



Collective Action in Agricultural Commercialization: A Bibliometric Analysis of Value Chains, Market Linkages, and Bargaining Power

Mr. Vipin Kumar

Department of Economics, Central University of Himachal Pradesh, Dehra, Himachal Pradesh, India.

Dr. Vinod Naik

Department of Economics, Central University of Himachal Pradesh, Dehra, Himachal Pradesh, India.

(Corresponding Author's email id- CUHP21RDECO04@hpcu.ac.in)

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ABSTRACT

In this bibliometric research paper, the authors explain the shift in the scholarly discussion on whether collectivist institutions (and, in particular, Farmer-Producer Organisations (FPOs) can promote the accelerated commodification of agriculture. The discussion shows a clear shift from subsistence-based to market-based agricultural systems that prioritise efficiency, competitiveness, and farmer empowerment. The focal point of this transformation is FPOs, which act as key intermediaries, cutting transaction and transportation costs, expanding access to formal markets, and enhancing price realisation through solidarity in collective bargaining. The interdisciplinary character of the research field is evident in the co-occurrence mapping of keywords (term value chain, market access, collective action, and commercialisation), which cuts across all fields of agricultural economics, rural development, and institutional studies. Nevertheless, with these advances, structural bottlenecks that continue to plague the country (poor infrastructure, limited access to cheap credit, and weak market links and connections) still curb the full diffusion of the gains of commercialisation. The results demonstrate the need for future research and policy development focused on evidence-based policies to



make FPOs more organisational and financially resilient. These interventions are essential to ensuring that smallholders are incorporated into the competitive value chain and to making the commercialisation of agriculture inclusive, equitable and sustainable.

Introduction

Although the agricultural sector in India has significant potential, it is constrained by various structural and market-related issues. These include a lack of access to modern technology, continuously low productivity, disjointed and deteriorating landholdings, inefficient market information, elevated transaction and transportation costs, and low bargaining power. The reduction in the average size of landholdings has become a major problem threatening the survival of farming, especially for small and marginal farmers, who constitute about 88.1% of the farm population in 2015¹⁶ (Government of India; NSSO, 2019). In 1970⁷¹, the average size of landholdings was 2.28 hectares (Government of India; NSSO, 2019).

Farmer-Producer Organisations (FPOs) have emerged as a radical institutional device for addressing these multifaceted constraints. By collectively organising their producers, FPOs can address the disadvantages inherent in the small size of farms and the distributed nature of production among small producers. Aggregation helps FPOs to achieve economies of scale in purchasing inputs, maximise bargaining power in the output markets, and minimise transaction costs. They are also used as channels for technology diffusion, the provision of extension services, and market intelligence, thereby enhancing their members' decision-making abilities.

FPOs are also important in enhancing access to the high-value markets. Most current retail chains, agribusiness corporations, and export-oriented supply chains regularly demand quality and quantity, a factor that many individual smallholders find difficult to meet. FPOs consolidate produce and establish quality criteria, thereby facilitating the integration of their members into such structured markets (Negi et al., 2018). Moreover, they allow producers of high-value, perishable crops/fruits/vegetables/spices to overcome traditional barriers to market entry, such as insufficient storage, lack of working capital, and poor post-harvest infrastructure (Birthal, Jha, and Singh, 2007; Regmi et al., 2005).

Although market access has been reached even there, smallholders are usually incapable of adding value to their produce by grading, processing or packaging- activities that are important in improving price realisation. FPOs fill this gap through investing in shared facilities and by providing shared services that



add value. As a result, they enhance their members' bargaining power and ensure they do not rely on unscrupulous intermediaries (Courtois & Subervie, 2015).

The emergence and structure of Farmer-Producer Organisations (FPOs) as cooperative societies are in ways similar to how anthropological archaeologists study the emergence of complex societies. Similar to the disaffection with top-down accounts of elite hegemony in primaeval polities, centralised and hierarchical accounts of agricultural progress by merchants, intermediaries or corporate entities have been subjected to growing scepticism. Rather, scholars and practitioners have shifted their focus to other avenues of empowering farmers through collective action and cooperation.

Periodically, there is a suggestion in the 1990s that societies adopted political-economic strategies situated on a continuum between corporate and exclusionary (network-based) models, introduced by Blanton Feinman, Kowalewski, and Peregrine (1996). This same continuum is evident in FPOs today: a few adopt corporate-type approaches and focus on pooling resources, common infrastructure (such as storage facilities, processing facilities, and marketing facilities), and agrarian improvement investments. Others will tend towards exclusionary policies, in which a small group of leaders or domineering members enjoy greater benefits, usually in the form of privileged markets, subsidies or political favours.

Similar to the material correlates used by archaeologists to differentiate strategies in monuments and fertility ideologies in corporate models and the use of elite genealogies and grave goods in exclusionary models, FPOs aim to uncover the influence of such processes in their organisational frameworks. For example, effective by-laws, equal sharing of benefits, and joint investments in common facilities are indicators of cooperative strategies, whereas individual decision-making, concentration of market rewards, or exclusive access to credit are indicators of exclusionary tendencies.

This has led to a refinement of studies of FPOs and cooperatives over the last 20 years, supported by empirical research across India. The main question is analogous to those that arise for the archaeologists of premodern polities: what is the leadership in these organisations, and how do the farmer-members work out their relationships of power with the management committees or with external stakeholders? Opponents of top-down, leader-based models emphasise the merits of corporately structured FPOs where decision-making is participative and open.

The collective action theory by Blanton and Fargher (2008) is also beneficial to FPOs. It asks: when and why do farmers prefer to cooperate rather than comply with exploitative intermediaries? Both ancient institutions, in the form of polities, and contemporary institutions, in the form of cooperatives, are the



result of collective institutions in which the cost of relying on an individual exceeds the payoff, and in which institutions are created to be accountable. The long-term impacts of collective actions on FPOs are decisive: increased bargaining power, greater resilience to market shocks, and the empowerment of marginalised populations.

Therefore, in the context of FPO cooperatives, the basic questions are analogous to the anthropological theory: how, when, and why do farmers prefer cooperation to compliance, and what does collective action bring to rural economies?

1.2 Revisiting Collective Action Theory in the Context of FPOs

Collective action theory, as developed within the social sciences, posits rational actors who regularly evaluate the behaviour of rulers to inform their own choices (Ostrom, 2009). The extent to which rulers depend on their subjects for labour, tribute, or other forms of revenue determines the degree of agency—or “voice”—that local populations may exercise in negotiating public benefits (Levi, 1988). In many historical contexts, reliance on *corvée* labor or staple finance endowed common people with bargaining leverage. Such negotiations are increasingly recognized by anthropological archaeologists as central to processes of statecraft and governance.

Related lines of research emphasize the agency of non-elites, framed variously as collective action, collaboration, or cooperation. Communities faced choices ranging from compliance with taxation and tribute demands to more active forms of resistance, rebellion, or withdrawal (Scott, 2009). These dynamics have shifted archaeological inquiry away from exclusive focus on monumental centres, elite burials, and the lifestyles of rulers, toward the “archaeology of everyday life” (Robin, 2013; Smith, 2010).

This review situates collective action theory within the wider literature that examines cooperation and consensus-building in complex societies. Specifically, it (a) underscores the importance of analysing agency across multiple scales; (b) highlights the role of institutions in articulating shared interests and structuring sociopolitical and economic relations; and (c) advocates for a synthesis of political economy approaches with collective action theory. While the authors share overlapping theoretical commitments, they also encourage dialogue across diverse perspectives in order to advance the study of collective organization in past societies.

Farmer Producer Collectives (FPOs) represent modern institutional innovations promoted to strengthen smallholder bargaining power and market participation. Much like collective action in ancient societies,



FPOs rely on cooperation, negotiation, and shared institutions rather than hierarchy. This article pursues three objectives: to identify emerging themes in agricultural commercialization—including marketing practices, value chains, and bargaining power (Courtois & Subervie, 2015; Mwema & Crewett, 2019a,) to trace their evolution across contexts; and to propose research pathways integrating collective action theory into the study of farmer cooperatives.

2. Material and Methods

This literature review focuses on the existing works associated with FPOs (Farmer's Producer Organizations) in India. The study includes articles from sources listed in Scopus and Web of Science. The study uses keywords such as "Farmer Producer Companies," "Farmer Producer Organization," "FPOs," "Agricultural cooperatives," "Farmer associations and groups," "Rural self-help groups," "Women's groups," "Dairy cooperatives," "Producer groups," and "FPC" in combination with "Marketing" or "Value chain" or "Bargaining power" or "Transportation Cost" to obtain the desired results. Further, we limit our search to the English language and the concerned subjects. Initially, 1162 documents were identified in the Web of Science and 512 in the Scopus database by excluding keywords. After removing duplicates and merging the databases using R Studio, a total of 1487 documents were processed in the Biblioshiny package of R Studio.

3. Results and discussions

3.1 Overview

This bibliometric summary analyses 1,487 documents published between 1985 and 2024 across 610 sources, showing a steady annual growth rate of 9.04%. The average document is around 7 years old and receives 19.3 citations, indicating moderate scholarly impact. Authors used 4,277 self-assigned keywords and 3,037 database-generated keywords, reflecting diverse research themes. The dataset includes contributions from 4,186 authors, with an average of 3.41 co-authors per paper and 27.24% involving international collaborations. Most documents are journal articles (1,353), with the rest falling into other categories like reviews and conference papers.

Table No. 1: MAIN INFORMATION ABOUT DATA

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1985:2024



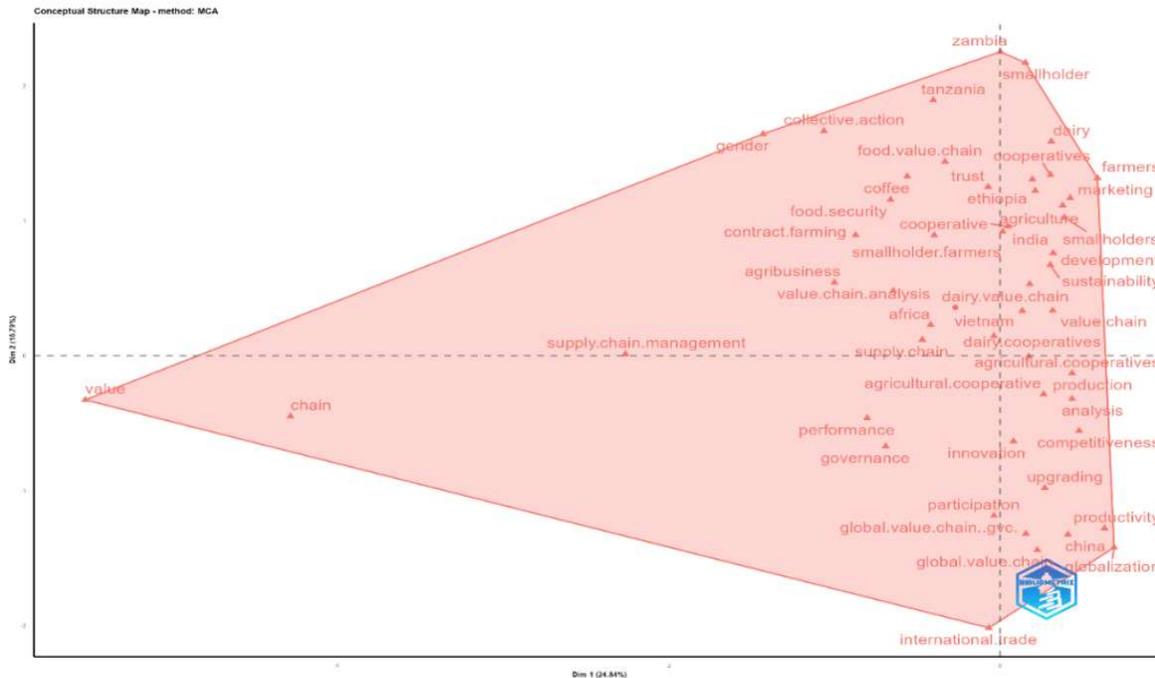
Sources (Journals, Books, etc)	610
Documents	1487
Annual Growth Rate %	9.04
Document Average Age	6.86
Average citations per doc	19.3
DOCUMENT CONTENTS	
Keywords Plus (ID)	3037
Author's Keywords (DE)	4277
AUTHORS	
Authors	4186
Authors of single-authored docs	206
AUTHORS COLLABORATION	
Single-authored docs	216
Co-Authors per Doc	3.41
International co-authorships %	27.24
DOCUMENT TYPES	
Article	1353

3.2 Multiple Correspondence Analysis

The conceptual structure map, which represents the similarities and dissimilarities of the keywords using the Multiple Correspondence Analysis (MCA) tool, shows the keywords plotted in a two-dimensional space. It provides a lower-dimensional view of the complex multivariate data using a dissimilarity matrix, which represents the distance between concept pairs (Ejaz et al., 2022). It shows that the process of commercialization is significantly influenced by the presence of organizations like cooperatives, farmer groups, and institutions that help to improve marketing, minimize transportation costs, and maximize bargaining power. It also indicates the presence of prominent keywords like agricultural value chain, smallholder participation, cooperative concept, food systems/international trade, and regional studies. "Agricultural Cooperatives" appears with "bargaining power," "smallholders," and "value chain." The prominent terms identified are "Smallholder Farmers" and "Farmer Organizations" with "trust," "contract farming," "development," and "agribusiness." "Global Value Chains" and "International Trade Entities" are associated with "productivity" and "competitiveness." Supportive institutions are centered around "governance," "innovation," and "performance."

Regional differences are marked in Zambia and Ethiopia, where the focus is on "trust," "gender," and "collective action," while India and Vietnam emphasize "cooperatives," "agriculture," and "development," which shows the attempt to develop cooperative marketing strategies.

Fig. 2. Conceptual structure map (Multiple Correspondence Analysis)



3.3 Most relevant Words Used in Different studies

Results from the analysis show that Governance was the most common term used in different studies, with 105 occurrences, followed by Innovation, performance, Impact, Value chain, and Marketing. Figure 3 shows that the larger the size of a word, the more occurrences it has, and vice versa. Keywords like value chain, agricultural cooperatives, management, and business are emerging rapidly in recent years. The terms like Governance, Performance, Innovation, and Management have the most significant rise in occurrence over time, as shown by a word cloud.

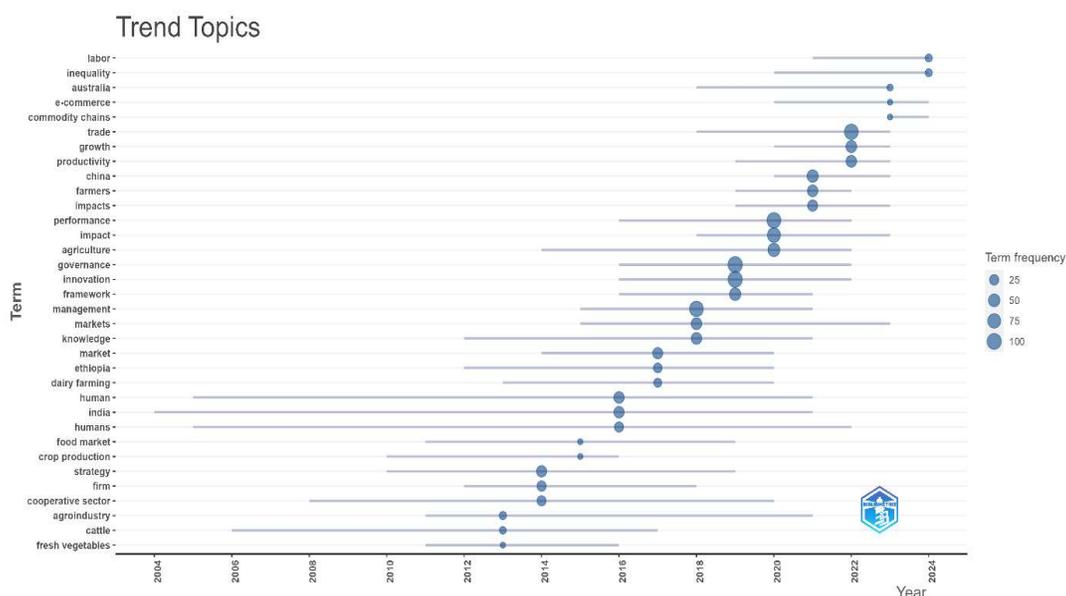
“Figure 3: Word cloud of the most frequently used keywords”



3.4 Most trending topics over the years

Figure 4 illustrates various trends in the subject of Farmer Organization over time. This trend analysis highlights the diverse challenges researchers have focused on in the field of Farmer Organization. The graph also shows the evolution of the topic over time, with a breakdown by year, indicating which topics have been researched for a longer duration and which ones have been recently added to the research agenda. The graph demonstrates how the research topics have changed over time. Issues such as labor, inequality, Australia, impact, e-commerce, commodity chain, trade, and growth have gained popularity in recent years. Additionally, keywords such as “impact,” “Indian,” “humans,” and “market” have consistently been popular throughout the research period.

Figure 4: Most trending topics

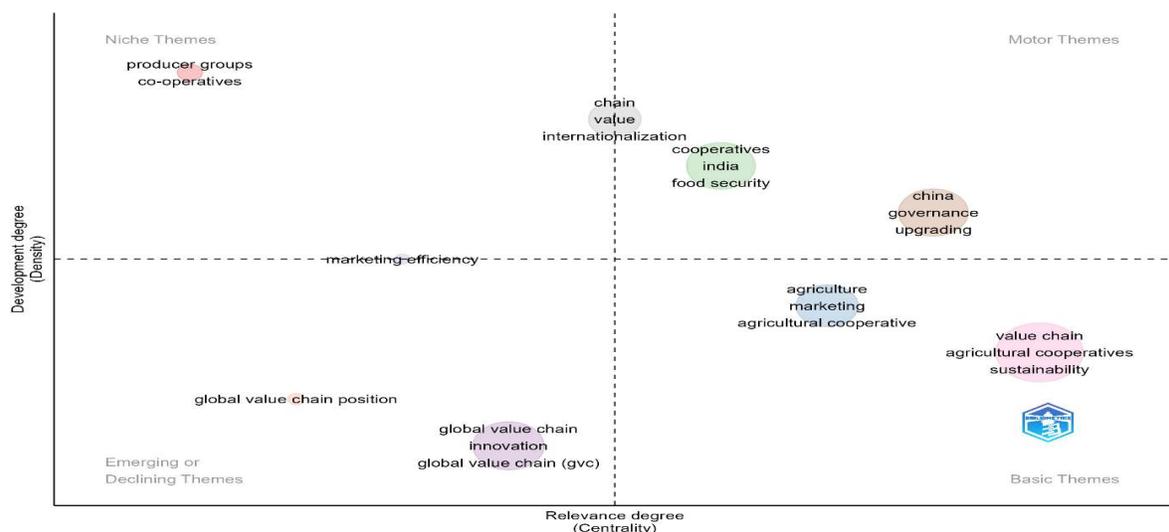


3.5 Thematic Map

It is possible to use network analysis to explain how an area of research has developed. It divides a two-dimensional graph into four clustered quadrilaterals, each representing a community of subjects or study topics within a region. The grid properties of density and centrality can be used to characterize each topic's evolving period based on the clusters' locations. The four topics shown in the figure below were classified according to the semantic strength of their external associations (called "centrality; x-axis") and internal associations (called "density; y-axis") (Appiah et al., 2022; Pilowsky et al., 2016).

A placement explanation of the clusters in a map is as follows: The highest concentration and importance of the topic to the review areas are indicated by the "upper right quadrant" (I). The majority of the research conducted during the time under evaluation is represented by these mainstream groupings. The "upper left quadrant" (II) shows larger topic density but low centrality—that is, irrelevant external links—indicating that the themes have little bearing on the domain. It is possible to deduce that the clusters in this quadrant are distinct from the main focus and have a specific purpose. The clusters in quadrant three (bottom left) are dynamic, signifying themes that are either developing or waning. According to Appiah et al. (2022), there are clusters in the bottom right quadrant of the fourth quadrant that indicate centrality but have not yet reached maturity and can develop. The Figure shows that the keywords “producer groups,” “cooperatives,” “value chain,” “internationalization,” and “marketing efficiency” lie in Niche theme. A niche theme refers to a theme that may not attract extensive attention but is important within their specific field. In addition to this, the “Global Value chain” is an important topic from a feature perspective.

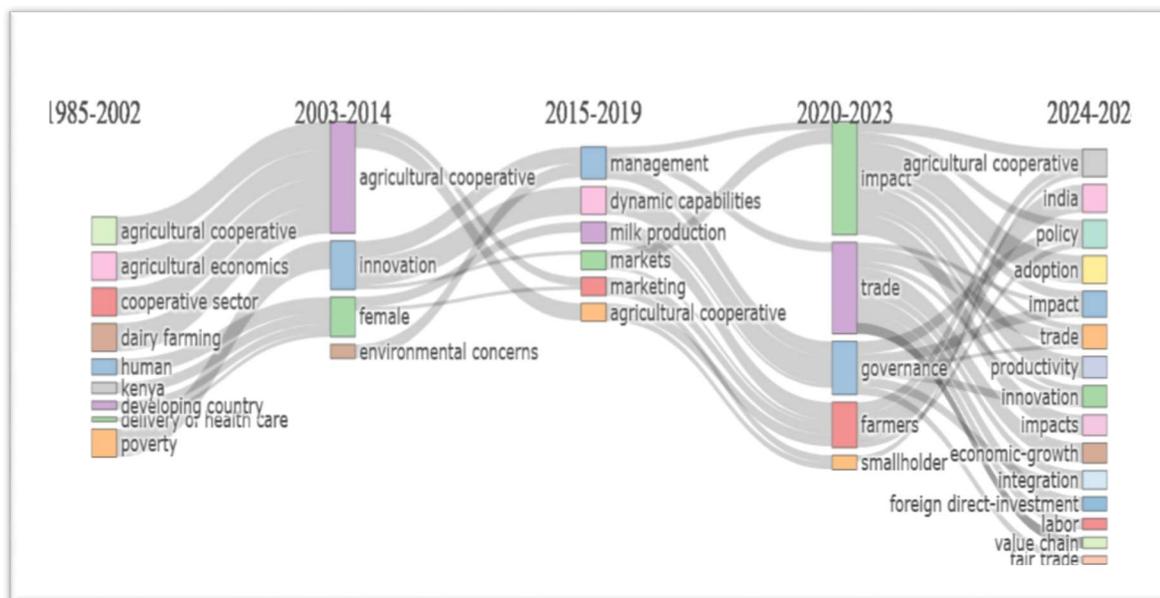
Figure 5: Thematic Map



3.6 Thematic Evolution

The thematic evaluation plot shows how the themes evolve. The figure belongs to 5 time frames: 1985-2002, 2003-2014, 2015-2019, 2020-2023, and 2024. This shows how the keywords like agriculture cooperative, policy, India, adoption, impact, trade, productivity, innovation, productivity, and impact are the topics that evolve over different time frames. The figure shows that the keywords business and influence are attracting more attention in 2020-23 and 2024, as the subtopics from these topics are the highest in the last period.

Figure 6: Thematic evaluation



3.7 Future research directions.

The current trends in agricultural cooperative research indicate shifts in innovation, governance, performance, and value chains, along with a focus on trade, sustainability, and the inclusion of smallholders. The roles of India, internationalisation, food security, and technology adoption are gaining more interest, while labour problems, inequality, and global value chains are becoming more of a concern. Although theoretical concepts such as sustainability are yet to reach their full potential, governance and upgrading, especially in China, are advancing the field. The close relationships between smallholders, cooperatives, and agri-value chains point to prospective research on global integration, digitisation, and inclusive development. Also, Malik et al. (2022) suggest analysing the optimal size of



cooperatives and their essential success factors. Cross-regional comparative studies would help provide new insights into the literature on Farmer-Producer Organisations (FPOs).

4. Conclusion

Based on the bibliometric analysis, a growing scholarly interest (especially the role of Farmer-Producer Organisations (FPOs) in the further commercialisation of agriculture) can be traced. The literature indicates that subsistence-based farming was being replaced by more market-based models that emphasise efficient marketing, lean value chains, and improved farmer bargaining power. FPOs are central players in easing this shift in several ways, including lowering transaction and transportation costs, facilitating entry into formal markets, and enhancing price realisation through collective bargaining. The presence of keywords such as value chain, market access, collective action, and commercialisation implies an interdisciplinary approach to examine the connections among agricultural economics, rural development, and institutional studies. Nonetheless, the analysis also reveals a systemic issue that remains, i.e., limited infrastructure, credit access, and market connections, which could inhibit the full potential of commercialisation. Evidence-based interventions and policy frameworks that can enhance FPOs' ability to incorporate smallholders into competitive value chains while achieving sustainable and inclusive agricultural growth should be examined in future research.

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