



**ECONOMIC ANALYSIS OF COCOA PRODUCTION CERTIFICATION STATUS
AMONG FARMERS IN OGUN STATE, NIGERIA**

Akinrinmola, F. K. and Ogunwande, I. O.

Department of Agricultural and Resource Economics, Federal University of Technology Akure, Ondo State, Nigeria

Correspondence Email: francisakinrinmola@gmail.com

GSM: +2348051940820

ABSTRACT

The study was conducted to analyse the economics of cocoa production certification status in Ogun State, Nigeria. Primary data were obtained from 240 cocoa farmers (120 certified and 120 non-certified) selected through a multistage sampling procedure. Descriptive statistics, gross margin analysis, and a 5-point Likert scale were employed for the study. Results revealed that cocoa farming in the study area is dominated by middle-aged men, with certified farmers achieving higher education levels, better access to extension services, and greater productivity (643.5 kg vs. 496.02 kg) despite non-certified farmers having larger farm sizes and higher average incomes. Cost and return analysis showed that certified farmers incurred lower variable costs (₦758,532.63 vs. ₦932,910.90) and recorded higher profitability, with a gross margin ratio of 0.91 compared to 0.85 for non-certified farmers. Major constraints faced by certified farmers included scarcity of labour, pest and disease incidence, and the strenuous certification process, while non-certified farmers identified high certification costs, complex procedures, and herdsman attacks as their most severe challenges. The study concludes that certification improves productivity, efficiency, and access to institutional support, though income gains remain mixed. It recommends strengthening extension services, improving credit access, subsidizing certification costs, and promoting farmer cooperatives to enhance sustainable cocoa production in the state.

Keywords: Certification, Cocoa, Income, Production and Status

INTRODUCTION

Traditionally, certification of tropical agricultural products like cocoa has been limited to niche markets, such as 'fair trade' or 'organic', accounting for only a small fraction of total production (Ruf *et al.*, 2018). However, in the late 2000s, there was a notable shift in the cocoa sector towards 'mass certification' focused on sustainable development principles, integrating environmental and ethical standards with practices that improve yields (Ruf *et al.*, 2018). Consequently, major industrial cocoa producers have expressed their intention to certify significant portions, if not all, of their cocoa supplies by 2030 (Samuel, 2017).

According to Oseni and Adams (2013), certified cocoa products are distinguished by specific quality attributes and are verified under various schemes, presenting an attractive income-generating opportunity for small-scale farmers in developing nations. Certification involves an independent assessment confirming adherence to particular standards for farms, farmer groups, processing facilities, traders, importers, or exporters.

The growing demand for certified cocoa stems from two primary factors: the expanding international market for cocoa and the recognition of certification's importance (Hutz-Adams and Fountain, 2015; Salau and Agbede, 2020). In addition, in order for farmers to seize this opportunity, they must adhere to voluntary quality and safety standards and protocols. This adherence entails ensuring quality and safety, developing their brand, defining their product niche, and adjusting their coordination within the supply chain. While certification is expected to lower production risks and enhance profitability, many smallholder cocoa farmers remain uncertified,



either due to lack of awareness, high certification costs, or weak institutional support (Kolawole and Ajayi, 2014; Oyediran, 2018). Certified farmers reportedly have better access to extension services, training, and markets, yet evidence on whether these advantages translate into significantly higher productivity and incomes compared to non-certified farmers remains limited (Ruf *et al.*, 2018; Olabisi and Adeola, 2020).

In Ogun State, where cocoa contributes substantially to household livelihoods, little empirical work has been done to systematically compare certified and non-certified cocoa farmers in terms of socioeconomic characteristics, input use, cost structures, and returns. Without such comparative analysis, policymakers and development agencies lack the evidence needed to design effective interventions to improve cocoa productivity and livelihoods across the board (Food Agriculture Organization-FAO, 2015; World Cocoa Foundation-WCF, 2019). The specific objectives of the study are to (i) describe the socioeconomic characteristics of certified and non-certified cocoa producers in the study area; (ii) determine the cost and returns associated with certified and non-certified cocoa production in the study area; and (iii) examine the factors militating against cocoa farmers certification in the study area.

MATERIALS AND METHODS

The Study Area

The research was conducted in Ogun State, Nigeria, situated in the south-western region between latitudes 6°N and 8°N and longitudes 3°E and 5°E. It shares its western border with the Republic of Benin and its eastern border with Ondo State. As per recent estimates by the National Population Commission, the population of Ogun State is approximately 4,050,000. Ogun State experiences a tropical humid climate characterized by distinct wet and dry seasons with a yearly average temperature of 84.81 °F (29.34 °C) and 5.57 inches (141.58 millimeters) of precipitation. The wet season typically extends from March or April to October or November, while the dry season lasts from October or November to March or April. Ogun State, Nigeria has a variety of soil types, including sandy clay, sandy loam, and loamy sand. These are conducive to the cultivation of various cash and food crops, including cocoa, oil palm, rubber, coffee, kolanut, cassava, yam, and rice.

Sampling Techniques

The study employed a multi-stage sampling procedure. Based on the investigation and close observation of cocoa farmers in Ogun State, the first stage involves the random selection of three high cocoa producing Local Government Areas (LGAs) of Ogun State, Nigeria namely, Ijebu-East, Ijebu North and Ijebu North-East Local Government Area. The second stage involves the random selection of five (5) communities from each of the selected local governments. The final stage therefore, involves a snowball selection of sixteen (16) cocoa farmers consisting of eight (8) certified cocoa producers and eight (8) non-certified producers making a total of 240 respondents to be used for the study.

Method of Data Analysis

Descriptive Statistics: Descriptive Statistics was used in analyzing and describing the socioeconomic characteristics of the respondents as stated specifically in objective one (i). Descriptive statistics consist of frequency counts, percentages, and mean among others.

Gross Margin / Profitability Analysis: The analysis revealed the income accruable to the certified and non-certified cocoa farmers in the study area. The variable cost incurred by the farmers include cost incurred on land preparation, planting materials, agrochemicals, harvesting, labour cost and transportation cost. In situations where fixed capital is just a negligible portion of the farming enterprise, gross-margin analysis is adopted (Olukosi *et al.*, 2006; Adewumi *et al.*, 2012). It is given as:

$$GM = TR - TVC \quad \dots(1)$$

Where,

GM = Gross margin (Naira),

TR = Total revenue from the sales of cocoa measured in Naira and

TVC = Total variable cost (Naira).

According to Ojo *et al.*, (2011), the operating ratio is directly related to the farm variable input usage. The lower the ratio, the higher the profitability. The operating ratio is given as:

$$\text{Operating Ratio} = \frac{TVC}{GI} \quad \dots(2)$$

Where;

TVC = Total variable cost incurred in Naira and GI = Gross income.

The returns on capital invested was also estimated. It is given as:

$$RCI = \frac{GM}{TVC} \quad \dots(3)$$

Where,

RCI = Returns on capital invested, GM= Gross margin and TVC = Total variable cost.

Likert Scale Rating

The weighted mean score was computed using the 5-point rating Likert scale (of Strongly Disagree = 1, Strongly Agree = 5) to determine the factors militating against cocoa farmer certification. The 5-point rating scale of Strongly Disagree, Disagree, Undecided, Agree, and Strong Agree will be assigned 1, 2, 3, 4, and 5 points respectively. The points will be used to calculate the sum by multiplying the number of respondents in each point scale by the point. Mean was calculated by dividing the calculated sum by the number of respondents (responses).

$$WS = 5n + 4n + 3n + 2n + 1n \quad \dots(4)$$

Where,

WS = Weighted Score

n = frequency of each constraint for each rating / level of compliance with certification measure.

$$\text{Means Score (MS)} = \frac{\text{TotalScoreofEachConstraint}}{\text{TotalNumberofRespondents}} \quad \dots(5)$$

The MS was used to rank the severity of the constraints faced by the respondents.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Cocoa Farmers by Certification Status

The socioeconomic characteristics of cocoa farmers in the study area show both commonalities and differences between certified and non-certified farmers. The results indicate that cocoa farming is largely practiced by middle-aged to older farmers, with mean ages of 51.03 years for certified and 52.60 years for non-certified farmers. This finding aligns with the study of Omoare *et al.* (2016) who reported ageing population could be attributed to the rural-urban drift

by the youth which resulted to leaving behind women and old people in the rural areas of Nigeria. The majority of farmers are male which is consistent with the findings of Oduntan and Adegbuyi (2018) who reported that men dominate both the certified and conventional cocoa production in their study area and most of the respondents were married, this findings align with Adetarami *et al.* (2022) who also reported that majority of the cocoa farmers in the study area are married, with average household sizes of about six members, suggesting reliance on family labor

Table 1: Socioeconomic Characteristics of Cocoa Farmers in the Study Area

Variables (n=240)	Certified		Non-Certified	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age (in years)				
≤30	11	9.1	9	7.5
31-40	18	15.0	13	10.7
41-50	23	19.2	23	19.2
51-60	40	33.3	40	33.3
61-70	24	19.0	30	24.9
>70	4	3.3	5	4.0
Mean		51.03		52.60
Gender				
Male	73	60.8	75	62.5
Female	47	39.2	45	37.5
Marital Status				
Single	6	5.0	6	5.0
Married	104	86.7	92	76.7
Divorced	1	0.8	1	0.8
Widowed	9	7.5	17	14.2
Separated	-	-	4	3.3
Household size				
1-4	39	32.5	44	36.7
5-8	70	58.3	66	55.1
>8	11	5.1	10	8.3
Mean		5.6		5.5
Educational status				
No formal education	8	6.7	20	16.7
Primary education	46	38.3	30	25.0
Secondary education	32	26.7	44	36.7
Tertiary education	34	28.3	26	21.7
Cocoa Farm Size (Ha)				
<2.00	56	46.7	39	32.6
2.00-5.00	49	40.6	62	51.5
>5.00	15	12.3	19	15.8
Mean		2.77		3.32

Source: Field Survey (2025)

Educational attainment is higher among certified farmers, who have greater representation in secondary and tertiary education compared to non-certified farmers, where illiteracy is more pronounced. Although non-certified farmers have slightly larger farm sizes and longer farming experience. The result supported the findings of Poelmans and Swinnen (2016) that more than 90% of the world's cocoa is grown by individual farmers who cultivate 1-10 hectares of land and small holder farmers are regarded as people with land holdings of less than 10 hectares, certified farmers record higher productivity in terms of number of cocoa stands planted and yield harvested.

Interestingly, average income is higher among non-certified farmers, possibly reflecting larger farm holdings or alternative income sources. Institutional support appears more favorable for certified farmers, who enjoy greater access to credit facilities and more frequent contact with extension agents. These findings suggest that certification plays an important role in improving farmers' access to services, adoption of improved practices, and productivity, though its impact on income remains mixed.

Table 2: Socioeconomic Characteristics of Cocoa Farmers in the Study Area

Variables (n=240)	Certified		Non-Certified	
	Frequency	Percentage (%)	Frequency	Percentage (%)
≤10	26	21.6	19	15.8
11-20	37	30.7	37	22.5
21-30	28	23.4	30	25.0
31-40	26	21.6	32	26.7
>40	3	2.4	12	10.0
Mean		21.4		25.4
Number of stands planted				
<100	23	19.2	98	81.7
100-200	21	17.5	11	9.2
201-300	38	31.7	2	1.7
301-400	20	16.7	2	1.7
>400	18	15.0	7	5.8
Mean		219.58		117.05
Quantity harvested (kg)				
<250	24	20.0	35	29.2
250-500	48	40.0	47	39.2
501-750	20	16.7	15	12.5
751-1000	12	10.0	11	9.2
>1000	16	13.3	12	10.0
Mean		643.50		496.02
Annual income (₦)				
<500,000	66	53.6	61	50.1
500,000-1,000,000	31	25.0	33	26.7
1,000,001-1,500,000	13	10.4	11	8.9
1,500,001-2,000,000	5	4.0	6	4.8
>2,000,000	5	4.0	9	4.2
Mean		742,253.15		821,524.16
Access to credit				
Yes	54	45.0	35	29.2
No	66	55.0	85	70.8
Contact with extension agents				
Yes	107	89.2	58	48.3
No	13	10.8	62	51.7

Source: Field Survey (2025)

Costs and Return Analysis

The cost and return analysis reveals notable differences in the profitability of certified and non-certified cocoa farmers. Certified farmers incurred a lower total variable cost (₦758,532.63) compared to their non-certified counterparts (₦932,910.9), despite relatively higher expenditures on insecticides and transportation. Non-certified farmers, however, spent considerably more on fungicides (28% of TVC vs. 12.7% for certified), suggesting possible inefficiencies or over-

reliance on chemicals. Certified farmers also obtained higher average yields (643.50 kg) relative to non-certified farmers (496.02 kg), which translated into higher total revenue (₦8.48 million vs. ₦6.30 million). Consequently, certified farmers achieved greater profitability, with a gross margin of ₦7.72 million and net farm income of ₦7.66 million, compared to ₦5.37 million and ₦5.29 million, respectively, for non-certified farmers. The gross margin ratio further indicates higher efficiency among certified farmers (0.91 vs. 0.85), implying that a greater proportion of their revenue was retained after covering variable costs. Overall, the results show that certification not only reduces production costs but also enhances yield, revenue, and profitability, underscoring its positive impact on cocoa farmers' economic performance.

Table 3: Cost and Return Analysis

Items	Certified		Non certified	
	Amount (₦)	Percentage (% of TVC)	Amount (₦)	Percentage (% of TVC)
Fungicide	96,559.83	12.7	261,089	28.0
Insecticide	179,901.6	23.7	192,050.2	20.6
Transportation	216,403.4	28.5	201,910.1	21.6
Storage	64,950	8.6	49,018	5.3
Packaging	115,019.5	15.2	130,231.2	14.0
Labour	85,698.3	11.3	98,612.4	10.6
Total Variable cost(C)	758,532.63		932,910.9	
Hoe and cutlass	9,908.3		8,684.2	
Knapsack spray	17,321.7		18,797.5	
Head pan	4,791.7		8,668.6	
Raised drying platform	5,870.9		6,065.1	
Tarpaulin	17,905.8		23,189.8	
Sickle	4,550		5,216.7	
Rake	3314.3		2,143.3	
Total Fixed Cost (TFC) (D)	63,662.7		72,765.2	
Average amount per kg (A)	13,182.5		12,704.2	
Average yield (kg) (B)	643.50		496.02	
Total Revenue (TR)(A*B)=(E)	8,482,938.75		6,301,537.28	
Total Cost (TC) (D+C)=(F)	822,195.33		1,005,676.1	
Gross Margin (E-C) = (G)	7,724,406.15		5,368,626.38	
Net Farm Income (G-D)=(H)	7,660,743.45		5,295,861.18	
Gross Margin Ratio (G/E)=(I)	0.91		0.85	

Source: Computed from Field Survey, 2025

Constraints Mitigating Against the Certification of Cocoa Farmers

Table 4 presents the distribution of respondents by constraints mitigating certified cocoa farmers in the study area. The result in the table reveals the major challenges faced by certified cocoa farmers. The most severe constraint identified was scarcity of labour, with all respondents either strongly agreeing (47.5%) or agreeing (52.5%), giving it the highest mean score (4.48) and ranking first. This may suggest that certified cocoa production is labour-intensive, and the unavailability of adequate farm labour poses a significant threat to productivity. The second most important constraint was the high incidence of pests and diseases, which 90% of respondents agreed or strongly agreed with (mean = 3.93).

Cocoa farming, particularly under eco-friendly certification standards, often involves restrictions on chemical use, which may heighten vulnerability to pest and disease outbreaks. The

strenuous process of certification was ranked third (mean = 3.03). Nearly half of the farmers agreed that certification procedures are complex, time-consuming, and sometimes discouraging, particularly for smallholders with limited literacy. Low price from buying agents followed closely (mean = 2.93), indicating that farmers perceive limited financial incentives despite complying with certification requirements. Other constraints included low quality of inputs (mean = 2.78), and herdsmen attack (mean = 2.70). High costs of inputs (mean = 2.58) and high cost of certification (mean = 2.51) also posed significant challenges. Less severe constraints included no perceived benefits (mean = 1.88), insufficient land for expansion (mean = 1.81), and certification process wasting valuable time (mean = 1.41).

Table 4: Constraints mitigating Certified Cocoa Farmers

Constraints	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed	Mean	Rank
Scarcity of labour	57(47.5%)	63(52.5%)	-	-	-	4.48	1 st
High incidence of pest and disease	12(10.0%)	96(80.0%)	4(3.3%)	8(6.7%)	-	3.93	2 nd
Strenuous process of certification	4(3.3%)	56(46.7%)	4(3.3%)	52(43.3%)	4(3.3%)	3.03	3 rd
Low price from buying agents	-	56(46.7%)	4(3.3%)	56(46.7%)	4(3.3%)	2.93	4 th
Low quality of inputs	4(3.3%)	35(29.2%)	12(10.0%)	69(57.5%)	-	2.78	5 th
Herdsmen attack	-	42(35.0%)	-	78(65.0%)	-	2.70	6 th
High costs of inputs	-	31(25.8%)	12(12.0%)	73(60.8%)	4(3.3%)	2.58	7 th
High cost of certification	-	31(25.8%)	-	89(74.2%)	-	2.51	8 th
No perceived benefits	-	23(19.2%)	-	36(30.0%)	61(50.8%)	1.88	9 th
Insufficient land for expansion	-	17(14.2%)	-	46(38.3%)	57(47.5%)	1.81	10 th
Certification process wastes valuable time	-	5(4.2%)	4(3.3%)	26(21.7%)	85(70.8%)	1.41	11 th

Source: Field Survey (2025)

Constraints Mitigating Non-Certified Cocoa Farmers

The result on the constraints faced by non-certified cocoa farmers is presented in Table 5. The results on the table shows that the high cost of certification (mean = 4.38) emerged as the most severe constraint. This may suggest that the financial burden of obtaining certification discourages many farmers from enrolling, especially smallholders with limited access to credit. The strenuous process of certification (mean = 3.93) was also identified as a major challenge, implying that bureaucratic procedures and administrative hurdles hindering farmers from pursuing certification. Herdsmen attack (mean = 3.09) was a major constraint, pointing to persistent security issues that not only threaten farm operations but also discourage investment in cocoa production. The low price offered by buying agents (mean = 2.98) indicates the problem of market imperfection, where middlemen exploit farmers, thereby reducing the profitability of their efforts. Similarly, low quality of inputs (mean = 2.77) reduces productivity and can lead to increased vulnerability to pests and diseases. Other moderate challenges included the certification process wasting valuable



time (mean = 2.68), high costs of inputs (mean = 2.60), and scarcity of labour (mean = 2.54), reflecting economic and resource-related constraints that limit efficiency in farm management. Comparatively lower-ranked challenges were no perceived benefits from certification (mean = 2.00), insufficient land for expansion (mean = 1.84), and high incidence of pest and disease (mean = 1.50).

Table 5: Constraints Mitigating Non-Certified Cocoa Farmers

Constraints	Strongly Agreed	Agreed	Undecided	Disagreed	Strongly Disagreed	Mean	Rank
High cost of certification	52(43.3%)	61(50.8%)	7(5.8%)	-	-	4.38	1 st
Strenuous process of certification	9(7.5%)	101(84.2%)	2(1.7%)	8(6.7%)	-	3.93	2 nd
Herdsmen attack	5(4.2%)	58(48.3%)	1(0.8%)	55(45.8%)	1(0.8%)	3.09	3 rd
Low price from buying agents	3(2.5%)	56(46.7%)	2(1.7%)	54(45.0%)	5(4.2%)	2.98	4 th
Low quality of inputs	6(5.0%)	32(26.7%)	10(8.3%)	72(60.0%)	-	2.77	5 th
Certification process wastes valuable time	5(4.2%)	39(32.5%)	2(1.7%)	64(53.3%)	10(8.3%)	2.675	6 th
High costs of inputs	5(4.2%)	31(25.8%)	5(4.2%)	71(59.2%)	8(6.7%)	2.60	7 th
Scarcity of labour	2(1.7%)	28(23.3%)	3(2.5%)	87(72.5%)	-	2.54	8 th
No perceived benefits	-	28(23.3%)	2(1.7%)	32(26.7%)	58(48.3%)	2.00	9 th
Insufficient land for expansion	-	19(15.3%)	-	44(36.7%)	57(47.5%)	1.84	10 th
High incidence of pest and disease	-	8(6.7%)	5(4.2%)	26(21.7%)	81(67.5%)	1.50	11 th

Source: Field Survey (2025)

CONCLUSION AND RECOMMENDATIONS

The study concludes that certification plays a significant role in shaping the socioeconomic characteristics, productivity, and technical efficiency of cocoa farmers in Ogun State. Certified farmers demonstrated better access to institutional support, extension services, and improved practices, which enhanced their productivity and efficiency, although non-certified farmers recorded slightly higher income due to larger farm sizes and alternative income sources. The findings suggest that certification is a useful mechanism for improving resource use and promoting sustainable cocoa production, but challenges such as high certification costs, limited credit access, and labour constraints remain. It is recommended that agricultural extension services should be strengthened to improve farmers' awareness, technical capacity, and compliance with certification standards, provide credit facilities and financial support to ease farmers' access to improved inputs and technologies, subsidize certification costs and simplify the process to encourage more farmers to participate, promote the formation of cooperatives and farmer groups to enhance collective bargaining power and resource sharing, and encourage training programs on sustainable production practices, pest and disease control, and efficient input use.

REFERENCES

- Adetarami, O., Olagunju, O., Oyebamiji, B. A. Odeyemi, A. A. and Johnson, S. B. (2022). Profitability and Utilization of Farmer Business School Extension Approach on Smallholder Cocoa Farmers in Nigeria. *Sarhad Journal of Agriculture*, 38(3):851-861.



- Adewumi, M. O., Jimoh, A. and Omotesho, O. A. (2013). Implications of the Presence of Large Scale Commercial Farmers on Small Scale Farming in Nigeria. The Case of Zimbabwean Farmers in Kwara State. *Knowledge Horizons. Economics*, 5(4):67-77.
- FAO (2015). *Good Agricultural Practices for Cocoa Production*. Food and Agriculture Organization of the United Nations, Rome.
- Hutz-Adams, F., and Fountain, A. C. (2015). Looking for a living income. Cocoa Barometer. Imbens, G. W., and Wooldridge, J. M. (2009). Recent developments in the econometrics of program evaluation. *Journal of economic literature*, 47(1):5-16.
- Kolawole, O. and Ajayi, O. (2014). Socio-economic factors influencing cocoa production in Nigeria: Implications for certification. *African Journal of Agricultural Research*, 9(7):659–667.
- Oduntan, O. and Adegbuyi, S. M. (2018). Factors influencing farmers' level of compliance to the cocoa certification programme in idanre local government area of ondo state, Nigeria, *Applied Tropical Agriculture*, 26(1):216–223.
- Ojo, M. A., Onwordi, S. O., Olaleye, R. S., Ojo, A. O., Tsado, J. H. and Abu, O. (2011). Analysis of Socio-economic Effects of the Use of Tractor in Arable Crops Production in Zamfara State, Nigeria.” Proceedings of the 12th annual national conference of the Nigeria Association of Agricultural Economists, pp 150 – 158.
- Olabisi, M., and Adeola, O. (2020). Certification and smallholder cocoa farmers' income in Southwest Nigeria. *International Journal of Agricultural Economics and Rural Development*, 12(1):66–77.
- Olukosi, J. O., Isitor, S. O. and Ode, M. O. (2006). *Introduction to agricultural marketing and prices: principles and application*. Living book series, GU Publication, Abuja.
- Oseni, J. O. and Adams, A. Q. (2013). Cost Benefit Analysis of Certified Cocoa Production in Ondo State, Nigeria. *4th International Conference of the African Association of Agricultural Economists, Hammamet, Tunisia*, 1-31.
- Oyediran, O. (2018). Cocoa production and livelihoods in Nigeria: Challenges and opportunities. *Agricultural Policy Review*, 10(3):45–57.
- Poelmans, E. and Swinnen, J. (2016). A brief economic history of chocolate. In M. P. Squicciarini and J. Swinnen (Eds.), *The economics of chocolate* (pp. 11–42). Oxford University Press
- Ruf, F., N'Dao, Y. and Lemeilleur, S. (2018). Certification of cocoa, a high-risk strategy. *Inter-réseaux*, 1-8. Retrieved from <http://www.inter-reseaux.org/ressources-thematiques/article/forum-certification-du-cacao>
- Samuel, A. O. (2017). Problem and prospects of Cocoa production in Nigeria Economy: A review. *International Journal of Social Sciences*, 11(2):32-43.
- Salau, A. S., and Agbede, T. B. (2020). Assessment of public relations among certified and non-certified cocoa marketers in Ondo State, Nigeria. *Electronic Journal of Polish Agricultural Universities*, 23(4), 6 - 19.
- World Cocoa Foundation (2019). *Cocoa Market Update*. Washington, D.C.