

## SCHOOL-BASED COFFEE FARMING SCHEMES AND FUTURE YOUTH ENGAGEMENT IN CO-OPERATIVES: EVIDENCE FROM MBOZI DISTRICT, TANZANIA

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### **Abstract**

*Coffee is vital to Tanzania's economy, yet productivity remains low due to persistent challenges. Despite its strategic role as a cash crop, efforts to develop skilled, future-oriented agricultural actors remain insufficient. Schools are essential in closing this gap by preparing youth for agricultural development and fostering interest in cooperatives. This study investigated secondary schools' engagement in coffee farming and potential future youth engagement in co-operative development in Tanzania, focusing on Mbozi District. A case study research design facilitated in-depth assessment of issues, selecting eight secondary schools engaged in school-based coffee farming schemes. Data were collected via interviews, observation and focus groups with students, teachers, and leaders of Agricultural Marketing Co-operative Societies (AMCOS). The collected data were analysed using content analysis. Findings reveal a shortage of qualified agricultural educators, leaving schools reliant on local expertise and external support. Resource challenges, including outdated equipment and insufficient funding, hinder practical agricultural training. Students remain highly motivated to participate in coffee farming, driven by financial incentives and cultural significance. Despite this passion, the study identifies a considerable gap in co-operative education, limiting students' understanding of models key for future participation in farming and co-operatives. The study concludes that limited staff, inadequate facilities, outdated tools, and insufficient co-operative education hinder sustainable innovation, knowledge transfer, and youth engagement. The study recommends that the government should prioritize hiring or training qualified agricultural teachers to equip students with specialised skills in coffee farming. **Secondary** schools should introduce internal reward systems, such as recognition awards for high-performing students. Local governments, in collaboration with coffee stakeholders, should provide modern tools and infrastructure, including irrigation systems, tractors, and pest control equipment, to support practical learning. Schools also need to pursue alternative funding strategies by partnering with agricultural co-operatives, community members, and seeking grants from local governments for school-based agricultural projects.*

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**Keywords:** Coffee Farming Schemes, School, Youth Engagement, co-operatives, Future.

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## INTRODUCTION

Agriculture remains a cornerstone of economic development globally, particularly in developing countries, where it contributes significantly to employment, food security and foreign exchange earnings (Kumar, 2024). Pawlak & Kołodziejczak (2020), highlights the sector's role in driving industrial growth and reducing poverty. In the global agricultural economy, coffee ranks among the most valuable traded commodities, second only to oil (Lemma & Megersa, 2021; Gokavi & Kishor, 2020). It is a key livelihood source for millions of smallholder farmers and a driver of rural development in many low-income countries (Waarts et al., 2021). The global coffee industry faces big challenges like competitions, climate change, unstable prices, and labour shortage resulting from aging group of farmers. These challenges have encouraged growing interest in promoting youth involvement, innovation and education as a means of securing the future of the field (Manubag et al., 2023). In Sub-Saharan Africa, coffee is a key export crop for many countries, including Ethiopia, Uganda, Kenya, and Tanzania (Lemma & Megersa, 2021). Despite its economic importance, coffee productivity in the region remains low due to poor farming practices, inadequate extension services and limited access to inputs (Cheruiyot, 2022). Co-operatives have historically played a key role in addressing these challenges by providing smallholder farmers with access to agro-inputs, credit, markets, training, and collective bargaining power (Mardiharini et al., 2022). However, the aging membership

of co-operatives and the lack of youth interest present risks to the sustainability of co-operative institutions. In Tanzania, coffee is among the most important cash crops, contributing approximately 5% of the country's total exports and generating around US\$ 100 million annually (Otieno, Alwenge & Okumu, 2019). Over 400,000 smallholder farmers rely on coffee cultivation for their livelihoods, with Arabica coffee from Kilimanjaro, Arusha, Songwe, Mbeya, and Ruvuma regions being particularly renowned for its high quality (Mhando & Mdoe, 2018). Nevertheless, Tanzania faces a stark gap between actual and potential yields, with average production ranging from 200 to 750 kg/ha compared to an optimal yield of about 3,000 kg/ha under improved management (Otieno et al., 2019). This highlights an urgent need for the dissemination of improved agronomic practices, where education and knowledge transfer become critical. Yet, there is limited empirical research on how secondary school-based agricultural education can bridge this yield gap. This underscores an existing gap in linking agripreneurship training with the nurturing of potential active coffee producers. Educational institutions, particularly secondary schools, have a unique opportunity to drive agricultural transformation by equipping students with modern farming skills and encouraging innovation. Manubag et al. (2023) argue that as globalisation, climate change, and technological shifts redefine agriculture, schools must prepare a future workforce that is skilled, adaptive, and entrepreneurial. By integrating practical agricultural training

including coffee farming into school curricula, institutions can activate students' interest in agribusiness and co-operatives, thus laying a foundation for a new generation of agripreneurs (Karani, Kyule & Ng'eno, 2024; Ukonze et al., 2024). FAO (2024) has demonstrated that structured agripreneurship curricula, significantly enhance youth engagement in agribusiness by fostering entrepreneurship initiative. Similarly, Hampton and Allen (2023) emphasized that integrating agribusiness into secondary school curricula has the potential to prepare students beyond traditional farming. Training youth in appropriate agribusiness skills is therefore crucial for their sustainable engagement. The International Institute of Tropical Agriculture (IITA, 2024) established that youth agribusiness training programs nurture employability and cooperative development, laying a foundation for sustainable agripreneurship. Co-operatives, in particular, serve as a vital platform for youth engagement including students. They enable smallholder farmers, including youth, to pool resources, access markets, and gain technical knowledge (Hariance, Noer, Ridwan & Hasna, 2023). For students, participation in school-based farming and co-operative engagement can foster hands-on learning, financial literacy, and leadership growth. Nonetheless, youth involvement in co-operatives remains limited. Across Africa, only about 27.9% of youth are engaged in co-operative organisations (ICA, 2017). Misconceptions that co-operatives are outdated, old-generation institutions, associated with limited access to productive resources such as land, credit, and qualified personnel, contribute to this trend (ILO, 2012a; Okafor, Obi-Okogbuo, Nwokorobia & Grace, 2023). Nonetheless, secondary schools can play a

transformative role in reshaping perceptions and fostering engagement. It is widely acknowledged that when given real-world co-operative experiences, students are more likely to view co-operatives as relevant to their futures (Roy, 2023; Zaremohzzabieh et al., 2022). Thus, this study assessed students' engagement in school-based coffee farming and their potential to become future co-operators.

**Analytical Framework:** This study is based on assumption that existing school-based coffee farming strategies influence student's perceptions and preparation strategies. This means that any positive interventions in these areas directly enhance future youth engagement in co-operatives. Students' participation in school-based coffee production schemes, together with practical preparation strategies, strongly shapes their willingness to become future co-operators. It is assumed that stronger preparation strategies and motives increase the likelihood of students becoming co-operative members, while weaker strategies reduce it. School-based practices, and student perceptions interact to determine the existence and engagement of future youth co-operators.

## METHODS

A case study approach was employed as the research design due to its intensive nature, offering detailed description and analysis of individuals, groups, or events. Although case studies are often criticized for limited generalizability, this study adopted a multiple case study (MCS) approach to support analytic rather than statistical generalization. MCS is an explanatory descriptive strategy suited for answering "how" and "why" questions, following replication rather than sampling logic (Yin, 2004). Each school was treated as a distinct case, thereby qualifying

the research as MCS. Eight of ten secondary schools engaged in school-based coffee farming schemes within the study area were purposely selected. Validity was ensured through replication across schools, while reliability and trustworthiness were strengthened by consistent use of focus group discussions, key informant interviews, and field notes to validate participants' perspectives. The study was conducted in Mbozi District, Songwe Region, the only area where secondary schools practice coffee production schemes. The eight schools included Ndugu, Nzovu, Nanswilu, Itepula, Shaji, Msense, Msia, and Itumpi. These programs were introduced and supported by the City Coffee Company, which provided farm inputs such as seedlings, fertilisers, and marketing linkages. The rationale for focusing on secondary schools was that coffee farming activities involve youth who may become future co-operative members if trained to understand and practice co-operative principles. The inclusion of eight schools aimed to capture sufficient and detailed information regarding students' engagement in coffee production. Key informant interviews were conducted with clubs' patrons and matrons, as well as AMCOS leaders, to assess whether students were being prepared to take up coffee farming and co-operative activities through formal and practical training. Focus group discussions were also held with teachers, club matrons and patrons, and extension officers assisting students in coffee farming, to evaluate schools' roles in preparing future youth farmers and co-operators. From each school, 25 students representing 50% of those engaged in coffee farming were purposely selected, yielding a total of 200 participants from 400 students in the study area. The study adhered to the principle of data

saturation, collecting information until no new insights emerged. In total, 16 focus group discussions (two per school) and 12 key informant interviews were conducted. All participants provided informed consent, ensuring voluntary involvement, while institutional permissions were obtained from schools and local government authorities to safeguard ethical compliance throughout the study. This study adopted a qualitative approach whereby data collection and analysis are an iterative process. This involved simultaneous process of inquiry and analysis. Data analysis was done using content analysis and the data were generated from FGDs and KIs. Data which were gathered through field notes and recordings were transcribed prior to its analysis. The responses and opinions of the interviewees were coded and categorised where a data base for categorising, sorting and retrieving data were prepared. The categorisation was done according to the topics in the interview guide and the research purpose (objectives) and guiding theory. The categorised data were screened, coded, condensed and transformed. The purpose of data reduction was to simplify and organize information, enabling clearer analysis and presentation (Mezmir, 2020). Finally, the case studies set in form of qualitative interpretations and descriptions were documented.

## **RESULTS AND DISCUSSIONS**

### **Availability of Qualified Staff in Coffee**

**Farming Practices:** The availability of qualified staff is a critical factor in the effectiveness of coffee farming education and practices. The study sought to establish the extent to which schools are equipped with professionally trained personnel in this area, revealing notable gaps in expertise. Almost all schools (7 out of 8 schools) involved in the study lack qualified staff in coffee farming

practices, relying heavily on local knowledge, experience, and occasional external support. The schools reported having no professional agricultural teachers or staff specializing in coffee farming practices. Instead, teachers with local expertise, supplemented by periodic training and advice from the City Coffee Company and local extension officers, guide students. One of the key informants in one of the schools indicated that: *“Our school currently does not offer a formal agriculture subject. Instead, we draw upon our local experiences and expertise to teach our students since we are all coffee producers.”* (KI1, Feb, 2025). This highlights that students in such schools receive less structured and standardised education in agricultural practices. The reliance on local experience limits the ability to impart practical innovations in coffee farming. In contrast, Myovizi Secondary School stands out, with three qualified agricultural staff members possessing professional knowledge of coffee farming practices. This has enabled students to engage in hands-on, practical learning, making the school a model for advancing agricultural education among the schools studied. Under the guidance of these staff members, students are well-supported in performing scientific coffee farming practices.

**Student Motivation Levels in Coffee Farming Activities:** This study revealed that students’ motivation to engage in coffee farming varies across the schools but is generally high, driven by observed benefits, financial incentives, and cultural factors. The studied secondary schools reported high levels of student motivation. Factors contributing to this include witnessing peers’ success and financial gains from coffee farming. Incentives and rewards provided by

City Coffee Company, such as monetary awards and internship opportunities, also play a role. For example, one of the club matrons during key informant interview said that: *“Last year, one student earned 4 million TZS from selling coffee to AMCOS, received specialised training in America and was promised a job offer at the company. Additionally, students selling through AMCOS receive preferential treatment, including a higher price per kilogram compared to other sellers”* (KI2 Feb, 2025). Among the studied schools, Nzovu secondary school exhibited moderate motivation among students. It was found that, while students are motivated within the school environment, parental rigidity towards adopting improved coffee varieties and disbelief in their profitability affects some students’ overall passion for coffee farming, especially at home. One of the KIs firmly but wrongly stated *“The improved coffee variety provided by City Coffee Company (Compact coffee variety) yields a maximum of 2 kilograms per plant and has a shorter life span, while our local varieties may produce up to 30 kilograms per plant* (KI 3 Feb, 2025). Nonetheless, this view was challenged by the district extension officer, who argued that the productivity of the improved coffee variety supplied by the company largely depends on timely and adequate treatments.

**Availability of Facilities and Equipment for Coffee Farming:** The lack of adequate facilities and modern equipment was the common challenge across the schools despite its necessity for effective and modern coffee farming practices in the study area. The studied schools lack sufficient tools such as hoes, irrigation systems, and modern farming equipment. Students often bring tools from home and farming practices rely on traditional methods. Only one school

possesses some facilities including a water pump, generator and pesticide sprayers which aid in farming activities but still lacks comprehensive modern equipment like tractors and specialised irrigation systems. One KI argued that; *“The school has a water pump for irrigation, a generator for pumping water during electricity outages, and pesticide sprayers to simply coffee farming activities. However, these resources are insufficient to support all farming activities, so students always volunteer resources from home, such as hand hoes”* (KI4 Feb, 2025). This demonstrates that the school has some resources for supporting agricultural activities which are valuable for simplifying tasks related to coffee farming. Despite having these resources, they are not sufficient to cover all farming activities which requires students to volunteer their resources. On other hand students’ volunteerism and commitment reflects a culture of student involvement and willingness to contribute to school farming projects.

**Funding Availability for Sustainable Coffee Farming Activities:** Limited funding and resource availability pose a major challenge to the sustainability of coffee farming activities in the studied schools, despite external support from organizations like City Coffee Company. The studied schools face significant funding constraints that hinder the sustainability of their coffee farming activities. These schools rely heavily on external support, primarily from City Coffee Company, which provides essential farming inputs such as seedlings, fertilisers, and pesticides. While this assistance is crucial, it is insufficient to meet the full needs of the schools’ coffee farming projects. Additionally, there are delays in the delivery of these resources, which interrupt the continuity of farming operations. For

example, one of the KIs said that: *“This year, no form one students are participating in the coffee farming school club because. inputs from City Coffee Company have not yet arrived. Despite their eagerness, we lack funds to support activities at home, relying on the company’s resources.”* (KI5 Feb, 2025). This highlights that the school has not allocated a budget to support coffee farming activities, reflecting a broader issue: none of the studied schools have dedicated budgets for coffee farming or developed alternative funding mechanisms. As a result, they remain highly dependent on City Coffee Company for inputs and resources.

**Provision of Co-operative Education and Training:** Co-operative education and training, a key principle of the co-operative movement, plays a crucial role in fostering an understanding of the co-operative business model. However, this area remains significantly underdeveloped in the study areas. The educational focus is primarily on technical skills related to coffee production, leaving a substantial gap in students’ comprehension of co-operative business structures, principles, and the potential benefits of these systems. Among the schools studied, only Shaji Secondary School has attempted to introduce students to co-operative education. In 2022, students participated in a study tour to a primary Agricultural Marketing Co-operative Society (AMCOS), which provided a brief overview of how co-operatives work in practice. However, this was an isolated event with no follow-up activities or continuing education efforts to deepen students’ knowledge. The absence of ongoing training meant that this limited exposure was insufficient to equip students with a solid understanding of co-operative principles and practice. Co-operatives, as business entities owned and

operated by a group of individuals for their mutual benefit, are vital to local economies, especially in agricultural sectors like coffee production. However, the lack of structured education on this subject means that students in these schools have minimal exposure to the values and mechanisms of co-operative organisations. Without proper training, students are less equipped to understand how co-operatives function, how to participate in them, and the advantages they offer in terms of shared ownership, risk reduction, and collective bargaining. The overall lack of co-operative education severely limits students' ability to recognise the long-term benefits of co-operative involvement. This diminishes their capacity to see co-operatives as viable and empowering business models, which in turn affects their motivation to join or establish co-operatives in the future. Consequently, the potential for these students to become future cooperators who actively participate in co-operative organisations and contribute to their growth is significantly hindered.

**Strategies for Retaining Students as Future Farmers and Cooperators:** The retention of students as future farmers and cooperators is critical to maintaining the long-term viability of coffee farming and the sustainability of AMCOS. Youth are pivotal to the growth and development of AMCOS, making it imperative for schools to engage them actively in farming activities. However, studied schools lack deliberate strategies to nurture students as future farmers and cooperators, often relying on external incentives. For instance, City Coffee Company provides monetary rewards, internships, and employment opportunities as motivational tools.

## DISCUSSION

This study revealed a notable shortage of qualified agricultural staff in most schools, limiting its ability to impart modern and innovative coffee farming practices to students. Reliance on local experience, though valuable, does not provide students with exposure to scientific methods. These findings align with Njoroge, Mwangi and Udoto (2014), who argue that intergrating agriculture in school curriculum, enable students gain valuable insights into sustainable agricultural production. Similarly, Okiror, Hayward and Winterbottom (2017) emphasised that teachers often lack exposure to modern farming skills, a challenge identified in this study. This hinders the capacity of schools to adopt modern agricultural production methods. Moreover, Padhy and Jena (2025) noted that better-educated farmers are quicker to adopt useful innovations due to higher expected payoffs and lower perceived risks. This suggests the importance of formal agricultural education, which remains largely lacking in the schools studied. This is because lack of qualified staff and structured agriculture curricula is likely to result into underprepared students, thereby limiting their long-term engagement in coffee and co-operative activities. Findings on student's motivation to engage in coffee farming demonstrates that the financial support and professional opportunities provided by the City Coffee Company motivate students to work harder and invest more of their energy, time, and resources in coffee production so that they can receive the same benefits. It was further revealed that cultural background and family involvement in coffee farming play a significant role in reinforcing its perception as a viable and profitable venture. Many students come from families that have long

been engaged in coffee farming, often passing down skills and knowledge through generations. This deep-rooted familiarity with coffee production helps to sustain its importance as the primary cash crop in the study area. Alston, Roberts and English (2020) indicated that parents or guardians have a key role in influencing students' decisions to become future agriculturalists, which aligns with the study findings. Nonetheless, the view expressed by one of the key informant that improved coffee varieties were less productive was challenged by the district extension officer, who expressed that the productivity of the improved coffee variety largely depends on timely and adequate treatments. It was indicated that if provided with the necessary care and resources at the right times, the improved variety has proven to be highly productive, even more so than the traditional local variety. The differing perspectives among the study participants are largely due to variations in agricultural practices. The Compact Coffee Variety, while not inherently less productive, requires more precise management, including timely irrigation, fertilisation, and pest control, to achieve optimal yields. As noted by the district extension officer, a delay in these practices can significantly impact productivity. Studies also support that new coffee varieties, when properly managed, can lead to higher yields and greater profitability (Kahsay, Turreira-Garcia, Ortiz-Gonzalo, Georget & Bosselmann, 2023; Van der Vossen, Bertrand & Charrier, 2015). Often times, high motivation is a strong indicator of the long-term sustainability of coffee farming initiatives and the success of agricultural co-operatives. However, external influences, such as community perceptions and support, are also crucial. Research shows that a

positive attitude on agriculture as a career is the most significant predictor of students' intentions to pursue it in the future. Students who see agricultural careers as beneficial to both themselves and their communities are more likely to consider agriculture as a viable career path (Roy, 2023; Zaremohzzabieh et al., 2022). Additionally, this study revealed shortage of facilities and equipment in the schools engaging in school-based coffee projects. Such shortage may have negative impacts in efficiency and productivity of coffee produce and affect students' practical learning experiences. It can also lead to reduced output, and lower quality in coffee production. Additionally, it may hinder the development of key skills, making it difficult for students to achieve a high level of competence. This may ultimately discourage them from pursuing opportunities in the coffee industry and affect current and future workforce readiness in the sector. Literature highlights the role of modern technology in enhancing coffee business management and ensuring sustainable growth in the coffee industry (Borrelli, van der Vossen, & Long, 2024; Kittichotsatsawat, Jangkrajarn & Tippayawong, 2021). The study findings align with Guido *et al.* (2020), who noted that inadequate facilities limited farmers' use of inputs, affecting coffee quality. Similarly, Ronalds, David and Opio (2023) found that a lack of effective coffee production systems and management practices led to lower coffee yields. Moreover, this study revealed that external dependence for resources was common in the studied schools. This dependence particularly on external funding jeopardises the long-term viability of their coffee farming programs, as these efforts would likely be abandoned if City Coffee Company withdrew its support without a sustainable plan to empower students.

Research indicates that agricultural projects funded externally are more sustainable when they empower communities to manage them independently (Hofisi & Chizimba, 2013; Kaaria & Kimaro, 2024; Msuya & Magesa, 2023). Furthermore, findings suggest that true self-reliance is achievable through mobilising local resources with minimal dependence on outside support (Mazibuko, 2007). The findings align with Ronalds *et al.*, (2023), who argued that coffee management involves the use of various inputs, which come with significant costs. Therefore, the availability of funds is crucial for purchasing necessary inputs, such as improved seeds, fertilisers, and other supplies that positively impact coffee management practices. Similarly, Tadesse, Tesfaye & Abera (2020) emphasised that an effective supply of agricultural inputs, including improved varieties, fertilisers, and insecticides, can boost the productivity and quality of coffee, but this requires consistent funding. Furthermore, youth farming and co-operative education are crucial aspects of sustainability. Literature supports the importance of co-operative education to youth due to its potential to address their disengagement, and its contribution towards unemployment reduction (ILO, 2012b). Education about the rights, responsibilities, and benefits of co-operative societies can enhance youth participation in co-operative activities, encourage them to patronise co-operative products and services, and contribute to the achievement of co-operative goals. Similarly, Cruz (2021) proposes that introducing youth to the value of cooperation can spark their interest in co-operatives and help sustain their legacy. Kayabaş (2020) highlights that the lack of education and awareness hinders co-operative development, making it essential to raise

awareness in schools through co-operative education designed to improve, adopt, and sustain co-operatives. While direct co-operative education is lacking, most schools in the region had some form of linkages between students and co-operative institutions, primarily through the facilitation of City Coffee Company. The students in the study areas are linked to AMCOS through such company, allowing them to sell their coffee produce to these co-operatives. This provides some exposure to co-operative operations. Only one school in particular, benefits from advice and support from co-operative members and leaders, indicating a more active relationship. However, most schools lack broader networks with other coffee stakeholders beyond City Coffee Company and AMCOS, limiting students' broader understanding of co-operatives. Regarding strategies for retaining students for future coffee farming engagement, this study revealed that existing incentives can spark initial interest. However, sustainable self-reliance is more likely to be achieved through the mobilisation of local and own resources (Magesa & Jeckoniah, 2023; Mazibuko, 2007; Njau, Mahonge & Massawe, 2019). This aligns with broader findings in co-operative development literature, which emphasise building internal capacities and fostering intrinsic motivation over dependency on external support systems (Johnson, & Johnson, 2008; Mwakaje & Msuya, 2024; Njau *et al.*, 2019; Osterloh, Frost & Frey, 2002). These studies suggest a positive relationship between intrinsic and extrinsic motivation and that outside intervention in the form of rewards may strengthen intrinsic motivation if it is perceived to be supportive of intrinsic motivation. Out of eight schools four of them receive support from City Coffee Company

to encourage students to pursue careers in coffee farming. In contrast, the remaining schools do not have specific retention strategies and depend entirely on these external incentives. This over-reliance on outside support highlights the absence of structured, internal approaches to agricultural education. This is because such incentives are effective in the short term but its sustainability is questionable, especially if corporate sponsorship diminishes or fluctuates. In this study, it was clear that students' cultural backgrounds and family ties to coffee farming play a considerable role in maintaining their interest in farming. In these communities, coffee farming is a cultural identity passed down through generations. These findings align with Mugisha, Tumwine & Kato (2023) & Zaremohzzabieh *et al.* (2022), who found that students with agricultural backgrounds are more positive about farming careers than those from urban settings. However, cultural inheritance alone may not be enough to ensure long-term engagement, as students are increasingly eager to identify other career options through innovation, entrepreneurship, technology and education. Ochieng (2020) observed that as rural youth are exposed to non-farming opportunities, they tend to shift away from agriculture towards self-employment as well as government or private sector jobs. Usually external incentives from companies like City Coffee can help retain students, however, the approach would be more effective if its incorporated with internal strategies at the school level. Schools, without such external support struggle even more to retain students in farming, demonstrating the need for a balanced approach combining both internal and external efforts. Nonetheless, Njau *et al.* (2019) found that incentives in co-operatives

and supporting organizations in Tanzania are not only insufficient but also largely ineffective, with some entirely lacking. This means that, the lack of adequate incentives may discourage active youth engagement, limiting co-operative growth and potential innovations driven by young entrepreneurs.

## CONCLUSION

## AND

## RECOMMENDATIONS

### Conclusions

The study reveals key challenges and opportunities in implementing coffee farming and enhancing co-operative education and training in secondary schools. It revealed a lack of qualified agricultural staff resulting to inconsistent and limited knowledge transfer, limiting innovation and comprehensive coffee farming education. Likewise, it was revealed that students' motivation was driven by cultural and financial incentives, yet, it heavily relied on external support, raising concerns about sustainability of the school-based coffee farming schemes and the coffee sector in general. Moreover, inadequate basic farming facilities such as hand hoes, sprayers, and outdated farming equipment further hinder the effectiveness of farming activities. The absence of structured co-operative education also limits students' understanding of co-operative business models and has implication on the future sustainability of the co-operative sector especially agricultural co-operatives.

### Recommendations

Based on the key findings of the study, the following recommendations are presented. It is advised that secondary schools in the study area should prioritise hiring or training qualified agricultural teachers to equip students with specialised coffee farming skills. It is also recommended that secondary

schools should introduce internal reward systems, such as recognition awards for high-performing students, for the purpose of fostering motivation, sustain engagement, and prepare students to become active members of the agricultural workforce and co-operatives. It is further advised that, local governments, in collaboration with non-governmental organisations, should provide modern farming tools and infrastructure, including irrigation systems, tractors, and pest control equipment, to support practical learning. Schools are also encouraged to consider alternative funding strategies by forming mutual partnerships with agricultural co-operatives, local businesses, and community members, alongside seeking grants from local governments, the private sector and individuals willing to support youth-based agricultural initiatives. Ultimately, the government of Tanzania is advised to consider incorporating co-operative education into the curriculum to empower students with knowledge of the principles, practices and benefits of farming and co-operative systems, ensuring long-term impact and sustainability in the coffee farming sectors.

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