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COMPARATIVE ANALYSIS OF THE UTILIZATION OF IMPROVED COCOA PRODUCTION TECHNOLOGIES BY RURAL FARMERS IN CROSS RIVER AND AKWA IBOM STATES, NIGERIA

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ABSTRACT
The study comparatively assessed the utilization of improved cocoa production technologies by rural farmers in Cross River and Akwa Ibom States, Nigeria. A multi-stage sampling technique was employed to collect data for the study from 240 respondents using a structured questionnaire and FGD. The study data were analyzed using descriptive statistics. Major results showed that in Cross River State, the highly utilized improved cocoa production technology was Control of black pod disease with fungicides ($\bar{x}$ =3.91), while the farmers in Akwa Ibom State utilized most of the technology on weed control with herbicides ($\bar{x}$ = 3.65). However, the grand means of $\bar{x}$ = 3.38 and $\bar{x}$ = 3.22 recorded in Cross River and Akwa Ibom States, respectively, indicated that there was a high level of utilization of improved cocoa production technologies. In Cross River State, the result showed that the high cost of labour ($\bar{x}$ = 3.59) was a very serious constraint, while in Akwa Ibom State, the activities of middlemen came first ($\bar{x}$ = 3.65) as a very serious constraint to the utilization of technologies. The grand mean scores of 3.20 recorded in Cross River State and 3.07 in Akwa Ibom State implied that the constraints that affected the utilization of technologies were very serious. The study concluded that rural farmers in both States faced very serious constraints in utilizing the technologies and therefore recommended that the government should intervene to reduce the high cost of labour and check the activities of middlemen to boost utilization of the technologies.

Keywords: Constraints; Utilization; Improved Cocoa production technologies, rural households

INTRODUCTION

Nigeria is largely known for its cocoa production in the World. The States of Akwa-Ibom, Cross River, Delta, and Edo were among those in South-South Nigeria that produce cocoa. However, Cross River ranked first and was followed by Akwa Ibom State. Among the eighteen Local Government Areas (LGAs) in Cross River State, fourteen of them are known to produce cocoa, making the State the second largest producer of cocoa in Nigeria. Cross River State cultivated the biggest land area, covering 327.91 hectares, while Akwa Ibom State followed closely behind (Afolayan, 2020).

Nigeria's primary agricultural export is cocoa, which contributes 0.3% of the country's agricultural GDP, and in the first quarter of 2022, Nigeria's earnings from exports accounted for around 41.6% of its foreign exchange earnings, which came from raw cocoa beans, which brought in N122.9 billion (Agency Report, 2022).

The Nigerian Cocoa Research Institute (CRIN) has developed a number of technological advancements and improvements that may lessen the difficulties Nigerian cocoa farmers encounter in growing and processing cocoa. The technologies that are essentially production-focused are meant to assist farmers in increasing their yields. Improved seedlings, suggested fertilizer rates and applications, suggested herbicide and pesticide rates and applications, and enhanced management technologies are some of these production technologies (CRIN publication, 2023). The use of technology in Integrated Pest Management (IPM) is helping farmers live better lives. IPM can assist farmers in achieving both financial and health benefits in terms of increased output and income (FAO, 2023). Nonetheless, Essiet (2018), as cited in Ukoha and Kalu (2025), noted that further technological utilization is necessary to maximize production and quality of cocoa. Better farming methods and post-harvest procedures will also improve yields and improve cocoa quality Furthermore, farmers often report issues with distribution and delivery delays of agricultural inputs, as well as difficulties in accessing extension services, which are often too costly for the average farmer to pay.

In addition, the majority of technologies that are given to farmers are unsuitable for use at the farm level since they do not yield economic benefits. Resource-poor farmers sometimes find them socially undesirable, and they fail to meet their needs (Agbarevo and Okringbo, 2020). It therefore becomes imperative to empirically investigate constraints to the utilization of improved cocoa production technologies by rural households in Cross River and Akwa Ibom States, with the following specific objectives: to assess rural households' access to improved cocoa production technologies, ascertain rural households' level of utilization of improved cocoa production technologies, and ascertain the constraints to utilizing improved cocoa production technologies in the study area.

METHODOLGY

The study was carried out in Cross River and Akwa Ibom States, Nigeria. Both States are in the South-South geopolitical Zone of Nigeria. The Cross River State has an estimated population of over 3.8 million, while Akwa Ibom State has an estimated population of nearly 5.5 million as of 2016.

Sample and Sampling Procedure. A multistage sampling procedure was employed to select the sample for the study. It employed purposive sampling in both the States of Cross River and Akwa Ibom States in selecting three Local Government Areas (LGAs), depending on the level of cocoa farming in the area. For Cross River State, namely, Boki, Etung, and Ikom, LGAs were purposively selected, while in Akwa Ibom, Ini, Ikono, and Ibiono LGAs were selected. This meant a total of six LGAs. In the third stage, four 4 communities were equally purposively selected from each LGA, bringing the total number to 24 communities. Continuing, 10 rural farmers were purposively selected from each of the communities to give rise to a total of two hundred and forty (240) cocoa rural farmers.

Measurement of Variables

Objective I, access to improved cocoa production technologies, was realized using a 4-point rating scale, namely: Always = 4, Sometimes = 3, Rarely =2, Never = 1. The benchmark was obtained thus: 4+3+2+1 = 10, divided by 4 to give 2.50. This implied that any mean score responses below the benchmark mean (less than 2.50) were adjudged to be a low level of access to improved cocoa production technology, while those from 2.50 – 2.99 were adjudged to be moderate level of access, and those from 3.00 and above (≥ 3.00) were adjudged to be a high level of access to improved cocoa production technology.

In order to achieve **Objective ii** which is to ascertain the level of utilization of improved cocoa production technologies, a 4-point rating scale was used, namely: Always = 4, Sometimes = 3, Rarely = 2, Never = 1. The benchmark was obtained thus: 4+3+2+1 = 10, divided by 4 to give 2.50. This implied that any mean score responses below the benchmark mean (less than 2.50) were adjudged to be a low level of utilization, while from 2.50 – 2.99 was said to be moderate level of utilization, and from 3.00 and above (≥ 3.00) was adjudged a high level of utilization.

To ascertain constraints on utilizing improved cocoa production technologies, as stated in **Objective iii,** a 4-point rating scale was used, that is, very serious = 4, serious = 3, not serious = 2, and not very serious = 1. The benchmark was obtained thus: 4+3+2+1 = 10, divided by 4 to give 2.5. This implied that any mean score responses below 2.00 were adjudged 'Not a constraint', 2.01 – 2.49 'less serious constraint' to utilizing improved cocoa production technologies, while from 2.50 – 2.99 was said to be a serious constraint, and from 3.00 and above (≥ 3.00) was adjudged a very serious constraint to the utilization of improved cocoa production technologies.

RESULTS AND DISCUSSION

Level of Access to Improved Cocoa Production Technologies

Result of the level of access to improved cocoa production technologies as presented in Table 1, showed that in Cross River State, the improved cocoa production technologies like Control of black pod fungicides had the highest level of access by farmers (with a mean $\bar{x} = 3.89$), the one on Fermentation and drying of cocoa beans ranked 2nd with a mean $\bar{x} = 3.81$, weed control (cultural maintenance) came 3rd with a mean $\bar{x} = 3.61$, while fertilizer application ($\bar{x} = 3.48$) took the 4th highest position in the ranking order of the level of access of farmers to improved cocoa production technology. Other improved cocoa production technologies, such as Control of capsids ($\bar{x} = 3.47$), Complete Farm and phased farm replanting ($\bar{x} = 3.46$), coupon regeneration (3.18), weed control with herbicides (3.08), and Improved seedlings ($\bar{x} = 3.18$) came 5th, 6th, 7th, 8th, and 9th positions respectively in ranking. The technology on Coppicing and grafting ($\bar{x} = 2.93$) and Improved Seedlings were moderately accessed, taking the 9th and 10th positions on the ranking Table. None of the technologies had low access by rural households in Cross River State. This could be attributed to the level of awareness and enlightenment in the area.

In Akwa Ibom State, Control of Capsids topped the rank with a mean of 3.59. This was closely followed by weed control with herbicides ($\bar{x} = 3.58$), control of black pod $\bar{x} = 3.56$), Improved Seedlings ($\bar{x} = 3.49$), Fermentation and Drying ($\bar{x} = 3.46$) weed control (cultural maintenance) ($\bar{x} = 3.37$), Fertilizer application ($\bar{x} = 3.25$) and complete farm phasing ($\bar{x} = 3.07$) as 2nd, 3rd, 4th,5th,6th, 7th and 8th positions respectively as highly accessed technologies by rural households in the State. However, the improved cocoa production technologies on Coupon regeneration, coppicing, and grafting cocoa trees recorded low-level access with mean scores of 2.49 and 1.96, respectively. This could be attributed to the fact that coppicing is mainly carried out when a cocoa tree is diseased and old. Hence, the technology may only be accessed whenever the need arises. This agrees with the findings of Akinkpelu, Lawal, Ibiremo, and Ogunwolu (2021).

The grand means of 3.38 and 3.18 recorded in both the States of Cross River and Akwa Ibom, respectively, showed that there was a high level of access to improved cocoa production technologies in the study area. This result is in tandem with the Focus Group Discussion (FGD) result, where the rural households in the study area agreed that they had very good access to the improved cocoa production technologies.

Table 1: Distribution of Rural Households Based on Level of Access to Improved Cocoa Production Technologies

	CROSS RIVER								AKWA IBOM							
Improved Cocoa Technologies	**A 4**	**S 3**	**R 2**	**N 1**	$\sum fx$	$\bar{x}$	**Rank**	**Remark**	**A 4**	**S 3**	**R 2**	**N 1**	$\sum fx$	$\bar{x}$	Rank	**Remark**
Improved Seedlings	48(192)	25(75)	30(60)	17(17)	344	**2.87**	**7th**	**Moderate**	82(328)	19(57)	15(30)	4(4)	419	**3.49**	**4th**	**High**
Weed control (cultural maintenance)	84(336)	28(84)	5(10)	3(3)	433	**3.61**	**3rd**	**High**	66(264)	37(111)	12(24)	5(5)	404	**3.37**	**6th**	**High**
Control of black pod disease with fungicides	110(440)	8(24)	1(2)	1(1)	467	**3.89**	**1st**	**High**	80(320)	29(87)	9(18)	2(2)	427	**3.56**	**3rd**	**High**
Fertilizer application	79(237)	28(84)	4(8)	9(9)	338	**2.82**	**8th**	**Moderate**	65(260)	30(90)	15(30)	10(10)	390	**3.25**	**7th**	**High**
Control of capsids with insecticides	83(332)	22(66)	3(6)	12(12)	416	**3.47**	**4th**	**High**	88(352)	22(66)	3(6)	7(7)	431	**3.59**	**1st**	**High**
Weed control with herbicides	67(201)	19(57)	10(20)	24(24)	302	**2.52**	**9th**	**Moderate**	91(364)	16(48)	4(8)	9(9)	429	**3.58**	**2nd**	**High**
Fermentation and drying	101(404)	15(45)	4(8)	0(0)	457	**3.81**	**2nd**	**High**	87(348)	12(36)	10(20)	11(11)	415	**3.46**	**5th**	**High**
Complete farm and phased farm replanting	73(222)	30(90)	16(32)	1(1)	345	**2.87**	**7th**	**Moderate**	62(188)	26(78)	10(20)	22(22)	308	**2.57**	**8th**	**Moderate**
Coupon regeneration	47(188)	51(153)	19(38)	3(3)	382	**3.18**	**5th**	**High**	30(120)	32(96)	25(50)	33(33)	299	**2.49**	**9th**	**Low**
Coppicing and grafting	34(136)	48(144)	34(68)	4(4)	352	**2.93**	**6th**	**Moderate**	17(68)	18(54)	28(56)	57(57)	235	**1.96**	**10th**	**Low**
Grand Mean						**3.38**		**High**						**3.18**		

Source: Field Survey Data, 2024

Note: ≤ 2.49 = Low level of Access; 2.50 – 2.99 = Moderate level of Access and ≥ 3.00 = High level of Access

A (Always), S (Sometimes), R (Rarely), N (Never)

Level of Utilization of Improved Cocoa Production Technologies

The results in Table 2 on the level of utilization of improved cocoa production technologies in Cross River State showed that the highest utilized improved cocoa production technology by the farmers was Control of black pod disease with fungicides ($\bar{x}$ =3.91). This was closely followed by Fermentation and drying of cocoa pods ($\bar{x}$ = 3.84), Control of Capsids with insecticides ($\bar{x}$ = 3.63), Complete farm and phased farm replanting ($\bar{x}$ = 3.41), Weed control (cultural maintenance) ($\bar{x}$ = 3.55), Fertilizer application ($\bar{x}$ = 3.42), Coupon regeneration ($\bar{x}$ = 3.01) and weed control with herbicides ($\bar{x}$ = 3.11) came 2nd, 3rd, 4th, 5th, 6th, 7th and 8th position respectively on the ranking Table. However, coppicing and grafting of cocoa trees ($\bar{x}$ =2.87) and improved seedlings ($\bar{x}$ = 2.63) came 9th and 10th respectively, recording a moderate level of utilization. These technologies that witnessed moderate utilization were equally moderately accessed. This could be as a result of the fact that coppicing is always done when a cocoa tree is diseased and old. Hence, it may only be utilized when the need arises. This agrees with the findings of Akinpelu, Lawal, Ibiremo, and Ogunwolu (2021).

In Akwa Ibom State, the highest utilized improved cocoa production technology by the rural households was weed control with herbicides ($\bar{x}$ = 3.65). This was closely followed by improved seedlings ($\bar{x}$ = 3.62), Control of black pod disease with fungicides ($\bar{x}$ =3.58), Control of Capsids with insecticides ($\bar{x}$ = 3.49), Fermentation and drying of cocoa pods ($\bar{x}$ = 3.45), Fertilizer application ($\bar{x}$ = 3.38), Complete farm and phased farm replanting ($\bar{x}$ = 3.25), Weed control (cultural maintenance) ($\bar{x}$ = 3.13) came 2nd, 3rd, 4th, 5th, 6th, 7th and 8th position respectively on the ranking Table and were all highly utilized. Coupon regeneration ($\bar{x}$ = 2.72) had a moderate level of utilization.

Therefore, in Cross River State, the highly utilized improved cocoa production technology was Control of black pod disease with fungicides ($\bar{x}$ =3.91) and the moderately utilized improved technology by the rural household ds was improved seedlings ($\bar{x}$ = 2.63) while the rural households in Akwa Ibom State utilized most the technology on weed control with herbicides ($\bar{x}$ = 3.65) and the least utilized was coppicing and grafting of cocoa trees ($\bar{x}$ = 1.89).

The grand means ($\bar{x}$ = 3.38) and ($\bar{x}$ = 3.22) recorded in Cross River and Akwa Ibom States, respectively, showed that there is a high level of utilization of improved cocoa production technologies in the study area. This might be as a result of the high level of access to these improved production technologies by the rural households in the study area. This finding collaborates with the findings of Ukoha and Anyanwu (2026) and Nwokocha (2022) that farmers accept and utilize innovations when they are fully aware of the relevance of the innovation. Farmers can only utilize technologies when they are aware of the technologies.

This result is in tandem with the Focus Group Discussion (FGD) result, where the rural households in the study area agreed that they utilize the improved cocoa production technologies transferred to them very well.

Table 2: Distribution of Cocoa farmers based on Level of Utilization of Improved Cocoa Production Technologies

	CROSS RIVER								AKWA IBOM							
Improved Cocoa Technologies	**A 4**	**S 3**	**R 2**	**N 1**	**$\sum fx$**	**$\bar{x}$**	**Rank**	**Remark**	**A 4**	**S 3**	**R 2**	**N 1**	**$\sum fx$**	**$\bar{x}$**	**Rank**	**Remark**
Improved Seedlings	32(128)	28(84)	43(86)	17(17)	315	**2.63**	**10th**	**Moderate**	87(348)	21(63)	11(22)	1(1)	434	**3.62**	**2nd**	**High**
Weed control (cultural maintenance)	80(320)	28(84)	6(12)	6(6)	422	**3.51**	**5th**	**High**	45(180)	49(147)	23(46)	3(3)	376	**3.13**	**8th**	**High**
Control of black pod disease with fungicides	109(436)	11(33)	0(0)	0(0)	469	**3.91**	**1st**	**High**	92(368)	15(45)	4(8)	9(1)	422	**3.52**	**3rd**	**High**
Fertilizer application	74(296)	31(93)	6(12)	9(9)	410	**3.42**	**6th**	**High**	65(260)	39(117)	12(24)	4(4)	405	**3.38**	**6th**	**High**
Control of capsids with insecticides	91(364)	20(60)	2(4)	7(7)	438	**3.65**	**3rd**	**High**	64(256)	52(156)	3(6)	1(1)	419	**3.49**	**4th**	**High**
Weed control with herbicides	68(272)	23(69)	3(6)	26(26)	373	**3.11**	**8th**	**High**	88(352)	26(78)	2(4)	4(4)	438	**3.65**	**1st**	**High**
Fermentation and drying	107(428)	10(30)	0(0.0)	1(1)	459	**3.83**	**2nd**	**High**	82(328)	22(66)	4(8)	12(12)	414	**3.45**	**5th**	**High**
Complete farm and phased farm replanting	75(300)	38(114)	6(12)	1(1)	427	**3.56**	**4th**	**High**	69(276)	25(75)	13(26)	13(13)	390	**3.25**	**1th**	**High**
Coupon regeneration	51(204)	55(165)	13(26)	1(1)	396	**3.30**	**7th**	**High**	31(124)	37(111)	39(78)	13(13)	326	**2.72**	**9th**	**Moderate**
Coppicing and grafting	30(120)	51(153)	32(64)	7(7)	344	**2.87**	**9th**	**Moderate**	16(64)	9(27)	41(82)	54(54)	227	**1.89**	**10th**	**Low**
Grand Mean						**3.38**		**High**							**3.22**	**High**

Source: Field Survey Data, 2024

Note: ≤ 2.49 = Low level of Utilization; 2.50 – 2.99 = Moderate level of Utilization and ≥ 3.00 = High level of Utilization A (Always), S (sometimes), R (Rarely), N (Never)

Constraints to Utilization of Improved Cocoa Production Technologies among Rural Households in the Study Area

Results of Constraints to the utilization of improved cocoa production technologies among rural households are presented in Table 3. In Cross River State, the result showed that the high cost of labour ($\bar{x}$ = 3.59) was a very serious constraint to the utilization of improved cocoa production technologies. Other very serious constraints included inadequate training on farm practices ($\bar{x}$ = 3.58); cocoa bean price fluctuation ($\bar{x}$ = 3.55); low incentives/subsidies on farm inputs ($\bar{x}$ = 3.49); inadequate access to credit/loan ($\bar{x}$ = 3.33); Distance to Input Centre ($\bar{x}$ = 3.33); activities of middlemen ($\bar{x}$ = 3.29); high taxation on cocoa beans ($\bar{x}$ = 3.24); late arrival of improved technology farm inputs ($\bar{x}$ = 3.23); low/lack of formal education ($\bar{x}$ = 3.14); unfavourable agricultural policies ($\bar{x}$ = 3.05) and inadequate information and linkage to market ($\bar{x}$ = 3.09) that came 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th and 12th respectively as constraints that have serious effect on the utilization of improved cocoa production technologies among rural households involved in cocoa production in the study area.

However, variables like inadequate extension services ($\bar{x}$ = 2.76) and Poor/eroded soil conditions ($\bar{x}$ = 2.84) ranked 13th and 14th, respectively, and had serious constraints on the utilization of improved cocoa production technologies by the members of the rural households. However, unfavorable climatic and weather conditions ($\bar{x}$ = 2.28) had less serious effects on the utilization of the technologies, thereby ranking 15th on the table. The climatic and weather conditions of the study area had never posed a serious challenge to cocoa production.

In Akwa Ibom State, the result showed that the activities of middlemen came first ($\bar{x}$ = 3.65) as a very serious constraint to the utilization of improved cocoa production technologies. This was followed by cocoa bean price fluctuation ($\bar{x}$ = 3.31); high cost of labour ($\bar{x}$ = 3.30); high taxation on cocoa beans ($\bar{x}$ = 3.23); inadequate training on farm practices ($\bar{x}$ = 3.15); unfavourable agricultural policies ($\bar{x}$ = 3.14); inadequate extension services ($\bar{x}$ = 3.10); low incentives/subsidies on farm inputs ($\bar{x}$ = 3.10); inadequate access to credit/loan ($\bar{x}$ = 3.03); unfavorable climatic and weather conditions ($\bar{x}$ = 3.02); that came 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th and 10th respectively as constraints that have very serious effect on the utilization of improved cocoa production technologies among rural households involved in cocoa production in the study area.

However, variables like Distance to Input Centre ($\bar{x}$ = 2.96), inadequate information and linkage to market ($\bar{x}$ = 2.87), Poor/eroded soil conditions ($\bar{x}$ = 2.84) low/lack of formal education ($\bar{x}$ = 2.81), late arrival of improved technology farm inputs ($\bar{x}$ = 2.81) and improved technology attributes ranked 11th, 12th, 13th, 14th and 15th respectively, as serious constraints on the utilization of improved cocoa production technologies by the members of the rural households.

In Cross River, the serious constraints are high cost of labour ($\bar{x}$ = 3.59), inadequate training on farm practices ($\bar{x}$ = 3.58), and cocoa bean price fluctuation ($\bar{x}$ = 3.55), which were the most serious constraints that influenced utilization of improved cocoa production technologies in the State. Furthermore, in Akwa Ibom State, activities of middlemen ranked highest ($\bar{x}$ = 3.65), followed by high cost of labour with a mean of ($\bar{x}$ = 3.45). This indicates that two variables affected the utilization of improved cocoa production in the study area. The activities of middlemen contribute to price volatility by buying from farmers and selling to international trading companies, potentially leading to price discrepancies, severe underpricing, debt traps, and income reduction for the farmers after a bumper harvest from utilizing the improved cocoa production technologies. The finding is also in agreement with that of Obisesan et al (2026) that middlemen extort farmers, thereby impoverishing them, as farmers sell their products indirectly through a cooperative or a licensed buying agent who, in turn sell it to exporting firms. Then the farmers end up making little or no profit from their produce. This, of course, to a great extent influences their wellbeing since the farmers' livelihood is centered on cocoa farming.

The high cost of labour in cocoa production can limit the financial resources available to the farmers for investing in improved cocoa technologies, such as modern equipment, quality inputs, and training, thereby hindering the utilization and advancement.

Furthermore, Mossie, Gerezgiher, Ayalew, and Nigussie (2021) suggest that government intervention involving subsidies and taxes helped farmers utilize agricultural innovation in their practices, thereby encouraging large scale utilization of production technologies.

The grand mean scores of 3.20 (Cross River State) and 3.07 (Akwa Ibom State) implied that the constraints that affected the utilization of improved cocoa production technologies were very serious.

Table 3: Distribution of Rural Households based on Constraints they have in utilizing improved Cocoa Production Technologies in Cross River and Akwa Ibom States

Constraints	CROSS RIVER VS 4	S 3	LS 2	NS 1	∑fx	$\bar{x}$	Rank	Remark	AKWA IBOM VS 4	S 3	LS 2	NS 1	∑fx	$\bar{x}$	Rank	Remark
Activities of middlemen	70(280)	21(63)	23(46)	6(6)	359	**3.29**	6th	VSC	93(372)	14(42)	11(22)	2(2)	439	**3.66**	**1st**	VSC
Distanc to input Centre	62(248)	38(114)	18(36)	2(2)	400	**3.33**	5th	VSC	45(180)	37(111)	26(52)	12(12)	355	**2.96**	**10th**	SC
Late arrival of Improved technology farm inputs s	56(224)	38(114)	24(48)	2(2)	388	**3.23**	8th	VSC	42(168)	33(99)	25(50)	20(20)	337	**2.81**	**14th**	SC
InadequateInformation and linkage to market	64(256)	21(63)	17(34)	18(18)	371	**3.09**	10th	VSC	42(168)	29(87)	40(80)	9(9)	344	**2.87**	**11th**	SC
Inadequate access to credits/loan	70(280)	23(69)	23(46)	4(4)	399	**3.33**	5th	VSC	43(172)	41(123)	32(62)	4(4)	361	**3.01**	**9th**	VSC
Unfavorable Agricultural Insurance Policies	58(232)	27(81)	18(36)	17(17)	366	**3.05**	11th	VSC	57(228)	29(87)	28(56)	6(6)	377	**3.14**	**6th**	VSC
Cocoa bean price fluctuation	78(312)	33(99)	6(12)	3(3)	426	**3.55**	3rd	VSC	58(232)	47(141)	9(18)	6(6)	397	**3.31**	**2nd**	VSC
High taxation on cocoa beans	71(284)	30(90)	12(24)	7(7)	389	**3.24**	7th	VSC	50(200)	51(153)	15(30)	4(4)	387	**3.23**	**4th**	VSC
Inadequate extension services	37(148)	32(96)	36(72)	15(15)	331	**2.76**	14th	LSC	45(180)	48(144)	21(42)	6(6)	372	**3.10**	**7th**	VSC
Low Incentives/Subsidies on farm Input	70(280)	41(123)	7(14)	2(2)	419	**3.49**	4th	VSC	51(204)	38(114)	23(46)	8(8)	372	**3.10**	**7th**	VSC
Inadequate training on farm practices	84(336)	24(72)	9(18)	3(3)	427	**3.58**	2nd	VSC	55(220)	31(93)	31(62)	3(3)	378	**3.15**	**5th**	VSC
Unfavorable Climatic and weather	42(168)	15(45)	38(36)	25(25)	274	**2.28**	15th	LC	36(144)	53(159)	28(56)	3(3)	362	**3.02**	**8th**	VSC
Low/lack of formal education	58(232)	32(96)	19(38)	11(11)	377	**3.14**	9th	VSC	37(148)	30(90)	46(92)	7(7)	337	**2.81**	**14th**	VSC
Improved technology attributes	39(156)	36(108)	37(74)	8(8)	346	**2.88**	12th	SC	34(136)	27(81)	52(104)	7(7)	328	**2.73**	**15th**	SC
Poor/eroded soil conditions	46(184)	19(57)	45(90)	10(10)	341	**2.84**	13th	SC	43(172)	25(75)	42(84)	10(10)	341	**2.84**	**13th**	SC
High cost of Labour	84(336)	25(75)	7(14)	4(4)	429	**3.59**	1st	VSC	74(296)	17(51)	20(40)	9(9)	396	**3.30**	**3rd**	SC
Grand Mean						**3.20**		**VSC**						**3.07**		**VSC**

Source: Field Survey Data, 2024

Note: ≤ 2.00 NS; 2.01 - 2.49 = Less serious constraint (LSC); 2.50 – 2.99 = Serious Constraint (SC) and ≥ 3.00 = Very Serious Constraint (SC)

VS (Very serious), S (Serious), LS (Less serious Constraint), NS (Not Serious)

CONCLUSION AND RECOMMENDATIONS

The study concluded that the activities of middlemen, high cost of labour, cocoa bean price fluctuation, inadequate training on farm practices, high taxation on cocoa beans, low incentives/subsidies on farm inputs, inadequate access to credit/loan, distance to input center, and unfavourable agricultural policies were, amongst others, very serious constraints to the utilization of improved cocoa production technologies in both States. Though the constraints were more severe in Cross River State than in Akwa Ibom State.

The study therefore recommended that:

1. Activities of middlemen in the business of cocoa production and marketing have to be checked by the Government of Akwa Ibom State in order not to erode the gains made through the utilization of improved cocoa production technologies.
2. Governments of both Cross River and Akwa Ibom States can put in place a price regulatory mechanism by reintroducing the Cocoa Marketing Board to reduce the loss of income rural households sustain due to cocoa bean price fluctuation. This will enhance their economic wellbeing.
3. High taxation on cocoa beans is a serious constraint in the utilization of cocoa technologies in both States; hence Government needs to reduce the heavy load of taxation borne by rural households in the course of marketing their produce, as exporters transfer the high tax to them. This will enhance the access and utilization of the improved cocoa production technologies.

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