

ECONOMIC TRANSFORMATION IN AGRICULTURAL VALUE CHAINS: AN ANALYSIS OF SUPPLY CHAIN DYNAMICS AND SOCIO-CULTURAL DIMENSIONS

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ABSTRACT

Food security, agricultural sustainability, and farmers' adaptation to changing socio-economic and environmental conditions remain major global challenges. This study presents a comprehensive bibliometric analysis of research at the intersection of agricultural economics and value chains, with particular emphasis on its contributions to farmers' social adaptation and sustainable development. This study used a systematic bibliometric approach to examine the intellectual structure, research trends, and thematic evolution of agricultural value chain studies. We retrieved relevant publications from the Scopus database using a Boolean search strategy applied to the TITLE-ABS-KEY fields, incorporating terms related to agriculture, economic transformation, value chains, supply chains, economic impacts, local knowledge, and farmers. The initial search identified 4,035 records, which were screened using a PRISMA-inspired framework. After title and abstract screening (n = 2,024), we assessed eligibility for 1,835 articles, retaining 1,174 for the final bibliometric analysis. The dataset was analyzed using Bibliometrix through its Biblioshiny interface and VOSviewer (version 1.6.20). The analyses included annual scientific production; leading authors and journals; international collaboration networks; keyword co-occurrence; thematic evolution; multiple correspondence analysis; co-authorship; bibliographic coupling; citation and co-citation networks; and emerging research trends. The findings revealed substantial growth in agricultural value chain research since 2010, with sustainability, food security, and supply chain management emerging as prominent research themes. More recently, growing attention to machine learning and digital agriculture reflects a shift toward data-driven, technology-oriented approaches. Nevertheless, the field remains conceptually fragmented, with limited integration of technological, environmental, socio-economic, and socio-cultural perspectives. In particular, the relatively low prominence of local knowledge and farmers' adaptation in keyword networks indicates that these dimensions receive comparatively limited attention. The concentration of research output in a relatively small number of countries further suggests geographical imbalances in knowledge production. Thematic mapping also revealed differences in the development and centrality of research themes, highlighting opportunities for greater interdisciplinary integration. Overall, these findings provide a comprehensive overview of the development of agricultural value chain research and identify important directions for future studies, particularly those integrating technological innovation, environmental sustainability, local knowledge, and farmers' adaptive capacities to support more inclusive and resilient agricultural systems.

Keywords: Agricultural economics, value chain, Bibliometric analysis, Social agriculture, Sustainability.

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1. INTRODUCTION

Agricultural value chains provide an important framework for understanding how agricultural production connects with processing, distribution, marketing, and consumption, and how value is created and distributed among

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participating actors. In both developing and developed economies, value-chain transformation is associated with changes in market organization, technology, governance, and institutional arrangements. Recent work has emphasized agriculture's contribution to rural economic opportunities and sustainable development (Arsyad et al., 2020; Olabinjo & Opatola, 2023; Adisa et al., 2024). At the farm level, studies also document advances in crop management, livestock production, seed technology, and breeding (Hasan et al., 2019, 2020; Syaiful et al., 2025; Rafiuddin et al., 2025; Widiayani et al., 2025). These studies illustrate production-level innovation, but they do not, by themselves, explain value-chain organization. Value-chain change extends beyond farm productivity to include markets, coordination, institutions, and benefit distribution.

Economic transformation provides a starting point for understanding these broader dynamics. Changes in market demand, logistics, standards, digital technologies, and governance can restructure agricultural value chains and redefine the roles of farmers, processors, intermediaries, and consumers. Digitalization is reshaping information flows, market access, traceability, and decision-making (Tombe & Smuts, 2023; Arthur et al., 2024; Agrawal et al., 2024), while sustainability and resilience concerns have increased attention to governance, stakeholder coordination, and institutional accountability (Nupung et al., 2022; Wahbeh et al., 2022). Farmers' participation is therefore shaped not only by economic incentives but also by social norms, cultural values, institutional relations, and locally embedded knowledge (Sandhu, 2021).

Within this framework, value-chain dynamics represent the mechanisms through which economic transformation affects production practices, market relationships, institutional arrangements, and resource flows. Participation in modern value chains may improve access to markets, knowledge, technologies, and collective networks, but may also require farmers to comply with new standards, modify practices, or negotiate new dependencies on commercial and institutional actors (Kangogo et al., 2020; Manyise & Dentoni, 2021). Value addition remains important for integrating small producers into wider economic systems (Neilson & Shonk, 2014; Dihel et al., 2018), but its benefits depend on farmers' capacity to respond to changing opportunities and constraints.

This relationship creates a direct theoretical bridge to social adaptation. Here, social adaptation refers to the capacity of farmers and rural communities to adjust practices, social relationships, institutional participation, and decision-making strategies in response to changing market, environmental, technological, and governance conditions. Access to information, financial and institutional resources, collective organization, and social networks shape adaptive capacity (Futemma et al., 2020; Masud et al., 2022). Local and indigenous knowledge adds another mediating layer because knowledge embedded in farming practices, social norms, community institutions, and collective experience can influence how technologies, policies, and market innovations are interpreted and implemented. Foundational studies established the importance of traditional and local knowledge (Kloppenburger, 1991; Armitage, 2003), while later work showed that combining formal and informal knowledge can strengthen sustainable and resilient agriculture (Šūmane et al., 2018). Evidence from value-chain contexts similarly shows that locally grounded practices can shape adaptive strategies and resilience (Sumuni, 2019). More recent research highlights community-based innovation and participatory processes in rural adaptation (Futemma et al., 2020; Ortiz & Peris, 2022).

Indonesia provides a relevant context for these interactions. Agriculture remains central to rural livelihoods, yet farmers experience unequal access to markets, institutions, finance, and value-adding opportunities. Recent studies report efforts to strengthen market access, stakeholder participation, and rural economic institutions (Satoto et al., 2024; Nuraisyah et al., 2025), whereas broader innovation research highlights the importance of organizational and institutional conditions in shaping adoption outcomes (Cichosz et al., 2020; Dana et al., 2021). These studies do not provide direct evidence of agricultural value-chain performance, but they show why technological adoption alone cannot explain farmer participation. Across developing countries, value-chain upgrading has been promoted to improve smallholder participation and rural incomes (Kariuki, 2018; Barrett et al., 2022). Policies often emphasize post-harvest processing, storage, packaging, branding, and market linkages (Singh & Chudasama, 2020; Sundram, 2023), yet their effectiveness remains contingent on local institutional and socio-cultural conditions (Futemma et al., 2020).

Agricultural value chains should therefore be conceptualized as socially embedded processes of transformation. Their development can reshape income structures, labor relations, and access to land, trust networks, social roles, and collective identities, influencing how farmers participate in and benefit from changing markets (Kloppenburger, 1991; Dupé et al., 2025). Participatory development research further shows that interventions aligned with community contexts and local values can strengthen legitimacy, engagement, and adaptive capacity (Hainzer et al., 2019; Kangogo et al., 2020; Ortiz & Peris, 2022). Earlier work on institutional strengthening and farmer welfare likewise underscores the importance of organizational arrangements (Arsyad et al., 2013). Conceptually, economic transformation changes the institutional, technological, and market environment; these changes restructure value chains; restructuring creates opportunities and adaptation pressures; and farmer responses are mediated by social

capacity, institutions, and locally embedded knowledge.

Despite this connection, recent literature remains divided across partially overlapping research streams. Bibliometric and review studies have examined blockchain and transparent sustainable supply chains (Díaz et al., 2025), farmer entrepreneurship and adaptation (Ihou & Paul, 2025), climate-smart agriculture and food loss (Wang et al., 2024), agricultural digitalization and social networks (Tombe & Smuts, 2023), and multi-stakeholder partnerships in agricultural development (Maryono et al., 2024). These studies provide valuable technological, entrepreneurial, environmental, digital, and institutional perspectives, but they do not fully establish how economic transformation, value-chain dynamics, local knowledge, and farmer social adaptation are positioned relative to one another within the broader intellectual structure of agricultural value-chain research.

The research gap therefore concerns integration rather than the simple absence of evidence. Much agricultural value-chain scholarship emphasizes productivity, efficiency, logistics, market performance, sustainability, or technological innovation, while socio-cultural dimensions are often examined separately in research on rural development, local knowledge, and community adaptation. It remains unclear how prominently local knowledge and social adaptation are represented, how strongly they connect with dominant economic and technological themes, and how these relationships have evolved over time. This gap limits understanding of agricultural transformation as an interaction among economic change, institutional restructuring, technological innovation, and socially embedded farmer responses.

Bibliometric analysis suits this gap because it enables systematic examination of publication growth, productive authors, country participation, collaboration and citation structures, keyword co-occurrence, thematic evolution, and conceptual relationships. A complementary targeted synthesis of selected empirical studies can provide contextual interpretation of adaptation strategies across different stages of agricultural value chains. Accordingly, the novelty of this study lies in integrating economic transformation, agricultural value-chain dynamics, technological and institutional change, local and indigenous knowledge, and farmer social adaptation within a single bibliometric framework.

The study addresses five research questions: (RQ1) How has agricultural value-chain research evolved in terms of publication trends, productive authors, and geographical distribution? (RQ2) What collaboration and citation structures characterize authors and countries within the field? (RQ3) What dominant, emerging, and interconnected themes define the thematic and conceptual structure of agricultural value-chain research? (RQ4) How prominently are local knowledge, socio-cultural dimensions, and farmer social adaptation represented within the mapped research landscape? And (RQ5) How do selected empirical studies contextualize adaptation strategies across different stages of agricultural value chains? By addressing these questions, the study provides a structured account of the evolution and knowledge structure of agricultural value-chain research while clarifying the position of socio-cultural dimensions within that landscape. It also contributes to a more integrated understanding of agricultural transformation by connecting economic change, value-chain restructuring, technological development, institutional governance, farmer adaptation, and locally embedded knowledge.

2. MATERIALS AND METHODS

2.1. Data Source and Search Strategy

We retrieved bibliographic data from the Scopus database in January 2026, covering publications from 1995 to 2025. Publications from 2026 were excluded because the year was incomplete at the time of data retrieval, thereby reducing potential incomplete-year bias. The search was not updated after the stated retrieval period. Scopus was selected because of its broad coverage of peer-reviewed literature and its compatibility with bibliometric analysis tools.

The search was conducted within the Title, Abstract, and Keywords (TITLE-ABS-KEY) fields using the following Boolean search string:

```
TITLE-ABS-KEY (agriculture)
AND TITLE-ABS-KEY ("economic transformation")
AND (TITLE-ABS-KEY ("value chain")
OR TITLE-ABS-KEY ("supply chain")
OR TITLE-ABS-KEY ("economic impact")
AND (TITLE-ABS-KEY ("local wisdom")
OR TITLE-ABS-KEY (farmers)
AND TITLE-ABS-KEY ("agricultural value chain"))
```

The original Boolean structure and keywords were retained unchanged. The search strategy was intentionally designed to identify literature at the intersection of agriculture, economic transformation, agricultural value-chain or supply-chain dynamics, and farmer or local-knowledge dimensions. The term “agricultural value chain” anchored the

dataset within the specific research domain, while “economic transformation” represented structural economic change and the farmer/local-wisdom terms captured the socio-cultural dimension addressed by the research questions.

The initial search yielded 4,035 records. Eligible studies were journal articles published between 1995 and 2025 and relevant to agricultural value chains, economic transformation, supply-chain dynamics, farmers, and associated socio-economic or socio-cultural dimensions. Non-journal document types and records outside the thematic scope were excluded.

2.2. Dataset Processing, Screening, and Cleaning

The retrieved bibliographic dataset was processed using the bibliometrix R package through the Biblioshiny web interface (bibliometrix::biblioshiny). The study was designed as a bibliometric review complemented by a targeted narrative synthesis, rather than as a formal systematic review.

A structured screening procedure was applied to improve transparency and reproducibility. The initial search identified 4,035 records. Records were first checked for duplicate entries and thematic relevance through Scopus-based filtering and manual verification. Following title and abstract screening, 2,024 records were retained. Subsequently, 1,835 records were assessed for eligibility.

At the eligibility stage, 661 records were excluded based on document type, comprising 236 conference reviews, 163 review articles, 25 books, and 237 book chapters. After application of the eligibility criteria, 1,174 journal articles were retained for the final bibliometric analysis.

Bibliographic metadata were subsequently checked for consistency before network analysis. Author names were reviewed for spelling and formatting variations, and ambiguous author identities were not merged unless correspondence could be reasonably established. Keyword variants were checked for equivalent spelling and singular/plural forms to minimize artificial duplication where appropriate. Country and institutional names were also reviewed for consistency when alternative forms referred to the same entity.

The selection process followed a PRISMA-inspired structure comprising identification, screening, eligibility, and inclusion stages. This structure was used only to transparently document bibliographic record selection and does not imply that the study followed a formal PRISMA systematic-review protocol. The cleaned dataset was exported in CSV format for Bibliometrix/Biblioshiny and in a compatible text format for VOSviewer. Fig. 1 presents the complete workflow.

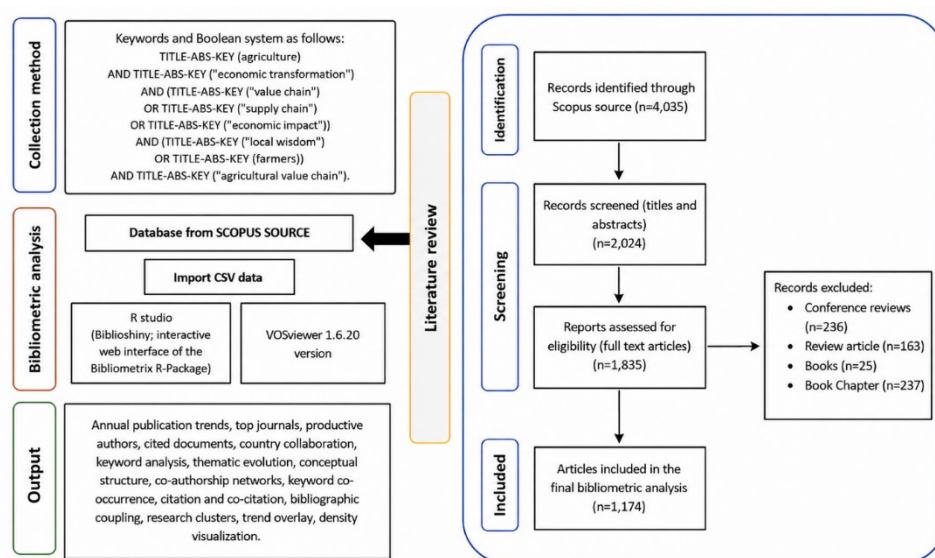


Fig. 1: A flow diagram of the bibliometric approach.

2.3. Bibliometric Analysis Using Bibliometrix and Biblioshiny

Descriptive bibliometric and science-mapping analyses were conducted using the bibliometrix R package and its Biblioshiny interface. The analyses included annual scientific production, productive authors, relevant sources, country-level scientific production, international collaboration, thematic evolution, trend-topic analysis, and conceptual structure mapping.

Country-level co-authorship analysis included countries that contributed at least five publications. We applied the full-counting method, in which each co-authorship relationship contributed fully to the collaboration network.

Bibliometric indicators were interpreted as descriptive characteristics of the analyzed dataset and were not treated as direct measures of research quality, causality, or scientific influence.

2.4. Network Analysis and Visualization Using VOSviewer

VOSviewer version 1.6.20 was used to construct and visualize bibliometric networks. The cleaned dataset was imported into VOSviewer for co-authorship analysis, country collaboration mapping, keyword and term co-occurrence analysis, citation analysis, and bibliographic coupling.

For country-level co-authorship analysis, a minimum threshold of five publications per country was applied using the full-counting method. For text-based co-word analysis, terms were extracted from the titles and abstracts, and only terms occurring in at least 10 publications were retained for mapping.

Co-occurrence relationships were normalized using the association-strength method, while spatial positioning was generated using the VOS mapping approach. Related terms were grouped using the VOS clustering algorithm with default clustering settings. Node size represented the corresponding bibliometric weight, whereas links represented the strength of relationships between items. Overlay visualizations were used to examine temporal patterns where applicable.

2.5. Targeted Narrative Synthesis

In addition to the bibliometric analysis, a targeted narrative synthesis was conducted to provide contextual insights into adaptation strategies within agricultural value chains. Studies were purposively selected according to their relevance to different value-chain stages, socio-economic transformation, technological and institutional change, local knowledge, and farmer-level adaptation processes.

This supplementary synthesis was not intended to constitute a formal systematic review or meta-analysis. Instead, it was used to complement the macro-level bibliometric findings with selected empirical evidence from different geographical and institutional contexts.

2.6. Geographic Coverage and Climatic Data

Because the study relied exclusively on bibliographic records, no field experiment, specific crop-growth period, or site-based climatic observation was involved. Therefore, climatic conditions during crop growth were not applicable, and no field climatic dataset was used. The geographical dimension of the study was instead represented through country-level bibliometric indicators. Fig. 10 presents the global distribution of scientific production across countries represented in the bibliometric dataset, providing a geographic overview of research contributions.

3. RESULTS

3.1. Temporal Evolution and Author Productivity

The final bibliometric dataset comprised 1,174 journal articles published within the 1995–2025 study period. Annual scientific production (Fig. 2) shows limited publication activity during the earlier part of the period, followed by a clear increase after 2010 and the strongest expansion between 2019 and 2023. These values should be read as publication-output indicators rather than direct evidence of conceptual maturity or scientific influence. The apparent decline at the end of the series should also be interpreted cautiously because indexing and publication delays may affect the most recent years.

The temporal pattern is consistent with the broader expansion of research on agricultural transformation, value-chain resilience, digitalization, and food-system sustainability. Recent studies have increasingly connected agricultural development with blockchain-enabled supply chains, marketing-channel innovation, sustainability, and social-ecological adaptation (Zhai et al., 2023; Agrawal et al., 2024; Jiménez-Aceituno et al., 2025). Earlier work in agricultural transformation and rural development also provided an important foundation for this later expansion (Reardon & Timmer, 2007; Reardon et al., 2009; Dannenberg & Kulke, 2016a; 2016b; Barrett et al., 2022; Dannenberg & Follmann, 2023).

Authors' production over time is presented in Fig. 3. The visualization identifies the most active contributors across the study period and shows that author activity became more concentrated in the later years. Because this panel is generated directly from the bibliometric dataset, we interpret author productivity from publication counts and temporal presence rather than from manually selected papers. The figure includes authors such as Chen J., Wang H., Wang X., Liu Y., Wang Y., Kumar S., Li X., Minten B., Reardon T., and Dannenberg P. The underlying dataset contains publications associated with these names across a wide range of topics (Chen et al., 2016; Chen et al., 2017; Wang et al., 2019; Li et al., 2020; Wang et al., 2021; Kumar et al., 2021; Wang et al., 2024; Wang et al., 2025; Liu et al., 2025; Minten et al., 2025). These individual publications are not used as evidence of author productivity; they are retained here only as part of the manuscript's original reference coverage.

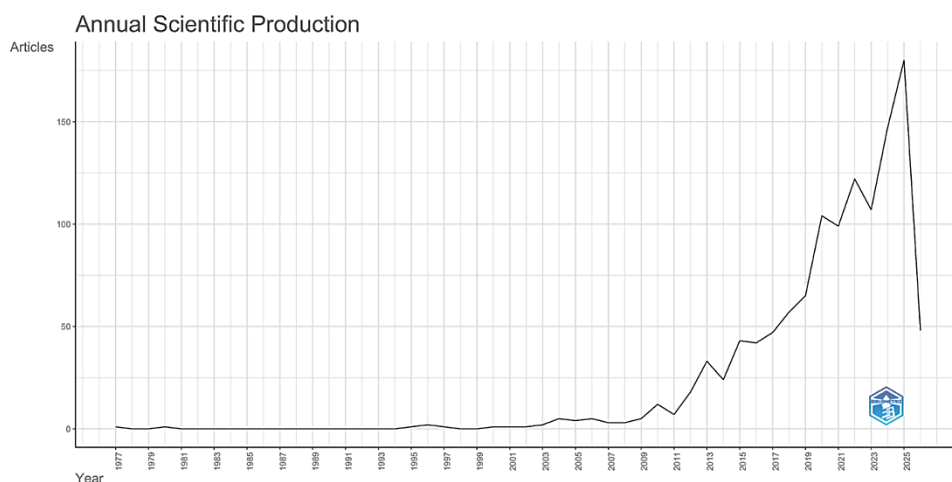


Fig. 2: Annual scientific production of agricultural value-chain research from 1995 to 2025.

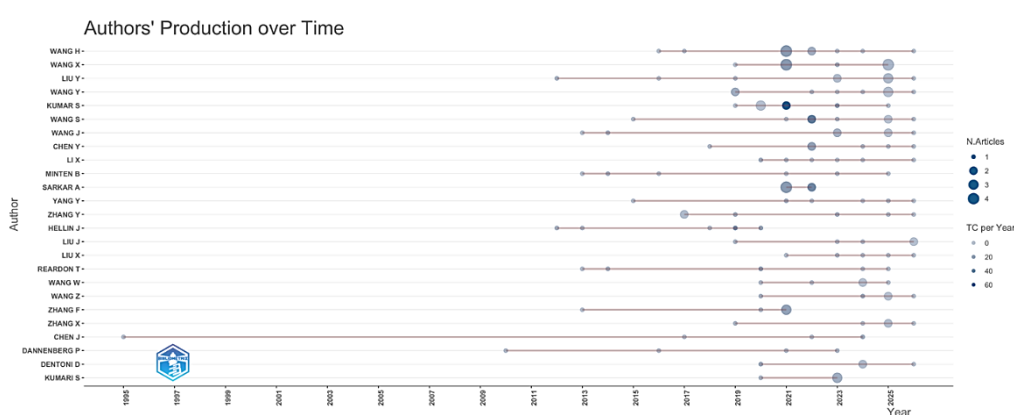


Fig. 3: Authors' production over time in agricultural value-chain research.

Fig. 4 reports the ten most relevant authors by total number of documents. Wang H. ranked first with 11 publications, followed by Wang X. with 10 publications. Liu Y. and Wang Y. each contributed 9 publications; Kumar S. and Wang S. each contributed 8; Wang J. contributed 7; and Chen Y., Li X., and Minten B. each contributed 6. These values represent publication productivity within the analyzed dataset. They do not by themselves demonstrate intellectual leadership, collaboration strength, or citation influence. Several publications associated with these author names address value-chain participation, logistics, agricultural technology, and other adjacent topics (Wang et al., 1996; Wang et al., 2019; Kumar et al., 2020; Li et al., 2020; Chen & Chen, 2021; Wang et al., 2021; Liu et al., 2023; Li et al., 2024; Wang & Yang, 2024), underscoring the importance of interpreting author-name outputs cautiously.

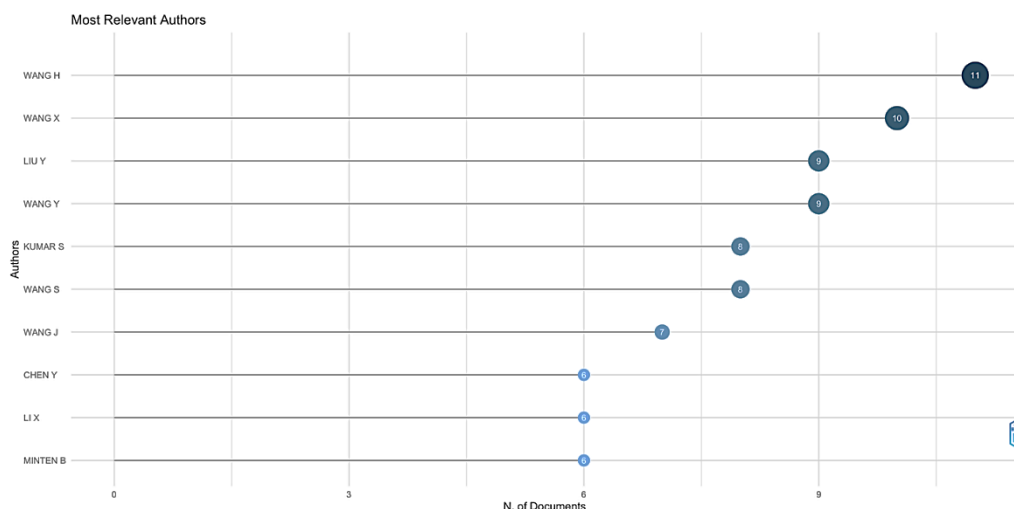


Fig. 4: Most relevant authors based on publication productivity.

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrin, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81-104. <https://doi.org/10.47278/journal.abr/2026.085>

3.2. Co-authorship Network and Three-Field Structure

The author co-authorship network (Fig. 5) displays a clustered collaboration structure with several groups connected at different intensities. Bockstaller, Christian appears within a group that includes Curran, Michael; Catarino, Rui; and Angevin, Frédérique, while another group includes Alaphilippe, Aude; Buche, Patrice; and Thiollot-Scholthus, Marie. Dumoulin, Nicolas appears in a more specialized cluster, and Loiseau, Éléonore occupies a position connecting parts of the network. The original publications associated with these authors span ecological economics, agricultural systems, crop sustainability, life-cycle assessment, and green-economy research (Alaphilippe et al., 2016; Curran et al., 2016; Dumoulin, 2016; Loiseau et al., 2016, 2018; Angevin et al., 2017; Catarino et al., 2021; Thiollot-Scholthus et al., 2021; Buche, 2025).

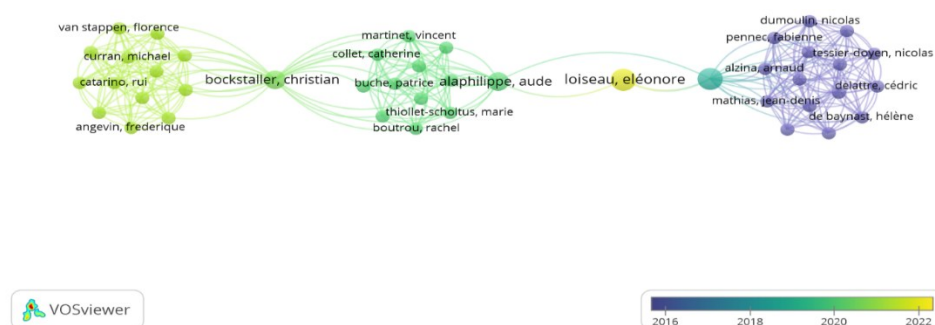


Fig. 5: Author co-authorship network in agricultural value-chain research.

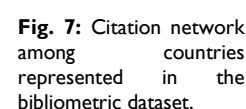
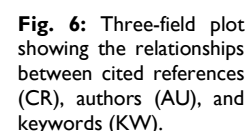
The overlay visualization indicates temporal differences among collaboration groups. However, cluster separation is treated only as a network-structure characteristic. Relatively limited inter-cluster connectivity should not be interpreted as direct evidence of weak interdisciplinarity without additional disciplinary indicators. Similarly, the presence of bridging nodes may indicate network connectivity but does not by itself establish a causal role in knowledge transfer. The manuscript previously linked network positions to selected publications such as (Adusei et al., 2025; Oyadeyi & Oyadeyi, 2025; Li et al., 2026; Mzimela & Moyo, 2026). These references are retained, but they are not used to infer collaboration performance or interdisciplinarity from author-name position alone.

The three-field plot (Fig. 6) links cited references (CR), authors (AU), and keywords (KW). Frequently connected cited references include (Govindan & Hasanagic, 2018; Mangla et al., 2018; Kamble et al., 2020). The author field includes Wang Y., Wang H., Wang X., Liu Y., Kumar S., and other recurrent contributors, while the keyword field is dominated by broad terms such as agriculture, supply chains, sustainable development, food security, and climate change. The visualization therefore shows how cited literature, authors, and keywords co-occur within the analyzed dataset. It should not be interpreted as direct evidence that any individual author or reference has a causal role in shaping the field. Related studies in the dataset include work on green supply chains, logistics, blockchain traceability, sustainability, food systems, and climate-related agriculture (Schultmann et al., 2006; Chen et al., 2016; Caro et al., 2018; Vroegindewey & Hodbod, 2018; Wang et al., 2019; Sumuni, 2019; Kumar et al., 2020; Wang et al., 2021; Kumar et al., 2021b; Davila et al., 2021; Hariyani et al., 2024; Mavaddati & Razavi, 2025; Oyadeyi & Oyadeyi, 2025).

3.3. Country-Level Scientific Production, Citations, and Collaboration

Country-level patterns are presented in Fig. 7–10. Fig. 7 shows the citation-based country network, while Fig. 8 shows country co-authorship. The United States, Germany, the United Kingdom, and China occupy prominent positions in the citation network, with European countries forming several closely connected relationships and China showing links with multiple Asian and developing-country nodes. Countries including Indonesia, Ghana, Kenya, the Philippines, Nigeria, Malaysia, Bangladesh, and others appear at varying degrees of connectivity. These positions describe relationships within the analyzed Scopus dataset and should not be treated as direct measures of national scientific capacity or research quality.

The country co-authorship network (Fig. 8) similarly shows dense connections among several highly productive countries and more peripheral positions for some developing-country nodes. Possible explanations include differences in publication volume, international collaboration, database coverage, language, and indexing practices. Recent literature has likewise highlighted the increasing importance of sustainability, governance, resilience, indigenous knowledge, and smallholder participation across diverse regions (Bryceson & Ross, 2020; Varyvoda & Taren, 2022; Amede et al., 2023; Manning, 2023; Sohad & Mafrolla, 2025). Accordingly, we interpret network position descriptively rather than as evidence of weak influence or limited research capability.



Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrun, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81-104. <https://doi.org/10.47278/journal.abr/2026.085>

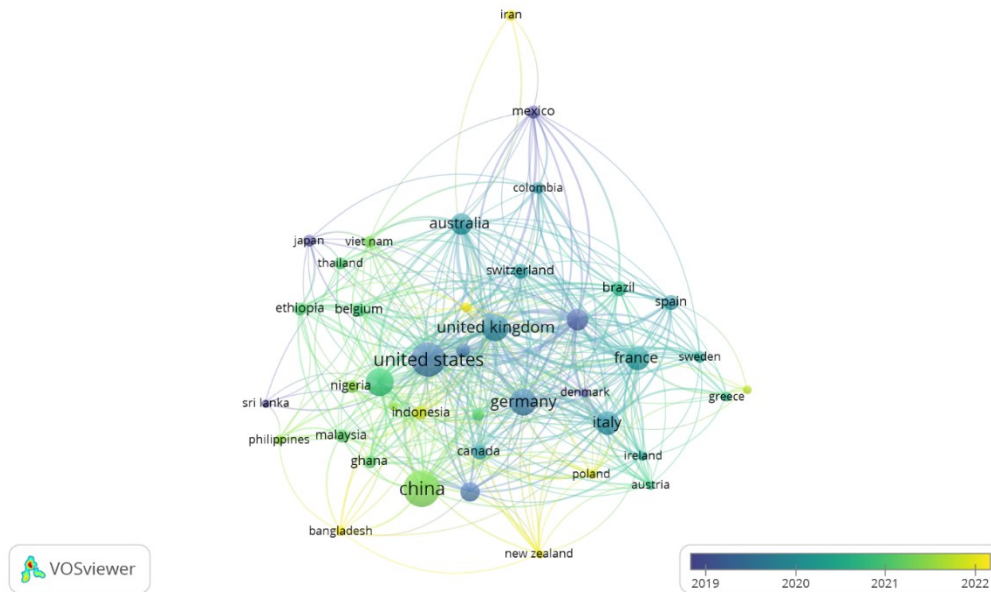


Fig. 8: Country-level co-authorship network in agricultural value-chain research.

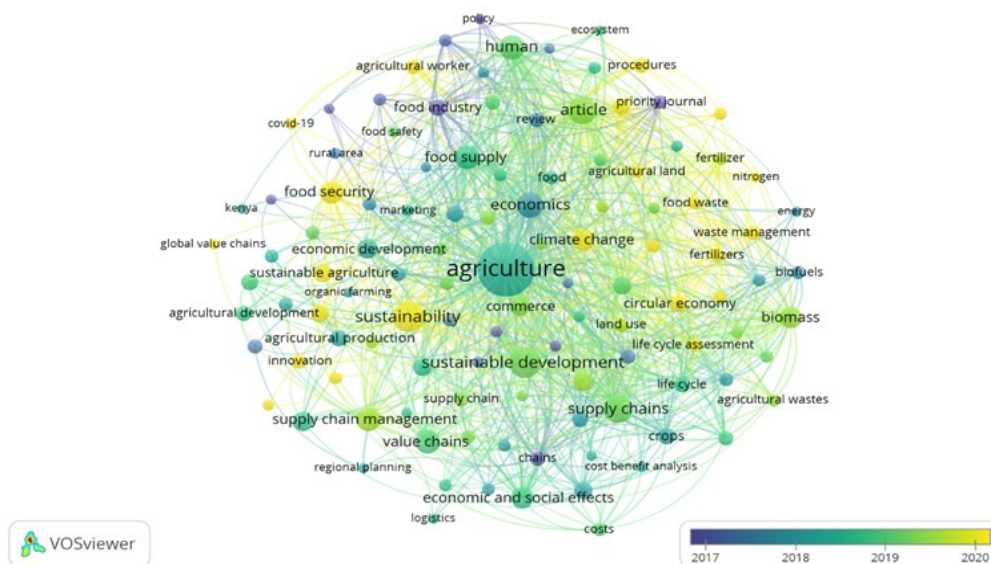


Fig. 9: Keyword co-occurrence network in agricultural value-chain research.

The overlay view suggests that earlier terms such as agricultural economics, planning, and agricultural sector are more strongly associated with the earlier part of the mapped period, whereas later terms include circular economy, COVID-19, environmental impact, smallholder, rural development, economic growth, and technology-oriented topics. Related literature addresses COVID-19 and food systems, environmental impacts, bioeconomy and energy, smallholder vulnerability, rural development, and economic transformation (Dannenbergh & Kulke, 2016a; 2016b; Kumar, 2016; Ganesh Kumar et al., 2017; Kumar et al., 2018; Kariuki, 2018; Wang et al., 2019; Qiu et al., 2019; Safarian et al., 2019; Agyekumhene et al., 2020; Davila et al., 2021; Weersink et al., 2021; Wang et al., 2024; Li et al., 2024; Adusei et al., 2025).

Terms that explicitly represent local wisdom and social adaptation were less prominent than major economic, environmental, and supply-chain terms. This pattern suggests comparatively limited explicit representation rather than a complete absence. Socio-cultural dimensions may be embedded indirectly in broader concepts such as rural development, governance, smallholder resilience, participation, and economic and social effects. The literature includes contributions on farmer adaptation, local knowledge, transdisciplinary agriculture, and food-system resilience (Francis et al., 2008; Lamine, 2015; Arsyad et al., 2020; Anshori et al., 2025) but the keyword network does not show these as dominant standalone clusters.

Country Scientific Production

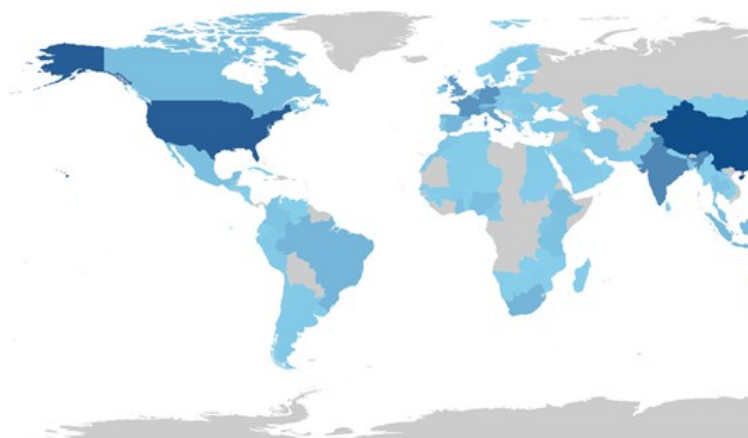


Fig. 10: Global distribution of scientific production by country.

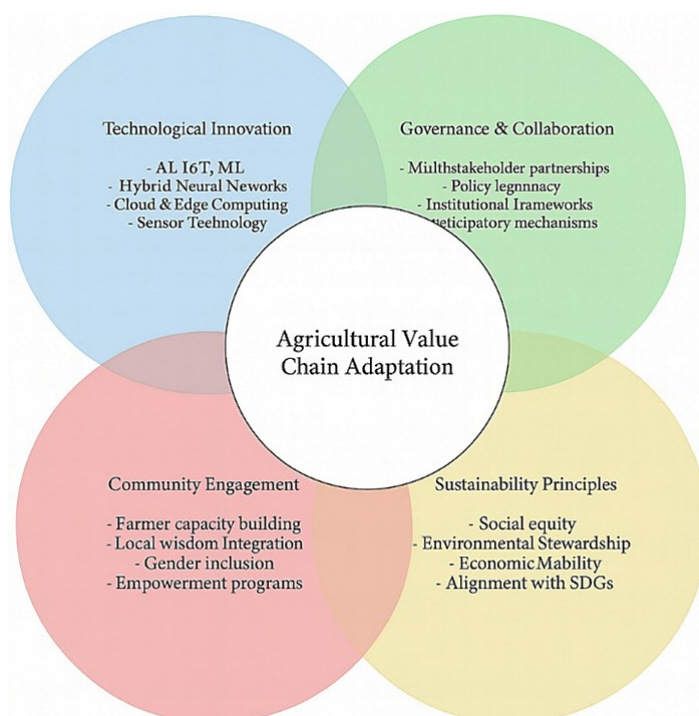


Fig. 11: Integrative framework of agricultural value-chain adaptation derived from the bibliometric findings and targeted narrative synthesis.

3.5. Targeted Narrative Synthesis of Agricultural Value-Chain Adaptation

The targeted narrative synthesis complements the bibliometric mapping by examining representative empirical and conceptual studies across production, processing, distribution, governance, market integration, and adaptation. It is not presented as a formal systematic review. Table 1 should therefore be titled and interpreted as a targeted narrative synthesis of selected studies rather than as exhaustive evidence (Table 1).

Table 1: Summary of adaptation strategies and policy implications across agricultural value chain studies

Country / Scope	Value Chain Stage	Adaptation Focus	Strategy / Method	Findings	Implication	Reference
Brazil	Cross-cutting: agribusiness organizations governance	Strengthen resilience / governance, diversification, stakeholder coordination, and resilience building.	organizational Multi-case study through the risk Resilience Tool	Three Benchmark organizations using Three Grossdo Sul showed resilience profiles; across governance, management, and organizational preparedness varied across actors.	Strengthen governance, risk diversification, training al., (2025) agribusiness organizations rather than relying only on crisis response.	Fowler A. Monteiro et (2025)

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Indonesia	Cross-cutting: Arabica coffee agribusiness	Use multidimensional sustainability assessment across ecological, economic, social, infrastructure/technology, and institutional dimensions.	Focus-group discussions and secondary data was analyzed using Multidimensional Scaling (MDS) / Rap-Arabica	Overall sustainability index was 73.78. Economic and infrastructure dimensions were strongest, whereas farmer skills, infrastructure and institutional support technology were weakest, while highlighting road, economic and postharvest, and technology ecological performance constraints.	Prioritize dimensions technology access, farmer skills, and institutional support maintaining ecological performance.	Sia et al., (2025)
India	Cross-cutting: kiwifruit value chain and value network	Move from a linear value-chain perspective toward coordinated value networks that emphasize actor interdependence and value co-creation.	Primary stakeholder value-chain perspective captured a wider set of actors, dynamic capabilities, value co-creation, and local infrastructure development effects more clearly than a linear chain alone.	Planned questionnaire survey of farmers, suppliers, and structural equation modeling	Support actor based upgrading, knowledge exchange, and local infrastructure development effects more clearly than a linear chain alone.	Goswami et al., (2025)
Bangladesh	Cross-cutting: agricultural supply chain / knowledge governance	Integrate indigenous knowledge (IK) and scientific knowledge (SK) through structured knowledge-management practices.	Theory of Behavior; survey of farmers, and suppliers; structural modeling	Planned questionnaire survey of farmers, suppliers, and structural equation modeling	Farmers and stakeholders showed willingness to use traditional and scientific knowledge management; integrating IK and SK can support agricultural sustainability.	Sohad & Mafrulla (2025)
Global cotton sector	/ Production processing	to Apply deep learning across seed assessment, crop monitoring, pest/disease detection, irrigation, harvesting, and fiber classification.	Comprehensive literature review	Deep learning improves accuracy and automation across multiple stages of the cotton value chain, but challenges remain in generalization, computational demand, and data annotation.	Promote validated context-specific deployment of deep-learning tools with attention to data quality, cost, and field adaptability.	Yang et al., (2025)
Africa	Cross-cutting: agribusiness value chain	Expand digital innovation in production, marketing, finance, training, and value-chain management.	PRISMA-based systematic review of 47 Scopus studies with Bibliometrix/VOSviewer	Digital innovation research in African agribusiness is concentrated in a limited number of countries; major drivers and constraints are finance, social, economic, political, and institutional.	Integrate agricultural digitalization into development plans and improve access to skills, infrastructure, and institutional support across upstream and downstream actors.	Arthur et al., (2024)
Europe (7 countries)	Food chains consumption and market development	/ Co-develop agrobiodiversity-based food chains and markets with consumers.	Large online survey (n=2,397) and focus groups (n=82)	Consumers were concerned about agrobiodiversity decline and broadly supported alternative food-chain options, but knowledge of agrobiodiversity was limited.	Support consumer learning and that facilitate agrobiodiversity-based markets and food environments.	Chiffolleau et al., (2024)
China	Cross-cutting: eco-industry integration including agriculture	Use digitalization to support industrial integration, value-chain extension, and cross-sector synergies.	Panel data from 284 industrial cities (2011–2020); two-way fixed-effects model	Industrial integration promoted ecological-industry development through value-chain extension and cross-sector synergies; digital technology, strengthen digital finance, and expertise strengthened this process.	Promote integrated ecological-industries, extend value chains, encourage intersectoral cooperation, and strengthen digital capabilities.	Li et al., (2024)
Developing countries	Cross-cutting: policy / institutions	Use multi-stakeholder partnerships involving governments, firms, NGOs, donors, and farmer organizations to support agricultural development.	Systematic literature review	The review identified diverse partnership concepts and positive reported impacts, while also showing limited consensus on defining characteristics and variation across settings.	Clarify partnership design, roles, and generally accountability, impact assessment to improve realized benefits for farmers.	Maryono et al., (2024)
China	Production postharvest quality assessment	/ Use computer-vision tools for automated passion-fruit appearance-quality classification.	YOLOv5-based model and experimental validation	The improved ATC-YOLOv5 model enhanced passion-fruit appearance-quality baseline approach.	Potential practical use is automated grading and sorting; the study does not directly establish broader value-chain or farmer-adaptation policy effects.	Liu et al., (2023)

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Italy	Production, distribution, and consumption short food supply chains	Strengthen and citizenship, / consumption, systems, and engagement sustainability.	food Multidisciplinary responsible qualitative ethnographic analysis of three cases with	The cases show different forms of food governance, ethical, regulatory, and market-oriented practices.	Support grounded in governance, citizenship, collective participation rather than treating consumption as only an individual responsibility.	locally Bindi & Belligiano (2023)
Global framework study	/ Cross-cutting: agricultural value-chain digitalization	Use agricultural networks to support inclusive digitalization.	social support strategy; value-chain literature automated content analysis	Interpretive case-study systematic review and digitalization linking social networks, digital inclusion, and value-chain participation.	The study develops an agricultural value-chain framework networks, networks, and value-participation rather than technology alone.	Design digitalization around Smuts (2023)
Malaysia	Farm level agrifood chain	/ Strengthen adaptive capacity to overcome economic, social, natural, and institutional barriers to climate adaptation.	farmers' Survey; PLS-SEM	Only 67% of surveyed farmers were aware of adaptation practices; multiple barriers constrained capacity and, in turn, adaptation behavior.	Strengthen adaptive capacity, awareness, and supportive policy frameworks within Malaysia's agrifood system.	Masud et al., (2022)
Not country-specific	Cross-cutting: rural innovation and entrepreneurship	Build rural ecosystems through collaboration, capital, digital inclusion, natural-resource stewardship, and value-chain-integrated food systems.	Conceptual chapter rural innovation perspectives	synthesizing innovation as broader technology, local assets, entrepreneurship, and community-level capacities.	The chapter frames rural Use integrated rural-innovation approaches that connect innovation, entrepreneurship, and social capital, and value-chain coordination.	French (2022)
China	Rural entrepreneurship / informal institutions	Leverage positive network effects on entrepreneurial learning and collective action while limiting exclusionary or antagonistic effects.	clan- Single-case study using interviews, field observation, and document analysis	Clan-based relational contracts reduced transaction costs, supported entrepreneurial learning, and contributed to homogeneous entrepreneurial activity within the village.	Policies can use constructive network functions to support rural entrepreneurship while managing risks of exclusion or excessive path dependence.	Jiang et al., (2022)
Pacific Island Countries, Papua New Guinea, and Timor-Leste	Smallholder production and food value chains	Strengthen system community capacity, and value-chain responses to disruptions.	local food- Interviews triangulation and desktop sources	and COVID-19 caused unemployment and supply-chain disruption, but local food systems and international supply chains provided important resilience mechanisms.	Support community-led production, resilient logistics, inclusive recovery, and policies that link food security with broader development goals.	Davila et al., (2021)
Developing countries / global	Production and market integration	Transform agriculture through productivity diversification, market access, infrastructure, and nutrition-sensitive development.	smallholder Conceptual chapter and synthesis development evidence	Smallholder transformation of is central to poverty reduction, food security, nutrition, and several SDGs; a narrow focus on staple production is insufficient.	Integrate smallholders into markets, improve infrastructure and diversification, and link agricultural development with nutrition and sustainability goals.	Abraham & Pingali (2020)
China	Whole system: production consumption	Shift from calorie/food centered to toward nutrition-oriented food security with diversified, safe, and traceable supply chains.	Policy analysis synthesis with	The paper proposes nutrition-oriented food-security goals and identifies environmental, food-safety, and challenges requiring institutional and technical innovation.	Embed nutrition indicators in food-security policy, support diversified production, food-loss safe and inclusive value chains, and coordinated agriculture-health governance.	Chen et al., (2019)
China	Postharvest, storage, distribution / cold-chain logistics	Develop environmentally friendly agricultural integration of primary, secondary, and tertiary rural industries.	Conceptual framework logistics-capability analysis	The study identifies cold-chain capacity requirements and argues that green cold-chain logistics can support agricultural-product quality, reduce losses, and strengthen rural industrial production, processing, and services.	Invest in standardized environmentally friendly cold-chain infrastructure and strengthen coordination across production, processing, and services.	Wang et al., (2019)

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Six emerging economies in Asia and Africa	Cross-cutting: agricultural R&D / technology transfer, intellectual-property management, and public-private partnerships.	Strengthen agricultural systems, transfer, secondary data benchmarking	Comparative country case study using data and benchmarking	multi-Countries using agricultural R&D investment, innovation policies, technology-transfer systems, and public-private partnerships.	different in performance, R&D management, and technology-transfer capacity using context-specific best practices.	Improve agricultural governance, al., (2018)
Tanzania	Production and market linkages	Use nucleus-outgrower schemes where appropriate to combine commercial coordination schemes with smallholder participation.	Empirical study; 276 commercial coordination schemes	multi-case qualitative study across 10 market organization but outcomes depend on business model, institutional context, power relations, and implementation quality.	Nucleus-outgrower schemes can improve access and balance bargaining power, and ensure equitable participation and benefit sharing.	Design safeguards that protect smallholders, and balance bargaining power, and ensure equitable participation and benefit sharing. Brüntrup et al., (2018)
Colombia specialty coffee	Production and trade	Use long-term smallholder partnerships based on coffee quality (Relationship Model).	buyer- Farm-level analysis of socioeconomic, technological outcomes	empirical of sustainable practices, had better credit access, and were more informed and optimistic, but farm-gate prices were not significantly different.	Participants used more resource-relationships, access to credit, training, and agroecological practices rather than assuming farm-gate premiums alone drive sustainability.	Support quality-based Hernandez-Aguilera et al., (2018)
India	Production	Adopt sustainable intensification including zero diversification, improved resource management.	Five-year practices experiment / comparison in Haryana	field systems options productivity and profitability while reducing several environmental burdens relative to conventional practice.	Conservation-agriculture increased sustainable intensification and resource-efficient production; broader value-chain implications should be stated cautiously.	Support evidence-based Kumar et al., (2018)
China	Agricultural processing value addition	Develop and processing around raw-material value, processing, ecology, and attributes.	modern systems framework; consultation, weighting, and comprehensive market evaluation	Systems-method expert AHP fuzzy model and an evaluation index system, validated with a peanut-processing enterprise.	The study developed a four-attribute modern agricultural-processing guide cleaner production, index system, validated with industrial ecology, and a upgrading.	Use multidimensional Wang et al., (2016)
Australia (Tasmania)	Marketing value-chain innovation	Use branding and entrepreneurial marketing as value-chain-level innovation supported by communication, knowledge sharing, and trust.	Qualitative case study semi-structured interviews and observation	In a Tasmanian fresh broccoli chain, branding and marketing supported building differentiation and co-innovation across firms.	Support coordinated chain, branding, knowledge sharing, and trust- building across agribusiness value-chain actors.	Lewis et al., (2014)
China	Rural transformation and agricultural development	Manage transformation through land-use industrial restructuring, and differentiated rural-development pathways.	village planning, socioeconomic data	Regional case study using spatial and socioeconomic data	Village transformation reflected urbanization, agricultural modernization, and spatially differentiated development trajectories.	Use region-specific Li et al., (2012)
Vietnam	Production, processing, certification, and market linkage	Promote organic and fair-trade cocoa farmer certification improved production practices, and market linkages.	Preliminary program through analysis of pilot farms and development activities	The program reported improved soil management and product quality, training, premium-market opportunities, and growth from 22 pilot farms to 154 registered organic cocoa farmers.	Support organic certification, producer organization, and market linkage to scale from 22 pilot farms to 154 sustainable cocoa value chains.	Van Phong et al., (2011)

At the production and local-development level, recent studies illustrate the multidimensional character of adaptation. Sia et al. (2025) assess the sustainability of Arabica coffee agribusiness in North Toraja, while Goswami et al., (2025) examine a shift from linear value chains toward value networks in the kiwifruit sector. Meilinda et al. (2025) highlight political-ecological tensions and local knowledge in land management, and Maryono et al. (2024) synthesize multi-stakeholder partnerships in agricultural development. Related work also addresses stakeholder configurations in agribusiness, food-system sustainability, circular-economy pathways, and governance (Hernández & Kacprzyk, 2021; Chiaraluce et al., 2021; Wahbeh et al., 2022; Qu et al., 2024; Fowler A. Monteiro et al., 2025; Ali et al., 2025).

Digitalization and logistics form another strand of the targeted synthesis. Studies address digital agricultural development, agricultural social networks, blockchain and IoT, information systems, and supply-chain integration (Ketikidis et al., 2008; Caro et al., 2018; Sidibé et al., 2021; Bhat et al., 2021; Tombe & Smuts, 2023; Tarannum & Hossain, 2024). Other sources in the original table concern hybrid neural networks and time-series prediction

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(Kunnappapdeelert & Pitchayadejanant, 2020; Zhuang et al., 2025). Because these studies are not all agricultural value-chain applications, their table classifications should be verified against the original papers before final submission.

The synthesis also includes studies on community-based food systems, adaptive capacity, rural innovation, entrepreneurship, food-system disruption, smallholder transformation, and nutrition-oriented food security (Chen et al., 2019; Abraham & Pingali, 2020; Davila et al., 2021; French, 2022; Jiang et al., 2022; Masud et al., 2022; Bindi & Belliggiano, 2023). Additional cases address rural cold-chain logistics, agricultural research systems, nucleus-outgrower schemes, relationship coffee, sustainable intensification, agricultural processing, branding, village transformation, and organic cocoa development (Van Phong et al., 2011; Li et al., 2012; Lewis et al., 2014; Wang et al., 2016; Payumo et al., 2018; Brüntrup et al., 2018; Hernandez-Aguilera et al., 2018; Kumar et al., 2018; Wang et al., 2019). These cases provide contextual breadth but should be summarized only to the extent supported by each original source.

Several studies further illustrate the institutional and socio-cultural dimensions of value-chain change, including sustainability governance, stakeholder engagement, certification, private governance, local knowledge, and participatory platforms (Thiele et al., 2011; Hatanaka, 2014; Okereke & Stacewicz, 2018; Descals et al., 2019; Gardner et al., 2019; Baah et al., 2021; Castillo et al., 2024; Hariyani et al., 2024). The original discussion also cited Rosário & Dias (2022) on sustainability and digital transition. Althubiani (2024), however, concerns teachers' digital competence and is not used here as direct evidence for agricultural value-chain digitalization; it is retained only to preserve the original reference set and should not support a substantive value-chain claim.

3.6. Trend Topics, Thematic Map, and Conceptual Structure

The trend-topics analysis (Fig. 12) shows a progression from food products, food contamination, food handling, and food markets toward food supply, water management, economic analysis, supply chains, sustainability, agricultural systems, supply chain management, and food security. In the most recent part of the study period, machine learning, forecasting, agricultural machinery, and other technology-related terms become more visible. These trends indicate changing research attention; they do not demonstrate that technological approaches are already dominant in practice.

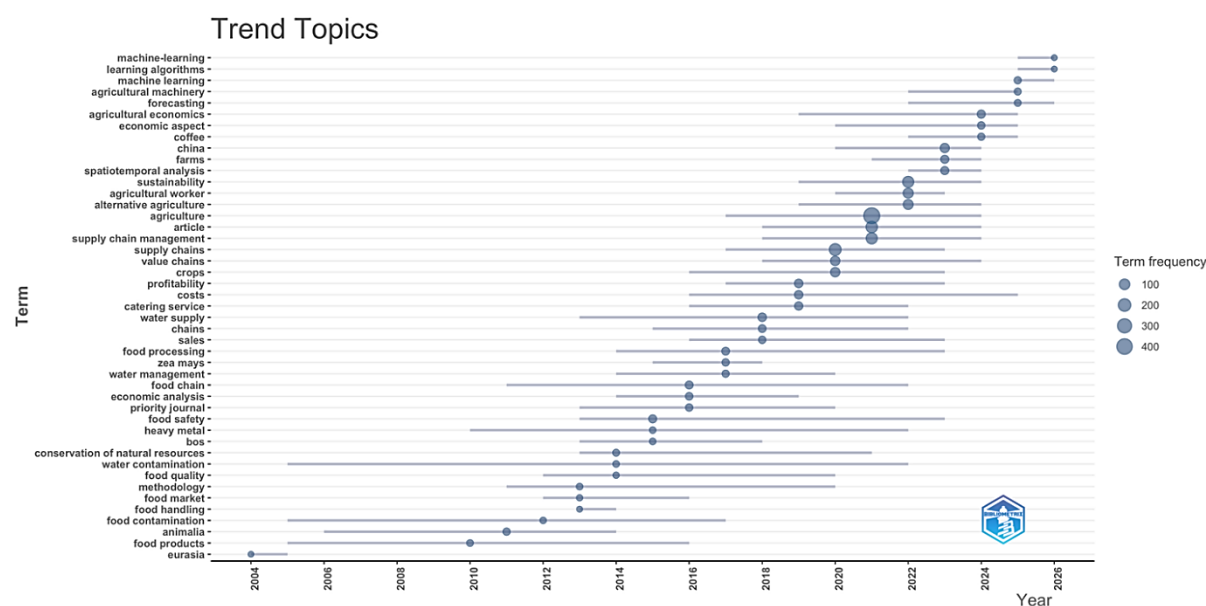


Fig. 12: Evolution of trend topics across the study period.

The thematic map (Fig. 13) positions themes according to centrality and development. Supply chain management, sustainability, and food supply occupy a comparatively central but less-developed position, whereas agriculture, supply chains, and food supply appear in other parts of the map. The appropriate interpretation is that themes occupy different combinations of centrality and development within the analyzed data. The map should not be described as proof that the field has or has not reached 'full maturity.'

The conceptual structure analysis based on Multiple Correspondence Analysis is intended to be shown in Fig. 14. The text indicates a large conceptual grouping around agriculture, sustainability, food security, value chains, and agricultural production, with related terms including climate change, agricultural development, farming systems, environmental impact, risk assessment, fertilizers, water supply, human, animals, agricultural

workers, and procedures. Terms explicitly related to local knowledge and farmer adaptation were less prominent. Before submission, the current Fig. 14 image must be replaced with the actual MCA conceptual-structure output, because the reviewer copy currently displays a duplicate of the workflow Fig. rather than the MCA map.

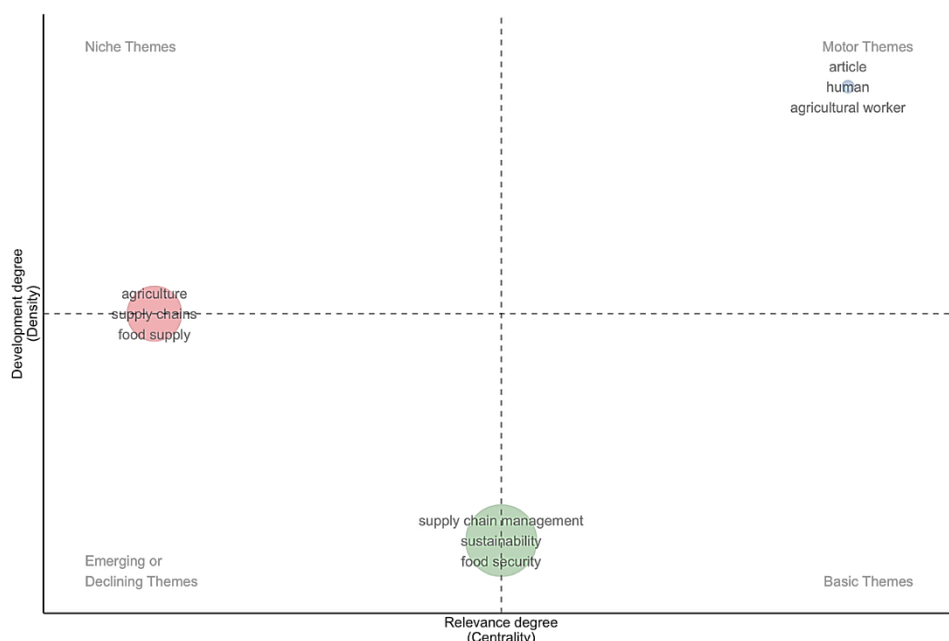


Fig. 13: The matic map of agricultural value-chain research.

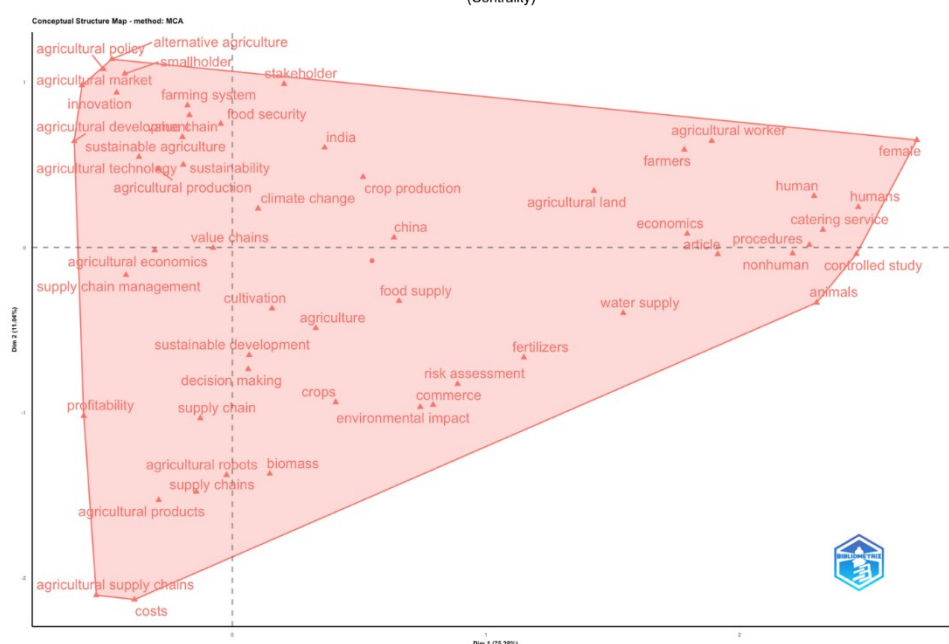


Fig. 14: Conceptual structure of agricultural value-chain research based on Multiple Correspondence Analysis (MCA).

4. DISCUSSION

4.1. Evolution of Agricultural Value-Chain Research

The results indicate that agricultural value-chain research has expanded substantially since 2010 and has become more diverse in its thematic orientation. Earlier agricultural value-chain scholarship was often concerned with production, market transformation, commercialization, and food security, while more recent work increasingly addresses sustainability, resilience, governance, technological change, and social adaptation. This broader transition is consistent with studies that frame agri-food chains as complex systems rather than linear sequences of production and exchange (Vroegindewey & Hodobod, 2018; Asir et al., 2019; Bryceson & Ross, 2020; Manyise & Dentoni, 2021; Awokuse et al., 2024). The publication trend therefore supports a conclusion of increasing scholarly attention, but not a claim of causal progress or conceptual maturity.

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Recent research further shows why this expansion matters. Agricultural value chains are being reshaped by changes in logistics, market organization, sustainability requirements, and digital technologies. The growing presence of supply-chain, sustainability, circular-economy, and technology-related terms in the keyword and trend-topic analyses is compatible with contemporary research on blockchain, digital agribusiness, climate-smart agriculture, and resilient food systems (Agrawal et al., 2024; Arthur et al., 2024; Wang et al., 2024; Díaz et al., 2025). At the same time, historical and institutional studies remain relevant for understanding how current transformations build on earlier shifts in rural development and agrifood markets (Reardon & Timmer, 2007; Reardon et al., 2009; Dannenberg & Kulke, 2016a; 2016b).

4.2. Sustainability, Resilience, and Smallholder Inclusion

Sustainability, food security, supply chains, and economic development are among the most visible themes in the keyword structure, indicating that current value-chain research frequently links economic performance with environmental and social concerns. This pattern is consistent with studies that emphasize resilience, ecosystem services, private governance, and policy frameworks in agri-food systems (Manyise & Dentoni, 2021; Npueng et al., 2022; Wahbeh et al., 2022; Awokuse et al., 2024). However, the bibliometric indicators reveal research attention rather than successful implementation; therefore, the prominence of sustainability-related terms should not be interpreted as evidence that sustainability is already fully embedded across agricultural value chains.

Smallholder inclusion remains a particularly important dimension. Research has examined digital monitoring for inclusive partnerships, value-chain upgrading, entrepreneurship, adaptation, and stakeholder participation (Kariuki, 2018; Ros-Tonen et al., 2019; Agyekumhene et al., 2020; Kangogo et al., 2020; Nuraisyah et al., 2025). The targeted synthesis also illustrates the diversity of institutional arrangements, ranging from local value networks and multi-stakeholder partnerships to certification, outgrower schemes, and relationship-based value chains (Hatanaka, 2014; Brüntrup et al., 2018; Hernandez-Aguilera et al., 2018; Maryono et al., 2024; Goswami et al., 2025). These studies support an interpretation of value-chain resilience as contingent on institutions, participation, and access to resources rather than on productivity alone.

The country networks add a geographic dimension to this discussion. Highly productive countries occupy more central positions in several network visualizations, whereas some developing-country nodes are less connected. This pattern may reflect differences in publication volume, collaboration intensity, Scopus coverage, language, and indexing, funding, and institutional visibility. It should therefore not be interpreted as direct evidence of lower scientific capacity. Recent studies from Ghana, Southeast Asia, the Pacific, Africa, Latin America, and other contexts demonstrate substantial locally grounded knowledge on resilience, adaptation, and food systems even when those countries are less central in the bibliometric network (Davila et al., 2021; Amede et al., 2023; Adusei et al., 2025; Oyadeyi & Oyadeyi, 2025).

4.3. Digitalization and Technological Change

The increasing visibility of digital agriculture, machine learning, forecasting, blockchain, IoT, and related themes reflects a clear research trajectory toward data-intensive value-chain management. Studies in the reference set address blockchain traceability, agricultural social networks, digital agribusiness, IoT-based supply chains, logistics information systems, and sustainable digital transitions (Caro et al., 2018; Bhat et al., 2021; Cichosz et al., 2020; Rosário & Dias, 2022; Tombe & Smuts, 2023; Arthur et al., 2024). These technologies can potentially improve traceability, information exchange, forecasting, and coordination, but bibliometric prominence alone does not establish their effectiveness across settings.

The original manuscript also included technology-oriented publications whose substantive domains differ from agricultural value chains, including passion-fruit image classification, remote sensing of crop harvest dates, rice classification, hybrid neural-network forecasting, and deep-learning applications in cotton (Liu et al., 2023, 2025; Mavaddati & Razavi, 2025; Zhuang et al., 2025; Yang et al., 2025). Such records illustrate the breadth and sensitivity of the search results. They may be relevant to the technological context of agriculture but should not be used to claim value-chain adaptation unless the original article explicitly addresses that relationship. The same caution applies to Wang et al., (2024) on drainage-ditch bioremediation and Wang et al., (2025) on low-altitude orchard economy and ecosystem-service patterns.

Digitalization must also be interpreted in relation to institutional and social conditions. Technology adoption depends on infrastructure, skills, trust, governance, organizational capacity, and access to information. Research on digital transformation and grassroots innovation therefore provides a useful institutional complement to technology-focused work (Dana et al., 2021; Sidibé et al., 2021). By contrast, unrelated digital-competence research such as Althubyani (2024) should not be treated as direct evidence for agricultural value chains. Similarly, Qiu et al., (2019) on ocean-wave energy and Li et al., (2026) on brush-particle solids are retained in the reference set but should not

support substantive claims about agricultural value-chain technology.

4.4. Socio-Cultural Adaptation and Local-Knowledge Gaps

One of the most important findings is the comparatively weak explicit representation of local knowledge and farmer social adaptation in the keyword network. This does not mean that socio-cultural dimensions are absent. Rather, they appear to be distributed across broader concepts such as rural development, governance, smallholder resilience, participation, entrepreneurship, community engagement, and institutional adaptation. This interpretation is consistent with research on local and farmers' knowledge, grassroots innovation, adaptive capacity, indigenous knowledge, and community-based transformation (Futemma et al., 2020; Sandhu, 2021; Masud et al., 2022; Ortiz & Peris, 2022; Sohad & Mafrolla, 2025).

The targeted synthesis reinforces this point. Studies on local value chains, political ecology, community food systems, clan networks, village transformation, and traditional production systems show that value-chain change is socially embedded and mediated by institutions, identity, knowledge, and collective organization (Van Phong et al., 2011; Li et al., 2012; Sumuni, 2019; Jiang et al., 2022; Bindi & Belliggiano, 2023; Meilinda et al., 2025). Older foundational contributions on local knowledge, transdisciplinary agriculture, and resilience remain useful for conceptual interpretation (Francis et al., 2008; Thiele et al., 2011; Lamine, 2015). The implication is that future value-chain research should make socio-cultural mechanisms more explicit rather than treating them as background context.

The transdisciplinary framework in Fig. 11 is therefore best interpreted as a synthesis of four interacting domains: technological innovation, governance and collaboration, community engagement, and sustainability principles. Relevant research addresses supply-chain transparency, institutional legitimacy, community inclusion, social equity, environmental stewardship, and the Sustainable Development Goals (Caro et al., 2018; Agyekumhene et al., 2020; Abraham & Pingali, 2020; Sandhu, 2021; Npueng et al., 2022; Nuraisyah et al., 2025). The framework should be presented as an author-developed integrative interpretation rather than as a cluster structure directly generated by the bibliometric software.

4.5. Limitations

This study has several limitations. First, the analysis relies exclusively on Scopus and may therefore exclude relevant publications indexed in other databases. Second, database coverage, indexing practices, and language representation may affect the disciplinary and geographic composition of the dataset. Third, bibliometric results are sensitive to the search string and preprocessing decisions, including author-name disambiguation and keyword normalization. The presence of adjacent or unrelated records in the reference set, including work on teacher digital competence, ocean-wave energy, brush-particle solids, and some narrowly technical agricultural studies, illustrates this search-string sensitivity. Fourth, common author names and initials may introduce ambiguity into productivity and co-authorship analyses. Fifth, recent publications may be affected by indexing delays, whereas older publications have had more time to accumulate citations, creating citation-age effects. Finally, the supplementary literature synthesis was purposive rather than systematic. It should therefore be interpreted as contextual support for the bibliometric findings rather than as an exhaustive evidence synthesis.

5. CONCLUSION

This study provides a comprehensive bibliometric overview of agricultural value-chain research, highlighting its intellectual structure, thematic evolution, and major areas of scholarly attention. Four principal findings emerge from the analysis. First, publication activity increased substantially after 2010, indicating growing scholarly attention to agricultural value-chain issues. Second, supply chain management, sustainability, food security, and agricultural development constitute prominent themes within the mapped research landscape. Third, recent thematic trends show increasing attention to digitalization, machine learning, forecasting, and other data-oriented approaches, reflecting a growing technological dimension in agricultural value-chain research. Fourth, local knowledge, socio-cultural dimensions, and farmers' social adaptation remain comparatively less prominent than the dominant economic, environmental, and technological themes, indicating an important area for stronger conceptual integration.

These findings suggest that future agricultural value-chain studies should examine technological, institutional, socio-cultural, and farmer-level dimensions within a more integrated analytical framework. Technological and market innovations should be assessed together with governance arrangements, stakeholder participation, institutional support, farmer adaptive capacity, and locally embedded knowledge. For policymakers, this implies that digitalization, market integration, and value-chain upgrading should be accompanied by inclusive governance, farmer capacity building, institutional coordination, and recognition of local knowledge systems to improve the relevance and inclusiveness of agricultural value-chain interventions.

The findings should nevertheless be interpreted in light of the study's reliance on Scopus, the sensitivity of

bibliometric results to the search strategy and indexing coverage, and the purposive nature of the targeted narrative synthesis. Future research should validate these patterns using broader bibliographic sources and more systematic empirical evidence.

Declarations

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Generative AI Statements: The authors declare that no Gen AI/DeepSeek was used in the writing/creation of this manuscript.

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REFERENCES

- Abraham, M., & Pingali, P. (2020). Transforming smallholder agriculture to achieve the SDGs. In S. Gomez y Paloma, L. Riesgo, & K. Louhichi (Eds.), *The role of smallholder farms in food and nutrition security* (pp. 173–209). Springer International Publishing. https://doi.org/10.1007/978-3-030-42148-9_9
- Adisa, O., Ilugbusi, B. S., Adewunmi, O., Franca, O., & Ndubuisi, L. (2024). A comprehensive review of redefining agricultural economics for sustainable development: Overcoming challenges and seizing opportunities in a changing world. *World Journal of Advanced Research and Reviews*, 21(1), 2329–2341. <https://doi.org/10.30574/wjarr.2024.21.1.0322>
- Adusei, F. Y., Agyemang-Duah, W., Akowuah, Y. A., & Adebayo, B. O. (2025). Cultivating resilience: Localized insights into climate impacts and gendered adaptation strategies in smallholder farming in Ghana. *Frontiers in Climate*, 7, 1727893. <https://doi.org/10.3389/fclim.2025.1727893>
- Agrawal, S., Tiwari, S. K., & Singh, R. K. (2026). Empowering agriculture and food industry supply chains: A comprehensive study on blockchain technology enablers. *Environment, Development and Sustainability*, 28(4), 8575–8599. <https://doi.org/10.1007/s10668-024-05315-9>
- Agyekumhene, C., de Vries, J. R., van Paassen, A., Schut, M., & MacNaghten, P. (2020). Making smallholder value chain partnerships inclusive: Exploring digital farm monitoring through farmer friendly smartphone platforms. *Sustainability*, 12(11), 4580. <https://doi.org/10.3390/su12114580>
- Alaphilippe, A., Capowiez, Y., Severac, G., Simon, S., Saudreau, M., Caruso, S., & Vergnani, S. (2016). Codling moth exclusion netting: An overview of French and Italian experiences. *IOBC-WPRS Bulletin*, 112, 31–35.

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrn, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81–104. <https://doi.org/10.47278/journal.abr/2026.085>

- Ali, Z. A., Zain, M., Hasan, R., Al Salman, H., Alkhamees, B. F., & Almisned, F. A. (2025). Circular economy advances with artificial intelligence and digital twin: Multiple-case study of Chinese industries in agriculture. *Journal of the Knowledge Economy*, 16(1), 2192–2228. <https://doi.org/10.1007/s13132-024-02101-w>
- Althubayani, A. R. (2024). Digital competence of teachers and the factors affecting their competence level: A nationwide mixed-methods study. *Sustainability*, 16(7), 2796. <https://doi.org/10.3390/su16072796>
- Amede, T., Konde, A. A., Muhinda, J. J., & Bigirwa, G. (2023). Sustainable farming in practice: Building resilient and profitable smallholder agricultural systems in sub-Saharan Africa. *Sustainability*, 15(7), 5731. <https://doi.org/10.3390/su15075731>
- Angevin, F., Fortino, G., Bockstaller, C., Pelzer, E., & Messean, A. (2017). Assessing the sustainability of crop production systems: Toward a common framework? *Crop Protection*, 97, 18–27. <https://doi.org/10.1016/j.cropro.2016.11.018>
- Anshori, M. F., Purwoko, B. S., Carsono, N., Dewi, I. S., Suwarno, W. B., Ardie, S. W., Haris Bahrin, A., Baharuddin, A. K., Khaerani, P. I., & Ali, Z. (2025). Optimizing hydroponic salinity screening: A novel approach using image-based phenotyping for double haploid rice selection. *Frontiers in Sustainable Food Systems*, 9, 1659331. <https://doi.org/10.3389/fsufs.2025.1659331>
- Armitage, D. R. (2003). Traditional agroecological knowledge, adaptive management and the socio-politics of conservation in central Sulawesi, Indonesia. *Environmental Conservation*, 30(1), 79–90. <https://doi.org/10.1017/S0376892903000079>
- Arsyad, M., Nuddin, A., & Yusuf, S. (2013). Strengthening institutional towards smallholders welfare: Evidence from existing condition of cocoa smallholders in Sulawesi, Indonesia. *Ryukoku Journal of Economic Studies*, 52(1), 71–86.
- Arsyad, M., Nuddin, A., Fahmid, I. M., Salman, D., Pulubuhu, D. A. T., Unde, A. A., & Djufry, F. (2020). Agricultural development: Poverty, conflict and strategic programs in country border. *IOP Conference Series: Earth and Environmental Science*, 575(1), 012091. <https://doi.org/10.1088/1755-1315/575/1/012091>
- Arthur, K. K., Bannor, R. K., Masih, J., Oppong-Kyeremeh, H., & Appiahene, P. (2024). Digital innovations: Implications for African agribusinesses. *Smart Agricultural Technology*, 7, 100407. <https://doi.org/10.1016/j.atech.2024.100407>
- Asir, M., Darma, R., & Arsyad, M. (2019). Study on stakeholders position and role in supply chain of cocoa commodities. *International Journal of Supply Chain Management*, 8(1), 1–9.
- Awokuse, T., Lim, S., Santeramo, F., & Steinbach, S. (2024). Robust policy frameworks for strengthening the resilience and sustainability of agri-food global value chains. *Food Policy*, 127, 102714. <https://doi.org/10.1016/j.foodpol.2024.102714>
- Baah, C., Amponsah, K. T., Issau, K., Ofori, D., Acquah, I. S. K., & Agyeman, D. O. (2021). Examining the interconnections between sustainable logistics practices, environmental reputation and financial performance: A mediation approach. *Vision*, 25(1), 47–64. <https://doi.org/10.1177/0972262920988805>
- Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food value chain revolutions in low- and middle-income countries. *Journal of Economic Literature*, 60(4), 1316–1377. <https://doi.org/10.1257/jel.20201539>
- Bhat, S. A., Huang, N.-F., Sofi, I. B., & Sultan, M. (2021). Agriculture-food supply chain management based on blockchain and IoT: A narrative on enterprise blockchain interoperability. *Agriculture*, 12(1), 40. <https://doi.org/10.3390/agriculture12010040>
- Bindi, L., & Belligiano, A. (2023). A highly condensed social fact: Food citizenship, individual responsibility, and social commitment. *Sustainability*, 15(8), 6881. <https://doi.org/10.3390/su15086881>
- Brüntrup, M., Schwarz, F., Absmayr, T., Dylla, J., Eckhard, F., Remke, K., & Sternisko, K. (2018). Nucleus-outgrower schemes as an alternative to traditional smallholder agriculture in Tanzania—strengths, weaknesses and policy requirements. *Food Security*, 10(4), 807–826. <https://doi.org/10.1007/s12571-018-0797-0>
- Bryceson, K. P., & Ross, A. (2020). Agrifood chains as complex systems and the role of informality in their sustainability in small scale societies. *Sustainability*, 12(16), 6535. <https://doi.org/10.3390/su12166535>
- Buche, P. (2025). How knowledge engineering and artificial intelligence support evolutions in agro-resource processing sectors? *GreenFoodTech 2025*, INRAE; Université Laval; Université de Lille, Apr 2025, Saint-Malo, France. (<hal-05030930>)
- Caro, M. P., Ali, M. S., Vecchio, M., & Giffreda, R. (2018). Blockchain-based traceability in agri-food supply chain management: A practical implementation. 2018 IoT Vertical and Topical Summit on Agriculture-Tuscany (IoT Tuscany), 1–4. <https://doi.org/10.1109/IOT-TUSCANY.2018.8373021>
- Castillo, L., Rebagliatti, C., Esenarro, D., Mendez, R., & Cobeñas, P. (2024). Agroindustrial complex to promote the economic and social development of agricultural producers of the Callejon de Huaylas, Ancash, Peru 2023. *Sustainability*, 16(13), 5744. <https://doi.org/10.3390/su16135744>
- Catarino, R., Therond, O., Berthomier, J., Miara, M., Mérot, E., Misslin, R., Vanhove, P., Villerd, J., & Angevin, F. (2021). Fostering local crop-livestock integration via legume exchanges using an innovative integrated assessment and modelling approach based on the maelia platform. *Agricultural Systems*, 189, 103066. <https://doi.org/10.1016/j.agsy.2021.103066>
- Chen, J., & Chen, Y. (2021). The impact of contract farming on agricultural product supply in developing economies. *Production and Operations Management*, 30(8), 2395–2419. <https://doi.org/10.1111/poms.13382>
- Chen, J., Wu, Q., Hua, Y., Chen, J., Zhang, H., & Wang, H. (2017). Potential applications of biosurfactant rhamnolipids in agriculture and biomedicine. *Applied Microbiology and Biotechnology*, 101(23), 8309–8319. <https://doi.org/10.1007/s00253-017-8554-4>
- Chen, K., Bi, J.-Y., Nie, F.-Y., Fang, X.-M., & Fan, S.-G. (2019). New vision and policy recommendations for nutrition-oriented food security in China. *Scientia Agricultura Sinica*, 52(18), 3097–3107. <https://doi.org/10.3864/j.issn.0578-1752.2019.18.003>
- Chen, S., Chen, X., & Xu, J. (2016). Impacts of climate change on agriculture: Evidence from China. *Journal of Environmental Economics and Management*, 76, 105–124. <https://doi.org/10.1016/j.jeem.2015.01.005>
- Chiaraluce, G., Bentivoglio, D., & Finco, A. (2021). Circular economy for a sustainable agri-food supply chain: A review for current trends and future pathways. *Sustainability*, 13(16), 9294. <https://doi.org/10.3390/su13169294>

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrin, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81–104. <https://doi.org/10.47278/journal.abr/2026.085>

- Chiffolleau, Y., Dourian, T., Enderli, G., Mattioni, D., Akermann, G., Loconto, A., Galli, F., Emese, G., Perényi, Z., & Colombo, L. (2024). Reversing the trend of agrobiodiversity decline by co-developing food chains with consumers: A European survey for change. *Sustainable Production and Consumption*, 46, 343–354. <https://doi.org/10.1016/j.spc.2024.02.032>
- Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital transformation at logistics service providers: Barriers, success factors and leading practices. *The International Journal of Logistics Management*, 31(2), 209–238. <https://doi.org/10.1108/IJLM-08-2019-0229>
- Curran, M., Kiteme, B., Wüschler, T., Koellner, T., & Hellweg, S. (2016). Pay the farmer, or buy the land?—Cost-effectiveness of payments for ecosystem services versus land purchases or easements in Central Kenya. *Ecological Economics*, 127, 59–67. <https://doi.org/10.1016/j.ecolecon.2016.03.016>
- Dana, L.-P., Gurău, C., Hoy, F., Ramadani, V., & Alexander, T. (2021). Success factors and challenges of grassroots innovations: Learning from failure. *Technological Forecasting and Social Change*, 164, 119600. <https://doi.org/10.1016/j.techfore.2019.03.009>
- Dannenberg, P., & Follmann, A. (2023). Landwirtschaft und ländliche Räume [Agriculture and rural areas]. In *Wirtschaftsgeographie Deutschlands [Economic geography of Germany]* (pp. 103–136). Springer. https://doi.org/10.1007/978-3-662-65070-7_5
- Dannenberg, P., & Kulke, E. (2016a). Introduction: Dynamics in rural development beyond conventional food production. In P. Dannenberg & E. Kulke (Eds.), *Economic development in rural areas: Functional and multifunctional approaches* (pp. 3–14). Routledge. <https://doi.org/10.4324/9781315578705-6>
- Dannenberg, P., & Kulke, E. (2016b). *Economic development in rural areas: Functional and multifunctional approaches*. Routledge. <https://doi.org/10.4324/9781315578705>
- Davila, F., Bourke, R. M., McWilliam, A., Crimp, S., Robins, L., van Wensveen, M., Alders, R. G., & Butler, J. R. A. (2021). COVID-19 and food systems in Pacific Island Countries, Papua New Guinea, and Timor-Leste: Opportunities for actions towards the sustainable development goals. *Agricultural Systems*, 191, 103137. <https://doi.org/10.1016/j.agsy.2021.103137>
- Descals, A., Szantoi, Z., Meijaard, E., Sutikno, H., Rindanata, G., & Wich, S. (2019). Oil palm (*Elaeis guineensis*) mapping with details: Smallholder versus industrial plantations and their extent in Riau, Sumatra. *Remote Sensing*, 11(21), 2590. <https://doi.org/10.3390/rs11212590>
- Díaz, F., Liza, R., & Cerna, N. (2025). Mapping the landscape of blockchain for transparent and sustainable supply chains: A bibliometric and thematic analysis. *Logistics*, 9(3), 86. <https://doi.org/10.3390/logistics9030086>
- Dihel, N. C., Grover, A., Hollweg, C. H., & Slany, A. (2018). How does participation in value chains matter to African farmers? World Bank Policy Research Working Paper No. 8506. <https://doi.org/10.1596/1813-9450-8506>
- Dumoulin, F. (2016). Évaluation environnementale d'un projet de symbiose industrielle territoriale: Application à un projet de gestion territorialisée de résidus organiques valorisés en agriculture dans l'ouest de la Réunion [Environmental assessment of a territorial industrial symbiosis project: Application to a territorially managed project for the agricultural recovery of organic residues in western Réunion]. Université de la Réunion.
- Dupé, P., Dedieu, B., Gasselin, P., & Ollivier, G. (2025). The work of farmers in short food supply chains: Systematic literature review and research agenda. *PLOS ONE*, 20(6), e0314175. <https://doi.org/10.1371/journal.pone.0314175>
- Francis, C. A., Lieblein, G., Breland, T. A., Salomonsson, L., Geber, U., Sriskandarajah, N., & Langer, V. (2008). Transdisciplinary research for a sustainable agriculture and food sector. *Agronomy Journal*, 100(3), 771–776. <https://doi.org/10.2134/agronj2007.0073>
- French, C. (2022). Rural innovation redefined. In *Building rural community resilience through innovation and entrepreneurship* (pp. 1–16). Routledge. <https://doi.org/10.4324/9781003178552-1>
- Futemma, C., De Castro, F., & Brondizio, E. S. (2020). Farmers and social innovations in rural development: Collaborative arrangements in Eastern Brazilian Amazon. *Land Use Policy*, 99, 104999. <https://doi.org/10.1016/j.landusepol.2020.104999>
- Ganesh Kumar, C., Murugaiyan, P., & Madanmohan, G. (2017). Agri-food supply chain management: Literature review. *Intelligent Information Management*, 9, 68–96. <https://doi.org/10.4236/iim.2017.92004>
- Gardner, T. A., Benzie, M., Börner, J., Dawkins, E., Fick, S., Garrett, R., Godar, J., Grimard, A., Lake, S., & Larsen, R. K. (2019). Transparency and sustainability in global commodity supply chains. *World Development*, 121, 163–177. <https://doi.org/10.1016/j.worlddev.2018.05.025>
- Goswami, K., Deka, N., Sandilya, J., & Thapa, D. B. (2025). From value chain to value networks: Inferences for local development from the kiwifruit sector in eastern Himalayan region, India. *Applied Geography*, 181, 103683. <https://doi.org/10.1016/j.apgeog.2025.103683>
- Govindan, K., & Hasanagic, M. (2018). A systematic review on drivers, barriers, and practices towards circular economy: A supply chain perspective. *International Journal of Production Research*, 56(1–2), 278–311. <https://doi.org/10.1080/00207543.2017.1402141>
- Hainzer, K., Best, T., & Brown, P. H. (2019). Local value chain interventions: A systematic review. *Journal of Agribusiness in Developing and Emerging Economies*, 9(4), 369–390. <https://doi.org/10.1108/JADEE-11-2018-0153>
- Hariyani, D., Hariyani, P., Mishra, S., & Sharma, M. K. (2024). A literature review on green supply chain management for sustainable sourcing and distribution. *Waste Management Bulletin*, 2(4), 231–248. <https://doi.org/10.1016/j.wmb.2024.11.009>
- Hasan, S., Mujnisa, A., Khaerani, P. I., Sema, & Natsir, A. (2020). Potential of complete feed formulated from local raw materials on beef cattle performance. *EurAsian Journal of BioSciences*, 14, 1–6.
- Hasan, S., Natsir, A., & Khaerani, P. I. (2019). The investigation of biological nitrogen fixation in critical dryland pasture. *Online Journal of Biological Sciences*, 19, 152–158. <https://doi.org/10.3844/ojbsci.2019.152.158>

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanilo, M.C.B., Bahrin, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81–104. <https://doi.org/10.47278/journal.abr/2026.085>

- Hatanaka, M. (2014). McSustainability and McJustice: Certification, alternative food and agriculture, and social change. *Sustainability*, 6(11), 8092–8112. <https://doi.org/10.3390/su6118092>
- Hernández, J. E., & Kacprzyk, J. (2021). Agriculture value chain—Challenges and trends in academia and industry. Springer. <https://doi.org/10.1007/978-3-030-51047-3>
- Hernandez-Aguilera, J. N., Gómez, M. I., Rodewald, A. D., Rueda, X., Anunu, C., Bennett, R., & van Es, H. M. (2018). Quality as a driver of sustainable agricultural value chains: The case of the relationship coffee model. *Business Strategy and the Environment*, 27(2), 179–198. <https://doi.org/10.1002/bse.2009>
- Ihou, A. F. Y., & Paul, M. J. (2025). Entrepreneurial landscape of farmers: A comprehensive review using bibliometric and systematic analysis. *Journal of Scientometric Research*, 14(2), 1–14. <https://doi.org/10.5530/jscires.20251405>
- Jiang, X., Ma, X., Li, Z., Guo, Y., Xu, A., & Su, X. (2022). Why do people who belong to the same clan engage in the same entrepreneurial activities?—A case study on the influence of clan networks on the content of farmers' entrepreneurship. *Frontiers in Psychology*, 13, 873583. <https://doi.org/10.3389/fpsyg.2022.873583>
- Jiménez-Aceituno, A., López-Rodríguez, M. D., Castro, A. J., Cortés-Calderón, S., Collste, D., Aparicio, G., Rölfer, L., Bote, M. A., Marín, L., & Gómez-Tenorio, M. A. (2025). Trade-offs for healthy and sustainable diets in Europe: Social-ecological dynamics in an intensive agricultural system. *Global Food Security*, 44, 100829. <https://doi.org/10.1016/j.gfs.2025.100829>
- Kamble, S. S., Gunasekaran, A., & Sharma, R. (2020). Modeling the blockchain enabled traceability in agriculture supply chain. *International Journal of Information Management*, 52, 101967. <https://doi.org/10.1016/j.ijinfomgt.2019.05.023>
- Kangogo, D., Dentoni, D., & Bijman, J. (2020). Determinants of farm resilience to climate change: The role of farmer entrepreneurship and value chain collaborations. *Sustainability*, 12(3), 868. <https://doi.org/10.3390/su12030868>
- Kariuki, A. N. (2018). Upgrading strategies and food security implications on smallholder farmers in sub-Saharan Africa: A value chain review. *Journal of Food Security*, 6(4), 141–154. <https://doi.org/10.12691/jfs-6-4-2>
- Ketikidis, P. H., Koh, S. C. L., Dimitriadis, N., Gunasekaran, A., & Kehajova, M. (2008). The use of information systems for logistics and supply chain management in South East Europe: Current status and future direction. *Omega*, 36(4), 592–599. <https://doi.org/10.1016/j.omega.2006.11.010>
- Kloppenborg, J., Jr. (1991). Social theory and the de/reconstruction of agricultural science: Local knowledge for an alternative agriculture I. *Rural Sociology*, 56(4), 519–548. <https://doi.org/10.1111/j.1549-0831.1991.tb00445.x>
- Kumar, M. D. (2016). Does corporate agribusiness have a positive role in global food and water security? In C. A. Scott & B. de Gouvello (Eds.), *The future of public water governance: Has water privatization peaked?* (pp. 99–103). Routledge.
- Kumar, S., Kumar, S., Joshi, D., Upadhyay, S. K., & Singh, D. (2020). Impact of rural infrastructure on performance of livestock sector in Uttar Pradesh. *Indian Journal of Animal Sciences*, 90(4), 647–654. <https://doi.org/10.56093/ijans.v90i4.104225>
- Kumar, S., Raut, R. D., Nayal, K., Kraus, S., Yadav, V. S., & Narkhede, B. E. (2021). To identify Industry 4.0 and circular economy adoption barriers in the agriculture supply chain by using ISM-ANP. *Journal of Cleaner Production*, 293, 126023. <https://doi.org/10.1016/j.jclepro.2021.126023>
- Kumar, V., Jat, H. S., Sharma, P. C., Gathala, M. K., Malik, R. K., Kamboj, B. R., Yadav, A. K., Ladha, J. K., Raman, A., & Sharma, D. K. (2018). Can productivity and profitability be enhanced in intensively managed cereal systems while reducing the environmental footprint of production? Assessing sustainable intensification options in the breadbasket of India. *Agriculture, Ecosystems & Environment*, 252, 132–147. <https://doi.org/10.1016/j.agee.2017.10.006>
- Kunnappadeelert, S., & Pitchayadejanant, K. (2020). Hybrid SEM-neural networks for predicting electronics logistics information system adoption in Thailand healthcare supply chain. *International Journal of Business Performance and Supply Chain Modelling*, 11(1), 54–68. <https://doi.org/10.1504/IJBPSM.2020.108887>
- Lamine, C. (2015). Sustainability and resilience in agrifood systems: Reconnecting agriculture, food and the environment. *Sociologia Ruralis*, 55(1), 41–61. <https://doi.org/10.1111/soru.12061>
- Lewis, G., Crispin, S., Bonney, L., Woods, M., Fei, J., Ayala, S., & Miles, M. (2014). Branding as innovation within agribusiness value chains. *Journal of Research in Marketing and Entrepreneurship*, 16(2), 146–162. <https://doi.org/10.1108/JRME-03-2014-0005>
- Li, Q., Tarnsangpradit, J., Biniek-Antosiak, K., Cang, Y., Yan, J., Zhang, J., Matyjaszewski, K., Graczykowski, B., Bockstaller, M. R., & Fytas, G. (2026). Microscopic dynamics controls coupling and cluster formation in brush particle solids. *Macromolecules*, 59(2), 653–662. <https://doi.org/10.1021/acs.macromol.5c02236>
- Li, X., Liu, C., Zhou, J., Yan, J., & Liu, T. (2024). The digitalization imperative: Unveiling the impacts of eco-industry integration on sectoral growth and transformation. *Sustainability*, 16(21), 9522. <https://doi.org/10.3390/su16219522>
- Li, X., Wang, D., & Li, M. (2020). Convenience analysis of sustainable E-agriculture based on blockchain technology. *Journal of Cleaner Production*, 271, 122503. <https://doi.org/10.1016/j.jclepro.2020.122503>
- Li, Y., Liu, Y., & Long, H. (2012). Characteristics and mechanism of village transformation development in typical regions of Huang-Huai-Hai Plain. *Acta Geographica Sinica*, 67(6), 771–782. <https://doi.org/10.11821/xb201206005>
- Liu, C., Lin, W., Feng, Y., Guo, Z., & Xie, Z. (2023). ATC-YOLOv5: Fruit appearance quality classification algorithm based on the improved YOLOv5 model for passion fruits. *Mathematics*, 11(16), 3615. <https://doi.org/10.3390/math11163615>
- Liu, Y., Diao, C., Yang, Z., Mei, W., & Guo, T. (2025). A novel normalized harvest phenology index (NHPI) for corn and soybean harvesting date detection using Landsat and Sentinel-2 imagery on Google Earth Engine. *Remote Sensing of Environment*, 331, 115016. <https://doi.org/10.1016/j.rse.2025.115016>
- Loiseau, E., Aissani, L., Le Féon, S., Laurent, F., Cerceau, J., Sala, S., & Roux, P. (2018). Territorial life cycle assessment (LCA): What exactly is it about? A proposal towards using a common terminology and a research agenda. *Journal of Cleaner Production*, 176, 474–485. <https://doi.org/10.1016/j.jclepro.2017.12.169>

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrin, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81–104. <https://doi.org/10.47278/journal.abr/2026.085>

- Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgens, B., Pitkänen, K., Leskinen, P., Kuikman, P., & Thomsen, M. (2016). Green economy and related concepts: An overview. *Journal of Cleaner Production*, 139, 361–371. <https://doi.org/10.1016/j.jclepro.2016.08.024>
- Mangla, S. K., Luthra, S., Mishra, N., Singh, A., Rana, N. P., Dora, M., & Dwivedi, Y. (2018). Barriers to effective circular supply chain management in a developing country context. *Production Planning & Control*, 29(6), 551–569. <https://doi.org/10.1080/09537287.2018.1449265>
- Manning, L. (2023). Being resilient in challenging times in food supply chains. *Engineering Proceedings*, 40(1), 1. <https://doi.org/10.3390/engproc2023040001>
- Manyise, T., & Dentoni, D. (2021). Value chain partnerships and farmer entrepreneurship as balancing ecosystem services: Implications for agri-food systems resilience. *Ecosystem Services*, 49, 101279. <https://doi.org/10.1016/j.ecoser.2021.101279>
- Maryono, M., Killoes, A. M., Adhikari, R., & Abdul Aziz, A. (2024). Agriculture development through multi-stakeholder partnerships in developing countries: A systematic literature review. *Agricultural Systems*, 213, 103792. <https://doi.org/10.1016/j.agry.2023.103792>
- Masud, M. M., Akhtar, R., Al Mamun, A., Uddin, M. S., Siyu, L., & Yang, Q. (2022). Modelling the sustainable agriculture management adaptation practices: Using adaptive capacity as a mediator. *Frontiers in Environmental Science*, 10, 963465. <https://doi.org/10.3389/fenvs.2022.963465>
- Mavaddati, S., & Razavi, M. (2025). An optimized YOLO-ViT hybrid model for enhanced precision in rice classification and quality assessment. *International Journal of Engineering, Transactions B: Applications*, 38(10), 2435–2450. <https://doi.org/10.5829/ije.2025.38.10a.19>
- Meilinda, S. R., Salman, D., & Muhammad, S. (2025). Conflict and compromise, discourse and action: Political ecology in the complexity of land management in Central Kalimantan, Indonesia. *Forest and Society*, 9(2), 422–448. <https://doi.org/10.24259/fs.v9i2.40301>
- Minten, B., Goeb, J., Van Asselt, J., & Aung, Z. W. (2025). In good times and in bad, in sickness and in health: The continuous rise in adoption of labour-saving agricultural technologies in Myanmar. *The Journal of Development Studies*, 61(1), 81–101. <https://doi.org/10.1080/00220388.2024.2401407>
- Monteiro, G. F. A., Morales de Queiroz Coleman, S., & Silva Mendes, J. (2025). From resilience to sustainability: Exploring key stakeholders in agribusiness. *RAUSP Management Journal*, 60(1), 35–51. <https://doi.org/10.1108/RAUSP-10-2023-0218>
- Mzimela, J. H., & Moyo, I. (2026). An intersectional analysis of the collective efficacy-drought adaptation nexus among small-scale farmers in Umkhanyakude District Municipality, South Africa. *Environmental Sociology*, 12(1), 169–185. <https://doi.org/10.1080/23251042.2025.2484480>
- Neilson, J., & Shonk, F. (2014). Chained to development? Livelihoods and global value chains in the coffee-producing Toraja region of Indonesia. *Australian Geographer*, 45(3), 269–288. <https://doi.org/10.1080/00049182.2014.929998>
- Npueng, S., Oosterveer, P., & Mol, A. P. J. (2022). Governing sustainability in the Thai palm oil-supply chain: The role of private actors. *Sustainability: Science, Practice and Policy*, 18(1), 37–54. <https://doi.org/10.1080/15487733.2021.2021688>
- Nuraisyah, A., Wulandari, E., Indrawan, D., & Othman, Z. (2025). The roles of stakeholders in supply chain sustainability challenges: The case of coffee chain in West Java Province, Indonesia. *Discover Sustainability*, 6(1), 247. <https://doi.org/10.1007/s43621-025-01004-3>
- Okereke, C., & Stacewicz, I. A. (2018). Stakeholder perceptions of the environmental effectiveness of multi-stakeholder initiatives: Evidence from the palm oil, soy, cotton, and timber programs. *Society & Natural Resources*, 31(11), 1302–1318. <https://doi.org/10.1080/08941920.2018.1482037>
- Olabinjo, O., & Opatola, S. (2023). Agriculture: A pathway to create a sustainable economy. *Turkish Journal of Agricultural Engineering Research*, 4(2), 317–326. <https://doi.org/10.46592/turkager.1348187>
- Ortiz, R., & Peris, J. (2022). The role of farmers' umbrella organizations in building transformative capacity around grassroots innovations in rural agri-food systems in Guatemala. *Sustainability*, 14(5), 2695. <https://doi.org/10.3390/su14052695>
- Oyadeyi, O. O., & Oyadeyi, O. A. (2025). Climate change, green economy, and agriculture—A development pathway towards food security and climate resilient sub-Saharan African countries. *Scientific African*, 29, e02792. <https://doi.org/10.1016/j.sciaf.2025.e02792>
- Payumo, J. G., Assem, S., Bhooshan, N., Galhena, H., Mbabazi, R., & Maredia, K. (2018). Managing agricultural research for prosperity and food security in 2050: Comparison of performance, innovation models and prospects. *The Open Agriculture Journal*, 12(1), 20–35. <https://doi.org/10.2174/1874331501812010020>
- Qiu, S., Liu, K., Wang, D., Ye, J., & Liang, F. (2019). A comprehensive review of ocean wave energy research and development in China. *Renewable and Sustainable Energy Reviews*, 113, 109271. <https://doi.org/10.1016/j.rser.2019.109271>
- Qu, B., Xiao, Z., Upadhyay, A., & Luo, Y. (2024). Perspectives on sustainable food production system: Characteristics and green technologies. *Journal of Agriculture and Food Research*, 15, 100988. <https://doi.org/10.1016/j.jafr.2024.100988>
- Rafiuddin, Ala, A., Agung, W., & Khaerani, P. I. (2025). Synergistic effects of biostimulant and liquid organic fertilizer (LOF) on agronomic traits of sugarcane seedling. *Sarhad Journal of Agriculture*, 41(4), 1645–1659. <https://doi.org/10.17582/journal.sja/2025/41.4.1645.1659>
- Reardon, T., & Timmer, C. P. (2007). Transformation of markets for agricultural output in developing countries since 1950: How has thinking changed? In R. E. Evenson & P. Pingali (Eds.), *Handbook of agricultural economics: Agricultural development: Farmers, farm production and farm markets* (Vol. 3, pp. 2807–2855). Elsevier. [https://doi.org/10.1016/S1574-0072\(06\)03055-6](https://doi.org/10.1016/S1574-0072(06)03055-6)

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- Reardon, T., Barrett, C. B., Berdegue, J. A., & Swinnen, J. F. M. (2009). Agrifood industry transformation and small farmers in developing countries. *World Development*, 37(11), 1717–1727. <https://doi.org/10.1016/j.worlddev.2008.08.023>
- Rosário, A. T., & Dias, J. C. (2022). Sustainability and the digital transition: A literature review. *Sustainability*, 14(7), 4072. <https://doi.org/10.3390/su14074072>
- Ros-Tonen, M. A. F., Bitzer, V., Laven, A., de Leth, D. O., Van Leynseele, Y., & Vos, A. (2019). Conceptualizing inclusiveness of smallholder value chain integration. *Current Opinion in Environmental Sustainability*, 41, 10–17. <https://doi.org/10.1016/j.cosust.2019.08.006>
- Safarian, S., Unnþórsson, R., & Richter, C. (2019). A review of biomass gasification modelling. *Renewable and Sustainable Energy Reviews*, 110, 378–391. <https://doi.org/10.1016/j.rser.2019.05.003>
- Sandhu, H. (2021). Bottom-up transformation of agriculture and food systems. *Sustainability*, 13(4), 2171. <https://doi.org/10.3390/su13042171>
- Satoto, S., Nuriyatman, E., Mushawirya, R., Mujib, M. M., & Haq, M. I. (2024). Revitalization of village-owned enterprises to strengthen the community economy in Indonesia: Between policy and prosperity. *Jambe Law Journal*, 7(2), 509–537. <https://doi.org/10.22437/home.v7i2.364>
- Schultmann, F., Zumkeller, M., & Rentz, O. (2006). Modeling reverse logistic tasks within closed-loop supply chains: An example from the automotive industry. *European Journal of Operational Research*, 171(3), 1033–1050. <https://doi.org/10.1016/j.ejor.2005.01.016>
- Sia, R., Darma, R., Salman, D., & Riwu, M. (2025). Sustainability assessment of the arabica coffee agribusiness in North Toraja: Insight from a multidimensional approach. *Sustainability*, 17(5), 2167. <https://doi.org/10.3390/su17052167>
- Sidibé, A., Olabisi, L. S., Doumbia, H., Toure, K., & Niamba, C. A. (2021). Barriers and enablers of the use of digital technologies for sustainable agricultural development and food security: Learning from cases in Mali. *Elementa: Science of the Anthropocene*, 9(1), 00106. <https://doi.org/10.1525/elementa.2020.00106>
- Singh, P. K., & Chudasama, H. (2020). Evaluating poverty alleviation strategies in a developing country. *PLOS ONE*, 15(1), e0227176. <https://doi.org/10.1371/journal.pone.0227176>
- Sohad, M. K. N., & Mafrolla, E. (2025). Bridging science and society: The integration of indigenous and scientific knowledge management. *Journal of Knowledge Management*, 29(7), 2258–2284. <https://doi.org/10.1108/JKM-11-2024-1326>
- Šumane, S., Kunda, I., Knickel, K., Strauss, A., Tisenkopfs, T., des los Rios, I., Rivera, M., Chebach, T., & Ashkenazy, A. (2018). Local and farmers' knowledge matters! How integrating informal and formal knowledge enhances sustainable and resilient agriculture. *Journal of Rural Studies*, 59, 232–241. <https://doi.org/10.1016/j.jrurstud.2017.01.020>
- Sumuni, C. (2019). Sustainability performance in supply chain of dairy products: Examining the constraints of dairy sector using value chain approach in northern regions, Tanzania. *European Journal of Business and Management*, 11(32), 81–88. <https://doi.org/10.7176/EJBM/11-32-11>
- Sundram, P. (2023). Food security in ASEAN: Progress, challenges and future. *Frontiers in Sustainable Food Systems*, 7, 1260619. <https://doi.org/10.3389/fsufs.2023.1260619>
- Syaiful, S. A., Mantja, K., Faisal, F., Irmayanti, I., Khaerani, P. I., & Anshori, M. F. (2025). Synergistic effects of hormonal priming and *Trichoderma asperellum* on the morphological and physiological traits of true shallot seeds. *Sarhad Journal of Agriculture*, 41(2), 796–806. <https://doi.org/10.17582/journal.sja/2025/41.2.796.806>
- Tarannum, T., & Hossain, M. Z. (2024). Impact of real-time MIS on supply chain management: A case study approach. *Pacific Journal of Business Innovation and Strategy*, 1(1), 38–48. <https://doi.org/10.70818/pjbis.2024.v01i01.013>
- Thiele, G., Devaux, A., Reinoso, I., Pico, H., Montesdeoca, F., Pumisacho, M., Andrade-Piedra, J., Velasco, C., Flores, P., & Esprella, R. (2011). Multi-stakeholder platforms for linking small farmers to value chains: Evidence from the Andes. *International Journal of Agricultural Sustainability*, 9(3), 423–433. <https://doi.org/10.1080/14735903.2011.589206>
- Thiollet-Scholtus, M., Muller, A., Abidon, C., Grignon, J., Keichinger, O., Koller, R., Langenfeld, A., Ley, L., Nassr, N., & Rabolin-Meinrad, C. (2021). Multidimensional assessment demonstrates sustainability of new low-input viticulture systems in north-eastern France. *European Journal of Agronomy*, 123, 126210. <https://doi.org/10.1016/j.eja.2020.126210>
- Tombe, R., & Smuts, H. (2023). Agricultural social networks: An agricultural value chain-based digitalization framework for an inclusive digital economy. *Applied Sciences*, 13(11), 6382. <https://doi.org/10.3390/app13116382>
- Van Phong, V., Valenghi, D., & Giang, N. L. (2011). Promotion of organic cocoa in mixed farming system in the Mekong Delta region: A preliminary analysis. In M. A. Stewart & P. A. Coclanis (Eds.), *Environmental change and agricultural sustainability in the Mekong Delta* (pp. 399–410). Springer. https://doi.org/10.1007/978-94-007-0934-8_22
- Varyvoda, Y., & Taren, D. (2022). Considering ecosystem services in food system resilience. *International Journal of Environmental Research and Public Health*, 19(6), 3652. <https://doi.org/10.3390/ijerph19063652>
- Volckaert, E., Schillebeeckx, E., & De Decker, P. (2021). Beyond nostalgia: Older people's perspectives on informal care in rural Flanders. *Journal of Rural Studies*, 87, 444–454. <https://doi.org/10.1016/j.jrurstud.2020.07.006>
- Vroegindewey, R., & Hobdod, J. (2018). Resilience of agricultural value chains in developing country contexts: A framework and assessment approach. *Sustainability*, 10(4), 916. <https://doi.org/10.3390/su10040916>
- Wahbeh, S., Anastasiadis, F., Sundarakani, B., & Manikas, I. (2022). Exploration of food security challenges towards more sustainable food production: A systematic literature review of the major drivers and policies. *Foods*, 11(23), 3804. <https://doi.org/10.3390/foods11233804>
- Wang, H., Strock, J., Ranaivoson, A., & Ishii, S. (2024). Bioremediation of nitrate in agricultural drainage ditches: Impacts of low-grade weirs on microbiomes and nitrogen cycle gene abundance. *Science of the Total Environment*, 955, 177070. <https://doi.org/10.1016/j.scitotenv.2024.177070>

Citation: Arsyad, M., Daulay, P., Kurniawan, R., Mayasari, D., Sulaiman, A.A., Umanailo, M.C.B., Bahrun, A.H., Nuddin, A., Fudjaja, L., Khaerati, R., Nishantha, B., & Anshori, M.F. (2026). Economic transformation in agricultural value chains: An analysis of supply chain dynamics and socio-cultural dimensions. *Agrobiological Records*, 26, 81–104. <https://doi.org/10.47278/journal.abr/2026.085>

- Wang, H., Wang, X., Sarkar, A., & Qian, L. (2021). Evaluating the impacts of smallholder farmer's participation in modern agricultural value chain tactics for facilitating poverty alleviation—A case study of kiwifruit industry in Shaanxi, China. *Agriculture*, 11(5), 462. <https://doi.org/10.3390/agriculture11050462>
- Wang, H., Wang, X., Sarkar, A., & Zhang, F. (2021). How capital endowment and ecological cognition affect environment-friendly technology adoption: A case of apple farmers of Shandong province, China. *International Journal of Environmental Research and Public Health*, 18(14), 7571. <https://doi.org/10.3390/ijerph18147571>
- Wang, H., Zhang, X., & Lan, Y. (2019). Research on cold chain logistics based on environmentally friendly rural one, two and three industry integration development. *IOP Conference Series: Earth and Environmental Science*, 252(4), 042040. <https://doi.org/10.1088/1755-1315/252/4/042040>
- Wang, J., Cramer, G. L., & Wailes, E. J. (1996). Production efficiency of Chinese agriculture: Evidence from rural household survey data. *Agricultural Economics*, 15(1), 17–28. <https://doi.org/10.1111/j.1574-0862.1996.tb00417.x>
- Wang, M., Sun, J., & Pei, H. (2016). Construction and evaluation of modern agricultural processing mode based on four attributes. *Transactions of the Chinese Society of Agricultural Engineering*, 32(11), 1–7. <https://doi.org/10.11975/j.issn.1002-6819.2016.11.001>
- Wang, S., & Yang, L. (2024). Mineral resource extraction and resource sustainability: Policy initiatives for agriculture, economy, energy, and the environment. *Resources Policy*, 89, 104657. <https://doi.org/10.1016/j.resourpol.2024.104657>
- Wang, X., Xu, W., Zheng, Y., Yang, S., Liu, X., Su, D., & Wang, Z. (2025). Current status and development trend of low-altitude economy industry in orchards. *Smart Agriculture*, 7(6), 35–57. <https://doi.org/10.12133/j.smartag.SA202506008>
- Wang, X., Zeng, Y., Wang, P., Ye, M., Wang, D., & Lv, G. (2025). Scale effects of spatial patterns of ecosystem services in the Tarim River Basin in Central Asia. *Environmental Monitoring and Assessment*, 197(3), 241. <https://doi.org/10.1007/s10661-025-13701-7>
- Wang, Y., Lulu, Q., Xufeng, C., Yanying, Y., & Zhou, L. (2024). New quality productivity and rural green development: New industrial morphology cultivation and new path exploration. *Journal of Agricultural Resources and Environment*, 41(5), 991–996. <https://doi.org/10.13254/j.jare.2024.0391>
- Wang, Y., Morkūnas, M., & Wei, J. (2024). Mapping the landscape of climate-smart agriculture and food loss: A bibliometric and bibliographic analysis. *Sustainability*, 16(17), 7742. <https://doi.org/10.3390/su16177742>
- Weersink, A., Von Massow, M., Bannon, N., Ifft, J., Maples, J., McEwan, K., McKendree, M. G. S., Nicholson, C., Novakovic, A., & Rangarajan, A. (2021). COVID-19 and the agri-food system in the United States and Canada. *Agricultural Systems*, 188, 103039. <https://doi.org/10.1016/j.agsy.2020.103039>
- Widiyani, N., Anshori, M. F., Nasaruddin, N., Farid, M., Ridwan, I., Bahrūn, A. H., Azrai, M., Nur, A., Khaerani, P. I., & Suwarno, W. B. (2025). A new approach for evaluating maize transgressive segregants and their three-way cross potential in the s4 convergent breeding population. *BMC Plant Biology*, 25(1), 122. <https://doi.org/10.1186/s12870-025-06103-x>
- Yang, Z.-Y., Xia, W.-K., Chu, H.-Q., Su, W.-H., Wang, R.-F., & Wang, H. (2025). A comprehensive review of deep learning applications in cotton industry: From field monitoring to smart processing. *Plants*, 14(10), 1481. <https://doi.org/10.3390/plants14101481>
- Zhai, T., Liu, J., & Wang, D. (2023). Optimization path of agricultural products marketing channel based on innovative industrial chain. *Economic Change and Restructuring*, 56(6), 3949–3977. <https://doi.org/10.1007/s10644-023-09495-8>
- Zhuang, F., Chen, X., Horata, P., & Sunat, K. (2025). Research on hybrid architecture neural networks for time series prediction. *IEEE Access*, 13, 101507–101531. <https://doi.org/10.1109/ACCESS.2025.3578325>

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