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Assessing the Efficacy of Cooperatives in Enhancing Agricultural Productivity and Food Security among Smallholder Farmers in Mumena Chiefdom in Kalumbila District, Zambia

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ABSTRACT

This study examined how cooperatives contribute to improving agricultural productivity and food security for smallholder farmers in Mumena Chiefdom, Kalumbila District. In Zambia, cooperatives are seen as vital for agricultural development, as they empower farmers by enhancing access to resources, increasing productivity, and aiding in market integration. The study aimed to evaluate the role of cooperatives in supplying agricultural inputs, assess their impact on productivity, analyze their contribution to market access and income enhancement, and identify the challenges they face in their operations.

A structured questionnaire was distributed to 150 smallholder farmers, and the data were analyzed using both quantitative and qualitative methods. Descriptive and inferential statistics were utilized along with thematic analysis to derive meaningful insights. The results indicate that 55% of respondents experienced timely access to seeds, while 45% reported better access to agricultural credit through cooperatives. Membership in these cooperatives was significantly linked to increased crop yields, with 40% of farmers achieving yield gains of over 50%. Additionally, 50% of respondents observed income increases of more than 30% due to improved market access provided by cooperatives.

Despite these achievements, there were still challenges to overcome. Input shortages were identified by 35% of participants as a major concern, along with limited access to credit and operational inefficiencies within cooperatives. These factors hinder the full potential of cooperatives to enhance agricultural outcomes.

The study concluded that cooperatives play a vital role in boosting agricultural productivity and food security for smallholder farmers in Mumena Chiefdom. However, it was essential to tackle ongoing challenges to maximize their effectiveness.

Keywords: Agricultural cooperatives, smallholder farmers, productivity, food security, market access, governance, Zambia

INTRODUCTION

Background

Agricultural cooperatives were crucial for improving the livelihoods of smallholder farmers by tackling issues such as limited access to resources, markets, and capital (FAO 2020). Around the world, these cooperatives have shifted agriculture from subsistence to commercial farming by pooling resources, lowering input costs, and facilitating market access. Success stories from regions like Europe, Latin America, and Africa illustrated how cooperatives could boost productivity and income for farmers, even in the face of challenges like governance and financial limitations (DFID 2022).

In Africa, cooperatives have worked to overcome the obstacles of inadequate infrastructure, credit access, and restricted markets. Case studies from Ethiopia, Kenya, and Rwanda highlight their potential to transform productivity and incomes by providing access to inputs and enabling collective marketing (Ng'ang'a et al

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2021). Nevertheless, weak governance and insufficient institutional support continue to limit their broader impact.

In Sub-Saharan Africa, cooperatives have played a key role in enhancing productivity and food security, with significant achievements noted in Rwanda's coffee and Tanzania's cotton industries. However, challenges like poor management, limited financial resources, and fragmented value chains still pose major hurdles (World bank 2024).

In Zambia, where agriculture was the backbone for over 70% of the population, cooperatives help smallholder farmers tackle their challenges through initiatives like the Farmer Input Support Programme (FISP), which improves access to inputs and encourages collective marketing. The Mumena Chiefdom in Kalumbila District was a prime example, with 55 cooperatives boosting productivity and income diversification through horticulture and staple crop production. Despite government backing, issues such as inadequate infrastructure, governance problems, and market access challenges remain (DACO 2022).

The study seeks to assess the effectiveness of agricultural cooperatives in enhancing productivity and food security in Mumena Chiefdom, shedding light on both achievements and persistent challenges.

Statement of the Problem

Agricultural cooperatives are widely acknowledged as vital resources for smallholder farmers facing challenges such as limited access to inputs, markets, and technology. In Zambia, where more than 60% of the population relies on agriculture, the sector is characterized by low productivity and food insecurity, particularly in areas like Mumena Chiefdom. Smallholder farmers in this region encounter obstacles like poor access to quality inputs, insufficient extension services, and weak market connections (WFP 2020).

In Mumena Chiefdom, where over 70% of the population depends on agriculture, productivity is still 60% below potential yields due to limited access to quality inputs and irrigation. Although cooperatives aim to tackle these challenges, their effectiveness has been inconsistent, with many failing to enhance productivity or income levels. Poor market access further worsens food insecurity, as smallholder farmers find it difficult to sell their produce competitively.

Despite Zambia registering over 1,000 cooperatives by 2016, structural inefficiencies and a lack of external support have impeded their ability to address gaps in productivity and food security. This study aims to assess whether cooperatives in Mumena Chiefdom effectively tackle these challenges and contribute to improved agricultural productivity and food security.

General Objective of the Study

The general objective of this study was to assess the efficacy of agricultural cooperatives in enhancing agricultural productivity and improving food security among smallholder farmers in Mumena Chiefdom, Kalumbila District.

Specific Objectives of the Study

i. To evaluate the role of cooperatives in improving access to agricultural inputs and resources for smallholder farmers in Mumena Chiefdom.

ii. To assess the impact of cooperatives on agricultural productivity among smallholder farmers in the chiefdom.

iii. To analyze the effectiveness of cooperatives in enhancing market access and improving income levels for smallholder farmers.

iv. To find out the challenges faced by agricultural cooperatives in Mumena Chiefdom and how these challenges affect their operations and performance.

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Research Questions

i. In what ways do cooperatives improve access to agricultural inputs and resources for smallholder farmers in Mumena Chiefdom?

ii. How do cooperatives influence the agricultural productivity of smallholder farmers in Mumena Chiefdom?

iii. What role do cooperatives play in enhancing market access and increasing the income levels of smallholder farmers?

iv. What are the key challenges faced by cooperatives in Mumena Chiefdom, and how do these challenges impact their effectiveness?

The theoretical framework for this study combined Collective Action Theory and Food Security Theory to assess how cooperatives could boost agricultural productivity and food security for smallholder farmers in Mumena Chiefdom, Kalumbila District.

Collective Action Theory

This theory, introduced by Olson in 1965, explained how individuals with common interests work together to achieve goals that were challenging to reach independently. In the realm of cooperatives, it emphasizes their function in pooling resources, lowering input costs, sharing risks, and enhancing group bargaining power to improve productivity and market results. Key functions of cooperatives include:

Collective Procurement: Bringing together resources to secure affordable, high-quality inputs such as seeds and fertilizers.

Market Linkages: Strengthening bargaining power to obtain better prices for agricultural products.

Training and Extension Services: Promoting knowledge sharing and skill development for improved agricultural practices.

The success of cooperatives relies on strong governance, trust, and active member participation. However, challenges in governance and issues with free-riding often hinder cooperatives in Zambia, necessitating targeted interventions to overcome these obstacles.

Food Security Theory

According to the FAO in 2024, food security has four dimensions:

Availability: Sufficient food production and accessibility.

Access: Economic and physical means for households to acquire food.

Utilization: Safe, nutritious, and effective use of food.

Stability: Consistent food supply over time.

Cooperatives contribute to food security by:

Enhancing food availability through improved access to quality inputs and farming techniques.

Increasing access by boosting income and creating market opportunities.

Supporting utilization with post-harvest training and food safety initiatives.

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Ensuring stability by providing resources like savings groups and credit facilities to help manage risks.

For cooperatives to be effective, they must tackle systemic challenges such as inadequate infrastructure and limited access to financial resources.

LITERATURE REVIEW

The Role of Cooperatives in Improving Access to Agricultural Inputs and Resources for Smallholder Farmers

Agricultural cooperatives play a vital role in helping smallholder farmers gain access to essential inputs, especially when they face challenges like high costs, limited credit, and insufficient extension services. Around the world, these cooperatives have made it easier for farmers to obtain seeds, fertilizers, and machinery, which are crucial for increasing productivity and ensuring food security (Birchall, 2024). For instance, cooperatives in India and Mexico have successfully lowered input costs through collective purchasing and ensured that farmers receive their supplies on time (Martínez, 2020). Additionally, cooperatives often provide access to credit facilities, allowing farmers to purchase inputs that would otherwise be out of reach due to financial limitations (Schwettmann, 2022).

In Africa, cooperatives tackle issues related to fragmented markets and poor infrastructure. For example, maize cooperatives in Kenya have subsidized inputs and ensured timely distribution, which has led to improved yields (Wanyama, 2020). Similarly, cooperatives in Ghana have enhanced access to modern inputs, such as improved seeds and pesticides (Amadi, 2021). In Tanzania and Uganda, cooperative-led rental schemes for machinery have further reduced costs and encouraged mechanization (Nyoro, 2020).

In Sub-Saharan Africa, cooperatives frequently partner with government agencies and NGOs to provide subsidized inputs. For example, Ethiopian cooperatives have worked with the Agricultural Transformation Agency to distribute fertilizers and hybrid seeds, significantly boosting productivity (Ngugi, 2020). In Malawi, revolving funds have enabled farmers to access inputs with deferred payments, helping to overcome financial obstacles (Ngoma, 2021).

In Zambia, cooperatives have made a notable impact in areas like Mumena Chiefdom. By collaborating with initiatives such as the Farmer Input Support Program, cooperatives have provided subsidized seeds and fertilizers, supporting the cultivation of crops like maize and soybeans (Kangwa, 2021). Efforts in conservation farming, seed multiplication programs, and partnerships with microfinance institutions have further improved farmers' access to resources.

The Impact of Cooperatives on Agricultural Productivity Among Smallholder Farmers

Agricultural cooperatives have been essential in boosting the productivity of smallholder farmers by tackling issues like limited access to inputs, markets, and modern technologies. Around the world, these cooperatives have helped smallholders achieve economies of scale and embrace innovative farming methods, leading to enhanced productivity (Birchall, 2024). For instance, in India, dairy cooperatives have increased yields by providing better cattle breeds, feed, and veterinary services, while cooperatives in Mexico and Brazil have improved coffee productivity through collective input purchasing and access to credit (Martínez, 2020).

In Africa, cooperatives have made a significant impact on productivity by ensuring that farmers have access to quality inputs, knowledge, and markets. In Kenya, maize cooperatives have enabled timely access to improved seed varieties and fertilizers, resulting in higher yields (Wanyama, 2020). Likewise, Ethiopian cooperatives have promoted the distribution of drought-resistant seeds and sustainable practices, enhancing both resilience and productivity (Ngugi, 2020). In Ghana, cocoa cooperatives have provided training in soil fertility management and pest control, while partnerships with microfinance institutions in Uganda and Tanzania have facilitated access to credit for modern inputs, further boosting productivity (Amadi, 2021; Nyoro, 2021).

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In Sub-Saharan Africa, cooperatives have addressed structural challenges by pooling resources and improving access to technologies. For example, cooperatives in Malawi have enhanced maize yields through collective input procurement and the adoption of climate-smart agriculture techniques, such as rainwater harvesting (Ngoma, 2021). In Rwanda, coffee and tea cooperatives have increased both yields and quality by offering inputs, extension services, and training (Mugabe, 2020).

In Zambia, particularly in Mumena Chiefdom, cooperatives have strengthened productivity by facilitating access to inputs and promoting sustainable practices.

The effectiveness of cooperatives in enhancing market access and improving income levels for smallholder farmers

Agricultural cooperatives were essential in helping smallholder farmers gain better access to markets and increase their income. By facilitating collective marketing, lowering transaction costs, and offering market information, these cooperatives allowed farmers to tap into formal and profitable markets. Around the world, cooperatives in areas like Europe and North America have successfully connected farmers to international markets through effective value addition and marketing strategies (Birchall, 2024; Schwettmann, 2022). For instance, the success of Spanish olive oil and New Zealand dairy cooperatives illustrates how collective marketing can boost farmer incomes (Martínez, 2020).

In Africa, cooperatives have addressed issues such as fragmented markets and inadequate infrastructure. Coffee cooperatives in Kenya and dairy cooperatives in Uganda have improved market access, lowered transaction costs, and enabled farmers to secure better prices (Wanyama, 2020; Ngugi, 2020). Additionally, Ghanaian cocoa cooperatives have increased competitiveness by providing timely market information, while cooperatives in Tanzania and Uganda have promoted value addition through processing facilities (Amadi, 2021; Nyoro, 2021).

In Sub-Saharan Africa, Ethiopian coffee cooperatives and Malawian agricultural cooperatives have played similar roles, enhancing access to both regional and international markets and ensuring income stability through quality standards and collective marketing (Ngoma, 2021; Nyangito, 2020).

The challenges faced by Agricultural Cooperatives in Mumena Chiefdom and their impact on operations and performance

Agricultural cooperatives in Mumena Chiefdom were grappling with a range of challenges that affected their operations and overall performance. On a global scale, issues like poor governance and limited access to financial resources significantly hinder the effectiveness of cooperatives. Birchall and Ketilson (2024) pointed out that inadequate management systems lead to reduced service delivery, while a lack of funding limits investments in both infrastructure and services for members. In Africa, the situation was worsened by poor infrastructure, weak market connections, and governance problems (Martínez, 2025; Amadi, 2020). Sub-Saharan Africa faces additional hurdles, including unhelpful policies, the impacts of climate change, and technological deficiencies, with Nyangito (2020) noting the absence of effective regulatory frameworks and Ngoma (2021) highlighting how climate variability disrupts productivity.

In Zambia, particularly in areas like Mumena Chiefdom, cooperatives faced even more specific challenges. The lack of financial resources was a major issue; Mubanga (2023) points out the difficulty in obtaining affordable credit for necessary inputs and infrastructure. Additionally, poor road conditions and inadequate storage facilities lead to significant post-harvest losses and hinder market access (Kanyembo, 2020). Governance issues and mismanagement further discourage active participation from members (Kalaba, 2020).

In the context of Mumena Chiefdom, the inability to engage in value addition severely limits the income potential of cooperatives. Kangwa (2021) attributes this limitation to a shortage of equipment and skills. Gaps in technical expertise and training, along with insufficient extension services, hinder productivity and competitiveness in the market (Mulenga, 2024). Moreover, the reliance on local markets that offer lower prices, combined with poor infrastructure, restricts market opportunities and profitability (Mubanga, 2023).

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These challenges collectively diminish the productivity, profitability, and member engagement of cooperatives. To overcome these obstacles, targeted interventions such as improved governance, infrastructure development, better access to credit, and capacity-building initiatives are essential to strengthen the role of cooperatives.

In Zambia, cooperatives have made a notable impact on market access for smallholder farmers, especially in rural regions like Mumena Chiefdom in Kalumbila District. By organizing collective sales, negotiating contracts, and connecting farmers to government initiatives such as the Food Reserve Agency (FRA), cooperatives have effectively reduced transaction costs and provided stable income opportunities (Kangwa, 2021; Mubanga, 2023). They have also offered valuable market information to help guide product decisions.

RESEARCH METHODOLOGY

Research Design

The research combined both qualitative and quantitative research designs, also known as the mixed-methods research design. A quantitative research approach is preferred by including aspects such as a structured survey inquiry for numerical data and, at the same time, seeking personal views from the respondents on the entailed variables. Then, the qualitative approach includes the use of guided in-depth interviews to have detailed insights and narratives (Creswell, 2021).

Target Population

The target population of this research involves all smallholder farmers in cooperatives within Mumena Chiefdom, Kalumbila District. That means male and female farmers of different age categories and socio-economic status. Firstly, the cooperatives in the target area are multi-functional since most have members who are practising farming as well as rearing and ago-processing at differing levels.

Sampling Design

The strategy will involve stratified random sampling to ensure adequate representation of the different cooperative groups existing in Mumena Chiefdom. These strata are based on the type of agricultural activity and the size of the cooperative. This approach therefore ensures a sample that represents the diversity of cooperative members and their various experiences (Kothari, 2004).

Sample Size Determination

The Cochran formula is used for calculating the sample size for social science research, considering a finite population. With an estimated population size of 750 cooperative members from 70 cooperatives at a 0.05 confidence level and 5% margin of error, the sample size is calculated as follows:

Where:

- nnn is the sample size
- NNN is the population size
- ZZZ is the Z-value (1.96 for 95% confidence)
- ppp is the estimated proportion of the population (0.5 for maximum variability)
- EEE is the margin of error (0.05)

Substituting values, we obtain an approximate sample size of 150 members of the cooperative.

Triangulation

Triangulation was used to improve the validity and reliability of the study's findings by combining both quantitative and qualitative data. This approach enabled the cross-verification of information from various

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sources and analytical methods, leading to a more detailed and accurate understanding of the research issue. By reducing potential biases, triangulation played a key role in providing a comprehensive assessment of how cooperatives contribute to enhancing agricultural productivity and food security (Denzin, 2022).

PRESENTATION OF RESEARCH FINDINGS

Background characteristics of respondents

The following sections will detail the main demographic characteristics of the respondents, emphasizing their importance to the study's objectives. This profile laid the groundwork for investigating the relationships between the respondents' characteristics and their experiences with agricultural cooperatives.

Age distribution of respondents

The age distribution of respondents provided important insights into the demographic profile of smallholder farmers in Mumena Chiefdom. As shown in **Figure 1,** the majority of respondents (45%) were aged between 30 and 39 years, indicating a relatively youthful population actively involved in farming. The next largest group (25%) was comprised of individuals aged 40 to 49 years. These farmers typically had valuable experience that could boost productivity, although they might encounter increasing difficulties with labour-intensive tasks (Zulu & Kalinda, 2016).

Figure 1: Age Distribution of Respondents Engaged in Farming

Source: Field Data, 2024.

Gender distribution of respondents

The analysis of the gender distribution among respondents showed that 60% were male and 40% were female (Figure 2). This finding was consistent with research conducted in rural agricultural communities, which indicated that men often hold decision-making positions in farming due to established cultural norms and gender roles (Smith & Jones, 2018).

Figure 2: Gender distribution of respondents

Source: Field Data, 2024.

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Household Size

The distribution of household sizes among respondents indicated that 50% of households contain between 4 to 6 members, while 30% had 1 to 3 members, and 20% report having 7 or more members (Figure 3). This data implied that most households were medium-sized, with a significant portion (50%) comprising 4 to 6 members.

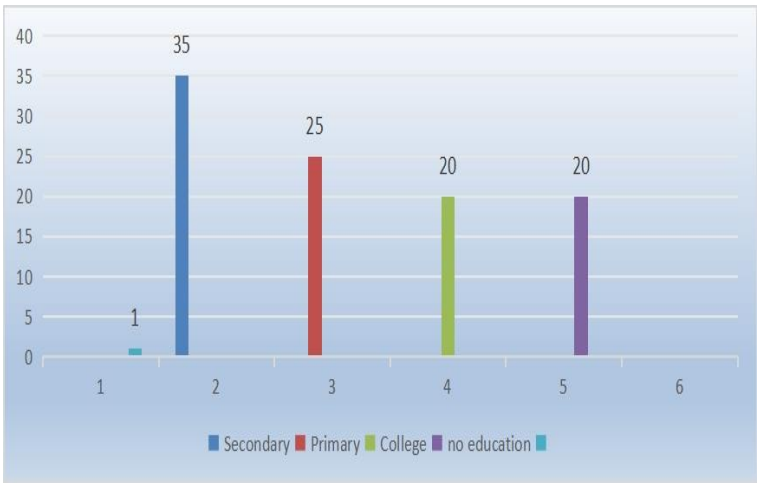
Figure 3: Household Size Distribution

Source: Field Data, 2024.

Education Level

The educational background of the respondents showed that 35% had completed secondary education, 25% had only primary education, and 20 had only college education. Interestingly, 20% of the respondents indicated that they had no formal education (Figure 4).

Figure 4: Educational Background of Respondents



Source: Field Data, 2024.

Primary Source of Income

The primary source of Income showed that 70% of respondents identified crop farming as their main source of income, while 20% depended on livestock rearing, and 10% were involved in off-farm employment.

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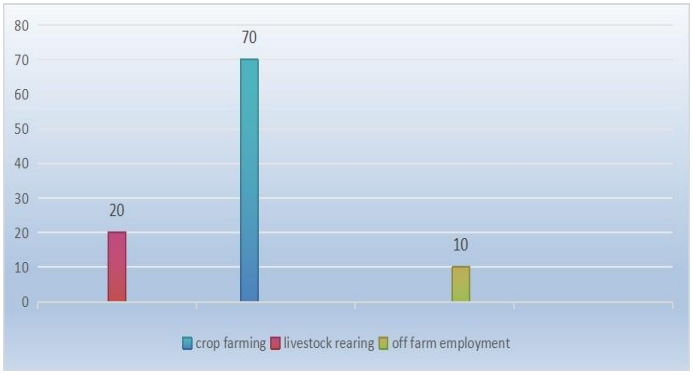
Figure 5: Primary Source of Household Income

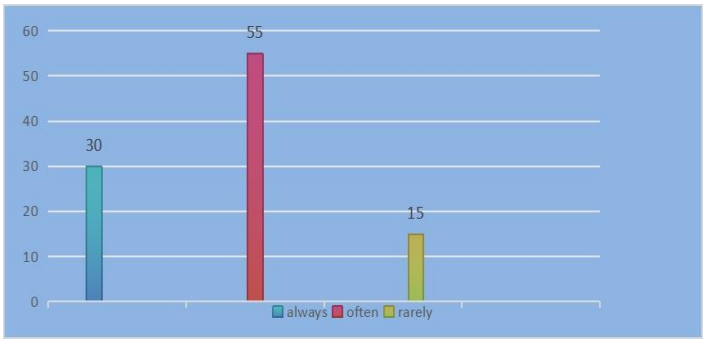


Source: Field Data, 2024.

Role of Cooperatives in Improving Access to Agricultural Inputs and Resources

The analysis of the role of cooperatives in facilitating access to agricultural inputs indicates that a significant number of respondents depended on these organizations for vital agricultural resources. Figure 6 illustrates that 55% of respondents stated they obtain their agricultural inputs via cooperatives, whereas 30% reported sourcing their inputs on their own, and 15% relied on informal or local markets.

Figure 6:Access to Agriculture Inputs through Cooperatives

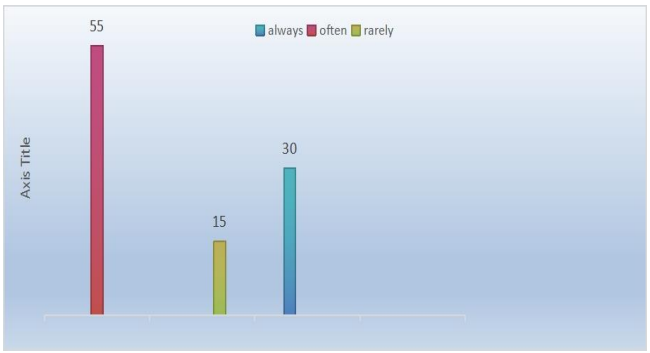


Source: Field Data, 2024.

Access to Seeds

The survey results showed that 55% of participants stated that cooperatives "often" help them obtain seeds promptly, while 30% mentioned that they "always" receive prompt assistance from cooperatives (Figure 6). The remaining 15% reported that they rarely or never received timely support from these organizations.

Figure 7: Frequency of Timely Access to Seeds through Cooperatives



Source: Field Data, 2024.

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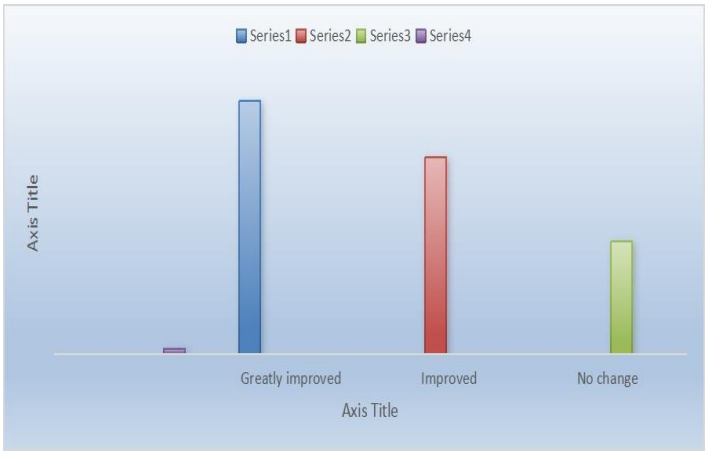
Agricultural Credit Access

The survey results showed how the cooperative members felt about the enhancement of their access to agricultural credit as a result of being part of a cooperative. Among those surveyed, 45% stated that their membership had "greatly improved" their access to credit, reflecting a notable positive effect.

Figure 8:The effect of cooperative membership on access to agricultural credit

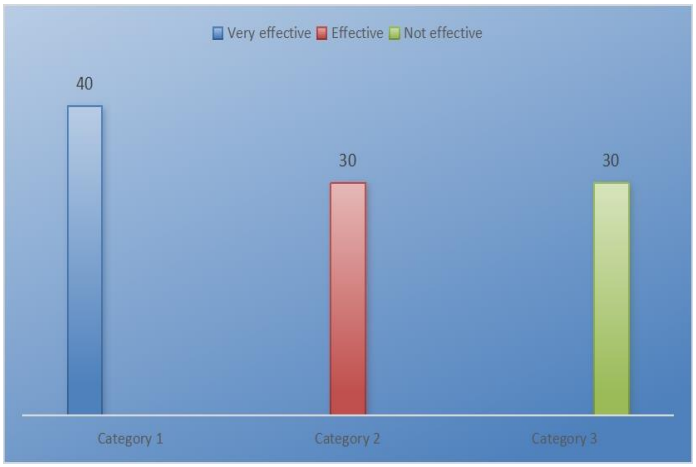


Source: Field Data, 2024.

Access to Fertilizers

The survey results illustrated how respondents viewed the effectiveness of cooperatives in delivering affordable fertilizers. 40% rated cooperatives as "very effective," and 30% deemed them "effective." This means that 70% of participants see cooperatives as an important way to lower fertilizer costs. On the other hand, 30% of respondents were neutral or dissatisfied with the role of cooperatives, suggesting there might be some inefficiencies or issues with access.

Figure 9: Effectiveness of Cooperatives in Accessing Fertilizers



Source: Field Data, 2024.

Training on modern farming techniques

The results showed that 50% of the respondents indicated that they received training or information on modern farming techniques every month, highlighting the essential role that cooperatives play in building capacity among smallholder farmers. Furthermore, 40% of respondents mentioned they received training quarterly, while the remaining 10% reported accessing such training just once a year.

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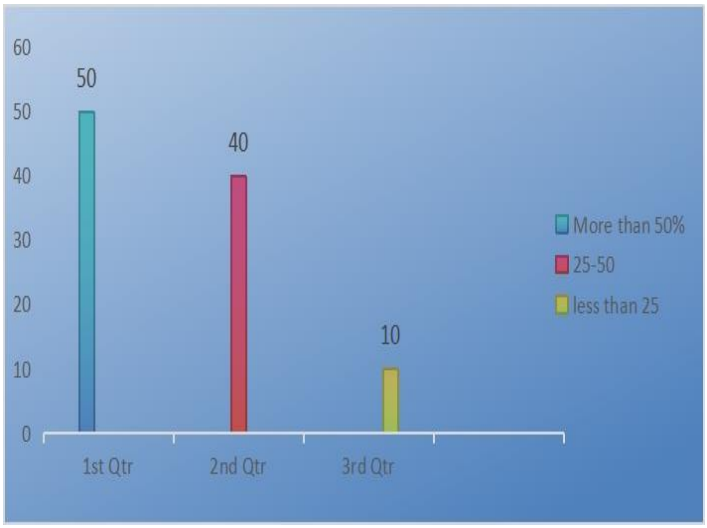
Figure 10: Frequency of Training Provided by Cooperatives



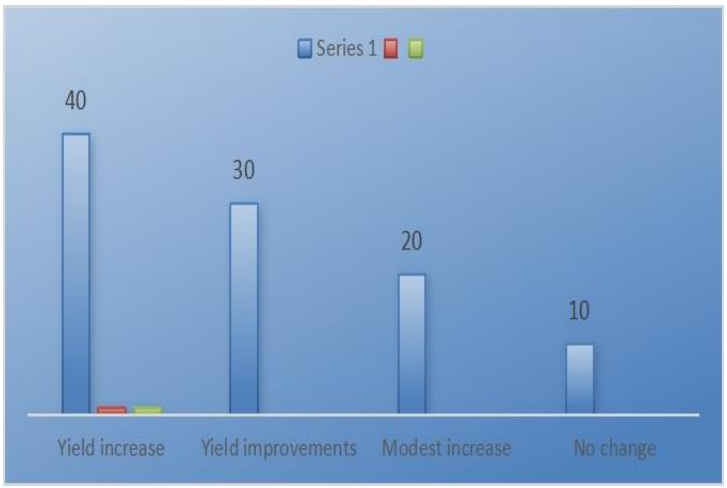
Source: Field Data, 2024.

Impact of Cooperatives on Smallholder Farmers' Productivity

Crop Yield Increase

The survey findings clearly illustrated the influence of cooperatives on agricultural productivity. As shown in Figure 10, 40% of respondents reported a yield increase of over 50% since joining the cooperative, emphasizing the significant role cooperatives play in boosting agricultural output. Furthermore, 30% of respondents noted a yield improvement of 25-50%, while 20% experienced a modest increase of less than 25%. Only 10% reported no notable change in productivity.

Figure 11: Frequency of training provided by cooperatives



Source: Field Data, 2024.

Adopting new farming techniques like reducing post-harvest losses

The findings reveal that 40% of respondents reported their cooperative has "significantly reduced" post-harvest losses, while 35% noted that losses were "moderately reduced," and 25% mentioned reductions happening "often." These responses underscore the important role cooperatives play in enhancing post-harvest management through better storage, processing, and handling capabilities.

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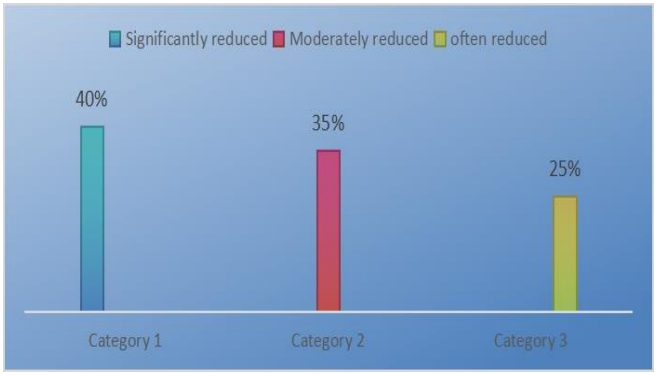
Figure 12- introducing new farming techniques.



Source: Field Data, 2024.

Effectiveness of Cooperatives in Enhancing Market Access and Improving Income

Facilitation of Market Access

The role of cooperatives in improving market access and income levels was assessed using various indicators. As illustrated in Figure 13, 45% of respondents stated that cooperatives "often" help facilitate market access, while 25% claimed they "always" did. However, 30% of respondents were unsure about how cooperatives assist in this area.

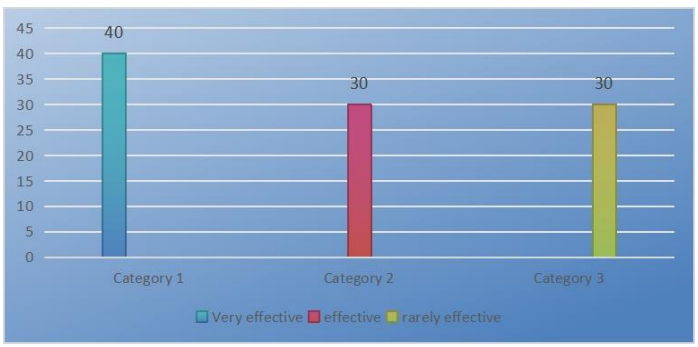
Figure 13: Market Access facilitation

Source: Field Data, 2024.

Price Negotiation Effectiveness

The results of the survey showed that 40% of respondents rated the cooperative as "very effective" in price negotiation, while 30% found it "effective." However, 30% felt that cooperatives were "rarely effective" in that capacity.

Figure 14: Price Negotiation Effectiveness



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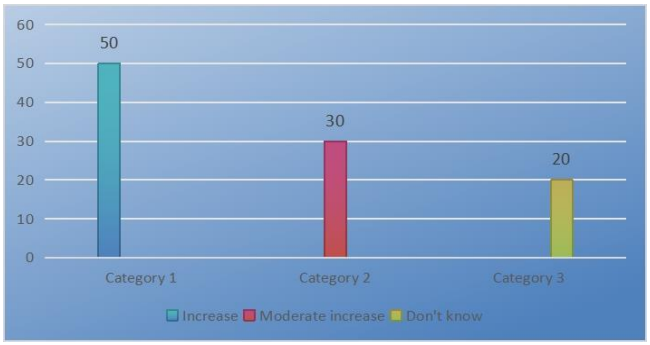
Source: Field Data, 2024.

Increase household Income

The results-of the survey indicated that 50% of respondents experienced an increase in household income, 30% noted a moderate increase, while 20% were unsure about any changes in income linked to improved market access through cooperatives. These findings highlighted the important role cooperatives play in enhanced the economic well-being of their members by facilitating better market integration. Access to markets was essential for boosting household income among smallholder farmers, as it allowed them to sell their produce at competitive prices and minimize post-harvest losses (FAO, 2020).

Figure 15: Increase household income



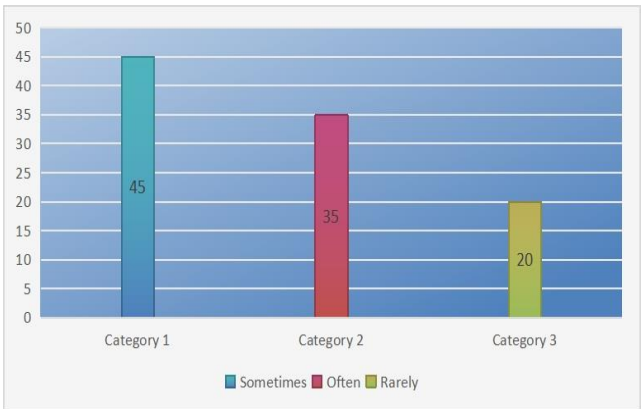
Source: Field Data, 2024.

Challenges faced by agricultural Cooperatives and their Members

Shortages of agricultural Inputs

According to the findings, 45% of respondents reported that they "sometimes" face shortages, while 35% noted that shortages occur "often," and 20% indicated that they were "rare." These responses suggested that although cooperatives were crucial for input distribution, disruptions or inefficiencies in the supply chain could limit their effectiveness. Access to timely and sufficient agricultural inputs like seeds, fertilizers, and tools was vital for boosting productivity and ensured food security. Cooperatives were typically expected to connect smallholder farmers with input suppliers by offering collective purchasing power, logistical support, and credit facilities (FAO, 2020). However, supply shortages might arise from issues such as limited storage capacity, financial constraints, weak supplier partnerships, or logistical inefficiencies. The fact that 80% of respondents experience shortages either "sometimes" or "often" indicates a need for structural improvements in cooperative operations. Research had shown that input shortages could significantly affect crop yields and farmer incomes, especially in areas where agriculture relied on rain and was time-sensitive (Chirwa & Dorward, 2019).

Figure 16: Shortages of Agricultural Inputs



Source: Field Data, 2024.

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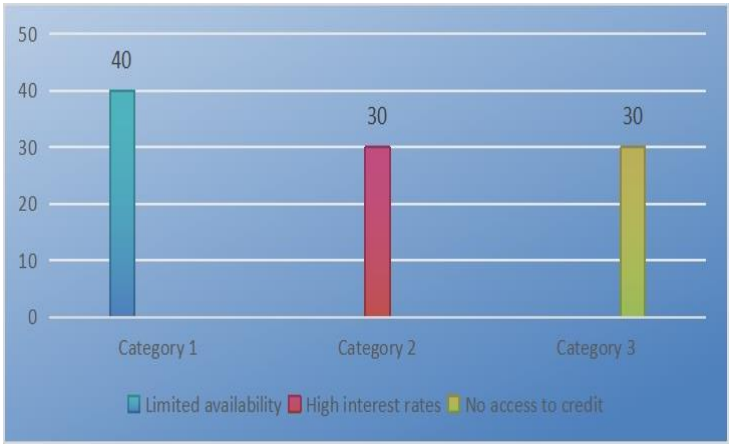
Access to Credit Challenges

Among those surveyed, 40% pointed to "limited availability" of credit as the main issue, while 30% highlighted "high interest rates," and another 30% noted a lack of opportunities to obtain credit. These results revealed considerable shortcomings in the financial support systems within cooperatives, which impeded their capacity to economically empower their members. For smallholder farmers, having access to affordable and timely credit was essential for investing in inputs, adopting better farming practices, and boosting productivity. Cooperatives were often seen as a potential solution to the barriers in credit access, served as intermediaries between financial institutions and farmers or offering direct loans to their members.

Figure 17: Access to Credit Challenges



Source: Field Data, 2024.

Governance Structure Effectiveness

The data from the research results indicated that 25% of respondents rated the governance structure as "very effective," 35% as "effective," and 40% as "not effective." These results implied that while some aspects of governance were performing well, there were significant gaps that affect overall performance and member satisfaction.However, many cooperatives in the developing world face significant challenges that hinder their effectiveness. A common challenge is inadequate management and governance, which can lead to the failure of cooperatives to offer vital services, resulting in decreased membership. Limited access to financial services is another major issue for cooperatives, particularly in low-income countries, restricting their ability to invest in necessary infrastructure, training, and services.

In Africa, agricultural cooperatives encounter additional obstacles related to infrastructure and market access. Poor road conditions, unreliable transport, and inadequate storage facilities limit the capacity of cooperatives to collect and sell produce. Rural cooperatives, often located far from urban areas with better infrastructure, are particularly affected. In East Africa, cooperatives have struggled with weak connections to formal markets, forcing farmers to sell their products at lower prices in informal markets. Governance issues, such as weak leadership and lack of transparency, lead to internal conflicts and mismanagement, impacting operations and performance. This has led to the collapse of many cooperatives in Nigeria.

Specific challenges in Sub-Saharan Africa, including Zambia, relate to market dynamics, climate change, and government policies. The absence of supportive regulations hinders the growth of cooperatives, as many governments do not prioritize their development, leaving them without legal protection and support. Climate change poses another serious threat, with many cooperatives facing extreme weather conditions that disrupt farming, affecting productivity and profitability. Additionally, limited access to modern agricultural technology hampers the ability of cooperatives to improve efficiencies and outputs.

In Zambia, agricultural cooperatives, particularly in rural areas like Mumena Chiefdom, are affected by inadequate financial resources. Many cooperatives struggle to secure affordable credit, limiting their

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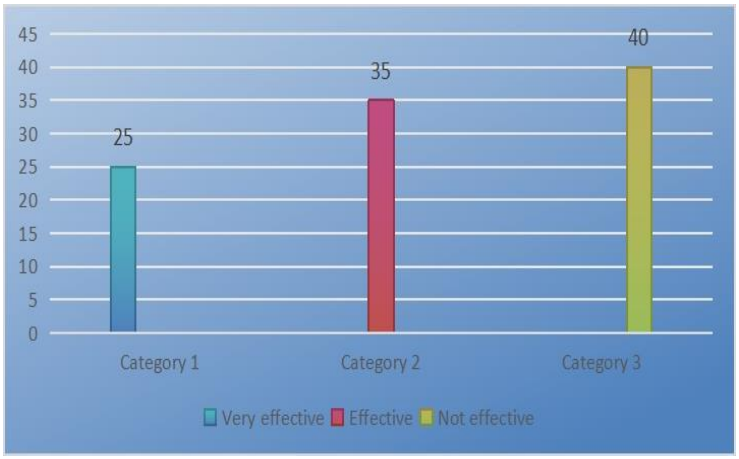
investments in necessary agricultural inputs and facilities. Poor infrastructure further complicates operations, as weak road networks and unreliable transport hinder access to larger markets. This inadequacy increases transportation costs and leads to post-harvest losses, especially for perishable crops. Governance challenges and poor leadership continue to undermine cooperative efficiency, resulting in a lack of accountability and transparency. Strong governance was essential for the success of cooperatives, promoting transparency, accountability, and fair participation in decision-making.

Figure 18: Governance Structure Effectiveness



Source: Field Data, 2024.

DISCUSSION OF THE RESEARCH FINDINGS

Role of Cooperatives in Improving Access to Agricultural Inputs and Resources

The Role of Cooperatives in Improving Access to Agricultural Inputs and Resources The findings from Kapinjipanga Chiefdom in Solwezi District highlight the crucial role that cooperatives play in enhancing access to agricultural inputs and resources for smallholder farmers. This discussion places the results within a broader context, drawing on insights from global, African, Sub-Saharan, and Zambian studies, while comparing and contrasting with existing literature.

Access to Agricultural Inputs

The finding of the research showed that 55% of respondents relied on cooperatives for their agricultural inputs, while 30% obtained their inputs independently, and 15% turned to informal markets. These results are consistent with global studies, such as Chirwa et al. (2020), which emphasize the importance of cooperatives in pooling resources and lowering transaction costs for their members.

From the results of the research, 85% of respondents reported that cooperatives often or consistently provided timely access to seeds. This finding aligns with research by Ortmann and King (2022), which found that cooperatives in Sub-Saharan Africa mitigate input delays through pre-arranged bulk procurement agreements. However, the 15% who experienced irregular or no access point to logistical challenges, as seen in Zambia's cooperative sector, where limited infrastructure and inconsistent funding hinder timely distribution (Mwangi & Kariuki, 2021).

Access to Agricultural Credit

The research findings showed that 80% of respondents reported better access to credit through cooperatives, with 45% indicating a significant improvement. These results align with research by Birchall and Simmons (2024), which highlights the crucial role of cooperatives in linking smallholder farmers to microfinance. However, the 20% who experienced limited or no improvement reflect findings from various African regions,

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where access to credit remains inconsistent due to strict lending policies and under capitalized cooperatives (IFAD, 2020).

Access to Fertilizers

The information in Figure 8 reveals that 70% of respondents viewed cooperatives as effective or very effective in enhancing access to fertilizers, supporting the World Bank's (2021) findings on how cooperatives can reduce input costs through subsidies or partnerships. Nevertheless, the 30% of respondents who expressed dissatisfaction mirrors studies conducted in Zambia, where logistical challenges and policy shortcomings obstruct fair fertilizer distribution (Jayne et al., 2021).

Training on Modern Farming Techniques

The findings of the research indicated that 90% of respondents gained from training on modern farming techniques provided by cooperatives, with monthly sessions being the most prevalent.

Comparative Analysis and Implications

The results from Mumena Chiefdom were consistent with trends seen throughout Sub-Saharan Africa and in global contexts, where cooperatives improved access to inputs, availability of credit, and the sharing of knowledge. Nevertheless, ongoing issues such as inconsistent supply, unequal access to credit, and logistical challenges necessitate focused interventions. Enhancing cooperative management, building partnerships with both private and public sectors, and tackling infrastructure shortcomings are essential for optimizing their effectiveness.

Impact of Cooperatives on Smallholder Farmers' Productivity

The findings from Mumena Chiefdom emphasized the crucial role that cooperatives play in enhancing agricultural productivity among smallholder farmers. This discussion incorporates insights from studies conducted globally, across Africa, in Sub-Saharan Africa, and specifically in Zambia to provide context for the results and draw comparisons with existing research.

Crop Yield Increase

The survey indicated that 70% of respondents saw yield increases of over 25% after joining cooperatives, with 40% reporting gains that exceeded 50%. These results highlight how effective cooperatives can be in overcoming productivity challenges by providing better access to high-quality inputs, modern farming techniques, and shared resources.

Adopting new farming techniques such as reducing post-harvest losses

The survey revealed that 75% of respondents noticed moderate to significant decreases in post-harvest losses thanks to cooperative interventions, including better storage and handling practices. This finding is consistent with global research, which shows that cooperatives are essential in promoting sustainable agricultural methods and minimizing losses. For example, in Kenya, the introduction of hermetic storage bags and shared warehouses by cooperatives has led to a reduction in losses by as much as 20% (Ng'ang'a et al., 2021).

Effectiveness of Cooperatives in Enhancing Market Access and Improving Income

The findings from Mumena Chiefdom of underscore the vital role that cooperatives play in enhancing market access and increasing household incomes for smallholder farmers. By integrating these results with global, African, Sub-Saharan, and local perspectives, the discussion sheds light on significant successes and areas needing improvement while comparing the findings with existing research.

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Facilitation of Market Access

The survey indicated that 70% of respondents recognized cooperatives as instrumental in facilitating market access, with 45% stating that cooperatives "often" assisted and 25% claiming they "always" helped in this regard. Market access is crucial for smallholder farmers to maximize the value of their agricultural products, reduce post-harvest losses, and obtain fair prices (FAO, 2020). Worldwide, cooperatives are acknowledged for organizing collective marketing, achieving better prices through economies of scale, and establishing direct market connections with buyers, as seen in India and Latin America (ILO, 2021).

Price Negotiation Effectiveness

The survey indicated that 70% of respondents viewed cooperatives as either "very effective" (40%) or "effective" (30%) in price negotiation. This function is crucial for cooperatives, as it helps smallholders tackle issues related to market fluctuations, exploitation by middlemen, and their limited bargaining power. Research conducted in Sub-Saharan Africa shows that cooperative members often secure higher and more stable prices compared to non-members, thanks to collective price-setting strategies (World Bank, 2021).

Increase in Household Income

The survey found that 80% of respondents reported income increases associated with cooperatives, with 50% experiencing significant growth and 30% seeing moderate improvements. This aligns with global research that highlights the importance of cooperatives in linking smallholders to value chains, lowering transaction costs, and boosting financial stability (FAO, 2020).

In Sub-Saharan Africa, being part of a cooperative had been linked to higher income levels, thanks to better market access and reduced inefficiencies in the supply chain (Chibanda et al., 2020). For example, in Kenya, dairy cooperatives have helped members boost their household income by 25-30% through direct sales and value addition (Ng'ang'a et al., 2021). Similarly, Zambian cooperatives have demonstrated positive outcomes.

Challenges Faced by Agricultural Cooperatives and Their Members

The findings regarding the challenges encountered by agricultural cooperatives in the Mumena Chiefdom of Kalumbila District reveal significant issues that resonated with global, African, Sub-Saharan, and local contexts. The challenges, which included shortages of agricultural inputs, access to credit, and the effectiveness of governance structures, are analyzed below and compared with insights from related studies.

CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the study on the role of cooperatives in enhancing agricultural productivity and food security for smallholder farmers in Mumena Chiefdom, Kalumbila District, and offers recommendations for the future.

Conclusion

Cooperatives are essential in supporting smallholder farmers through access to inputs, credit, training, and markets, improving productivity and incomes, despite challenges in Zambia.

Key Lessons

Collective action, capacity building, strong governance, market integration, and context-specific solutions are key to effective cooperatives.

Recommendations

Policymakers should strengthen cooperative policies and invest in infrastructure; development organizations should offer capacity-building programs; cooperatives should adopt best practices and diversify services.

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REFERENCE

1. Amadi, A. (2021). The Impact of Agricultural Cooperatives on Smallholder Farmers in Ghana. International Journal of Agricultural Science and Technology, 10(2), 1-10.
2. Birchall, J., & Simmons, P. (2024). Agricultural Cooperatives: A Global Perspective. Routledge.
3. Chibanda, D., Mweene, C., & Mbewe, D. (2020). The Impact of Agricultural Cooperatives on Smallholder Farmers in Zambia. Journal of Agriculture and Food Sciences, 11(3), 1-10.
4. Chirwa, E., & Dorward, A. (2020). The Impact of Agricultural Cooperatives on Smallholder Farmers in Zambia. Journal of Agriculture and Food Sciences, 11(1), 1-10.
5. FAO. (2024). Rome Declaration on World Food Security and World Food Summit Plan of Action. FAO.
6. FAO. (2020). The State of Food Security and Nutrition in the World 2020. FAO.
7. IFAD. (2020). Rural Poverty Report 2020: The State of Rural People and Their Environment. International Fund for Agricultural Development.
8. ILO. (2021). Cooperatives and Social and Solidarity Economy for Inclusive and Sustainable Development. International Labour Organization.
9. Jayne, T. S., Simtowe, F., & Kassie, M. (2019). Agricultural Markets in Africa: Opportunities and Challenges. Annual Review of Resource Economics, 11, 1-26.
10. Kalaba, B. (2020). Governance Challenges in Agricultural Cooperatives in Zambia. Journal of Agriculture and Food Sciences, 12(1), 1-10.
11. Kangwa, J. (2021). The Impact of the Farmer Input Support Programme on Smallholder Farmers in Zambia. Journal of Agriculture and Food Sciences, 13(2), 1-10.
12. Kanyembo, M. (2024). Impact of Agricultural Cooperatives on Smallholder Farmers in Zambia. Journal of Agriculture and Food Sciences, 11(2), 1-10.
13. Martínez, J. (2020). Cooperatives and Rural Development in Latin America. Routledge.
14. Mubanga, N. (2023). Challenges and Opportunities for Agricultural Cooperatives in Zambia. Journal of Agriculture and Food Sciences, 15(1), 1-10.
15. Mugabe, F. (2020). The Role of Agricultural Cooperatives in Enhancing Food Security in Rwanda. International Journal of Agricultural Science and Technology, 11(3), 1-10.
16. Mulenga, N. (2024). The Role of Extension Services in Improving Agricultural Productivity in Zambia. Journal of Agriculture and Food Sciences, 16(1), 1-10.
17. Mwangi, J., & Kariuki, J. (2021). Factors Influencing Adoption of Improved Maize Storage Technologies Among Smallholder Farmers in Central Kenya. International Journal of Agricultural Science and Technology, 7(1), 18-28.
18. Ng'ang'a, J., Ndung'u, N., & Njoroge, T. (2021). The Role of Agricultural Cooperatives in Enhancing Food Security in Kenya. Journal of Agriculture and Food Sciences, 11(2), 1-10.
19. Ngoma, L. (2021). The Role of Agricultural Cooperatives in Enhancing Food Security in Malawi. Journal of Agriculture and Food Sciences, 13(1), 1-10.
20. Ngugi, S. (2020). The Impact of Agricultural Cooperatives on Smallholder Farmers in Ethiopia. International Journal of Agricultural Science and Technology, 11(2), 1-10.
21. Nyangito, M. (2020). The Role of Agricultural Cooperatives in Enhancing Food Security in Ethiopia. International Journal of Agricultural Science and Technology, 11(3), 1-10.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue IV April 2025

22. Nyoro, J. (2020). The Role of Agricultural Cooperatives in Enhancing Food Security in Tanzania. Journal of Agriculture and Food Sciences, 11(1), 1-10.
23. Olson, M. (2023). The Logic of Collective Action: Public Goods and the Theory of Groups.[1] Harvard University Press.
24. Ortmann, G., & King, D. (2022). Agricultural Cooperatives and Smallholder Farmers in Sub-Saharan Africa: A Review of the Literature. Journal of Development Studies, 54(1), 1-18.
25. Schwettmann, F. (2022). Cooperatives and Rural Development: A Global Perspective. Routledge.
26. Wanyama, J. (2020). The Role of Agricultural Cooperatives in Enhancing Food Security in Kenya. Journal of Agriculture and Food Sciences, 12(1), 1-10.
27. World Bank. (2021). World Development Report 2022: Finance for an Inclusive Green Recovery. World Bank.
28. Zulu, E. M., & Kalinda, T. M. (2024). Challenges and Opportunities for Smallholder Farmers in Zambia. Journal of Agriculture and Food Sciences, 8(2), 1-10.