headache, are predominant in cocoa growing areas due to farmers' sharp practices in the use of pesticides. Consequently, farmers and stakeholders in the cocoa value chain are exposed to environmental hazards due to farmers' behavioural habits as a result of their sharp practices, socio-economic factors, and inappropriate usage of pesticides as reported by Mohit (2008). This has led to the International Cocoa and Confectionaries Organization (ICCO) (2008) to make concerted efforts in campaigning against indiscriminate use of pesticides and Cocoa Alliance (2014) issued a warning letter to member states on the threat to stop exporting cocoa with Minimum Residue level (MRL) above 0.01mg.

Africa produces about 71.62 % of the world cocoa production, America about 17.89%, while



Asia and Oceania contribute about 10.46% (ICCO, 2015). However, consumption pattern is skewed toward the less producing countries; European Union 36 %, North America 24 %, North America 24 %, Asia and Oceania 16 %, Latin America 10 %, Other Europe 10 % and Africa 4 % (ICCO, 2014). Sustainability in the pattern of production rest on consumption hence those that dictate the bean quality do not go into much production, but consume high, while those that produce high because of their low income are much into sharp practices.

Different interventions on sustainable farming were developed to meet the world standard in the aspects of social, economic and environmental preservation. Sustainable farming definition can be deduced from the definition of sustainable development by International Institute for Sustainable Development (IISD) (2013) as farming that meets the needs of the present without compromising the ability of future generations to meet their needs. To achieve this, ICCO, (2008) came up with list of Good Agricultural practices (GAP) for cocoa to guide farmers' production. In 2004, there was an inauguration of National Cocoa development Committee that started the cocoa rebirth (NCDC, 2008). During President Johnathan government in Nigeria, Cocoa Transformation Agenda (CocTA), which was an arm of Agricultural Transformation Agenda (ATA) was inaugurated to improve cocoa production both in quality and quantity (Babatunde, 2012).

However, studies have shown that traces of chemical residues have been discovered in breast milk and blood serum of those feeding on some products of cocoa beans and relatives of cocoa farm families (Sosan and Akingbohunge, 2009). Consequently, there is a threat on the exportation of Nigeria cocoa due to some traces of chemical residues found in exported cocoa beans. Ogunjimi and Farinde (2012), Dongo and Asogwa (2009) have also traced these residues to indiscriminate use of pesticides. Farmers who happen to be at the lower ebb of the ladder determine the quality, through their practices. More importantly, the habits of stakeholders along cocoa value chain go a long way to determine the quality of cocoa and allied products produced for human consumption. This is justified by the request from the ICCO to the Stakeholders along the value chain, to adhere to Good Agricultural Practices (GAP) by farmers to reduce the residues found in exported cocoa beans. It requires a concise study of the extent to which how farmers who are the primary producers of cocoa beans exhibit negative habits in their farm practices and deduce implications for sustainable production and trade. Therefore, to get a quality bean, habits of farmers producing the beans need to

be redirected towards effective adoption of good agricultural practices (GAP)

The major objective of the study is to assess sharp practices in cocoa farming operations among farmers in Nigeria. The specific objectives are to;

1. assess the socio-economic characteristics of the farmers,
2. assess major sharp practices among the farmers,
3. determine the level of sharp practices among respondents,
4. evaluate the extent of cocoa farming sharp practices, and
5. deduce implications for cocoa production and trade.

Hypothesis - There is no significant relationship between cocoa farmers' sharp practices and yield in the study area

METHODOLOGY

A multistage sampling procedure was used in selecting respondents for the study using CRIN geographical information system (GIS) generated land use/land cover in cocoa farms in Nigeria. Stage one involved purposive selection of five from six geo-political zones where cocoa is commercially grown in Nigeria. Stage two involved purposive selection (based on their production levels; the highest producing state was selected) of one state from each of the five geo-political zones that support commercial production of cocoa, this gives a total number of five states (Ondo, Kogi, Abia, Cross Rivers and Taraba) from the fourteen states. At stage three, selection of two local government Areas (LGAs) which were purposively selected (on their levels of production; the highest and the lowest producing LGAs) from the list of LGAs based on their production level of cocoa to give 10 LGAs. Stage four was a random selection of one community from the lists of communities in each LGAs to give 10 communities. While stage five involved systematic random selection of 60 smallholder cocoa farmers from the list of cocoa farmers in each community to give 600 smallholders as the respondents for the study. A structured interview schedule was used to elicit information from the respondents while data were analysed using descriptive and inferential statistical tools.

Development of scale to measure sharp practices among farmers in cocoa farming

From exhaustive review of literature, (Lawal *et al*; ICCO, 2008; Farinde and Ogunjimi, 2009; CRIN, 2009 and Wright and Boorse, 2010), 54 sharp practices in cocoa farming were identified and standardized by six research scientists; one from each discipline (Entomology, Pathology, Agronomy, Breeding, Processing, Soil protection and Nutrition, Economics and Extension) who

scored each sharp practice. Practice with the score of .6 coefficient were considered appropriate for the study based on David's descriptor as explained by Subair (2007). Twenty nine sharp practices were finally considered. The 29 sharp practices were measured with a dichotomous scale of 1: 0, practiced with a score of 1 and none practiced with a score of 0. However, the scores on yield, quality and effect on health were scored as 1 for practice for those sharp practices that affect and 0 for not affecting yield, quality and health based on opinion of the Scientists. The data were subjected to descriptive and parametric analysis using SPSS 17.

RESULTS AND DISCUSSIONS

Socio-economic characteristics

The study revealed that about 46.2% of the respondents were between 41-60 years old with a mean age of 48.57 ± 14.08 . This is an indication that middle aged group of the population are now going into farming. This supports sustainability as farming activities can only be handled by young people. However, youthful age may encourage sharp practices, in attempt to cut corners. It also revealed that majority (94%) of the respondents were male, indicating majority of the farm practices were handled by male. It corroborates the findings of Oladipupo *et al* (2010) that farm work is skewed towards male because of gender inequalities. Table 1 also shows that respondents had mean farm size of 10.40 ± 2.0 ha, with a mean age of farm at 32.30 ± 2.2 years. The study supports the findings of Oluyole and Sanusi (2010). However the farmers' mean farm age was 32.33 ± 20.03 years. Very few (18%) had farm equal or less than 10 years. About 48.67% were under 30 years production, while 51.33% cultivated farms more than 30 years old. The result corroborates Ogunjimi and Farinde (2010) that cocoa production in Nigeria is affected by old age.

Majority (84.30%) had no extension contact. Farmers' contact with extension promotes access to appropriate information that supports sustainability. It implies that the respondents did not have access to information.

Table 1: Respondents' socioeconomic characteristics N=600

Variables	Freq	Perc	Mean	Std
Age			48.57	14.08
20-40	221	36.9		
41-60	277	46.2		
61-80	90	15.1		
81-100	12	2		
Sex				
Male	564	94		
Female	36	6		
Farm Size				
0.5 - 10 ha	448	74.7	10.4	2.0

Variables	Freq	Perc	Mean	Std
11 - 20 ha	86	14.3		
21 - 30 ha	37	6.2		
31 - 40 ha	5	0.8		
> 40 ha	24	4		
Age of Farm				
<10	108	18	32.3	2.2
11 - 20 years	109	18.2		
21 - 30 years	75	12.5		
31 - 40 years	122	20.3		
41 - 50 years	107	17.8		
51 - 60 years	50	8.3		
61 - 70 years	9	1.5		
> 70 years	20	3.3		
Farmers' Extension contact				
Yes	76	12.7		
No	524	87.3		

Source: Field survey, 2013

Farmers' sources of information

Figure 1 shows that majority (70%) seek information from Input dealers and 60% from friends and neighbours. However, only about 20% seek from research institutes and 20% from extension agents. Information is the acquisition of knowledge on an interest issue. Information seeking behaviour is vital in agricultural development. This result indicated that the respondents do not seek information from experts. There is every possibility to be exposed to environmental hazards. This is an indication that inappropriate sources of information as operational habit is high among the farmers and can encourage sharp practices. Consequently this behaviour does not encourage sustainability of cocoa farming and lead to downsizing cocoa international trade.

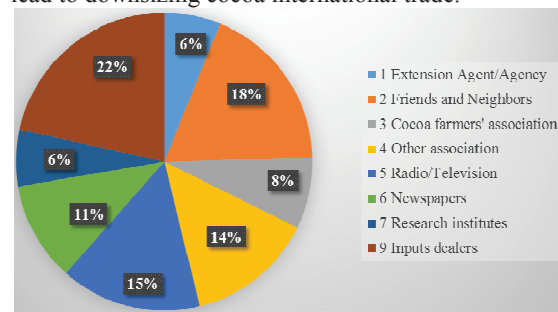


Figure 1: Distribution of respondents by sources of information N=600

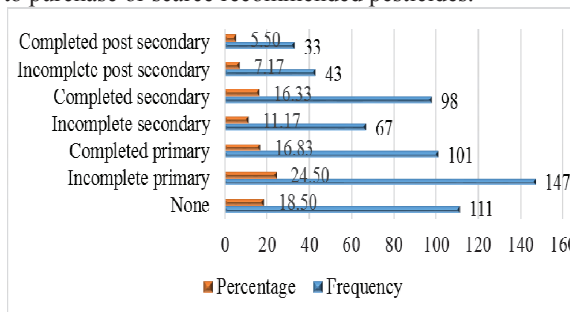
Source: Field survey, 2013

*Multiple responses were recorded



Farmers’ educational level

Figure 2 shows the respondents educational level with about 57% been able to have between complete primary to complete secondary education. However, only 24.5% did not complete primary education while 18.5% did not have any form of formal education. Education is ability to be able to read and write. This result corroborates the national literacy rate of 59.57% as stated by UNESCO 2015 (Wikipedia, 2016). It shows that about 57% of the farmers can read and write. This may be due to youth and retired civil servant entering the profession. There is high tendency for the respondent to understand different kinds of hazards. Though this does not have control over their sharp practices. It can be deduced that literate farmers engaging in sharp practices do so because of quick financial returns and is negative to sustainable cocoa farming. This is implied in the report of Mohit, 2008 that farmers in Ondo state use pesticides indiscriminately because of inability to purchase or scarce recommended pesticides.



Source: Field survey, 2013.

Fig 2: Showing level of education of cocoa farmers in the study area.

Years of farming experience

Figure 3 revealed that the respondents had high years of farming experience in cocoa with mean 24± 14.93 years. Experience is measured in years

Table 2: Distribution of respondents by level of production of cocoa

Production Level	Scores	Frequency	Percentage
High Level	>503kg	223	37.17
Medium	>393<503	59	9.83
Low Level	393kg <	318	53.00

Source: Field survey, 2013

Minimum =11.67kg/ha

Maximum =993.06kg/ha

Mean = 218.79 kg/ha

Standard deviation = 92.63

N=600

Farmers practice of sharp practices

Table 2 shows the major behavioural activities in cocoa farming where there are sharp practices among farmers in order. The first group of

spent on job. It also brings about accumulation of knowledge. Experience supports sustainability but at times brings over confidence on the job. Encarta (2009) opined that this may promote behavioural inflexibility.

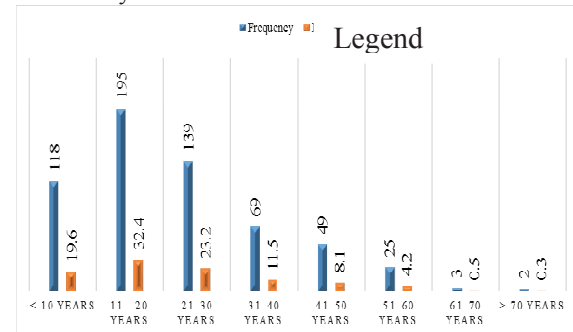


Figure 3: Distribution of respondents by years of farming experience, n=600

Source: Field survey, 2013

Mean = 24 years

Standard deviation = 14.93 years

Farmers’ production level

The study revealed, as shown in Table 2 that majority (62.83%) produced below 503kg/ha, with only 37.17% producing more than 503 kg, as in Table 2. CRIN, (2011) opined that many factors are contributing to farmers low production. With production mean of 218.79kg/ha, such militating factors could be some sharp practices like; not seeking appropriate information, not attending meeting, use of banned pesticides and not collection of required planting materials from the appropriate places. For instance a farmer who does not have information about CRIN high yielding varieties will still plant the old varieties. Majority of these sharp practices have negative effect on cocoa yield and reduce the quality of beans hence consequence effect on trade.

behaviour is during spraying such as ‘not using protective glasses when spraying’ ranking 1st with a mean of (0.83), followed by use of hand glove (0.82), wearing overall/protective and boot (0.81),



while nose cover had (0.79). This category of behaviour is followed by famers' sharp practices at breaking of pods (0.77) and in the use of pesticides. The list sharp practice according to the rank order is child labour with mean (0.47).

However, Table 3 shows the overall categorization of the farmers into levels of sharp practices with majority (67.5%) indicating high level of sharp practices

Table 3: Mean rank order of farmers' sharp practices

S/N	Cocoa farmers' sharp practices	Mean	Std. Deviation	Rank
1	Not using protective glasses when spraying	0.83	0.38	1
2	Not using Hand gloves when spraying	0.82	0.38	2
3	Not using Overall/Protective clothing when spraying	0.81	0.39	3
4	Not using Jungle boots during spraying	0.81	0.39	3
5	Not using nose protector when spraying	0.79	0.41	5
6	Use of sharp objects to break pod	0.77	0.42	6
7	Inappropriate disposal of unused chemicals	0.76	0.43	7
8	Using fertilizer/chemical not recommended for cocoa production	0.76	0.43	7
9	Using fertilizer/chemical not in the list of approved agrochemical	0.76	0.43	7
10	Inappropriate disposal of used chemical containers	0.76	0.43	7
11	Use of expired fertilizer/chemical	0.73	0.45	11
12	Use of polythene bags	0.72	0.45	12
13	Not washing of hands after chemical application	0.71	0.45	13
14	Drying of cocoa beans on bare concrete	0.71	0.46	13
15	Not reading chemical instruction before usage	0.71	0.46	13
16	Spraying of chemical against the wind	0.7	0.46	16
17	Inappropriate disposal of bad cocoa beans	0.69	0.46	17
18	Scooping/stirring chemical with bare hands	0.68	0.47	18
19	Not seeking right knowledge on recommended chemicals on cocoa	0.68	0.47	18
20	Use of unwashed containers for chemical application	0.68	0.47	18
21	Pod waste deposits as heap around farm area	0.67	0.47	21
22	Over dosage use of fertilizer/chemical	0.66	0.47	22
23	Application of fertilizer without prior test of soil/plant requirement	0.65	0.48	23
24	Taking advice from retailers	0.6	0.49	24
25	Not attending crop association meetings	0.59	0.49	25
26	Fermenting for less than 5 days	0.59	0.49	25
27	Mixing of fertilizer/chemicals as single dose application	0.48	0.5	27
28	Deposits of sweating from fermented cocoa bean	0.48	0.5	27
29	Use of child labour	0.47	0.5	29

Source: Field survey, 2013



Level of sharp practices

Table 3: Farmers' levels of sharp practices

Level of sharp practices	Scores	Frequency	Percentage
High level	> 20.06	405	67.5
Low level	< 20.06	195	32.5

Source: Field survey, 2013

Mean = 20.06

Standard deviation = 8.03

Maximum = 29

Minimum = 00.0

Correlate of farmers' sharp practices and cocoa yield, quality and health in the study areas

Table 4: Correlation of farmers' sharp practices and cocoa yield, quality and health in the study areas

Variable	r	r ²	p	Coefficient of determination	Decision
Farmers' yield	-0.138**	0.019	0.000	1.91%	Significant
Bean quality	-0.172**	0.030	0.001	3%	Significant
Health	-0.156**	0.024	0.000	2.43%	Significant

Source: Field survey, 2013

** p< 0.01

CONCLUSION

The study concluded that the mean age of farmers was 48.57 years with 10.4 ha farm size. Seventy per cent seek information from input dealers while 57% were able to complete primary to secondary education. Among the sharp practices, non-use of protective materials when spraying, rank highest with 67.5% of the respondents, belonging to a group of sharp practices use. However, there were significant and negative correlation between sharp practices and yield, quality and health at p<0.01.

Implications for cocoa sustainable production and trade

The following implications for cocoa sustainable production and trade deduced from the study are;

To sustainable cocoa production

Sustainable production is defined as Sustainable Production is the creation of goods and services using processes and systems that are: non-polluting, conserving of energy and natural resources, economically viable, safe and healthful for workers, communities, and consumers, socially and creatively rewarding for all working people (Lowell Center for Sustainable Production (LCSP), 2016).

- Sharp practices among farmers are high hence it will affect yield, quality and health
- Farmers health and sustainable production will be affected by the identified sharp practices if not addressed

Table 4 showed that there were significant and negative relationship between cocoa farmers' sharp practices and yield at ($r = -0.138$; $p > 0.01$), bean quality ($r = -0.172$; $p < 0.01$) and health ($r = -0.156$; $p < 0.01$) This implies that as farmers' sharp practices increase, there were decrease in yield, quality and health. This observation is supported by the study of Asogwa and Dongo (2009), in farmers' use of pesticides. Mohit 2008 also attested to this that farmers in cocoa farming use pesticides indiscriminately which is referred to sharp practice to increase their yield.

- When prices are low as regard of low quality and low yield, production will not be sustainable.

To trade

Trade is defined as the buying and selling of goods and services on a market (Oxford Dictionary, 2000). Sharp practices reduce yield, quality and contribute to negative health. These will consequently reduce the activity of cocoa trade.

Adherence to Good Agricultural Practices, which prevent sharp practices

- Increase quality and price of traded cocoa
- Improve trust in the cocoa value chain
- Increase efficiency in the cocoa value chain

RECOMMENDATIONS

- Enforcement of GAP for quality bean production
- Training and retraining of cocoa farmers on hazardous effect of sharp practices for sustainable cocoa production.
- Encouraging farmers to belong to farmers organisation in order to share knowledge from training
- Legislative policy on eradication of sharp practices associated with cocoa farming operations and in all aspect of the cocoa value chain, such as safety use of chemicals will reduce the risk associated with sharp practices.

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