



Knowledge of Cocoa Farmers on Good Agricultural Practices in South West Nigeria

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ABSTRACT

The importance of Good Agricultural Practices (GAP) cannot be over-emphasized. This is because GAP enhances agricultural productivity and sustainability. Therefore, this study was carried out to evaluate the knowledge of cocoa farmers on GAP in Ondo and Osun States of Nigeria. Simple random sampling technique was used to select sixty-six cocoa farmers in the study area. Structured questionnaire was used to elicit information from the respondents and the data collected from the information was analyzed using descriptive statistics. The result of the analysis showed that 74.24% of the respondents were 41 years and above in age while 71.21% of the respondents had formal education. Most (60%) of the farmers are small scale holders as they had less than 5 hectares of farm. All the farmers practice farm clearing, pruning and weeding/slashing while no single farmer practice soil testing before planting. However, GAP operations such as application of fertilizer to cocoa plant, construction of fire tracing during dry season, irrigation of cocoa seedlings during dry season and ridging across the slope to avert erosion during raining season were sparingly carried out by less than 50% of the respondent farmers. The study further recommended that farmers should be enlightened on the need to embrace GAP operations so as to enhance crop productivity and sustainability.

Keywords: Good Agricultural Practices, GAP, knowledge, cocoa, farmers.

INTRODUCTION

Cocoa is an economic crop which is mainly produced by small-scale farmers in Nigeria. The crop contributes significantly to the Gross Domestic Product of the country (Agbongiarhuoyi *et al.*, 2016) offering direct and indirect employment to sizeable number of the populace. Developing a sustainable cocoa enterprise requires the use of best management practices (Awoyemi and Aderinoye-Abdulwahab, 2019). Non recommended agricultural practices such as poor fertilisation, improper spacing of plants, poor weeds control, improper pruning as well as poor disease and pest control strategies could contribute negatively to the growth and development of the plant which would impact negatively on the quality and cost of cocoa beans (Kumah *et al.*, 2018). Good Agricultural Practices (GAP) is therefore necessary to ensure a sustainable cocoa production. GAP is a collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account the economic, social and environmental sustainability of the crop (FAO, 2012). The application of GAP contributes to many aspects of sustainable farming, including integrated control of weeds, diseases, and pests, and optimization of fertilization and irrigation (Lotz *et al.*, 2018). GAP can contribute to improved land use efficiency by contributing to productivity gains and reduce environmental degradation; in turn helping ease pressure on forested land and decrease greenhouse gas emission intensities (Byerlee *et al.*, 2014; Henderson *et al.*, 2016). GAPs require maintaining a common database

on integrated production techniques for each of the major agro-ecological area, thus to collect, analyze and disseminate information of good practices in relevant geographical contexts. It is therefore quite imperative that a study like this is carried out to assess the knowledge of cocoa farmers on GAP operations in Ondo and Osun States noted as the largest producers of cocoa in South West Nigeria.

METHODOLOGY

The study was carried out in Ondo and Osun States. The two States were purposively selected based on the fact that the two States are high cocoa producing States in South West Nigeria. From each of the selected States, two cocoa producing Local Government Areas (LGAs) were randomly selected thus making four LGAs selected for the study. In each of the selected LGA, one community was randomly selected. Therefore, a total of four cocoa communities were randomly selected for the study. From the four communities selected, a total of sixty six cocoa farmers were randomly selected. Structured questionnaire was used to elicit information from the respondents and the information sought for included the socio-economic characteristics of the respondents, the type of good agricultural practices by the farmers on their farms, the sources of information on GAP as well as the impact of GAP on the farmers' farms. The information collected was analyzed using descriptive statistics such as frequencies and percentages.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of the Farmers

Youths of age 40 years and below had a low proportion (25.76%) of the respondents (Table 1). On the other hand, respondents with age 41 years and above had a very high proportion (74.24%). The results showed that there were more aged farmers than the youths in the study area implying that cocoa farming is not well embraced by the youths in the study area. Similar findings by Awoyemi and Aderinoye-Abdulwahab (2019) recorded 85.1% with age above 41 years. Majority of the respondents (77.27%) were males while just few (22.73%) were females, showing that majority of cocoa farmers in the study area are males (Table 1). The dominance of the males over the females may be attributed to the fact that male children are considered to be the legitimate owner of farm land by inheritance in the study area. Also, females are involved in off-farm activities such as buying and selling of farm produce, storage of crops and packing of farm produce. On the other hand, their males' counterparts are highly involved in tree crop production most especially cocoa in the study area. Also cocoa production requires routine management practices that are considered too strenuous for the females to cope with.

Furthermore, most of the respondents (81.82%) were married while just 7.58% were single (Table 1). The large percentage of those who are married connotes that marriage is highly cherished by the people of the study area and could lead to increase in household size which has implication on the availability of family labour. As regards the educational level of the respondents, it could be observed from Table 1 that majority of the respondents (71.21%) were formally educated and 28.79% had no formal education. Of the formally educated ones, 48.48% of them had secondary school education and above. This is an indication that some well educated farmers are involved in cocoa production in the study area. This is a good pointer to a well adoption of good agricultural practices as education plays a major role in up taking of successful strategies as reported by Oluyole and Usman (2006). As regards the farm size, a high proportion of the respondents (almost 60%) did not have more than five hectares of farm while only 15.16% of the total respondents had more than ten hectares of farm. This however shows that most of cocoa farmers in the study area are small scale cocoa farmers. This is in agreement with Darkwah and Verter (2014) assertions that, cocoa production in West African countries is predominantly done by smallholder producers: about 80–90% of production is done on farms that are about 1 to 3 hectares.

Table 1. Socio-economic characteristics of the respondents

Variable	Frequency	Percentages
Age		
≤ 30	9	13.64
31-40	8	12.12
41-50	18	27.27
51-60	17	25.76
>60	14	21.21
Total	66	100.00
Gender		
Male	51	77.27
Female	15	22.73
Total	66	100.00
Educational status		
No formal education	19	28.79
Primary education	15	22.73
Secondary education	26	39.39
Tertiary education	6	9.09
Total	66	100.00
Marital status		
Single	5	7.58
Married	54	81.82
Widow/widower	6	9.09
Divorced	1	1.52
Total	66	100.00
Household size		
1-6	12	18.18
7-10	32	48.49
>10	22	33.33
Total	66	100.00
Farm size (Hectares)		
≤ 5	39	59.09
6-10	17	25.75
>10	10	15.16
Total	66	100.00

Source: Field survey, 2017

Management Practices Practiced by the Farmers

Farm clearing, pruning and weeding/slashing were well embraced by the all farmers in the study area (Table 2). This shows that all the farmers know the relevance of these operations and are responding very well to the training given them from time to time that farm cleanliness is a good pointer to farm's productivity. However, none of the farmers carry out soil test before planting. A major reason given by the farmers for this action is that their land is very fertile and does not need to be tested before planting on

it. Meanwhile, there are some GAP operations, though not carried out by all the respondents, but were carried out by the majority of the respondent farmers. These operations include chupon removal (98.5%), removal of mistoetoes (98.5%), removal of ectoparasites (89.4%), application of insecticides (74.2%) and application of fungicides (88.0%). It could also be observed that some operations were sparingly carried out by the farmers in the study area, these are application of fertilizer (18.2%), application of herbicides (36.0%), construction of fire tracing during dry season (48.0%), irrigation of seedlings during dry season (27.0%) and ridging across the slope to avert erosion (18.0%).

Table 2. GAP Operations carried out by cocoa farmers

GAP Operations	Percentage of farmers that carried out the operation	Percentage of farmers that did not carry out the operation
Farm clearing	100	0
Pruning	100	0
Chupon removal	98.5	1.5
Removal of mistoetoes	98.5	1.5
Weeding/slashing	100	0
Removal of ectoparasites	89.4	10.6
Application of fertilizer	18.2	81.8
Application of insecticides	74.2	25.8
Application of fungicides	88.0	12.0
Application of herbicides	36.0	64.0
Carrying out of soil test before planting	0	100
Construction of fire tracing during dry season	48.0	52.0
Irrigation of seedlings during dry season	27.0	73.0
Ridging across the slope to avert erosion	18.0	82.0

Source: Field survey, 2017

Sources of Farmers' Information on GAP

Majority of the farmers (95.5%) acquired the knowledge of GAP through training while 4.5% of the farmers acquired the knowledge from co-farmers (Table 3). However, none of the farmers claimed to have known GAP himself or have obtained the information on GAP through mass media. This is in agreement with Pauli *et al.* (2012), Villamor *et al.* (2014), and Mulyoutami *et al.* (2015) reports that smallholder farmers often integrate their observations of biophysical processes with external sources of information (from other farmers, extension agents, etc.) to guide farm-related management decisions. Farmers in the study area have access to Farmers Field School (FFS) which has impacted greatly on their knowledge on GAP.

Table 3. Sources of information on GAP

Sources of information	Frequencies	Percentage
By training	63	95.5
From co-farmer	3	4.5
From mass media	0	0.0
I know it myself	0	0.0

Source: Field survey, 2017

Effects of GAP on Cocoa Farm

Table 4 shows that 97.0% of the respondents claimed that GAP has increased the productivity of their farms while 48.5% of the respondent farmers submitted that GAP makes their farms to have good look. However, 1.5% of the farmers claimed that they did not see the relevance of GAP on their farms, may be based on their inability to practice GAP adequately.

Table 4. Effects of GAP on cocoa farm

Effects of GAP on farm	Frequencies	Percentage
It improves the productivity of my farm	64	97.0
It makes my farm to have good looking	32	48.5
I do not see any relevance of GAP in my farm	1	1.5

Source: Field survey, 2017

However, it should be noted on Table 4 that the total frequency is summed more than 66, this was due to the multiple responses. The outcomes obtained with this study show that any discussion about best management practices in the agricultural sector should consider agricultural practices and sustainable productivity. In agricultural practices the main attention must be paid to fertilizers and crop protection products, also, to alternative farming such as, organic farming (Martinho, 2019). These must be observed in agreement with suggestions of Jelsma *et al.* (2019) that a collection of best farm management practices to, amongst others, must include maintenance of soil fertility and water quality, control of erosion and minimization of pests and disease.

CONCLUSIONS AND RECOMMENDATIONS

Findings from the study showed that most cocoa farmers in the study area are no more in their active age and they are mostly small scale cocoa producers. In general, most farmers embraced good agricultural practices as a good percentage of them carried out most GAP operations. GAP has positive impact on their farms as almost all the farmers claimed to have improved the productivity of their farms. However, some GAP operations such as application of fertilizer, application of herbicides, construction of fire tracing during dry season, irrigation of seedlings during dry season and ridging across the slope to avert erosion were sparingly carried out. Also, cocoa farmers in the study area are not carrying out soil test before they plant cocoa.

Based on the findings, the study therefore recommended that

- i. Youths should be encouraged to be involved in cocoa farming. This is very necessary since majority of cocoa farmers in the study area are no more in active age. The encouragement package can be in form of provision of soft loans for cocoa farming activities.
- ii. Farmers should have access to credit facilities so as to enable them to expand their farm size. This is quite imperative because most of the farmers are small scale farmers.
- iii. Cocoa farmers should be enlightened on the relevance of soil testing before carrying out their planting operations. The enlightenment can be in form of organizing workshop trainings on soil testing for the farmers.
- iv. Farmers should be informed of the importance and the need to apply fertilizer to cocoa plant; construct fire tracing during dry season; irrigate the seedlings during dry season and ridging across the slope to avert erosion during raining season.

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