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Agricultural Cooperatives as Drivers of Enhancing Production and Marketing of Agricultural Produce: A Systematic Literature Review of Developing Countries

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ABSTRACT

Agricultural cooperatives serve as vital systems which play a role in boosting smallholder farming operations and their ability to access markets throughout developing nations. The systematic review analyzed studies from 2016 to 2025 which focused on cooperative organizations that improve agricultural production and marketing operations in 12 different countries including Tanzania, Ethiopia, Nepal, Nigeria, Benin, Ghana, Indonesia, Iran, Kenya, Mexico, Peru and Uganda. The study excluded studies focused on non-agricultural cooperatives and those conducted in developed countries because they do not apply to smallholder farming situations. Using a structured search and screening process based on PRISMA guidelines, 1,002 records were identified and 25 studies met the inclusion criteria. The qualitative synthesis reveals that cooperatives boost production through five main factors which include improved technical efficiency, better access to inputs, extension services, climate-smart technologies, organisational innovation and sector-specific productivity improvements in livestock and poultry systems. The marketing efforts of cooperatives generate various benefits which include enhanced operational efficiency and expanded market access and improved bargaining power and technological integration and member training that leads to better livelihoods and lower poverty rates. The review as a whole establishes that agricultural cooperatives function as key agents for smallholder farming development because they deliver both production and marketing benefits. The organization faces ongoing issues with its marketing activities and structural capabilities which require new solutions and improved leadership and supporting policy frameworks and infrastructure development.

1. Introduction

Agriculture plays a crucial role in the global economy, especially in developing countries, where it forms the backbone of national income, food security and employment for rural communities (Dalir et al., 2025; Mukhtar & Saleh, 2025). Agricultural cooperatives are widely recognised as one of the most effective ways to boost production and enhance farmers' access to better markets collectively. They are increasingly important in supporting the sustainable development of the agricultural sector and improving the living standards of rural households (Ma et al., 2023). In developing countries, smallholder farmers often lack access to inputs, extension services, credit, and market information, which significantly constrains their ability to increase sales and production (Raza et al., 2024). When empowered cooperatives can address some of these challenges by pooling resources, increasing bargaining power, reducing transportation and intermediary costs, and providing training and skills opportunities for their members (Zakayo & Ndiege, 2021).

Cooperatives also enabled farmers to access market information more easily and negotiate better prices, increasing the effectiveness of their marketing strategies. Similarly, recent studies in China have found that cooperative members had greater access to formal credit through financial institutions than individual farmers. These credits have catalyzed investment in modern inputs and technologies, directly enhancing the productivity and profitability of smallholder farms (Jiang & Mi, 2024). This confirms that cooperatives are not only a social institution but also a means of improving financial investment and increasing the competitiveness of smallholder farmers.

Existing studies from developing nations show agricultural cooperatives serve as solutions for smallholder farmers' main challenges, yet their results depend on specific geographic locations. The study conducted in Ethiopia, Nigeria and Tanzania shows that joining a cooperative organization leads

to better access to resources and agricultural support services and production expertise which results in higher agricultural yields and improved family living standards (Ahmed & Mesfin, 2017; Wossen et al., 2017; Bwabo et al., 2016). Studies from Ethiopia, Nigeria and Tanzania demonstrates that cooperative membership enables better access to agricultural extension services and production knowledge which results in higher productivity and improved household welfare (Ahmed & Mesfin, 2017; Wossen et al., 2017; Bwabo et al., 2016). The study conducted by Balcha et al. (2023) and Dong et al. (2023) demonstrate that cooperatives enable farmers to adopt modern climate-smart technologies which helps them manage environmental and market challenges more effectively. Studies conducted by Jiang and Mi (2024) and Alimohammad et al. (2022) demonstrate that Iranian cooperatives achieve better resource management and technical efficiency through their strong organizational structures and collaborative networks which improves farmers' market competitiveness. The research findings from Tanzania, Kenya, Benin and Nepal demonstrate that cooperatives help members gain better market access, stronger bargaining power and value chain involvement, especially when combined with training, social capital and technological tools (Lawrence et al., 2023; Iyioku et al., 2024; Ibikoule et al., 2024; Bhattarai & Pandit, 2023).

Despite numerous studies demonstrating the benefits of agricultural cooperatives in production and improving market access, several gaps remain in the literature. First, most studies have focused on demonstrating increased income or financial benefits but have not examined in detail the contribution of cooperatives to increasing agricultural production at different levels of farmers. This creates a gap in understanding how cooperatives can affect input use, access to modern technologies, and farm productivity. Second, most studies have focused on domestic markets and rarely analysed the contribution of cooperatives in helping smallholder farmers access regional and international markets, which are often highly competitive and have high-quality standards. Furthermore, there is no comparative analysis that summarises the results from different developing countries and provides a comprehensive picture of the role of cooperatives in both production and marketing.

This review makes a unique contribution by synthesizing evidence from developing countries to compare how agricultural cooperatives influence both production and marketing outcomes, an area where existing studies are fragmented and often focus on only one dimension. The study distinguishes itself from previous ones by combining data from Africa, Asia and Latin America to find common patterns and determine which structural elements boost or reduce cooperative success. The review examines research articles from 2016 to 2025 to deliver a current and complete overview of cooperative support for smallholder farmers along with market access limitations for both domestic and international trade.

Given that this study is a systematic literature review focused on developing countries, its specific objectives are to analyse the contribution of agricultural cooperatives to increasing smallholder productivity, particularly by examining the use of technology, access to inputs, credit, and extension services. Second, to assess the role of cooperatives in improving smallholder markets by examining access to domestic and international markets, collective bargaining power, and the ability to withstand commercial competition. Through these objectives, this study contributes to identifying gaps in the literature, providing policy recommendations, and identifying areas that require further research into the future of agricultural cooperatives in the developing countries context.

2. Materials and Methods

2.1. Inclusion and Exclusion Criteria

In this study, the included studies were those published between 2016 and 2025, in order to obtain the most recent developments on the role of agricultural cooperatives in developing countries. The included studies directly focused on the topics of agricultural production and/or smallholder farmers' markets through cooperatives. In addition, the selected studies were in the context of developing countries in Africa, Asia, and Latin America, as these are the areas where cooperatives are considered as important tools for agricultural development. Only studies written in English were considered to ensure accurate interpretation and comparability of results, since English is the most language spoken in developing countries. Studies that focused on non-agricultural cooperatives or those related only to developed countries, without considering smallholder farmers, were excluded. Additionally, studies conducted prior to 2016 were excluded to ensure the current evidence remains up-to-date. The research excluded all previous studies because they fail to show the actual situation that cooperatives face in today's business environment.

2.2. Search Strategy

The researchers performed their review through major electronic databases which included Scopus and Web of Science, PubMed, AGRIS and Google Scholar. The search strategy underwent an iterative development process, which started with initial

searches to improve keyword selection and find the most common terms used in academic research. The final search terms included "agricultural cooperatives," "production," "productivity," "marketing," "market access," "developing countries," "smallholder farmers," "Africa," "Asia," and "Latin America." The search terms were combined through Boolean operators, which included "AND" and "OR" to build search strings. For instance, combinations such as "agricultural cooperatives" AND "production" AND "developing countries" and "cooperatives" AND "market access" AND "smallholders" were applied. Searches were limited to peer-reviewed publications published between 2016 and 2025. The full search syntax for each database, including the complete Boolean search strings, is provided in Appendix 1 to ensure transparency and reproducibility.

2.3. Review Process

The review followed a systematic literature review approach combining elements of qualitative assessment and synthesis. First, all available articles were screened by reading their titles and abstracts to identify those relevant to the study objectives. The second step was to read full texts and apply the specified inclusion and exclusion criteria. The third step involved data extraction, during which key information about the study country, authors, and key findings were extracted and recorded in Tables 2 and 3. The analysis was conducted using thematic synthesis, where the results of various studies were organized by comparing production and market evidence. The analysis process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) format to ensure transparency, consistency and traceability across all review steps.

In addition, the qualitative synthesis was conducted through a systematic process of thematic analysis. The two reviewers worked independently to code the extracted data from each study by following an inductive–deductive method which started with open coding before grouping related codes into larger themes that matched the review objectives. The team reached consensus through ongoing discussions about the coding categories which resulted from their repeated comparison work. The researchers maintained reliability by analyzing their evaluation results together before they reached an agreement through consensus and brought in a third reviewer for additional assessment when needed. Thematic synthesis became more rigorous and reliable through this multi-step approach which also improved its transparency. A quality and risk-of-bias assessment was conducted for all included studies. Two reviewers independently evaluated study design, sampling, data quality, and clarity of analysis using a structured checklist. Studies were categorized as having low, moderate, or high risk of bias based on potential selection and reporting biases. Disagreements were resolved through discussion or consultation with a third reviewer to ensure reliability.

2.4. Distribution of the reviewed articles by year of publication and country

The PRISMA 2020 flow diagram (Figure 1) provides a summary of the steps involved in identifying and selecting studies during the screening process. The database search results showed 1,002 records which were reduced to 870 after reference-management software and manual checks removed 132 duplicate records. Two independent reviewers screened the remaining 870 records by title and abstract, and 372 were excluded for not meeting the inclusion criteria. A total of 246 full-text articles were then assessed for eligibility. The selection process discarded 221 studies because they did not meet the criteria for population, outcome, focus, context, study design or methodological quality, which are specified in Table 1. The reviewers settled their differences through discussion but they needed to involve a third reviewer for crucial decisions which maintained the study's reliability and consistency. The final synthesis included 25 studies, which satisfied all the required eligibility criteria.

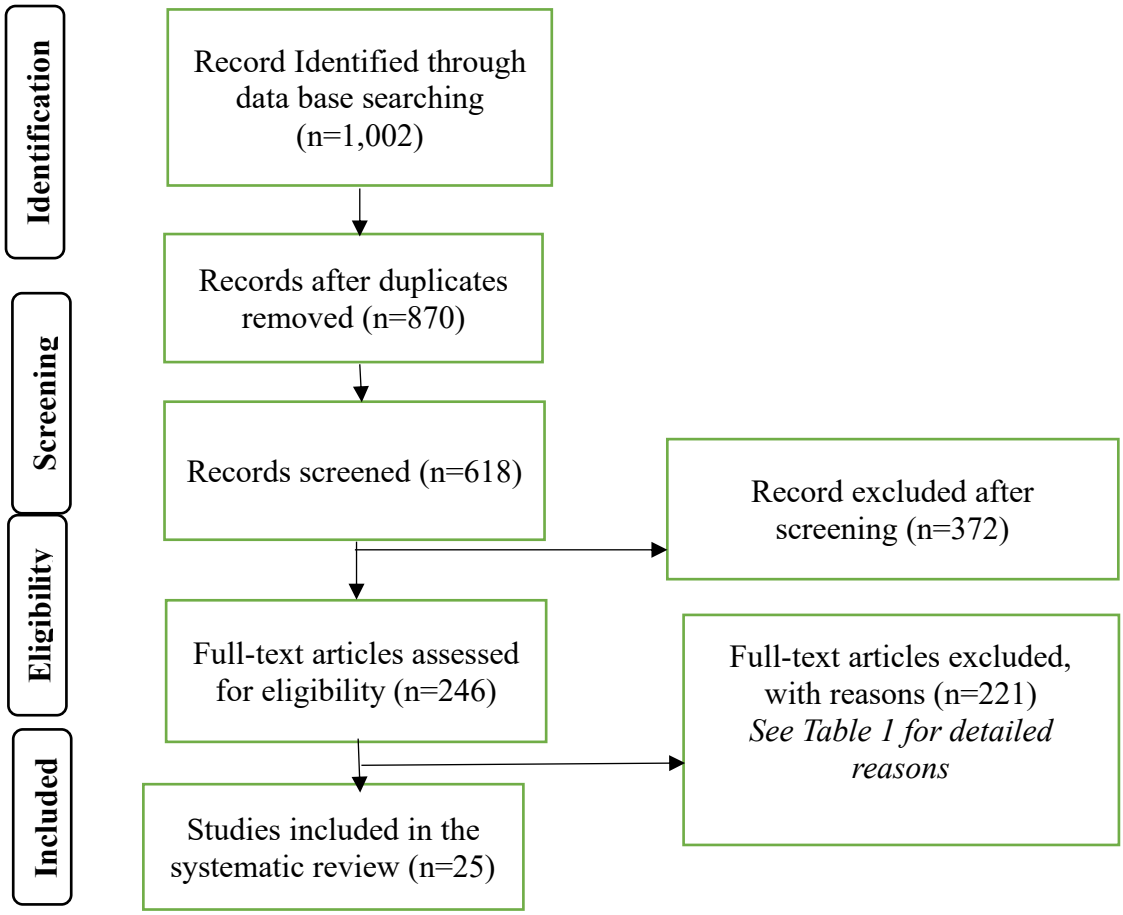

Figure 1: Flow diagram of the search and screening process

Table 1: Reasons for Excluding Full-Text Articles

Reasons for Exclusion	Number of Studies
Not focused on agricultural cooperative	58
Wrong population (not smallholder farmers)	63
Wrong outcome (No production or marketing data)	42
Wrong context (not developing countries)	31
Inappropriate study design (not empirical / review)	18
Insufficient methodological quality	9
Total	**221**

Figure 2 shows that these studies included in the systematic review were from various countries with Tanzania and Ethiopia being the most frequent countries of origin (N = 5 each), followed by Nepal (n=3) and Nigeria (3). Other countries include Benin (n=1, Ghana (n=1), Indonesia (n=1), Iran (n=2), Kenya (n=1), Mexico (n=1), Peru (n=1) and Uganda (n=1). This geographical distribution shows that agricultural cooperatives are a topic of international importance, especially in developing countries where agriculture is the backbone of the economy and employment.

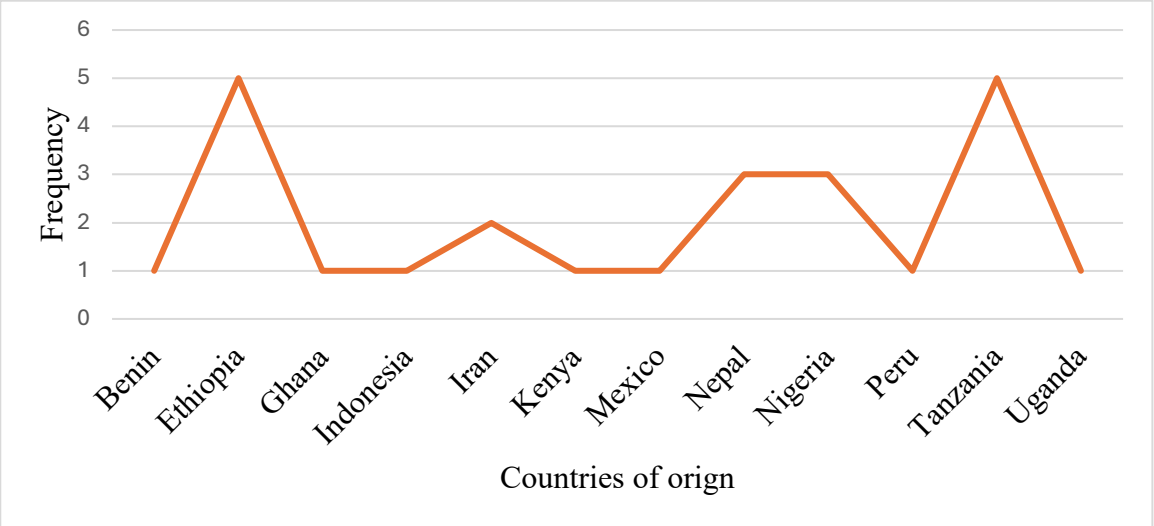

Figure 2: Distribution of the reviewed articles by countries

Figure 3 shows that most of the studies included in the review were conducted from 2023 to 2025, indicating an increase in research from 2022 to 2024 and suggesting that agricultural cooperatives have received significant academic and policy attention in recent years. The years 2023 and 2024 represent a peak in research, meaning that there is new and up-to-date evidence that can be used in national policy planning. This trend in research indicates that cooperatives are being viewed as an important tool for stimulating production, strengthening markets, and thereby reducing rural poverty

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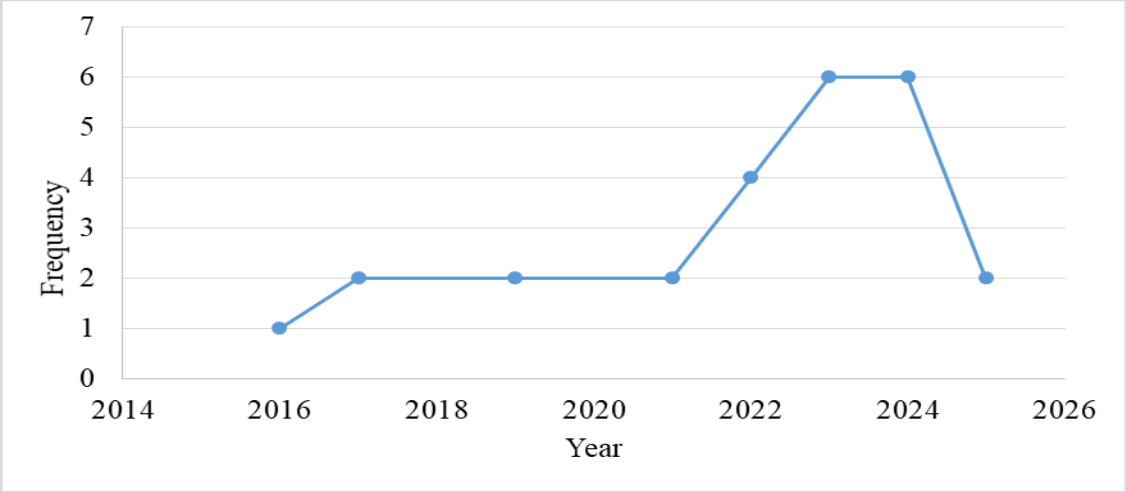

Figure 3: Distribution of the reviewed articles by year of publication

3. Results and Discussion

3.1 Agricultural Cooperatives as Drivers of Production

The contribution of agricultural cooperatives to production has been extensively studied across different countries, with findings revealing that cooperatives enhance productivity, efficiency, and the adoption of innovative practices. The role of cooperatives varies by country, shaped by local agricultural practices, resources, and challenges (Table 2).

3.1.1. Production efficiency and technical support

In Ethiopia, the role of cooperatives in enhancing production efficiency is evident. Ahmed and Mesfin (2017) found that cooperative membership enhanced smallholder farmers' well-being by improving production levels. Additionally, Mamo et al. (2021) observed that while challenges in potato cooperatives reduced profitability, they provided vital production knowledge that helped smallholders improve their farming techniques. Similarly, Wossen et al. (2017) highlighted that in

Nigeria, cooperative membership facilitated technology adoption, which in turn boosted agricultural production, particularly in the maize sector.

3.1.2. Adoption of climate-smart and green technologies

The adoption of climate-smart and green technologies through cooperative structures is particularly notable in Ethiopia.Balcha et al. (2023) found that dairy cooperatives played a crucial role in promoting the adoption of climate-smart production practices, which helped farmers mitigate the impacts of climate change on their livelihoods.

Multiple regions have documented the adoption of climate-smart and green technologies through cooperative systems. The study conducted by Balcha et al. (2023) showed that dairy cooperatives in Ethiopia function as vital organizations, which help farmers learn climate-smart techniques to decrease production risks caused by climate fluctuations. The research conducted by Wossen et al. (2017) in Nigeria showed that joining cooperatives led farmers to implement better farming methods and soil improvement techniques. Research conducted in Kenya and Nepal shows that cooperative members choose water-saving irrigation systems and sustainable farming methods and composting and pest control systems at higher rates than those who do not belong to cooperatives.

The adoption rates depend on the enabling elements, which exist within the cooperative structure and throughout the broader institutional framework. Strong governance together with financial stability and extension service availability enables cooperatives to educate farmers and manage climate-smart input procurement (Ahmed and Mesfin, 2017; Alimohammad et al., 2022). Government support through irrigation kit and climate-smart technology subsidies serves as a driving force for more people to embrace these solutions. The implementation of new technologies faces multiple obstacles due to high initial costs and restricted technical expertise and poor leadership within cooperatives and limited financial resources prevent farmers from adopting new technologies. The research from Tanzania, Nepal, and Ethiopia demonstrates that cooperative organizations experience delayed and unpredictable climate-smart adoption because of their insufficient capital resources and technical capabilities (Mamo et al., 2021; Mpombo et al., 2022; Mauki et al., 2023b).

The reviewed studies show that cooperatives play three specific roles that drive climate-smart initiatives among farmers. The first role of cooperatives is to serve as a financing platform for farmers to collectively invest in costly technologies, including irrigation infrastructure and processing systems, according to Bwabo et al. (2016). Through their existence, cooperatives enable the exchange of information among members by creating educational sessions alongside peer-learning opportunities and demonstration events, which lead to faster technology spread, according to Balcha et al. (2023). The data indicates that cooperative organizations help their members implement technological solutions for climate and business risks by aggregating production risks and maintaining stable input supply, market access and by making risky innovations more attractive to farmers. The institutional functions of cooperatives demonstrate why members demonstrate a consistently higher uptake of climate-friendly and environmental technologies than non-members do.

3.1.3. Innovation and organizational support

Organizational improvements within cooperatives, which include better coordination, open governance, digital record-keeping, performance tracking and member participation in decision-making processes, serve as the core elements to boost smallholder productivity. The new developments enable cooperatives to handle transactions more effectively while enhancing their member organization, service delivery and resource management capabilities. Cooperatives that establish proper governance systems achieve better responsibility management and stop elite dominance and these systems also boost their ability to distribute inputs effectively and manage quality control and aggregation. The evidence from Tanzania demonstrates that coffee cooperatives achieved higher productivity by developing better organizational frameworks and implementing improved resource management techniques (Bwabo et al., 2016). The new institutional arrangements establish conditions for farmers to adopt better farming methods while investing in technology and market competition for high-value products.

The review shows that cooperatives with strong organizational structures achieve better production results and market success. Best practices include democratic governance, routine training programs, digital information systems, member accountability mechanisms, and partnerships with extension providers. The new technologies enable cooperatives to negotiate directly with buyers while managing their input supply, cutting transaction expenses and delivering dependable services. Studies from Ethiopia, Kenya, and Tanzania indicate that well-governed cooperatives perform better than those with weak or inconsistent governance. The research conducted in Iran demonstrates that cooperative networks generate collaborative innovation, which leads to better

production results and higher farmer participation in modern agricultural methods (Bwabo et al., 2016; Alimohammad et al., 2022; Molla et al., 2025). The study indicates that organizational innovation functions as the key factor which determines cooperative success more than organizational size or age or member count.

Organizational innovations are evident across diverse cooperative models and geographic contexts. The coffee cooperatives of Tanzania achieved better production results through their new management system and member cooperation structures, according to Bwabo et al. (2016). The study by Alimohammad et al. (2022) shows that cooperative networks in Iran achieve better production results through their collaborative organizational structures and shared innovation processes. Kenyan and Ugandan dairy cooperatives employ performance-based management systems to deliver better quality results and member accountability, yet Ethiopian and Ghanaian crop cooperatives utilize digital inventory tracking and price-information systems to eliminate transaction inefficiencies (Onyilo & Adong, 2019; Iyioku et al., 2024).

3.1.4. Sector-specific productivity gains

The reviewed studies show that agricultural sectors experience different levels of productivity improvement through cooperative membership. Sectors with established value chain connections, a market presence and uniform quality standards achieve better results through cooperatives because they handle service delivery more efficiently. Donkor et al. (2023) discovered that Ghanaian cocoa cooperatives achieved better productivity and technical efficiency through their efforts to improve input accessibility, extension service delivery and quality control system implementation. The staple crop sectors of rice and maize produce positive but smaller results because their market systems remain divided and farmers must deal with unstable prices. The research findings of Etim et al. (2022) show Nigerian rice cooperatives enhanced their performance through structured training programs and organized production methods (Etim et al., 2022), although maize cooperatives achieved success by exchanging resources and expertise according to Olagunju et al. (2021). The research findings show that cooperatives generate their best productivity results in sectors that already have strong market coordination and institutional backing. Despite these benefits, significant challenges persist across different commodity sectors. The maize and rice cooperatives face difficulties because they lack proper machinery and receive irregular input supplies while struggling to compete with market intermediaries. The presence of cooperative structures fails to stop various obstacles from reducing the actual amount of productivity growth (Wossen et al., 2017; Etim et al., 2022).

A key factor distinguishing high-performing sectors is the type and quality of training and capacity-building programs offered through cooperatives. Successful cooperatives follow structured training systems, which integrate extension services with on-farm demonstrations, mentoring, and peer learning activities. The Nigerian rice cooperatives achieved better productivity results through their implementation of organized training initiatives which taught standardized production methods alongside modern technological solutions (Etim et al., 2022). The capacity-building methods of Ghanaian cocoa cooperatives connect farmers to certification programs and quality control systems and market reward structures, which lead to ongoing production growth (Donkor et al., 2023). The combination of knowledge sharing and collective problem-solving practices through capacity building led to improved technical performance among maize farmers (Olagunju et al., 2021). All sectors show better cooperative performance when organizations use ongoing training programs, member involvement and knowledge exchange because these capacity-building models drive sector-specific cooperative success.

3.1.5. Small-scale livestock and poultry production

Cooperatives have demonstrated positive impacts on small-scale livestock and poultry production across various regions. The studies conducted by Acosta et al. (2022) in Nepal showed that small-scale chicken farmers who joined cooperative workshops improved their poultry management abilities and production results, which resulted in higher output and profitability. Through cooperative initiatives Ethiopian dairy farmers achieve better milk production results and healthier herds because they conduct joint veterinary service delivery and feed supply operations. The poultry cooperatives in Kenya and Uganda enable farmers to access day-old chicks and vaccinations and improved feed, which leads to higher survival rates and better market results. Indian evidence demonstrates that dairy and poultry cooperatives apply organized breeding services and standardized animal health protocols and training systems to achieve better livestock performance results (Onyilo and Adong, 2019; Iyioku et al., 2024; Wakweya, 2024). Studies from these countries show that cooperatives provide widespread support for livestock and poultry production which successfully operates in various agricultural systems.

The advantages of livestock and poultry cooperatives exist, yet they encounter ongoing obstacles which restrict their ability to operate at full capacity. The market instability along with their need to rely on unregulated traders and restricted entry to official market systems creates difficulties for small producers. The productivity of poultry systems suffers major setbacks because of disease outbreaks and poor vaccine supply chains and insufficient biosecurity measures. The effectiveness of cooperatives remains limited because of storage facility problems, transportation system deficiencies, insufficient cold chain systems and substandard feed quality. The evaluation of these challenges becomes more difficult in areas with low income and rural populations because these regions lack veterinary services and have inconsistent cooperative governance abilities, which leads to different results than what crop-based cooperatives achieve.

The success of livestock and poultry cooperatives depends on their ability to manage animal health services, maintain stable input supplies and improve market access for their members. Cooperatives that create training plans and provide veterinary services and better feed systems reach higher levels of productivity. The absence of these fundamental elements prevents cooperatives from controlling disease threats and reaching the quality standards of formal market systems. The livestock and poultry sector shows more unpredictable production results than staple crops and cash crops because it has a higher sensitivity to health system failures, market issues and infrastructure problems. The research shows that animal health systems need specific funding along with feed supply chains and cooperative management to reach their full potential.

Table 2: Findings Summary - Production Context

Authors	Year	Country	Findings
Acosta et al.	2022	Nepal	Cooperative workshops improved small-scale chicken production efficiency.
Ahmed & Mesfin	2017	Ethiopia	Membership in cooperatives enhanced smallholder farmers' wellbeing through higher production.
Alimohammad et al.	2022	Iran	Collaborative networking improved production efficiency among cooperatives.
Balcha et al.	2023	Ethiopia	Dairy cooperatives facilitated adoption of climate-smart production practices.
Bwabo et al.	2016	Tanzania	Cooperatives contributed to coffee productivity through organizational innovations.
Dong et al.	2023	China	Cooperative membership promoted adoption of green technologies in farming.
Donkor et al.	2023	Ghana	Producer cooperatives enhanced cocoa productivity and technical efficiency.
Etim et al.	2022	Nigeria	Rice cooperatives improved training on production techniques.
Mamo et al.	2021	Ethiopia	Challenges in potato cooperatives reduced profitability but enhanced production knowledge.
Molla et al.	2025	Ethiopia	Dairy cooperatives increased economic returns of smallholder farmers.
Olagunju et al.	2021	Nigeria	Membership improved technical efficiency of maize farmers.
Wossen et al.	2017	Nigeria	Extension services via cooperatives boosted technology adoption and production.
Najafi et al.	2024	Iran	Agricultural cooperatives provide inputs and marketing support, which influence production capacity.

Agricultural cooperatives improve production efficiency through several well-documented mechanisms across developing countries. Extension services provided through cooperatives enhance farmers' skills and adoption of improved and climate-smart practices, as shown in Ethiopia and Nigeria (Wossen et al., 2017; Balcha et al., 2023). The distribution of seeds and fertilizers through cooperatives enables farmers to acquire essential resources at reduced prices while maintaining sufficient inventory for their needs (Ahmed & Mesfin, 2017; Alimohammad et al., 2022). The

practice of shared labor and capital pooling enhances production efficiency because it allows farmers to share equipment, which results in decreased production expenses for each farmer, according to the research conducted by Bwabo et al. (2016) on Tanzanian coffee farmers. Studies from Ethiopia demonstrate that people who join cooperatives through credit access experience better investment opportunities in productive technologies, which leads to higher productivity levels (Jiang & Mi, 2024; Molla et al., 2025). The combination of these mechanisms helps smallholders solve production problems which they lack the capability to handle on their own.

The evidence shows that cooperatives achieve continuous improvements in production efficiency through their work to give smallholders access to resources and services and institutional support that they would otherwise lack. Research shows that cooperatives help people adopt climate-smart technologies by working together to enhance farm operations and decrease production expenses through collective efforts. The sector-specific results demonstrate how cooperative support matches local requirements through Ghana's cocoa productivity growth, Nigeria's improved rice and maize efficiency, and Nepal's better livestock and poultry performance. The study shows that cooperatives function as vital production enhancement systems across multiple agricultural environments and institutional frameworks because they deliver knowledge, technology and organizational structures that boost smallholder performance.

The positive effects of cooperative programs emerge differently among various farmer groups and institutional settings. Studies show that small-scale farmers who lack resources tend to receive lower benefits because they struggle to make full use of cooperative inputs and technologies (Alemu, 2017; Mpombo et al., 2022; Mauki et al., 2023a). Production improvements reach their maximum potential when farmers gain access to modern technology which happens to be costly or unavailable to them through cooperative networks (Mamo et al., 2021). Gender differences create various results because women encounter obstacles to land possession, credit availability and decision-making involvement which limits their access to cooperative services (Asmild & Hansen, 2023). The study indicates that cooperative performance depends on institutional capacity together with farm size, capital availability, technology readiness and local gender norms, which determine production growth potential. The way countries set their rules and how they work together through laws affects production results. Stronger regulatory frameworks and government support services enhance cooperative capacity, but weak or inconsistent policies create obstacles for their performance.

3.2. Agricultural Cooperatives as Drivers of Marketing

The contribution of agricultural cooperatives to production and marketing is critical in enhancing both the efficiency and sustainability of agricultural systems. Various studies across multiple countries have explored how cooperatives influence production, marketing operations and farmers' livelihoods, revealing distinct themes in the role of cooperatives in improving agricultural outcomes, as follows:

3.2.1. Marketing efficiency and market access

One of the primary roles of agricultural cooperatives is improving market access for smallholder farmers. In Benin, Ibikoule et al. (2024) demonstrated that cooperatives enhanced smallholders' access to markets in the maize sector, facilitating better integration into the broader agricultural economy. Similarly, in Kenya, Iyioku et al. (2024) found that cashew marketing cooperatives played a crucial role in facilitating market participation, with the impact moderated by social capital within the community. In Nepal, Bhattarai and Pandit (2023) highlighted the dual role of cooperatives in enhancing marketing opportunities, thereby increasing market participation. The role of cooperatives in improving the visibility of marketing activities is also evident in Tanzania, where Mramba and Msuya (2024) found that digital marketing practices enhanced the visibility of agricultural marketing cooperatives, thus improving their reach and effectiveness.

3.2.2. Improvement in marketing operations and technological integration

The development of technology along with digital innovations has become essential for improving cooperative marketing operations. Karningsih et al. (2025) showed that traceability systems which operate online in Indonesia help coffee cooperatives reach better market prices through their improved ability to create better product differentiation and guarantee transparency. Also, in Ethiopia agricultural cooperatives have implemented marketing to support dairy farmers. This technology enables cooperatives to enhance their sales operations, make real-time decisions and members gain better negotiation power through access to precise market information that arrives in a timely manner (Alemu, 2017).

Studies such as Njuga (2021), Khan et al. (2022), Nguyen et al. (2023), Kleemann and Semrau (2025) reported that implementation and maintenance of technological innovations in cooperatives face challenges because of their current governance and

leadership systems. The ability to maintain digital systems becomes difficult for cooperatives because of poor internal coordination, insufficient managerial expertise and bad financial planning. The lack of leadership accountability results in two main problems which affect digital tool availability and cause waste of cooperative funds meant for technology upgrades. Some cooperatives keep their governance systems secretive, which creates doubts about digital traceability systems and e-marketing platforms among their members. The lack of strategic planning within cooperatives leads them to purchase technology systems which remain disconnected from their operational framework, thus producing poor results. Cooperatives need to establish solid governance structures along with clear leadership responsibilities and management systems to achieve lasting marketing operation improvements through technology solutions.

3.2.3. Education, training and organizational support

Education and training are key components of successful agricultural marketing cooperatives. Lawrence et al. (2023) highlighted that education and training initiatives in Tanzania significantly improved the performance of agricultural marketing cooperatives, demonstrating that informed and skilled members are critical to cooperative success. Also, in Tanzania, Mhagama and Mmasa (2022) further emphasized thatthe provision of production services, including training, influenced farmers' decisions regarding the selection of marketing channels, reinforcing the connection between production and marketing efficiency.

3.2.4. Impact on farmers' livelihoods and poverty reduction

Agricultural cooperatives establish poverty reduction through various interconnected systems that boost farmers' financial stability. The three main cooperative benefits for farmers include better market access, price stability and improved negotiation power, which leads to higher and more stable income levels. Onyilo and Adong (2019) established that marketing and credit cooperatives in Uganda reduced poverty through their dual function of providing financial services and market access, which enabled farmers to purchase productivity-enhancing inputs and create multiple income streams. Rwela (2023) observed in Tanzania that cooperative membership brought about improved family economic conditions because it generated consistent earnings and shielded members from market fluctuations and supported their basic requirement fulfillment. The mechanisms show that cooperatives fight poverty through two main systems which boost farmer income, protect their food security and investment capacity and risk management.

The poverty-reducing effects of cooperatives are not experienced equally among all groups. Women gain advantages through better credit access and training and group marketing, but their progress faces limits because of land ownership restrictions, mobility constraints and unequal decision-making authority in cooperative management. The review indicates that women who join cooperatives gain better control of their household finances and achieve enhanced food security, but they continue to face low representation in leadership positions, which limits their ability to shape cooperative decision-making processes. The outcomes for youth remain ambiguous because cooperatives provide essential market entry points, skill development and start-up funding, yet their participation stays restricted because of high membership costs, cultural barriers and insufficient asset possession. The existing gender and generational differences show that cooperative systems need to develop more inclusive structures which actively support women and youth empowerment.

Across the literature, cooperatives are most successful in reducing poverty when they combine market access, financial services, training, and social support structures in a well-governed institutional framework. The members of the cooperative obtain their maximum advantages through steady work opportunities which lead to profitable investment results and risk reduction benefits. The effectiveness of cooperatives diminishes in situations where they operate without sufficient financial resources and encounter governance difficulties and exclude women and young people and the most disadvantaged farmers from their membership. The benefits tend to flow toward members who have more resources or stronger influence which leads to unequal results in poverty reduction. The study shows that cooperatives serve as a direct poverty reduction tool, but their effectiveness depends on their ability to maintain democratic decision-making, receive institutional backing, and deliver fair service distribution. Key findings from the reviewed literature are summarized in Table 3.

Table 3: Findings Summary - Marketing Context

Authors	Year	Country	Findings
Bhattarai & Pandit	2023	Nepal	Agricultural cooperatives play a role in improving marketing by ensuring good price.
Ibikoule et al.	2024	Benin	Cooperatives improved smallholders' market access in maize sector.
Iyioku et al.	2024	Kenya	Cashew marketing cooperatives facilitated market participation, moderated by social capital.
Karningsih et al.	2025	Indonesia	Online traceability improved coffee cooperative marketing operations.
Khanal et al.	2024	Nepal	Cooperative vegetable value chains strengthened farmers' market integration.
Lawrence et al.	2023	Tanzania	Education and training improved the performance of agricultural marketing cooperatives, which in turn ensures reasonable prices and increased bargaining power.
Mhagama & Mmasa	2022	Tanzania	Production services influenced farmers' choice of marketing channels.
Mramba & Msuya	2024	Tanzania	Digital marketing practices enhanced the visibility of marketing cooperatives and ensured transparency in marketing.
Onyilo & Adong	2019	Uganda	Marketing and credit cooperatives contributed to poverty reduction, through ensuring competitive prices.
Rwela	2023	Tanzania	Agricultural cooperatives enhanced farmers' livelihoods by ensuring access to markets.
Wakweya	2024	Ethiopia	Agricultural cooperatives ensured access to markets, though they faced challenges in marketing agricultural products.
Grashuis & Higuchi	2023	Peru	Agricultural cooperatives increase the quantities sold and prices received for coffee and bananas, improving farmers' market access and bargaining power.
Folch& Planas	2019	Mexico	Agricultural cooperatives enabled smallholders to adopt organic practices and access premium markets, thereby capturing higher prices

Despite the positive contributions of agricultural cooperatives, persistent marketing challenges limit their effectiveness across many contexts. Wakweya (2024) studied Ethiopian multipurpose cooperatives which face three main challenges: restricted logistics capabilities and difficulty in reaching wider markets and handling various product categories. The same obstacles exist in Tanzania because poor storage facilities together with insufficient transportation systems and weak negotiation power, continue to harm cooperative marketing results, according to Msuya et al. (2017). Zimbabwe demonstrates that agricultural cooperatives faces market related challenges such as lack of financial support, unfavorable institutional environments, and poor management (Mhembwe & Dube, 2017). Nigerian cooperatives struggle to enter profitable markets because they lack both financial resources and proper information systems (Adeniyi et al., 2024; Olaoye et al., 2024). The existing problems stem from multiple structural barriers, which include inadequate rural infrastructure, weak governance systems, insufficient working capital and information gaps between parties. The solution to these problems needs funding for road development, storage facilities, cold-chain infrastructure, digital market information systems, leadership education, governance development, market structure support and cooperative financing policies. The absence of these institutional and infrastructural developments will maintain restricted marketing performance and limited market access for cooperatives operating in Ethiopia, Tanzania, Kenya, Nigeria and similar environments.

The reviewed studies show that cooperatives use different systems to help small farmers join markets. Farmers achieve better bargaining power when they form cooperatives because these organizations enable them to market their products together and combine their production while they work to get improved prices from buyers. The system operates independently of middlemen while it creates steady income streams. The cooperative system provides farmers with immediate market information about prices, demand patterns and quality standards which enables them to access markets on equal terms. Cooperatives offer farmers logistical support through functions such as sorting, grading, storage and transportation services which help improve product quality and enable farmers to meet the requirements of formal markets. The systems operate across various nations through examples of rice, maize and coffee cooperatives in Ethiopia, Ghana and Tanzania, which show how farmers join markets better while they spend less on transactions and receive improved prices at their farms through cooperative marketing systems.

Taken together, the evidence shows that agricultural cooperatives play a critical role in enhancing farmers' ability to access and benefit from agricultural markets. According to various studies, cooperative members achieve better market prices and superior product grades and gain access to export and high-value markets which non-members do not have. The most important improvements

occur in the markets for basic food crops such as maize, rice, beans and in the markets for cash crops including coffee, cocoa, cotton and sesame. The cooperative model in Ghana and Ethiopia has shown farmers how to produce products that match processor and exporter quality standards, yet Tanzanian and Kenyan cooperatives use warehouse receipt systems to help farmers access organized market systems. The cooperative structure helps smallholders shift from subsistence farming to commercial agriculture through risk reduction and market access and stronger negotiation capabilities. Across Africa and Asia, the available data from specific sectors shows that cooperatives help small producers gain better market access and competitive standing.

The different regions and farmer groups experience various results from cooperative marketing activities because of multiple conflicting factors and structural barriers. The ability of cooperatives to have an impact relies on their governance structures, their financial stability, and their connections to established value chains. The areas with poor cooperative management, insufficient market infrastructure and financial problems lead to unstable price benefits for farmers. Research shows that members keep using intermediaries because cooperatives fail to provide fast payments and competitive rates which reduces their motivation to work together as a group for marketing purposes. The marketing advantages become restricted because women face exclusion from market activities since society imposes cultural restrictions, and they lack the power to make decisions and access to financial resources. The smallest farmers face challenges in benefiting from price increases because their production volume and quality standards might not reach the necessary thresholds. The conflicting findings establish that cooperative marketing achievements require both institutional frameworks and external elements which include market acceptance and social gender expectations, leadership abilities and domestic resource availability. Different regulatory frameworks and market systems create diverse conditions for cooperatives to operate because supportive marketing policies, price stabilization mechanisms and structured market systems in certain countries lead to more powerful cooperative impacts than those found in poorly regulated markets.

4. Conclusions

The study shows agricultural cooperatives function as crucial organizations which boost both production and marketing results through multiple agricultural settings found in Benin, Ethiopia, Ghana, Indonesia, Iran, Kenya, Mexico, Nepal, Nigeria, Peru, Tanzania and Uganda. The study results show that cooperatives enable small farmers to get farming supplies, financial services and market access, and they also improve their negotiation strength and their ability to implement climate-smart farming techniques and achieve better market prices. Cooperatives function as institutional mechanisms which transform subsistence farming into market-oriented agriculture to generate better household income and foster national economic progress. The cross-sectoral approach to this research stands out because it reveals how cooperative effects differ based on commodity system characteristics, governance performance and institutional backing levels.

Despite their potential, cooperatives continue to face persistent challenges that limit their effectiveness. The challenges consist of weak governance structures, insufficient financial resources, restricted market access, substandard training opportunities and systemic barriers that prevent women, youth and impoverished farmers from participating. The main focus of intervention requires us to improve cooperative governance systems and leadership quality while we work to expand credit availability and stabilize working capital resources and build rural infrastructure that includes roads, storage facilities and market collection centres and develop training programs which support diverse participants, including women and youth and those with different literacy levels. The policy frameworks need to support organized market systems and digital information platforms and provide ongoing backing for cooperative development.

The study recommends further studies into Central Africa and West Africa, along with Asian and Latin American regions, which have received minimal empirical attention. Research methods that combine longitudinal studies with mixed-methods approaches will reveal how cooperatives perform through their life cycle and during market fluctuations and shifting climate patterns. The gaps need to be filled because these investigations will build a stronger evidence base which will lead to better policy decisions for boosting agricultural cooperative development.

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Appendix

Appendix 1: Final Search Strings Used Across Databases

Database	Final Search String Used
Scopus	TITLE-ABS-KEY ("agricultural cooperatives" OR "farmer cooperatives" OR "producer cooperatives" OR "cooperative societies") AND TITLE-ABS-KEY("production" OR "productivity" OR "farm output" OR "agricultural performance" OR "marketing" OR "market access") AND TITLE-ABS-KEY("developing countries" OR Africa OR Asia OR "Latin America") AND (LIMIT-TO(LANGUAGE, "English")) AND (PUBYEAR > 2015)
Web of Science	TS=("agricultural cooperatives" OR "farmer cooperatives" OR "producer cooperatives" OR "cooperative societies") AND TS=("production" OR "productivity" OR "farm output" OR "agricultural performance" OR "marketing" OR "market access") AND TS=("developing countries" OR Africa OR Asia OR "Latin America") AND LANGUAGE: (English) AND PY=(2016–2024)
PubMed	("agricultural cooperatives"[Title/Abstract] OR "farmer cooperatives"[Title/Abstract] OR "producer cooperatives"[Title/Abstract] OR "cooperative societies"[Title/Abstract]) AND ("production"[Title/Abstract] OR "productivity"[Title/Abstract] OR "farm output"[Title/Abstract] OR "agricultural performance"[Title/Abstract] OR "marketing"[Title/Abstract] OR "market access"[Title/Abstract]) AND ("developing countries"[MeSH Terms] OR Africa[MeSH] OR Asia[MeSH] OR "Latin America"[MeSH]) AND English[lang] AND ("2016"[dp] : "2024"[dp])
AGRIS	("agricultural cooperatives" OR "farmer cooperatives" OR "producer cooperatives" OR "cooperative societies") AND ("production" OR "productivity" OR "agricultural performance" OR "marketing" OR "market access") AND ("developing countries" OR Africa OR Asia OR "Latin America") AND (lang: "English") AND (year >= 2016)
Google Scholar	"agricultural cooperatives" OR "farmer cooperatives" "production" OR "productivity" OR "marketing" "developing countries" OR Africa OR Asia OR "Latin America" 2016..2024