



ASSESSMENT OF THE LEVEL OF COCOA FARMERS' INVOLVEMENT IN OFF-SEASON COPING STRATEGIES IN ONDO STATE, NIGERIA

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Abstract

The study examined the level of cocoa farmers' involvement in off-season coping strategies in Ondo State, Nigeria. A total of one hundred and twenty (200) Cocoa farmers were interviewed for the purpose of eliciting information for the study. Majority of the respondents were males (81.5%), married (84.0%) with average household size of 8 persons (78.5%), average monthly income of N16, 250 (72.0%), mean age of 53 years (87.0%) and farming experience of 27 years (82.5%). Majority (87.0%) were either having primary, secondary or tertiary education respectively. Main The result also revealed primary occupations of farming (45.0%) and trading (41.5%). On the other hand, the factors influencing their involvement in off-season coping strategies were; ability to educate their children (92.0%, $\bar{x}=4.60$), personal savings (91.0%, $\bar{x}=4.44$) and income from harvest (81.0%, $\bar{x}=4.37$) among others. The results further showed that most (95.0% & 87.0%) were involved in arable farming and livestock production respectively. The main perceived benefits of the off-season coping strategies were; more contribution/savings ($\bar{x}=4.32$), increase in output and ability to cater for their family ($\bar{x}=4.18$), settlement of debt ($\bar{x}=4.17$), purchasing of better social amenities ($\bar{x}=4.16$), payment of children school fees ($\bar{x}=4.14$) and increased consumption ($\bar{x}=4.13$). The result of Pearson Correlation showed a positive correlation between their extent of involvement and factors influencing involvement. The result also showed a negative correlation between the socioeconomic characteristics of the respondents and the extent of their involvement in off-season coping strategies. The respondents were highly involved in Arable farming, livestock production, palm oil processing and retail trading as off-season coping strategies. It was recommended that farmers should diversify their income to other sources, provision of financial institutions for money lending, creation of more extension contacts for the respondents and inputs support at reduced cost.

Keywords: Cocoa Farmers, Involvement, Coping Strategies, Assessment, Level

Introduction

Cocoa is one of the economic crops grown for commercial purposes in most part of Africa (Nigeria inclusive). Approximately around 20 million people depend on cocoa for their means of livelihood, while 90 % of cocoa production coming from smallholder farms of under 5 ha (World Cocoa Foundation-WCF, 2012; Falade, 2015). However, various research on cocoa production and marketing have revealed that cocoa sector is bedeviled with a number of issues and uncertainties relating to cultivation, coping strategies,

production, management practices, storage and marketing (Otchere *et al.* 2013; Sarpong *et al.* 2013; Folaranmi, *et al.* 2015). Viewing the international market, the demand for cocoa is on the increase due to the boom in the chocolate consumption, aside other uses of cocoa in the manufacturing of some beverages. The cocoa production is declining from the producing states in recent time due largely to lack of sustainable coping strategies on the part of the farmers (Falade, 2015).



From the production estimates of International Cocoa Organization (ICCO 2013), global cocoa production has decreased from 4.3 million metric tons in 2010/2011 to 4.0 million metric tons in 2011/2012 and 3.9million metric tons in 2012/13. According to Punch (2016), the production of cocoa beans in Nigeria from 2012/2013 to 2015/2016 and provides a forecast for 2016/2017; Nigeria produced approximately 238 thousand tons of cocoa beans in 2012/2013 and is expected to produce 225 thousand tons in 2016/2017. The International Cocoa Organization (ICCO) forecasts a shortfall of about 50,000 tons in 2013. This issue is attributed to low capacity building and advisory services on the crop, poor involvement, lack of good and sustainable coping strategies, poor or lack of adoption of affective coping strategies, marketing information and poor bargaining power (WCF, 2012).

The prices of cocoa have also been decreasing mainly due to stock/grind ratios, global food prices, and farmers' involvement in potential off-season coping strategies and fragmentation in cocoa trade and processing industries (WCF, 2012). It has also been estimated that around 30 % of the cocoa crop world-wide is lost to pest and disease attack (European Union Food Information Council-EUFIC, 2014). Such attacks reduce cocoa productivity and hence lower the supply for both the internal and international markets respectively. Chemical treatment is however not always possible to use, due either to the nature of the pests or because the chemicals are too expensive for most farmers or to avoid lowering the international standard of the beans as a result of contamination.

Farmers in this respect are not abreast of any integrated pest management techniques. The heavy use of pesticides is also compounded by their contribution to environmental pollution and health risks to farmers (Folaranmi, *et.al.*, 2016). These are all factors contributing to risks and future

uncertainties of cocoa and therefore need serious attention (Folarami, *et.al.*, 2015). Production of agricultural products therefore must or usually follow the path of its supply, in which the supply has to be sustainable to allow it stand the test of time (Oke, 2007). Therefore, it is important to link the level of involvement, off-season coping strategies, factors influencing the production of this economic crop. Indeed, due to the nature of the crops, there are a number of challenges constituting risks as the products are moved and exchanged along the chain. Christopher and Lee (2004) defined risk and challenges along supply chain as "any incident or event that could disrupt the movement and flow of raw materials across the chain". According to the World Bank (2012), the major risks and challenges within the cocoa supply chain include production, cultivation, commercial or market, and environmental risks. Specifically, risks in cocoa sector are associated with factors such as demand unpredictability, fluctuations in market price, environmental impacts, market information gap, and compliance with standard and safety regulations (Otchere, *et al.*, 2013; Vickery *et al.* 2003; Khan and Burnes, 2007). It is on this premise that the research is deemed to provide relevant answers to the following research questions:

1. What are the socioeconomic characteristics of the cocoa farmers in the study area?
2. What are the factors influencing the involvement of the cocoa farmers in off-season coping strategies?
3. What are their levels of involvements in off-season coping strategies on the income generating activity?
4. What are the perceived effects of cocoa farmers' participation in the off-season coping strategies?

Objectives of the Study

The general objective of the study is to access the level of cocoa farmers' involvement in off-season coping strategies



in Ondo state, Nigeria. The specific objectives are to;

1. describe the socioeconomic characteristics of the cocoa farmers in the study area.
2. examine the factors influencing the involvement of the cocoa farmers in off-season coping strategies.
3. examine their levels of involvement in off-season coping strategies on the income generating activity.
4. determine the perceived effects of cocoa farmers' participation in the off-season coping strategies.

Hypotheses:

HO₁: There is no significant correlation between some selected socioeconomic characteristics of the respondents and their level of involvement in off-season coping strategies activities.

HO₂: There is no significant correlation between the level of involvement in off-season coping strategies activities and the factors influencing the involvement of the respondents in season activities.

Methodology

Study Area

The study was carried out in Ondo State, Nigeria. Ondo state lies between latitudes 5°45' and 7°52' North of the equator and longitudes 4° 20' and 6°5' East of Greenwich Meridian (NGA, 2012). The state is typically an agrarian society due to its favourable ecological and climatic conditions. The climate of the state is tropical monsoon with two distinct seasons—the rainy (April–October) and dry (November–March) seasons. Humidity is high during the rainy season and low during the Harmattan period of the dry season (Adekunle *et al.* 2013). The southern zone is characterized with the cultivation of tree crops such as cocoa, rubber, oil palm and cashew (Folarami, *et.al.*, 2015). Ondo state was carved out of the old western states as one of the seven

(7) states created on February 3, 1976. Ondo state contains three Agricultural Development Programme (ADP) Zones which includes North, Central and South Zones. The state has 18 local government (LGA) areas in which Akure is the state capital. The state total land area is 15,500km² with total population of 3,441,024 with population percentage of 2.458 (Census, 2007; NigerianMuse, 2013). The state is dominated by the Yorubas who speak various dialects of the Yoruba language. Agriculture (including fishing) constitutes the main occupation of the people of the state. Indeed, Ondo state is the leading cocoa producing state in Nigeria. Other agricultural products include Yam, Cassava and Palm produce. The people are mostly subsistence farmers, fishermen and traders.

Sampling Procedure and Sampling Size

The population for the study consisted of all the cocoa farmers in Ondo state. A multistage sampling technique was employed for the study. The first stage was a purposive selection of ADP Central Zone which consists of seven (7) local government areas because its dominance and intensiveness in cocoa production. The second stage involved a simple random selection of only five (5) local government areas out of the seven local governments. The second stage was also a random selection of two (2) communities each from the five local governments selected at the first stage. The third stage involved a simple random selection of twenty (20) cocoa farmers from the list of contact cocoa farmers in the selected areas given by the state ADP office to make a total of 200 respondents for the study.

Results and Discussion

Socioeconomic Characteristics of the Respondents

Table 1, shows the result of the socioeconomic attributes of the respondents. Majority (81.5%) of the respondents were males and 8.5% were



females. This might probably be because farming activities is energy consuming task and as such can be handled by the male farmers alone. This was supported by the evidence from National Bureau of Statistic-NBS (2012) that, males are capable of doing more tedious work than the females in the rural farming activities. Larger percentage (84.0%) were married. Marital status is a variable tool that determines an individual's resolves to demonstrate or show a mark of social responsibility and sometimes indicates a complementary source of labor input (Oladipo, *et.al*, 2017). Family labor is considered the most important and predominant component of labor in subsistence farming in Nigeria and most part of Africa.

Elizabeth and Ana (2014) declared that small scale farmers could be successful if they were married especially when they had to rely on family labor. The results show that most (87.0%) of the respondents were within the age range of 41 and above with average age of 53.5 years. This implies that most of the youth were not involved actively in farming. This could be as a result of rural urban drift prevalent in Nigeria. This is in agreement with the work of Bello, *et.al* (2017) that the average age of the respondents in oil palm production in Okiti Pupa Ondo State, Nigeria was about 53.3years. This is also in line with the work of Obisesan, *et.al.*, (2013), who pointed out that this active age is regarded as agile with more energy to dissipate and concentrate on productive activities.

Most young people might probably be seeking for a more lucrative job in the cities rather than farming in the villages. The results also revealed that most (87.0%) of the respondents had formal education. This implies that most the respondents had one level of education or the other. Margret and Samuel (2015) asserted, that increase in education of farmers positively influence adoption and utilization of improved agricultural practices. This may not be unconnected with the fact that education plays a predominant role among farmers. Amaza and Tashikalma (2003) noted that education offers the opportunities to earn better and could impact significant variation in skill acquisition and adoption of innovation. Greater percentage (78.5%, $\bar{x}=8.1$) has household size of 7 and above persons.

This implies that farmers could draw some level of family labor from their household considering their mean household size leading to reduction in the cost of labor. The results further revealed that most (82.5%) of the respondents had farming experience of 11-40 years with a mean ($\bar{x}$) of 27 years. This implies that the respondents are experienced farmers judging from their years of being in production practices. Average monthly income of the respondents was N10, 000-20,000 (72.0%, $\bar{x}$ =N16, 250) and yearly income was N201, 000-N401, 000 (86.5%). Main primary occupation of the respondents was farming (45.0%) followed by trading (41.5%).

**Table 1: Socioeconomic Characteristics of Respondents**

Variables	Frequency	Percentage	Mean $\bar{x}$ ±S.D
Age (Years)			
≤ 30	5	2.5	53.5±11.8
31-40	21	10.5	
41-50	49	24.5	
51-60	54	27.0	
≥ 61	71	35.5	
Gender			
Male	163	81.5	
Females	37	18.5	
Marital Status			
Single	3	1.5	
Married	168	84.0	
Divorced	7	3.5	
Widowed	22	11.0	
Educational Qualification			
No Formal Education	44	22.0	
Primary Education	75	37.5	
Secondary Education	71	35.5	
Tertiary Education	10	5.0	
Household Size			
≤ 3	6	3.0	8.1±1.3
4-6	37	18.5	
7-9	86	43.0	
≥ 10	71	35.5	
Farming Experience (Years)			
≤ 10	7	3.5	27.0±12.1
11-20	45	22.5	
21-30	63	31.5	
31-40	57	28.5	
≥ 41	28	14.0	
Primary Occupation			
Farming	70	45.0	
Artisan	15	7.5	
Civil Servant	12	6.0	
Trading	83	41.5	
Average Monthly Income(N)			
≤ 10,000	73	36.5	16,250±3,720
11,000-20,000	71	35.5	
21,000-30,000	27	13.5	
31,000-40,000	26	13.0	
≥ 40,000	3	1.5	
Yearly Income from Cocoa Farming (N)			



$\leq 100,000$	2	1.0
101,000-200,000	25	12.5
201,000-300,000	47	23.5
301,000-400,000	66	33.0
$\geq 401,000$	60	30.0

Source: Field Survey, 2018

Factors Influencing the Involvement of the Cocoa Farmers in Off-Season Coping Strategies

A ranking technique was used to identify among the various pre-determined factors influencing the involvement of Cocoa farmers in off-season activities in order to know which one is cogent in terms of farmers' perception. This was measured on a five (5) point Likert type attitudinal scale of Strongly Agree (SA=4), Agree (A=3), Undecided (U=2), Disagree (D=1) and Strongly Disagree (SD=0). A mean value (MV) of 3.425 was obtained as bench mark. Mean value of above the bench mark mean strongly agreed while below is strongly disagreed. According to Table 2, it can be seen that the respondents strongly agree on many factors influencing their involvement in cocoa off-season coping strategies and these are; ability to educate their wards ($\bar{x}=4.60$), ability to have more personal saving/contribution ($\bar{x}=4.44$), to have more

income proceeds at the end of harvesting season ($\bar{x}=4.37$), to be able to provide for family needs at the appropriate time ($\bar{x}=4.08$), to be able to feed the family better i.e. be food secure ($\bar{x}=4.07$) and ability to fulfill societal needs and expectations ($\bar{x}=3.91$) while others like; to acquire more assets ($\bar{x}=3.10$), purchase of more farm land ($\bar{x}=2.60$), Payment of debt ($\bar{x}=2.35$), help from government ($\bar{x}=2.09$) and to acquire more work experience ($\bar{x}=2.07$). This factor varies from region to another based on climate, culture and socioeconomic characteristics of the cocoa farmers. This in line with the findings of Issaka, *et.al.*, (2018) who agreed that factors influencing the involvement of cocoa farmers in cocoa production in Ghana are; yield decrease, increased pest and diseases, pod quality being additional burden in the dry region.

Table 2: Factors influencing the involvement of Cocoa Farmers in Off-Season Coping Strategies

S/No	Determinant Factors	Mean	Rank
1.	To send children to school	4.60	1 st
2.	To have more personal saving/contributions	4.44	2 nd
3.	To have more income/proceeds	4.37	3 rd
4.	To provide for the timely needs of the family	4.08	4 th
5.	To feed the family better	4.07	5 th
6.	Able to meet societal needs and expectations	3.91	6 th
7.	To acquire more assets(land/properties)	3.10	7 th
8.	To purchase more farmland areas	2.60	8 th
9.	Payment of Debt	2.35	9 th
10.	Lack of help from government	2.09	10 th
11.	To acquire more work experience	2.07	11 th



Respondents' Level of Involvement in Off-season Coping Strategies on the income Generating Activity

Table 3, shows the extent of the respondents' involvement in off-season cocoa coping strategies in improving livelihood. This was measured on three (3) point Likert type attitudinal scales of Highly Involved (HI), Moderately Involved (MI) and Low Involved (LI) respectively. It shows that significant proportions 95.0%, 87.0%, 74.0% and 64.0% of the respondents were highly involved in Arable farming, livestock production, palm oil processing and retail trading respectively. This could probably be as a result of the fact that these activities can easily be done at the residential homes of the farmers.

The profitability of these activities abounds in the study area and this is in consonance with the findings of Oviasogie 2005; Ajibolade 2005 who posited that most rural residence were mostly engaged in small holder semi-subsistence agriculture. Slightly below average of the respondents 49.5% and 49.0% were moderately involved in Garri processing and Charcoal production probably because charcoal and garri production is a kind of agro-

processing venture that is selling faster and profitably especially nowadays that cost of hydrocarbon is unaffordable. Both the rich and the poor are involved in the consumption of Garri and utilization of charcoal today in Nigeria although gas is now taking over in urban areas. Significant percentage of the respondents (60.0%) shows low involvement in firewood business which could be associated with the economic situation of the society where emphasis is not on firewood utilization as charcoal has taken over the use of firewood today in many homes.

Also, there were some reports on the health implication of firewood and a way to enhancing deforestation (Adesope, *et.al.*, 2010). Slightly below average (47.0%) showed low involvement in basket weaving and tailoring activities (41.0%). This is in agreement with the work of Folaranmi *et. al.*, (2017) who opined that the coping strategies of cocoa and marketing in Ondo state, Nigeria are through; adopted diversification of production system by growing substitute crops, and involvement non-farm business to generate additional income among others.

Table 3: Level involvement in Off-season Coping Strategies

Coping Strategies	HI (%)	MI (%)	LI (%)
Retail Trading	128 (64.0%)*	50 (25.0%)	22 (11.0%)
Bricklaying	96 (48.0%)	54 (27.0%)	50 (25.0%)
Basket Weaving	80 (40.0%)	26 (13.0%)	94 (47.0%)
Firewood Business	40 (20.0%)	40 (20.0%)	120 (60.0%)
Charcoal Production	23 (11.5%)	98 (49.0%)	79 (39.0%)
Palm Oil Processing	148 (74.0%)*	40 (20.0%)	12 (6.0%)
Arable Farming	190 (95.0%)*	08 (4.0%)	2 (1.0%)
Livestock Production	174 (87.0%)*	08 (4.0%)	14 (7.0%)
Tailoring	44 (22.0%)	74 (37.0%)	82 (41.0%)
Farm Fruit Processing	77 (38.0%)	79 (39.5%)	44 (22.0%)
Garri Processing	86 (43.0%)	99 (49.5%)	15 (7.5%)
Hunting	83 (41.5%)	46 (23.0%)	71 (35.5%)

Source: Field Survey, 2018. HI=High Involvement, MI= Moderate Involvement and LI=Low Involvement



Perceived Benefits of Cocoa Farmers' Participation in the Off-Season Coping Strategies

Table 4, depicted the perceived benefits of the cocoa farmers participation in the off-season coping strategies on cocoa in the study area. The technique used was a five-point Likert type scale of Strongly Agree (SA=4), Agree (A=3), Undecided (U=2), Disagree (D=1), and Strongly Disagree (SD=0). Mean value (MV) of the outcome was obtained $(4+3+2+1+0/5=2)$ used to rate the variables. At an interval of 0.5, the upper limit is $2.0+0.5=2.5$ while lower limit is $2.0-0.5=1.5$ respectively. This implies that MV of above 2.5 is strongly agreed while below 2.5 is strongly disagreed. Using this categorization, the respondents strongly agreed that the most rated perceived benefits of off-season cocoa coping strategies is ability to mobilize their savings ($\bar{x}=4.32$) through cooperative associations, improvement in living

standard ($\bar{x}=4.27$), increase in income/output and ability to cater for their relatives ($\bar{x}=4.18$). They also claimed that it has helped them to settle or pay their debt at different levels ($\bar{x}=4.17$), they are able to purchase better social amenities like mobile communication phone sets ($\bar{x}=4.16$), they can also afford to pay the school fees of their wards conveniently ($\bar{x}=4.14$) and increase in their consumption at household level ($\bar{x}=4.13$). This implies that their strategies are good but it is not yet sustainable to be dependent upon. This probably because it is labor intensive. This could be the reason for non-adoption of the strategies by the majority. This is supported by the work of Quarmin, *et.al.*, (2012) who opined that there some institutional factors that constrain farmers' incentives to enhance the adoption of good strategies so as to benefit its of cocoa beans in Ghana.

Table 4: Perceived Benefits of Cocoa Farmers' Participation in the Off-Season Coping Strategies

S/No	Perceived Benefits	Mean	R
1.	Able to make more contribution (cooperative)	4.32	1 st
2.	Improve their standard of living	4.27	2 nd
3.	Can afford to cater for their relatives	4.18	3 rd
4.	Increase income/proceeds	4.18	3 rd
5.	Able to settle/pay their debt	4.17	5 th
6.	Can afford better social amenities	4.16	6 th
7.	Can afford children school fees conveniently	4.14	7 th
8.	Increase in their consumption level	4.13	8 th
9.	Don't depend on government incentives again	2.29	9 th
10.	Can acquire more farm land for cultivation	2.28	10 th
11.	Lesser labor intensive	2.16	11 th

Source: Field Survey, 2018. Overall Mean Value= 2.0

Relationship between level of involvement in off-season coping strategies and factors influencing the involvement of the respondents

Table 5, shows the result of the Pearson correlation between the extent of

involvement in off-season coping strategies and the factors influencing the involvement of the cocoa farmers. These factors are the motivating hygiene factors of the perceived benefits of cocoa production. The factors influencing the involvement of the cocoa



farmers in off-season activities were found to be positively related to the extent to which the cocoa farmers were involved in the off-season coping strategies activities. This suggested that if these factors are increased above the present level i.e. if the need to have more income/proceeds family on, provide for their time, feed the family better, send children to school, have more personal savings/contributions and the ability to meet society needs increases, the more the farmers become actively involved in the off-season coping strategies

activities. The Null hypothesis is therefore rejected. This is in consonance with the work of Folaranmi, *et.al.*, (2017) who agreed that the major coping strategies adopted by the farmers of the cocoa to facilitate their involvement in off-season coping strategies on cocoa farming agro forest include diversification of production system by growing substitute crops (47.5%), and involving in non-farm business to generate additional income (35.0%).

Table 5: Correlation between the level of involvement in off-season coping strategies activities and the factors influencing the involvement of the respondents

Variables	Value
Pearson correlation	0.953**
Significance (2 tails)	0.000
N	200

Source: Field Survey, 2018. **Significant at 1% level (2-tailed)

Correlation between some selected socioeconomic characteristics of the respondents and the level of involvement in off-season coping strategies activities

Table 6, revealed the Pearson Correlation Matrix between some selected socioeconomic characteristics of the respondents and the level of involvement in off-season coping strategies activities. Null hypothesis (H01); there is negative significant relationship between the extent to which the farmers were involved in the off-season coping strategies activities and some selected socioeconomic characteristics (e.g. age, gender, marital status, household size, level of education, farming experience, average monthly yearly income from cocoa farming, secondary occupation, monthly income from secondary occupation). It depicted that the socioeconomic characteristics of

the cocoa farmers were found to be negatively related to the extent to which the farmers were involved in the off-season coping strategies activities. This suggested that if these factors are increased above the present level i.e. if the age, farming experience, average yearly income from cocoa farming, secondary occupation, and monthly income from secondary occupation increases the lesser the extent to which the farmers get involved in the off-season coping strategies activities. According to Folaranmi, *et.al.*, (2017), if some socioeconomic indexes are increased such as income, farming experience and farm size the lesser will the farmers be involved in off-season coping strategies because they will prefer to venture into other jobs with less commitments and risks than cocoa production.

**Table 6: Correlation between selected socioeconomic characteristics of the respondents and the level of involvement in off-season coping strategies activities**

Variables	Y	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
X ₁ (Age)	-0.843**	0.000							
X ₂ (Gender)	-0.773**		0.000						
X ₃ (Marital Status)	-0.810**			0.000					
X ₄ (Household Size)	-0.935**				0.000				
X ₅ (Farming Experience)	-0.902**					0.000			
X ₆ (Average Monthly Income)	-0.947**						0.000		
X ₇ (Secondary Occupation)	-0.904**							0.000	
X ₈ (Income from 2 ⁰ occupation)	-0.949**								0.000

Source: Field Survey, 2018. ** $p \leq 0.01$ level (2-tailed), 2⁰ means secondary occupation

Conclusion

The cogent factors influencing the involvement of the respondent in off-season activities were; the need to have more income/proceeds, provide for their family in time, feed the family better, send children to school, have more personal saving/contribution and the ability to meet society needs. The perceived benefits of the cocoa farmers' involvement in off-season activities were their ability to increase in their consumption level, afford better social amenities, afford to cater for their relatives, afford children school fees conveniently, ability to settle/pay their debt, increase income/proceeds, ability to make more contribution (cooperatives) and improvement in the standard of living of the farmers during the period. Significant proportions 95.0%, 87.0%, 74.0% and 64.0% of the respondents were highly involved in Arable farming, livestock production, palm oil processing and retail trading respectively. To overcome their credit constraints cocoa farmers in Ondo state are increasingly seeking alternative source of income by participating in off-season coping strategies. The income from these activities is then used for investment in agricultural production and to relax liquidity problems.

Recommendations

In line with the findings of this study, the following recommendations were made so as to ensure an all year-round improved standard of living;

1. It is good for farmers to diversify their streams of income so as to ensure sustainability of their means of livelihood.
2. Farmers should be availed with improve coping strategies from extension/solving matter specialists on new technologies on cocoa production.
3. Banks and other formal financial institutions should help farmers with credit facilities. This will enable them to efficiently diversify their farming business and produce on a large scale.
4. The farmers should be encouraged more and more to form cooperatives so that they can enjoy economies subscale benefits of group.

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