Contribution of Cocoa Farming to Household's Income and Livelihood Improvement in Kyela District Council, Mbeya Region, Tanzania

Lucas Odilo Komba, Prof. Zebedayo S. Mvena, Dr. Sosthenes Ruheza

Department of Community Development, Faculty of Arts and Social Sciences, University of Iringa, P.O Box 200, Iringa, Tanzania.

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ABSTRACT

This paper examines the contribution of cocoa farming to household income and livelihood improvement in Kyela District Council (KDC), Mbeya Region, Tanzania. A descriptive cross-sectional design was employed using a mixed-methods approach. Primary data were collected using structured questionnaires, supplemented by interviews with key informants. Quantitative data were analyzed by using Statistical Package for Social Science (SPSS) Version 20, while qualitative data were analyzed by using thematic analysis. Findings indicate that cocoa farming contributes significantly to household income. Whereas, more than 70% of households derive over half of their total earnings from cocoa, with 26.3% reporting cocoa provides more than 75% of their income. Households also reported increases in cocoa-related income over the past three years, which facilitated investments in assets, payment of school fees, and other essential non-food expenses. The study concludes that cocoa farming plays a transformative role in sustaining rural livelihoods in KDC, though vulnerabilities remain due to seasonal price fluctuations. It is recommended that farmer cooperatives be strengthened, financial literacy promoted, and market access improved to enhance the sustainability of cocoa-based incomes.

Keywords: Cocoa farming, household income, rural livelihoods, Kyela District, Tanzania

INTRODUCTION

Cocoa farming is one of the most important cash crop enterprises supporting rural livelihoods in tropical regions. Globally, it provides income to over 50 million people, primarily smallholder farmers in Africa, Latin America, and Asia (FAO, 2021). In sub-Saharan Africa, cocoa farming plays a particularly vital role, accounting for a substantial share of household income and foreign exchange earnings. Studies have shown that in Ghana, Côte d'Ivoire, and Nigeria, cocoa contributes between 60% and 80% of household income (Asare et al., 2018; Ntiamoah et al., 2022).

Empirical evidence consistently demonstrates that cocoa farming significantly improves household economic well-being. In Ghana, cocoa earnings enable farmers to meet essential expenses such as food, education, and healthcare, while also supporting asset accumulation and savings (Ruf & Bini, 2020; Osei et al., 2021). Similarly, in Nigeria, Adeyemi (2021) found that cocoa farming accounted for nearly 70% of total household income, helping families to invest in housing and small businesses despite challenges such as price volatility and climate shocks.

In East Africa, research on cocoa farming remains relatively limited compared to West Africa. However, studies in Tanzania indicate that cocoa is becoming an increasingly important source of cash income, particularly in Kyela and Bukoba districts, where favorable climatic conditions encourage smallholder participation (Mmbando & Baiyegunhi, 2016; Kweka & Msangya, 2018). Cocoa farming provides a reliable source of seasonal income that supports household consumption and improves rural living standards. According to Kapinga et al. (2020), cocoa farmers in southern Tanzania use their earnings to finance household needs, including food, school fees, and healthcare, which collectively enhance overall welfare.

Beyond direct income, cocoa farming has multiplier effects on local economies through employment creation, rural trade, and cooperative development. Cocoa marketing cooperatives, for example, play a crucial role in improving farmers' bargaining power and ensuring fair prices (Antwi-Agyei et al., 2021). In addition, cocoa income often supports investment in productive assets, such as livestock and farm equipment, which further increase income-generating potential (Abekoe & Osei, 2021).

However, dependence on cocoa as a single cash crop also exposes households to risks arising from price fluctuations, pests, and changing climate patterns. Studies in Ghana and Nigeria have shown that income instability due to cocoa price drops can negatively affect welfare and household resilience (Dzanku, 2019; Anim-Kwapong & Frimpong, 2019). These findings highlight the importance of diversification, improved market access, and sustainable production practices to stabilize cocoa-based incomes.

In Tanzania, evidence from Kyela District suggests that cocoa farming contributes significantly to household income and is becoming a cornerstone of the rural economy. Yet, more empirical research is needed to quantify its exact economic contribution and to inform policies aimed at maximizing its benefits for smallholder farmers.

Despite the recognized importance of cocoa farming in Kyela District, there is limited empirical evidence quantifying its direct contribution to household income and economic well-being. Many households remain vulnerable to income fluctuations due to reliance on a single cash crop, and little is known about how cocoa earnings translate into asset accumulation and overall welfare. This lack of precise information makes it difficult for policymakers and development actors to design interventions that maximize the economic benefits of cocoa farming for smallholder households.

Significance of the Study

This study is significant in three major dimensions: academic, practical, and policy.

Academically, the study contributes to the existing body of knowledge on agricultural livelihoods and rural development in Tanzania. It provides empirical evidence on how cocoa farming influences household income and overall welfare in KDC. By combining quantitative and qualitative analyses, the study deepens the understanding of how smallholder cocoa production supports education, asset accumulation, and essential household expenditures, thereby expanding theoretical discussions on the relationship between cash crops and rural livelihoods.

Practically, the findings offer valuable insights to cocoa farmers and local communities regarding the economic potential and sustainability of cocoa production. The study reveals how cocoa farming serves as a critical source of income while identifying persistent challenges such as seasonal price fluctuations. These insights can guide farmers, cooperatives, and development partners in making informed decisions related to production, income diversification, and financial management. Strengthening farmer organizations and promoting financial literacy emerge as key strategies for enhancing resilience and improving household well-being.

From a policy perspective, the study provides evidence-based recommendations for government institutions and development agencies aiming to strengthen the cocoa sector. Improving market access, stabilizing prices, and enhancing access to credit are essential measures to sustain cocoa-based livelihoods. The study thus supports Tanzania's broader development objectives, particularly those targeting poverty reduction, inclusive economic growth, and rural transformation through agricultural modernization.

LITERATURE REVIEW

Theoretical Perspective: Maslow's Hierarchy of Needs

This study is guided by Maslow's Hierarchy of Needs Theory (Maslow, 1943), which explains human motivation based on a hierarchy of five levels of needs: physiological, safety, social, esteem, and self-actualization. According to the theory, individuals are motivated to satisfy basic needs first—such as food, shelter, and health before progressing to higher-order needs like education, self-esteem, and personal growth. Income is therefore

viewed as a key enabler that allows individuals and households to meet these needs systematically (Jerome, 2018).

In the context of rural livelihoods, income derived from cocoa farming plays a central role in fulfilling these hierarchical needs. At the physiological level, cocoa earnings enable households to purchase food, pay for water, and meet other daily consumption needs, thus securing their basic survival. At the safety level, income from cocoa supports housing improvements, access to healthcare, and savings for emergencies, which reduce vulnerability to shocks.

At the social and esteem levels, cocoa income contributes to education, social participation, and community recognition, as farmers use their earnings to educate children and engage in social and cooperative activities. Finally, at the self-actualization level, stable and sufficient income from cocoa farming allows households to invest in long-term development goals, such as expanding farms, starting small businesses, or acquiring assets that enhance economic independence and personal fulfillment (Omari et al., 2021).

Applying Maslow's framework to this study provides a theoretical basis for understanding how cocoa income supports multidimensional aspects of household welfare. The theory suggests that as cocoa farmers' earnings increase, they are better positioned to progress from meeting basic survival needs to achieving higher levels of socio-economic well-being. Thus, cocoa farming not only contributes to material income but also facilitates upward movement within the hierarchy of needs by empowering households economically and socially.

This theoretical perspective is relevant to the study because it highlights the interrelationship between income generation and human welfare. In KDC, where cocoa serves as a major source of cash income, Maslow's theory helps explain how improved cocoa earnings translate into better living conditions, enhanced education, and greater self-sufficiency among farming households.

Empirical Literature Review

Contribution of Cocoa Farming to Households' Income and Livelihood Improvement

Cocoa farming has long been recognized as a major source of household income and a foundation for rural livelihoods across Africa. According to Osei-Gyabaah et al. (2023), cocoa contributes between 60% and 90% of rural farmers' household income, enabling families to meet essential needs such as food, education, healthcare, and housing. This highlights the critical role of cocoa in sustaining household welfare and reducing rural poverty.

Empirical evidence from West Africa consistently demonstrates that cocoa farming is not only a profitable cash crop but also a stabilizing economic activity that provides regular income compared to seasonal food crops. For example, Adeyemi (2021) in Nigeria found that cocoa farming accounted for nearly 70% of household income among smallholder farmers. Despite challenges such as market price fluctuations and climate variability, cocoa farmers experienced relatively stable cash flow, allowing them to invest in long-term goals such as children's education, home improvement, and business expansion. These findings suggest that cocoa income enhances financial security and provides a buffer against income shocks in rural economies.

Similarly, Coulibaly and Kouassi (2020) in Côte d'Ivoire observed that households engaged in cocoa farming spent about 40% more on education and healthcare than those dependent solely on subsistence farming. This indicates that cocoa income not only improves purchasing power but also leads to broader welfare improvements, particularly in human capital development. However, their study also noted disparities in income levels depending on farm size, access to farmer cooperatives, and proximity to markets, showing that institutional support and infrastructure significantly influence how cocoa income translates into improved living standards.

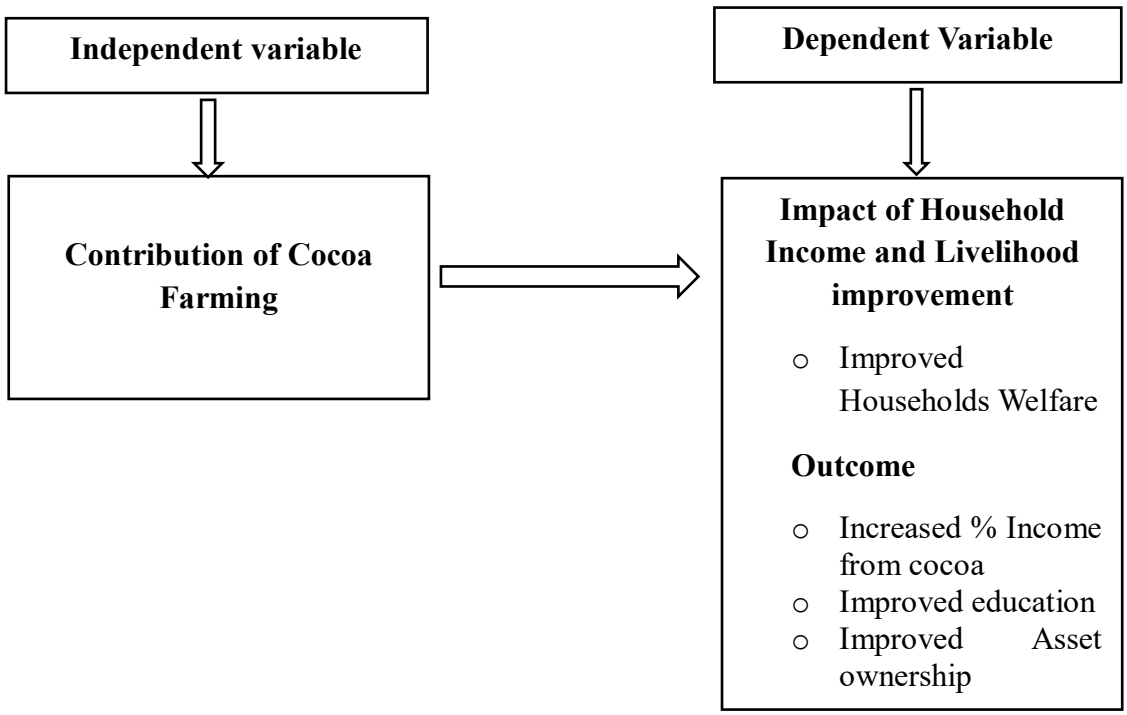
Studies from Ghana reinforce these findings, showing that cocoa farming contributes substantially to household income diversification and resilience. Asare et al. (2018) found that cocoa earnings enable farmers to accumulate assets, access credit, and sustain non-farm enterprises, thereby enhancing long-term socio-economic stability. In addition, Antwi-Agyei et al. (2021) emphasized that cocoa-based income provides liquidity that allows households to cope with shocks such as droughts or health emergencies, underscoring its importance as both a livelihood and a safety net.

In the Tanzanian context, cocoa farming—particularly in Kyela District—plays a similar role. Studies by Mmbando and Baiyegunhi (2016) and Kapinga et al. (2020) reveal that cocoa provides an essential income stream for smallholder farmers, supporting daily consumption and major household expenditures. Income from cocoa sales helps families improve housing conditions, pay for education, and invest in agricultural inputs for other crops. This demonstrates that cocoa farming not only enhances cash availability but also contributes to multidimensional welfare outcomes for rural households.

Overall, the empirical literature indicates a strong positive relationship between cocoa farming and household income. As farmers engage in cocoa production, they gain access to a more reliable and market-oriented income source that promotes economic empowerment and improved living standards. However, realizing these benefits fully depends on factors such as farm productivity, market access, cooperative participation, and supportive policy frameworks.

Conceptual Framework

The conceptual framework illustrates the relationship between cocoa farming and household income and livelihood improvement. In this framework, cocoa farming is the independent variable, while the household income level is the dependent variable. The framework assumes that the extent and performance of cocoa farming directly influence the income status of households. This relationship is measured through three key indicators: percentage of income from cocoa, cocoa sales revenue (TZS), and asset ownership.



Source: Researcher 2025

METHODOLOGY

Study Area

The study was conducted in KDC, located in Mbeya Region, Tanzania. KDC is the area leading for cocoa production due to its fertile volcanic soils and favorable rainfall patterns (URT, 2021). Cocoa farming is practiced mainly by smallholder households who rely on it as a primary cash crop to sustain their livelihoods.

Research Design

This study employed a descriptive cross-sectional design within a mixed-methods approach. The descriptive design was appropriate because it enabled the researcher to capture detailed information on the contribution of

cocoa farming to household income level without manipulating variables. The cross-sectional nature of the design allowed data collection at a single point in time, while the mixed approach combined quantitative and qualitative techniques to provide both breadth and depth of understanding (Creswell & Creswell, 2018).

Population, Sample Size, and Sampling Technique

Population of the study

The target population for this study comprised 302 smallholder cocoa farmers from Ipinda and Mababu wards in KDC, Mbeya Region. From this population, a sample size of 172 farmers was drawn. The study covered four villages, two from each ward namely Kafundo and Busale in Ipinda Ward, and Ngyeke and Kilombero in Mababu Ward. The study specifically focused on household heads, as they are the key decision-makers responsible for farming practices and household economic activities.

Also, the study included key informants such as cooperative officers, agricultural officers, and health workers, who provided valuable insights into the broader context of cocoa farming in KDC. A total of seven key informants were purposively selected based on their expert knowledge and relevance to the research topic. These included two agricultural officers, one cooperative leader, and four health workers.

Sample Size

To determine the sample size for this study, the study used Yamane's (1967) formula. Yamane's formula is expressed as:

$$n = \frac{N}{1 + N \times e^2}$$

Where:

- n= sample size
- N= population size
- e = margin of error (in this study, 5% or 0.05)

Substituting the value

$n = 302/1+302(0.05)^2$

$(0.05)^2 = 0.0025$

302 (0.0025)

= 0.775

1+0.775 = 1.775

302/1.775

= 172

Therefore, the study used a sample size of **172** cocoa farmers.

Table 1 Sample Distribution of Respondents

Division	Ward	Villages	Cocoa Farmers
Ntebela	Ipinda	Kafundo Busale	43 43
Ntebela	Mababu	Ngyeke Kilombero	43 43
Total			**172**

Source: Researcher 2025

Sampling techniques

This study employed a stratified random sampling technique to ensure proportional representation of the four selected villages Kafundo and Busale in Ipinda Ward, and Ngyeke and Kilombero in Mababu Ward, all located within the Ntebela administrative division of KDC. These villages were purposively identified due to their high concentration of smallholder cocoa farmers. Stratification was applied to capture potential variations among the villages while maintaining methodological rigor. This approach ensured that each household in the selected wards had an equal chance of being included in the study.

Furthermore, purposive sampling was used to select seven key informants, consisting of two agricultural officers, one cooperative leader, and four health workers. These individuals were chosen based on their expertise, experience, and direct relevance to the research topic, particularly regarding the socio-economic aspects of cocoa farming in the study area.

Data Collection Methods

Primary data were collected using structured questionnaires administered to cocoa-farming households. These questionnaires captured information on household demographics, income sources, and the share of income attributed to cocoa farming. In addition, key informant interviews were conducted with agricultural extension officers and cooperative leaders to gain expert insights into cocoa production and marketing trends. Secondary data were obtained from government reports, academic articles, and NGO publications (URT, 2021; Osei et al., 2021).

Data Analysis

Quantitative data were coded and analyzed using SPSS (version 20). Descriptive statistics, including frequencies, percentages, and means, were used to summarize household income sources and the contribution of cocoa farming. Inferential analysis, particularly regression, was employed to explore the relationship between cocoa farming and household income levels. Qualitative data from interviews were analyzed thematically, allowing for triangulation of results between numerical evidence and contextual insights (Antwi-Agyei et al., 2021).

Research Approach

This study adopted a mixed research approach, combining both quantitative and qualitative methods. The quantitative approach used structured questionnaires to generate numerical data on household income and cocoa's contribution, analyzed through descriptive and inferential statistics in SPSS. The qualitative approach employed interviews with key informants, including agricultural officers and cooperative leaders, to capture contextual insights on cocoa farming and household livelihoods. Using a mixed approach allowed for triangulation, enhanced validity, and provided a more comprehensive understanding of cocoa farming's contribution to household income level in KDC (Creswell & Creswell, 2018; Antwi-Agyei et al., 2021).

Ethical Considerations

The study adhered to ethical research standards. Informed consent was obtained from all participants, and respondents were assured of confidentiality and anonymity. Participation was voluntary, and respondents were allowed to withdraw at any stage of the study without consequences.

Data Collection Methods

Both primary and secondary data were used in this study. Primary data were collected through structured questionnaires administered to cocoa-farming households, focusing on household income sources, share of cocoa earnings, and related socio-economic aspects. In addition, key informant interviews were conducted with agricultural officers and cooperative leaders to obtain expert insights. Secondary data were sourced from government reports, academic publications, and NGO documents relevant to cocoa farming and household welfare.

RESULTS AND DISCUSSION

Contribution of Cocoa Farming to Household Income level in KDC

Main Sources of Household Income

The findings indicate that cocoa farming is a major source of household income in KDC. About 33.7% of households reported cocoa as their main economic activity, followed by business (40.6%), crop farming (14.8%), and employment (10.9%). Similar trends have been reported in Ghana, where cocoa production remains one of the most significant livelihood activities for smallholder farmers, providing a reliable income base for rural households (Asare et al., 2018).

Table 2: Main Sources of Household Income in KDC (n=172)

Source of Income	Frequency	Percentage (%)
Cocoa farming	59	33.7
Business	71	40.6
Other crop farming	23	14.8
Employment	19	10.9
Total	**172**	**100.0**

Source: Researcher, 2025

The results show that while business activities are common, cocoa remains the dominant agricultural livelihood activity, accounting for one-third of households' primary income sources.

Cocoa Farming to Total Household's Income

In terms of income contribution, 45.1% of households reported that cocoa accounted for 51–75% of their total income, while 26.3% indicated more than 75%. By contrast, only 14.3% reported 25–50%, and 14.3% less than 25%. This means that over 70% of households derive the majority of their income from cocoa. Also highlighted in Côte d'Ivoire and Nigeria, where cocoa contributes over two-thirds of smallholder households' earnings and is essential for meeting daily consumption and long-term investment needs (Wessel & Quist-Wessel, 2015).

Table 3: Cocoa Farming to Total Household Income (n=172)

Cocoa Income Share of Total Income	Frequency	Percentage (%)
Less than 25%	25	14.3
25% – 50%	25	14.3
51% – 75%	76	45.1
More than 75%	46	26.3
Total	**172**	**100.0**

Source: Researcher, 2025

Trends over the past three years show positive growth, with 67.4% of households reporting a significant increase in cocoa income, 26.9% noting a slight increase, and only 5.7% reporting no change. None reported a decline.

Seasonal Income Earned from Cocoa Farming

Seasonal income distribution revealed that 62.3% of households earned above TZS 2,000,000 per season, 11.4% earned TZS 1,000,000–2,000,000, while 26.3% earned between TZS 500,000–1,000,000. Similar evidence from recent studies in Tanzania and other cocoa-growing regions shows that cocoa income constitutes the main source of seasonal earnings for smallholder households, helping to cover food, education, and healthcare costs, though income fluctuations across seasons remain a challenge (Temba & Njau, 2025; World Cocoa Foundation, 2024).

Table 4: Seasonal Income Earned from Cocoa Farming (n = 172)

Income Category (TZS)	Frequency	Percentage (%)
500,000 – 1,000,000	44	26.3
1,000,000 – 2,000,000	20	11.4
Above 2,000,000	108	62.3
Total	**172**	**100.0**

Source: Researcher, 2025

These results indicate that cocoa farming contributes significantly to household income, with more than half of the households achieving relatively high seasonal earnings. The variation in income levels reflects differences in factors such as farm size, productivity, access to markets, and adoption of improved farming practices. The dominance of households earning above TZS 2 million also suggests that cocoa plays a transformative role in improving financial stability, enabling families to meet essential needs and invest in long-term welfare.

Household's Asset Acquisition

The study shows that, 90.9% of households reported acquiring assets in the past year, with 76% financed directly from cocoa earnings. Assets included livestock, household furniture, and mobile phones, all of which enhance living standards and financial resilience. Comparable evidence from Ghana shows that cocoa farming promotes households' asset accumulation, which strengthens social and economic security (Abekoe & Osei, 2021).

Table 4. Household Asset Acquisition

Household's Asset Acquisition Within the Last 12 Months	frequency	Percentage (%)
Yes	156	90.9
No	16	9.1
Total	**172**	**100**

Source: Researcher 2025

The findings confirm that high asset acquisition reflects positive household investment behavior and indicates that cocoa farming contributes to both immediate income and long-term wealth accumulation.

Also, researcher engaged respondents in discussions about the contribution of cocoa farming to households' income levels in Ipinda and Mababu wards, within KDC.

According to agricultural officer from Ipinda ward, cocoa farming has had a substantial impact on households' income over the past five years. One Agricultural officer remarked,

> "Over the past five years, cocoa farming has significantly contributed to households' income levels in KDC. From our district agricultural reports, households' income from cocoa has grown by over 30%, especially due to improved post-harvest handling and access to better markets. Farmers who previously earned below TZS 1 million per season are now reporting earnings above TZS 2,000,000 (Interviewed Agricultural officer from Ipinda Ward, July 2025).

Another Agricultural officer from Mababu Ward explained,

> "We have provided several training sessions focused on Good Agricultural Practices (GAP), pruning, pest control, and fermentation techniques. Between 2020 and 2024, more than 1,200

> cocoa farmers were trained through programs supported by TARI and local NGOs. These efforts have increased yield per acre from 400kg to about 700kg in some villages (Interviewed Agricultural officer from Mababu Ward, July 2025).

A cooperative leader from Ipinda ward expressed strong confidence in the role that organized cocoa farming has played in improving the incomes of smallholder farmers. He had the following to say that,

> "Membership in the cooperative allows farmers to aggregate produce and negotiate higher prices. Last year, our members earned TZS 18,620 to 32,171 per kg." This price difference, they explained, directly translates into higher household earnings and greater financial stability. Cooperative structures not only provide market leverage but also contribute to members' capacity to manage income more effectively (Cooperative officer from Ipinda Ward, July 2025).

Health worker in KDC have also observed the positive effects of cocoa farming on household's income, especially in terms of health-related spending. One health worker from Ipinda Hospital noted that,

> "We have noticed a clear improvement patient from cocoa-farming household's now pay for outpatient services and medications more reliably, and maternal clinic attendance rose by 18% in the past two years." This trend demonstrates how increased income enables better access to essential health services (Interviewed Health officer from Ipinda Hospital July 2025").

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The responses affirm that cocoa income is not only boosting households' livelihoods but also playing a crucial role in enabling timely, consistent, and quality healthcare access for rural families.

CONCLUSIONS

The results show that cocoa farming is the main livelihood in Kyela, providing most household income, supporting education, and improving living standards, making it vital to rural economic stability. Cocoa income enables most households to afford three meals daily and diverse foods, though dependence on seasonal income causes shortages during off-seasons, calling for savings and intercropping. It has also improved healthcare access and preventive care, but low insurance coverage and poor infrastructure still expose farmers to financial risks during illness.

RECOMMENDATIONS

cocoa farming is central to livelihoods in Kyela, improving income, food security, education, and healthcare access. However, seasonal income fluctuations and limited insurance expose households to risks. Therefore, it is recommended that farmers diversify income, adopt intercropping, strengthen savings, and expand health coverage to enhance resilience and maintain stable living standards.

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