



Knowledge, perception, and willingness to pay for cocoa rehabilitation in Ghana

Knowledge, Perception, and Willingness to Pay for Cocoa Rehabilitation in Ghana

Research Report

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This paper presents findings from a knowledge, perception, and willingness to pay for cocoa rehabilitation study of the cocoa rehabilitation and establishment in cocoa-based farming systems in the humid forest zones of West Africa under the TAFS-WCA initiative

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Abbreviation

GAP	Good Agricultural Practices
IITA	International Institute of Tropical Agriculture
TAFS-WCA	Transforming agrifood systems in west and central Africa
KKFU	Kuapa Kokoo Farmers Union
Ofi	Olam Food Ingredients
PPPs	Public and Private partnerships

Abstract

Cocoa rehabilitation and establishment within cocoa-based farming systems in the humid forest zones of West Africa form an integral part of the broader TAFS-WCA initiative. This initiative aims to improve access to high-quality, nutrient-dense seeds and promote climate-smart agricultural practices, ultimately reducing post-harvest losses. The overarching goal is to evaluate the positive impacts of these measures on food, nutrition, and health security. Specifically, within the cocoa sector of West Africa, the initiative seeks to enhance cocoa and food crop yields while facilitating the sustainable growth of timber tree species to mitigate the environmental impact of cocoa production on forests and biodiversity. This study specifically focuses on assessing farmers' knowledge on cocoa rehabilitation, their perceptions towards rehabilitation of old and diseased cocoa farms, and the extent of their willingness to contribute financially to cocoa rehabilitation services. Employing a multistage sampling procedure, farmers from six project partners across two cocoa-growing regions, encompassing twelve districts and seventy communities in Ghana, were purposefully targeted at one stage and later randomly sampled from the larger pool of available farmers. The findings reveal that farmers demonstrated a substantial level of awareness and comprehension regarding rehabilitation, with a greater prevalence of knowledge among male farmers and a significantly heightened awareness in the Ashanti Region compared to the Ahafo region. Despite this awareness, farmers generally view rehabilitation as a labour-intensive, expensive, and time-consuming undertaking. This notwithstanding, farmers recognized the positive impact on cocoa yield quality and quantity. Farmers expressed a willingness to commit a financial contribution ranging from GH¢100 to GH¢500 per acre for cocoa rehabilitation on their farms. Despite acknowledging the associated benefits of rehabilitation, financial constraints emerged as a significant barrier, curtailing farmers' capacity to invest in essential activities and technologies. This underscores the critical necessity of addressing financial accessibility issues to motivate and empower farmers to actively participate in rehabilitation endeavors within their cocoa farms.

1. Introduction

The Transforming AgriFood Systems in West and Central Africa (TAFS-WCA) initiative, led by OneCGIAR, is dedicated to enhancing food and nutrition security and fostering climate resilience within agri-food systems in West and Central Africa. The primary objective is to improve accessibility to high-quality seeds featuring nutrient-dense crop varieties, climate-smart agricultural practices (GAP), and technologies that effectively mitigate post-harvest losses. The initiative is driven by the aim of generating positive impacts on food, nutrition, and health security, with a particular emphasis on adaptation to climate change and beneficial outcomes for poverty reduction, livelihood improvement, and job creation, particularly among youth and women. TAFS-WCA places a pivotal focus on advancing environmental health and biodiversity conservation, all while ensuring the responsible governance of natural resources. Additionally, the initiative actively contributes to establishing a socially inclusive platform that facilitates public and private partnerships (PPPs).

Cocoa-based farming systems play a significant role in the agricultural foreign earnings of West Africa, serving as a major contributor to the income of over 2 million households. These systems are pervasive across the agrarian landscape, covering approximately 4.3 million hectares of arable land in Ghana, Cameroon, Côte d'Ivoire, and Nigeria (O'Sullivan and Vanamali, 2020). Despite its prominence, the reported average yield is relatively low, ranging from 200-700 kg per hectare, in contrast to the potential yield of about 2,000 kg or more reported in research stations (Asare, 2019). The substantial yield gap can be attributed to various factors, including aging cocoa trees, inadequate cocoa planting materials, insufficient soil fertility management, the prevalence of diseases and pests, and the advanced age of farmers, compounded by a general lack of knowledge regarding good agricultural practices (Kongor et al., 2018).

As a consequence, farmers have resorted to decades of migratory extensive cocoa farming practices, significantly contributing to deforestation and biodiversity loss in the Upper Guinean rainforest. Currently, less than 20% of the rainforest remains in West Africa (Kalischek et al., 2023; Benefoh et al., 2018). This underscores the urgent need for sustainable agricultural practices and enhanced knowledge dissemination to address the challenges faced by cocoa-based farming systems, promote higher yields, and mitigate the adverse environmental impacts associated with traditional farming approaches in the region.

In the past, smallholder farmers in cocoa and food crop cultivation expanded the sector by moving into new regions rich in forest resources. However, this approach is no longer viable due to fast rate of deforestation occurring in the West African Guinea rainforest areas. To balance the need for development, food security, and economic progress while conserving the remaining forest fragments, countries such as Côte d'Ivoire, Cameroon, Ghana, and Nigeria, which collectively account for 70% of global cocoa beans production, have implemented various initiatives geared towards assisting cocoa farmers in rehabilitating 1000s of hectares of diseased and aging cocoa farms (Schroth et al., 2016; Wessel, M., & Quist-Wessel, 2015)

These endeavors have been conducted with donor funding and governmental subsidies, covering planting materials for cocoa, food crops, and timber species, as well as fertilizers. The underlying assumption is that the potential productivity enhancements resulting from these interventions will lead to increased yields and enhanced livelihoods (Laven and Boomsma, 2012). However, despite these

interventions, productivity has not reached the anticipated levels, prompting farmers to continually venture into new areas to boost cocoa and food production (Asante et al., 2023).

To improve yields of cocoa and various food crops, such as cassava, cocoyam, plantain, maize, vegetables, as well as fruit and timber tree species, and to mitigate the impact of cocoa production on forests and biodiversity in countries across West and Central Africa, it is crucial to formulate a new growth paradigm for the cocoa sector. While there has been some progress, concerns about the sustainability of this growth persist, prompting the anticipation of policy reforms.

Within the cocoa-based system, the TAFS-WCA initiative aims to revitalize approximately 400,000 hectares of aged and diseased cocoa farms and introduce 30 million timber tree species across the West Africa cocoa belt. The primary emphasis is on replacing outdated and diseased cocoa farms within this belt to enhance productivity, elevate income levels, and concurrently reduce the likelihood of customary cocoa farm expansions, thereby curbing deforestation among farmers. The project aims to leverage existing partnership between CGIAR centers and private and public collaborators in the cocoa value chain. It is expected that cocoa farmers will willingly offer their farms for this intervention, while partners and governments provide essential support for this initiative within the belt.

2. Objective of the study

The objective of the study is to assess the knowledge and perception of farmers on cocoa rehabilitation and to know the level of their willingness to pay towards cocoa rehabilitation services.

3. Methodology

3.1. Sampling method

A purposive sampling method was used to leverage on IITA existing project partner farmer database. The study adopted a mixed method approach of survey where both qualitative and quantitative questions were asked to obtain relevant information from farmers. Project partners presented their respective communities and cocoa farmer lists that have aged and diseased cocoa farms to be interviewed as prospective beneficiaries of the initiative. In all, 494 cocoa farmers were interviewed. These farmers are directly associated with Olam Food Ingredients (Ofi), Cargill, Mondelez International, Barry Callebaut, Kuapa Kokoo (KKFU) and Rockwinds/Transoyal. A two sectioned semi-structured questionnaire covering demographic/socio-economic variables, Land Use Knowledge, perception and willingness to pay for rehabilitation services and reason for rehabilitation related questions was used during the interview.

3.2. Study area

The survey was carried out in the Ashanti and Ahafo regions of Ghana. The Ashanti region falls between longitude 0 15 – 2 25 West and Latitude 5 50 – 7 40 North. The Ahafo region falls within Latitude 7.0000° N and Longitude 2.5396° W. These two regions are within the deciduous forest agro-ecological zone of Ghana where cocoa farmers are expected to intensify the implementation of good agricultural practices to obtain optimum yield. Cocoa farmers were interviewed in 12 districts and 70 communities across Ashanti and Ahafo regions (Fig 1).

Table 1: Sampling frame

Region	District	Number of Communities	Number of Farmers
Ashanti	Asante Akyim South	8	54
	Afigya Kwabre	3	23
	Adansi South	3	41
	Ejisu Juabeng	3	10
	Ahafo Ano South	15	110
	Atwima Mponua	12	87
	Amansie West	4	18
	Amansie South	1	9
	Bekwai	4	39
	Obuasi	1	25
Ahafo	Asunafo North	12	58
	Tano North	4	20
Total	12	70	494

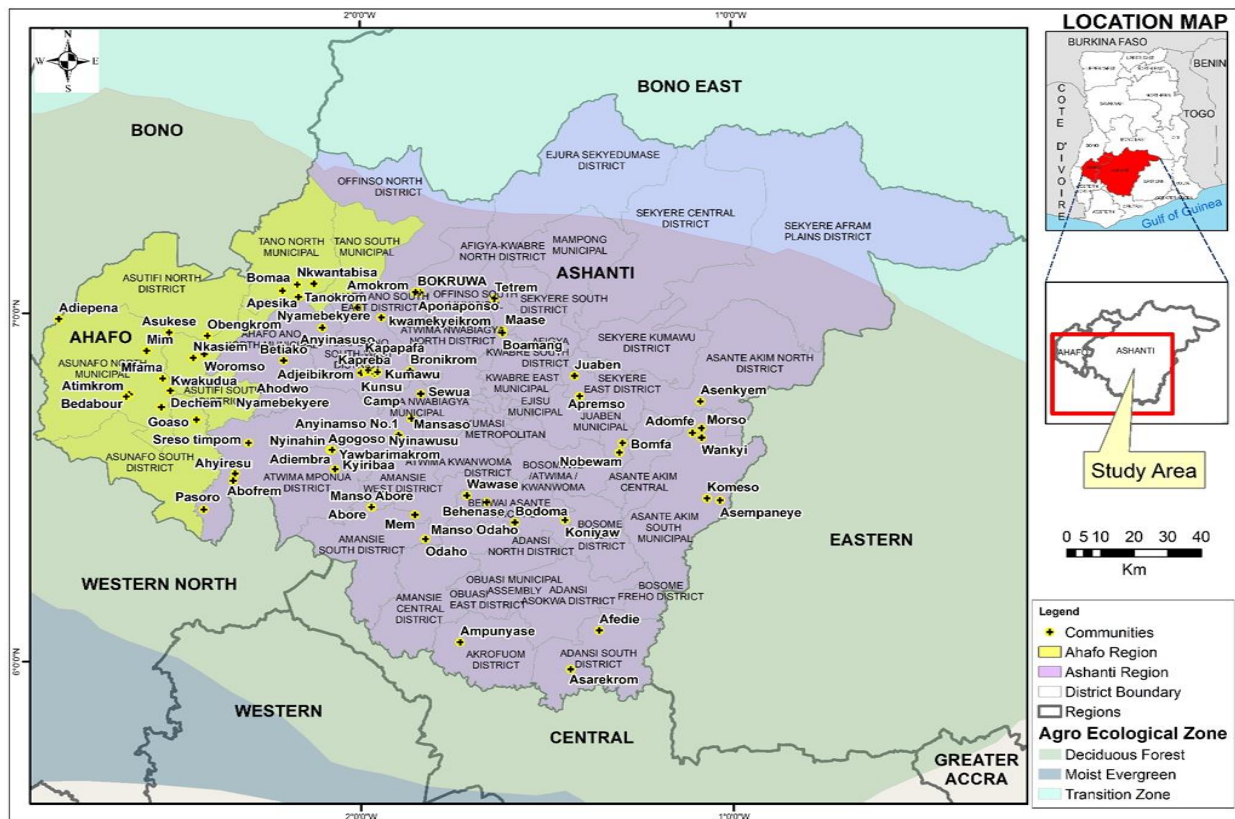


Figure 1: Map of the study area

4. Results and Discussion

4.1. Socio-economic characteristics

About 84% of respondents in the survey are from the Ashanti region. Majority of respondents are male (66%). In communities enumerated, 54% of respondents interviewed are natives of their respective communities with majority of them having at least Junior High School education (61%).

Table 2: Demographics of respondents in study area

Variable	Frequency	Percentage
Region		
Ahafo	80	16
Ashanti	414	84
Total	494	100
Sex		
Male	326	66
Female	168	34
Total	494	100
Primary Occupation		
Cocoa Farmer	466	94
Artisan	8	2
Trader	11	2
Government Worker	6	1
*Other economic activities	2	1
Total	494	100
Status in Community		
Native	268	54
Settler	226	46
Total	494	100
Educational Level		
None	132	27
Primary	61	12
Junior High School	217	44
Senior High School	59	12
Tertiary	24	5
Total	494	100

4.2. Cocoa farm characteristics and rehabilitation decision

The average farm size within the study area is 8.76 acres (3.50 ha) with majority (72%) of the respondents being owners of their farmlands. Averagely, respondents walk 2.36 km to their farms (Table 3).

Table 3: Cocoa farm characteristics

Average farm size (Acre)	Minimum	Maximum
8.76	0.50	70.00
Average walking distance to farm(km)	Minimum	Maximum
2.36	0.50	45
Variable	Frequency	Percentage
Land Ownership type		
Own land	355	72
Sharecropping	138	28

The average household size is 6 and respondents own averagely 2 cocoa fields. The average cocoa farming experience among respondents interviewed is 26 years (Table 1). Majority (97%) of respondents interviewed do not have access to credit facility (Figure 2).

Table 4: Other socio-economic characteristics

Variable	Average	Minimum	Maximum
Household Size	6	1	21
Cocoa Farming Experience	26	5	70
Number of Cocoa Farms Owned	2	1	7

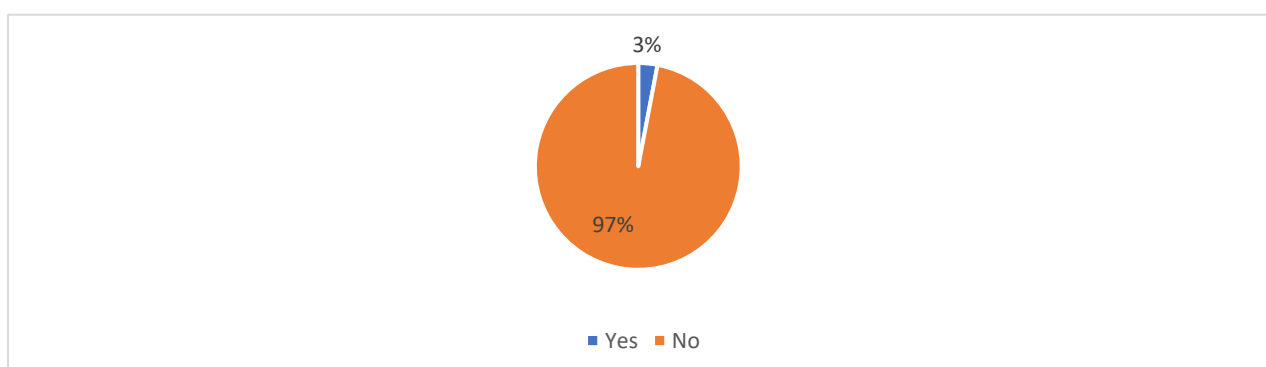


Figure 2: Access to credit

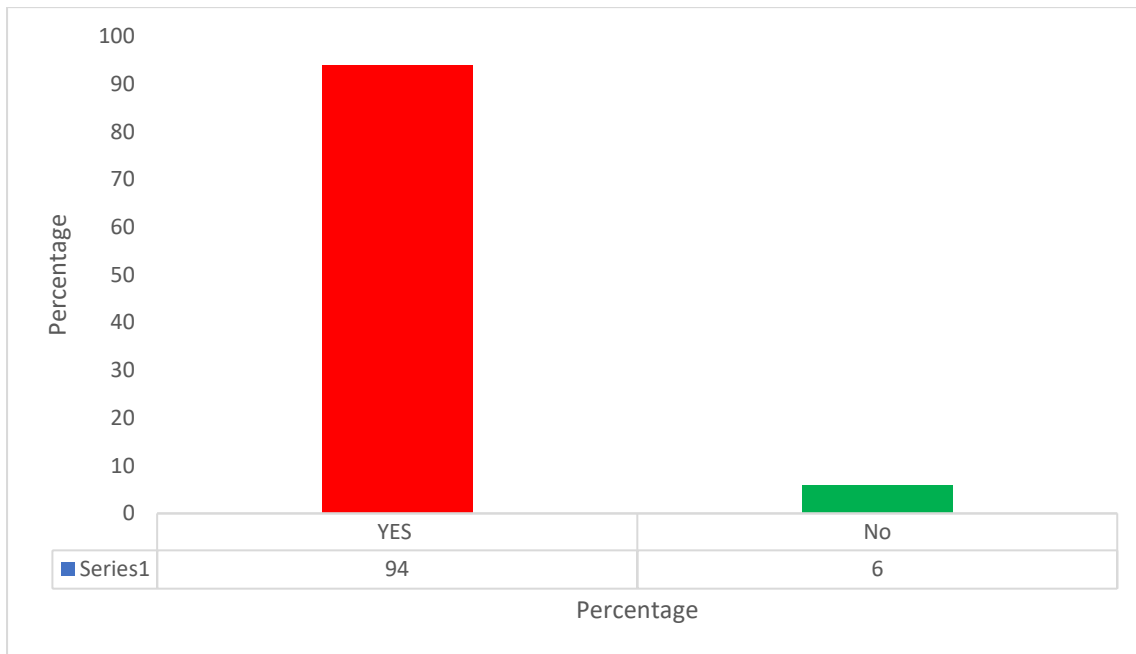


Figure 3: Low cocoa farm productivity observed for the past 5-10 years

Most respondents complained about the low productivity of their cocoa farms over the past 5 to 10 years (figure 3)

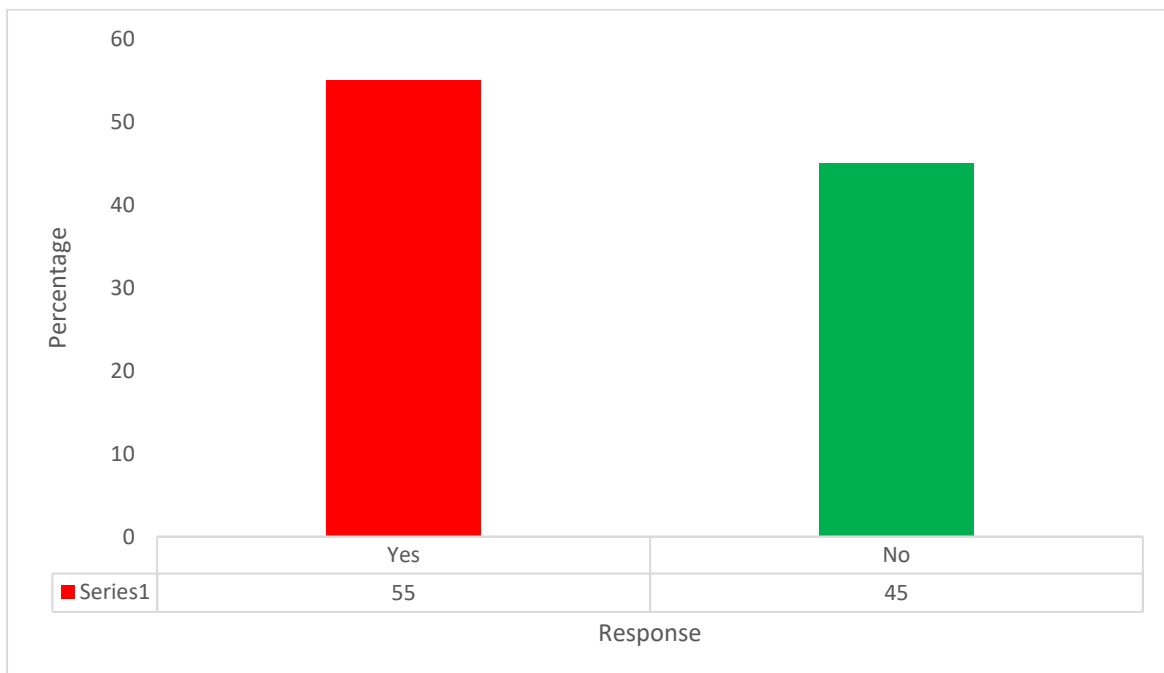


Figure 4: Presence of disease and pest on cocoa farm

Majority of the respondents alluded to the presence of disease (Cocoa Swollen Shoot Disease (CSSVD), Cocoa Blackpod Disease), and pests such as, Mirids, Mistletoe attack on their farms (Figure 4).

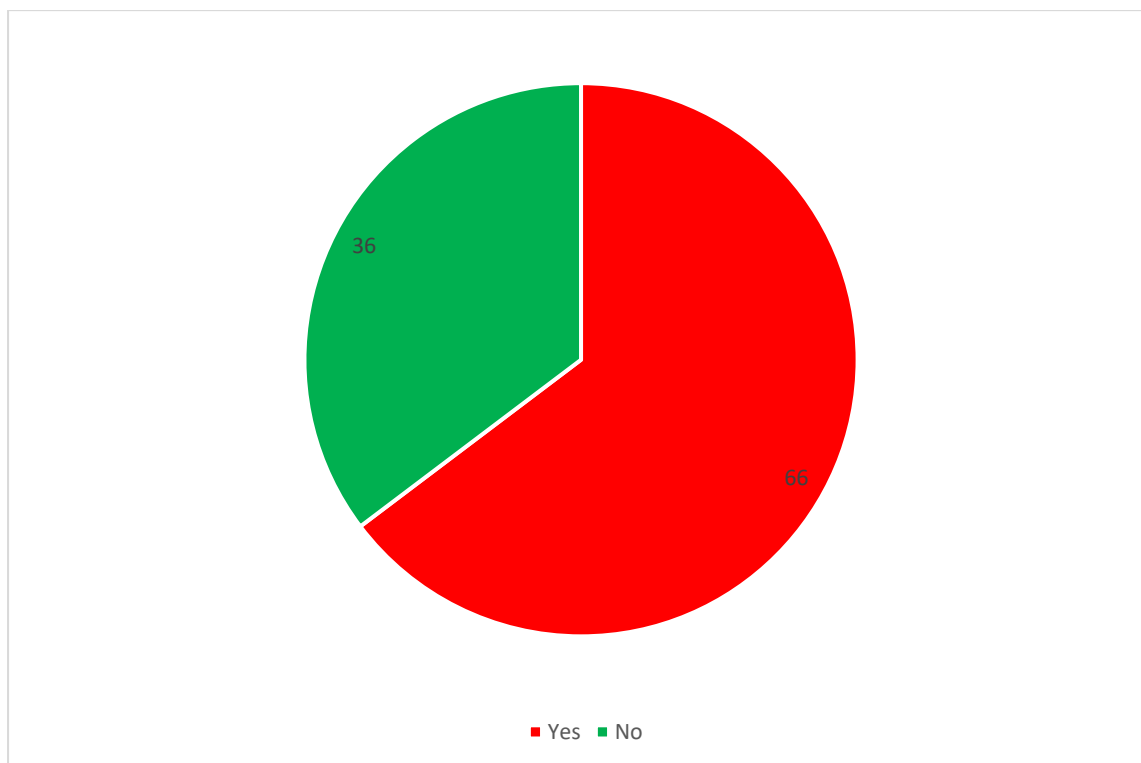


Figure 5: Aged cocoa farm (>30 years)

Out of the 494 respondents interviewed, 66% of them have aged farms (>30 years) (Figure 4). The average age of an aged cocoa farm is 42 years (Table 4). 92% of respondents interviewed agreed to rehabilitate their cocoa farms if they had the opportunity (Figure 5). The remaining 8% were reluctant because they are afraid to lose their livelihoods. They were also uncertain how complete rehabilitation could affect their contractual agreements with the landowners and lastly the effectiveness of the rehabilitation model due to bitter experience with earlier rehabilitation models implemented in the area. Even though the average farm size is 8.76 acres, respondents are willing to rehabilitate 3.77 acres on an average. In all, respondents are willing to commit 1857.75 acres of their land to rehabilitation out of a total of 4317.61 acres available (Table 5) surveyed.

Table 5: Aged cocoa farm

Average age of aged cocoa farm		Minimum Aged farm		Maximum Aged farm
42		30		90
Average cocoa farm size(acres)	Average plot farmers are willing to rehabilitate (acres)	Minimum farm size farmers are willing to rehabilitate (acres)	Maximum farm size farmers are willing to rehabilitate(acres)	Total farm size committed to rehabilitation by farmers(acres)
8.76	3.77	0	45	1857.75

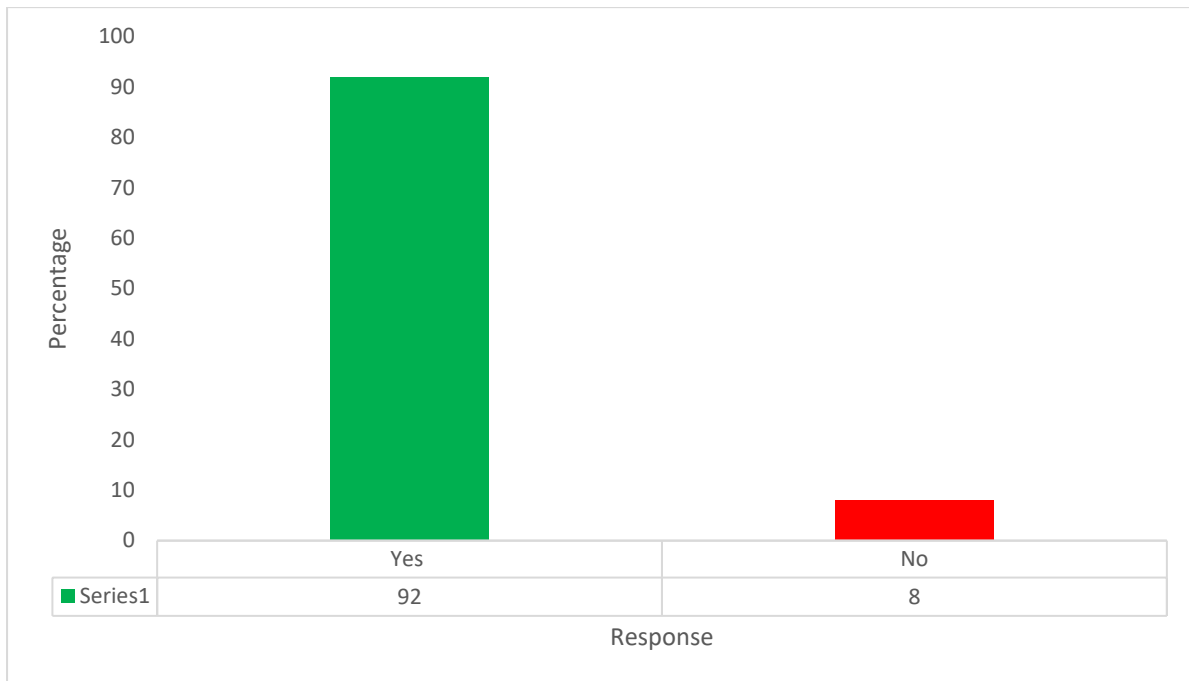


Figure 6: Decision to rehabilitate cocoa farm

4.3. Knowledge and Perception about Rehabilitation

Among the respondents interviewed, 85% stated they are knowledgeable on cocoa rehabilitation (figure 7). Out of this, 68% are mean (see figure 3). In terms of regional segregation, most respondents interviewed in Ashanti region know more about cocoa rehabilitation than respondents in Ahafo region (Figure 9). Majority of respondents who know about cocoa rehabilitation have decided to rehabilitate (see figure 10).

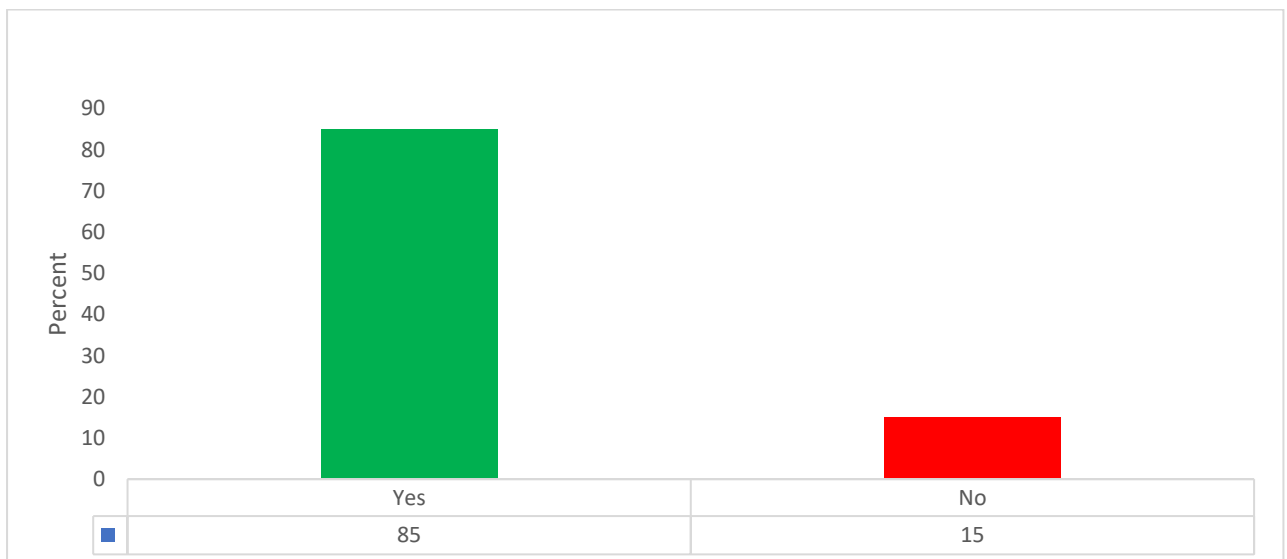


Figure 7: Knowledge of cocoa rehabilitation

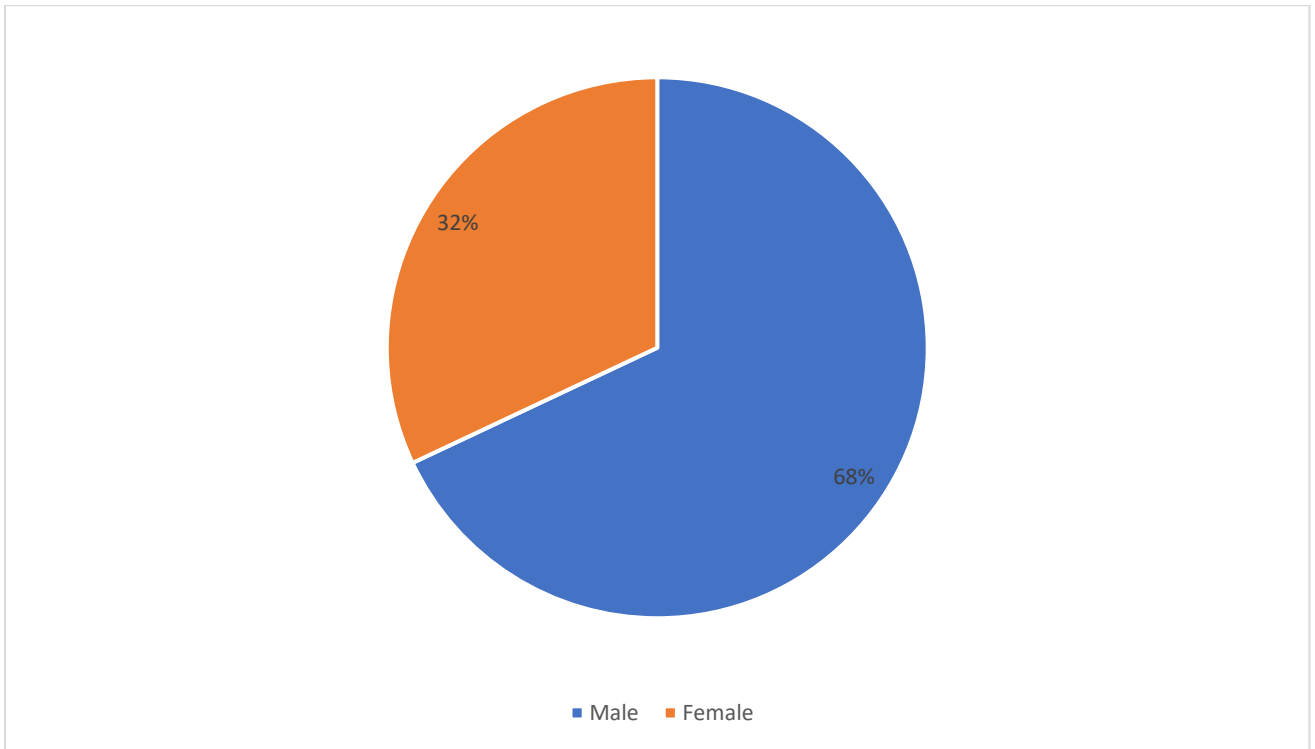


Figure 8: Knowledge of cocoa rehabilitation (sex)

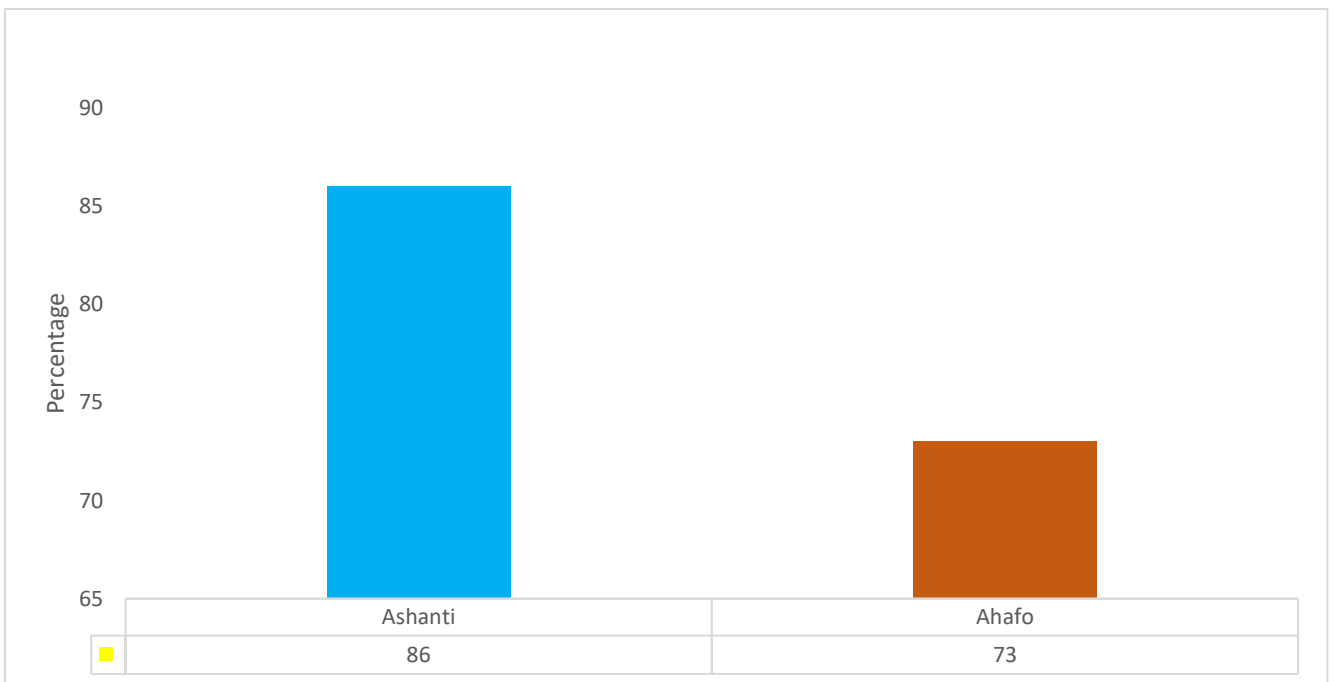


Figure 9: Knowledge of cocoa rehabilitation (region)

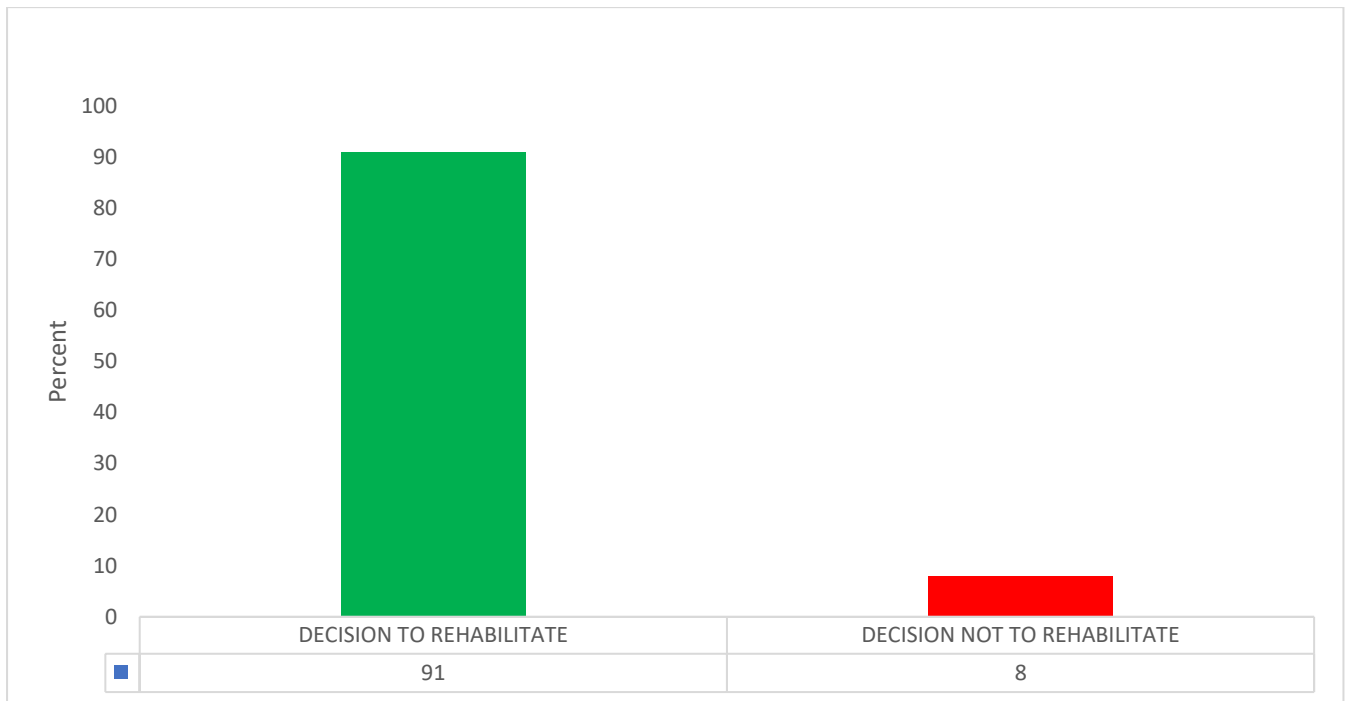


Figure 10: Knowledge of cocoa rehabilitation (decision to rehabilitate)

Majority of respondents find cocoa rehabilitation to be a labour-intensive practice, time consuming, very expensive and a disruption to respondents' income. However, these respondents also believe that it helps to control pest and diseases and improves quantity and quality of cocoa yield.

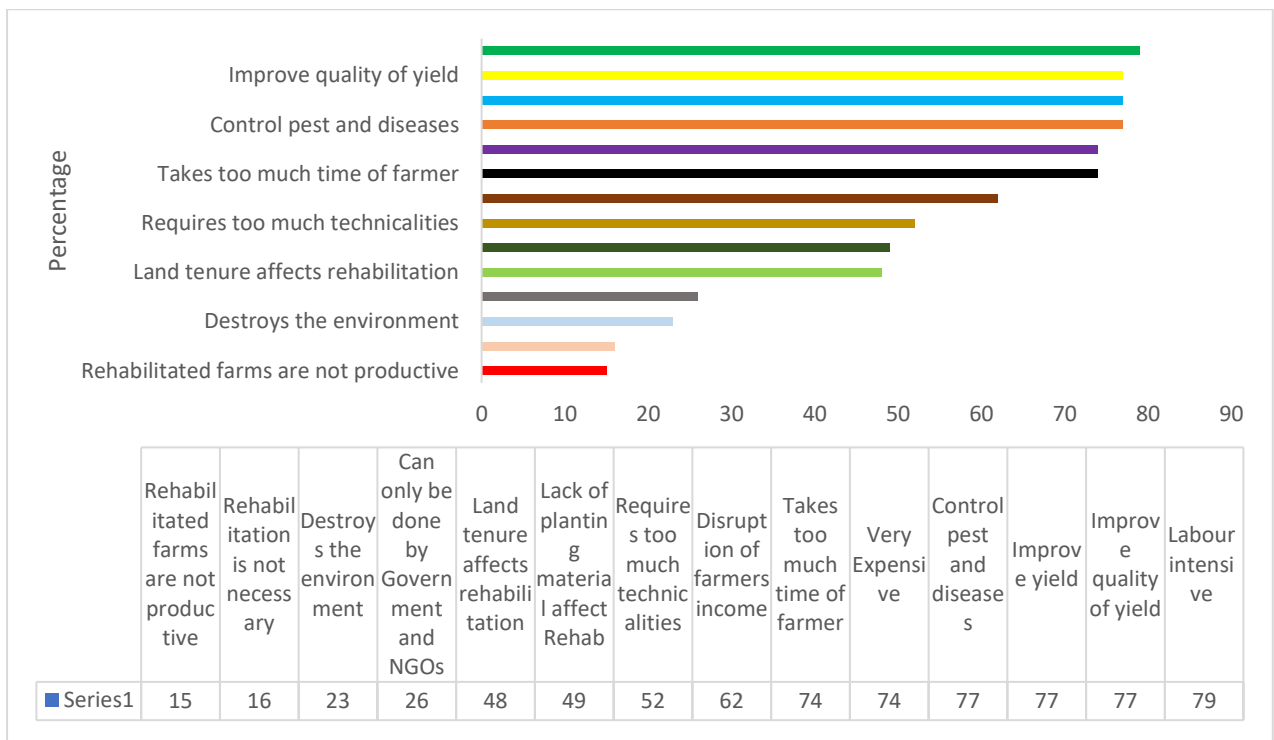


Figure 11: Perception and knowledge of cocoa rehabilitation

4.4. Willingness to Pay for Rehabilitation Services

Sixty one percent of respondents are not willing to pay for rehabilitation of cocoa. Most of those who are willing to pay, want to commit about GH¢100- GH¢500 per acre for rehabilitation (Figure 13). Respondents think Government spending about GH¢1400 to rehabilitate an acre of farm is expensive (Figure 14 and Figure 15).

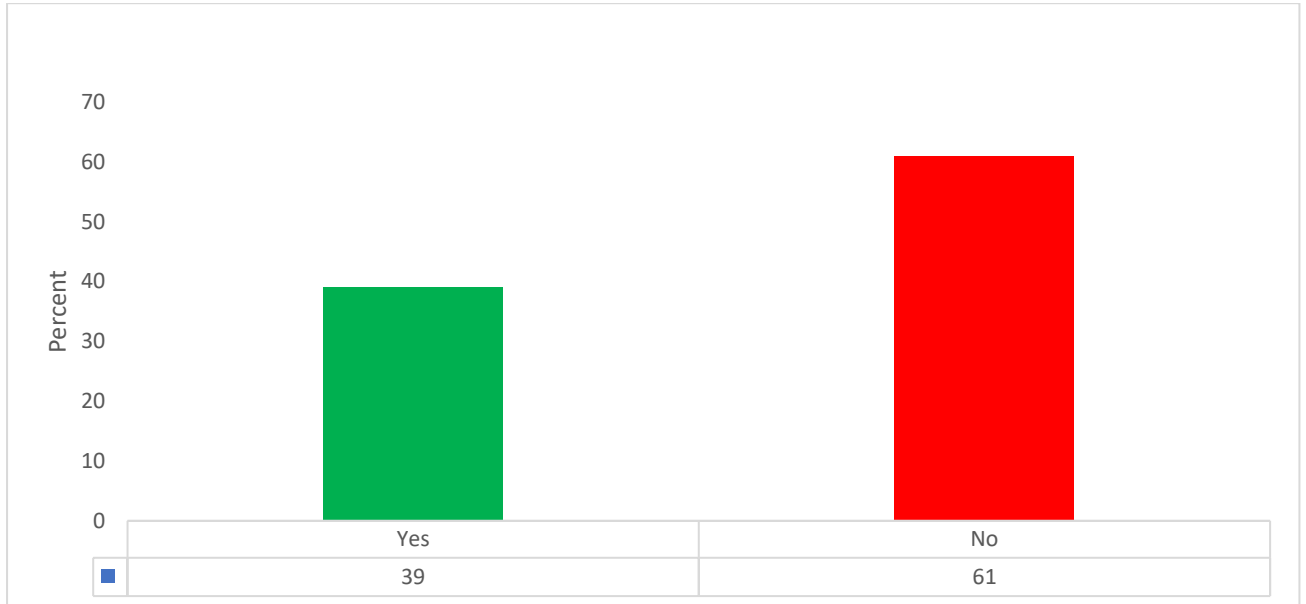


Figure 12: Willingness to pay or not for rehabilitation services

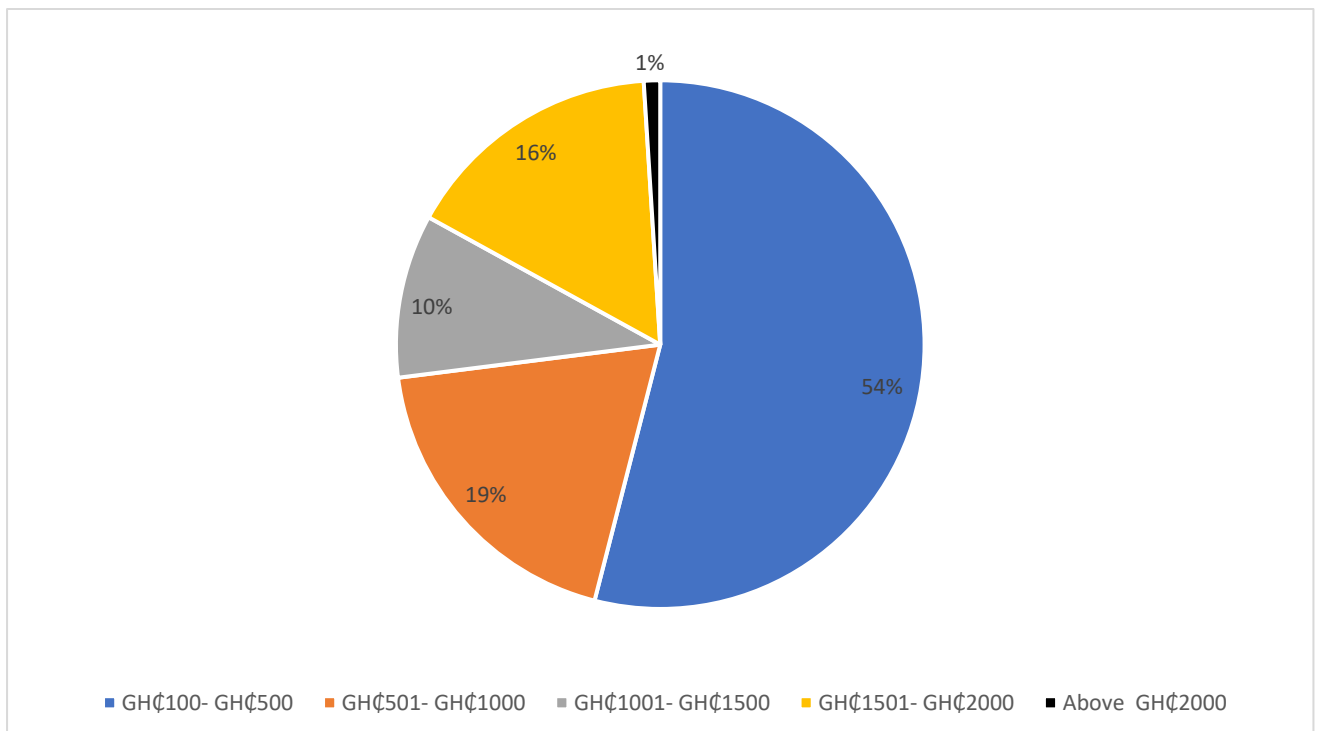


Figure 13: Amount respondents are willing to pay

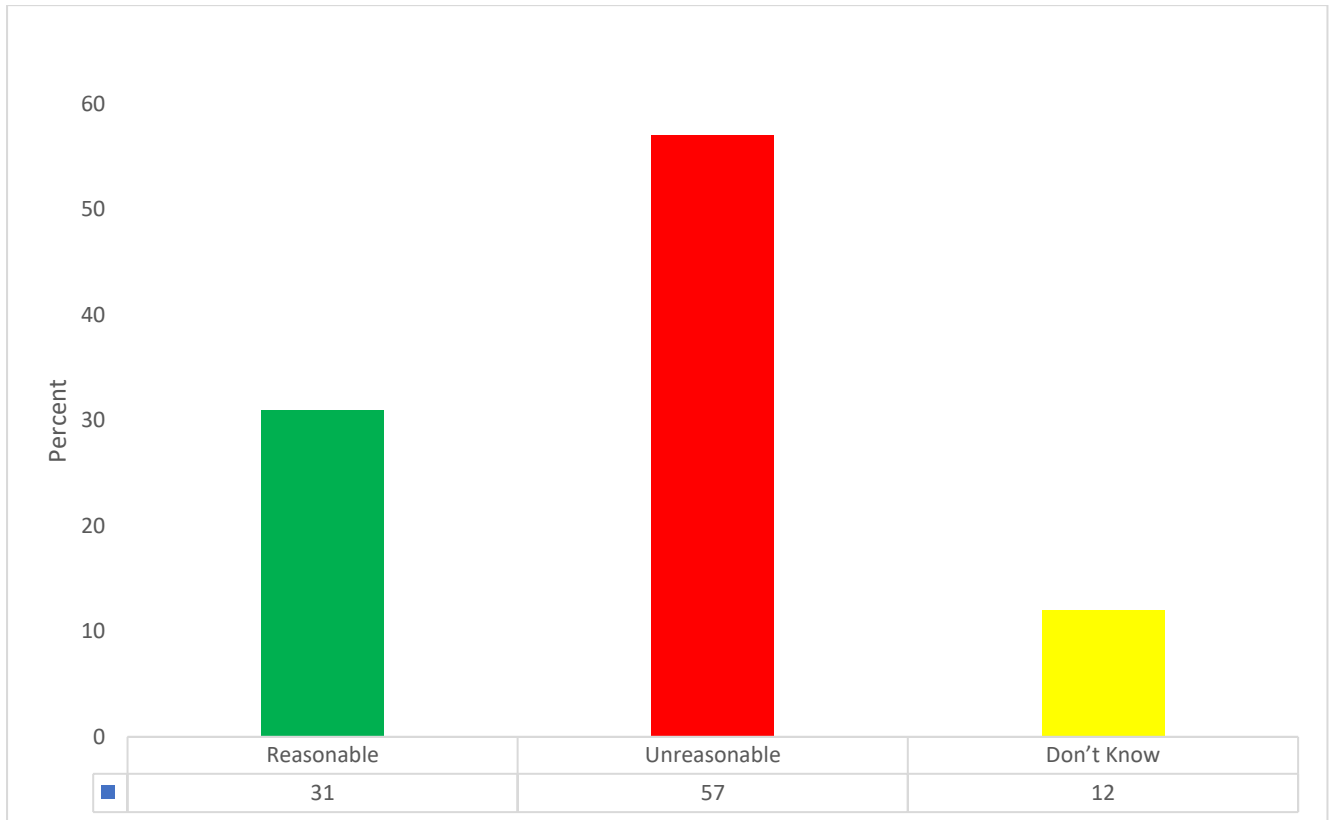


Figure 14: Respondents' perception of government spending about GH¢ 1400 to rehabilitate an acre of farm

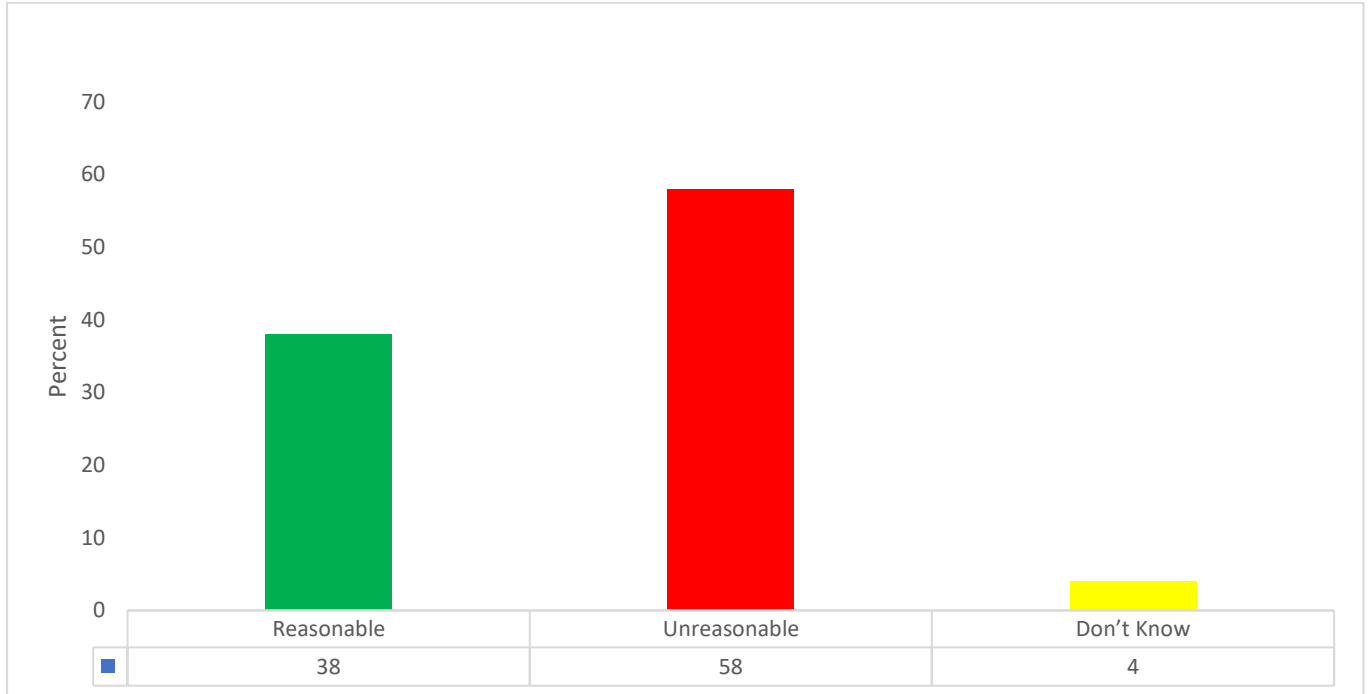


Figure 15: Respondents' perception of paying above government's amount of GH¢1400 to rehabilitate an acre of farm

4.5. Challenges in Adoption of Rehabilitation

Respondents find the most pressing challenge to the practice of rehabilitation to be limited access to finance to carry out the practices. Other pressing challenges are loss of revenue, no alternative source of revenue when they carry out rehabilitation and uncertainty about the future of the new cocoa farm due to changing climate.

N=395

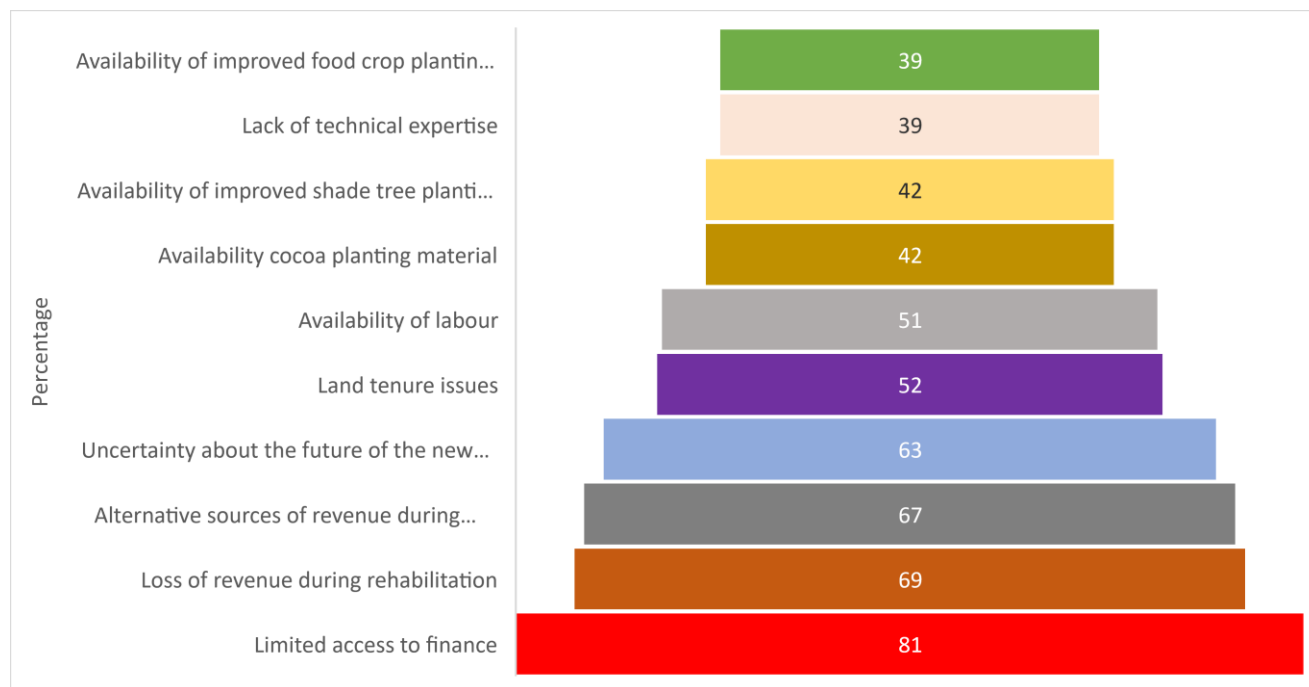


Figure 16: Challenges to the practice of cocoa rehabilitation among respondents

5. Conclusion

Respondents exhibited a substantial level of awareness and understanding regarding the concept of cocoa rehabilitation, with a higher level of knowledge observed among male respondents notably in the Ashanti Region compared to the Ahafo region. Despite this awareness, respondents generally perceive rehabilitation as a labour-intensive, expensive, and time-consuming endeavor, even though they acknowledge it has positive impact on improving the quality and quantity of cocoa yields. Respondents expressed a willingness to allocate a financial commitment ranging from GH¢100 to GH¢500 per acre for cocoa rehabilitation on their farms.

However, the main challenge hindering the widespread adoption of rehabilitation the lack of access to financial resources required to execute these activities. Despite their acknowledgment of the benefits associated with rehabilitation, the financial constraints faced by farmers emerge as a significant barrier, limiting their ability to invest in the necessary activities and technologies. This underscores the importance of access to finance to encourage respondents to actively engage in cocoa rehabilitation efforts.

6. Recommendation

An effective implementation of a cocoa rehabilitation project requires a collaborative and multi-sectoral approach where resources could be pulled together for success. The active involvement of the

government, private sector partners to provide extension services, labor support, credit facilities, and the provision of inputs to farmers through carefully targeted initiatives is crucial.

In addition, a strong monitoring system needs to be in place to ensure constant feedback between farmers and project implementers to ensure immediate response to non-performance. There is the need to support farmers' livelihood in the initial stages of cocoa rehabilitation to cater for possible drop in income.

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