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# Global Trends, Collaboration Networks, and Emerging Themes in Agripreneurship Research: A Bibliometric Analysis (2015–2025)

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# Global Trends, Collaboration Networks, and Emerging Themes in Agripreneurship Research: A Bibliometric Analysis (2015–2025)

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## Highlights

- Bibliometric mapping of 190 Web of Science articles on agripreneurship (2015–2025), combining performance analysis, collaboration networks at three levels, and keyword-based thematic evolution.
- The USA, UK, China and India are the dominant contributors; collaboration networks are regionally clustered, with limited South–South ties.
- Three thematic clusters (entrepreneurial behaviour and innovation; agriculture, rural development and sustainability; policy and enabling environments) are integrated into the Three-Level Agripreneurship Ecosystem Framework (TAEF).
- Five testable propositions and an evidence-linked research agenda address ecosystem measurement, digitalisation, sustainability outcomes, gender and social inclusion, and research collaboration.

## Abstract

**Purpose**: Agricultural entrepreneurship, or agripreneurship, has grown quickly as a field of study, yet its intellectual structure remains fragmented. This study maps the growth trajectory, collaboration architecture and thematic evolution of the global agripreneurship literature indexed in the Web of Science Core Collection (2015–2025) and synthesises the results in an integrative conceptual framework.

**Design/Methodology/Approach**: Of 663 records initially retrieved, 190 peer-reviewed articles were retained after a PRISMA-aligned screening procedure. VOSviewer was used for performance analysis and science mapping: publication trends, co-authorship networks (country, institution and author levels), keyword co-occurrence mapping and temporal overlay visualisation. The mapped structure was then interpreted through an entrepreneurial-ecosystem lens to develop the Three-Level Agripreneurship Ecosystem Framework (TAEF). Data cleaning and standardisation protocols preceded all analyses.

**Findings**: Annual output rose from 4 articles in 2015 to 18 in 2020, and a further 128 articles appeared in 2021–2025 (about 67% of the corpus). China, India, the United States and the United Kingdom lead in publication share, and collaboration networks are strongly regionally clustered at national, institutional and author levels. Keyword co-occurrence mapping yields three clusters: (1) entrepreneurial behaviour and innovation; (2) agriculture, rural development and sustainability; and (3) institutions, policy and enabling environments. Temporal analysis shows a shift from enterprise-centric studies (2015–2018), through sustainability-integrated work (2019–2021), to ecosystem-oriented perspectives (2022–2025).

**Research Limitations/Implications**: The study relies on one database (the WoS Core Collection) and on English-language peer-reviewed articles, so grey literature, conference proceedings, non-English work and records indexed only elsewhere are excluded. The analysis is descriptive-structural, and the proposed framework is an interpretive synthesis whose propositions require empirical testing.

**Practical/Policy Implications**: The study identifies the need for standardised ecosystem metrics, longitudinal evidence, greater attention to gender and social inclusion, and stronger South–South research collaboration, and links each gap to a proposed research direction. These carry direct implications for designing evidence-based agripreneurship support systems that combine capability building with enabling-environment reform.

**Originality/Value**: Earlier bibliometric surveys addressed rural entrepreneurship broadly or ended before the post-2020 surge in publications. This study maps agripreneurship specifically for 2015–2025, adds country-, institution- and author-level collaboration networks with temporal overlays, and moves beyond description by proposing the TAEF, five testable propositions and an evidence-linked research agenda.

**Keywords:** Agripreneurship; agricultural entrepreneurship; bibliometric analysis; VOSviewer; co-authorship networks; keyword co-occurrence; rural development; sustainability; entrepreneurial ecosystems; conceptual framework

**Paper type**: Research paper

## 1. Introduction

It has long been acknowledged that agriculture is essential to rural livelihoods, food security, and economic expansion (Dias et al., 2019; Fitz-Koch et al., 2018). However, due to globalization, technological disruption, climate change, and shifting consumer demands, the industry has experienced substantial structural changes in recent decades that have fundamentally expanded the traditional boundaries of agricultural activity beyond subsistence and primary production (Lans et al., 2017; Gellynck et al., 2015). In this dynamic environment, agripreneurship—which is defined as applying risk-taking, market-oriented, and entrepreneurial principles to agricultural and agri-allied value chains—has become a vital instrument for boosting productivity, encouraging rural innovation, and facilitating sustainable development (Cheriet et al., 2020; Mcelwee, 2006).

Agriculture has always been marginalized by the idea that it is a distinct area requiring research beyond traditional entrepreneurship theory (Alsos et al., 2011). Complex market restrictions, significant input cost volatility, and structural limitations like unstable land tenure have all

contributed to this difference. However, when it comes to choosing how to distribute assets in the face of uncertainty, spotting and seizing market opportunities, creating novel production and processing methods, and diversifying revenue streams, farmers have always behaved primarily in an entrepreneurial manner (Vesala and Pyysiäinen, 2008; Seuneke et al., 2013). The relevance of entrepreneurial solutions in the agricultural industry has only grown due to new supply- and demand-side pressures, such as the swift growth of digital agri-markets, laws pertaining to climate-smart agriculture, and evolving food safety standards. (Lans et al., 2017; Secinaro et al., 2022).

Farm diversification and value-added processing, agri-tourism and rural enterprise development, agribusiness start-ups and cooperative enterprise models, adoption of digital and precision agriculture, and participation in international agricultural value chains are just a few of the many activities that fall under the broad category of agripreneurship (Barbieri and Mahoney, 2009; Cheng et al., 2024). Because it generates jobs in rural areas, boosts community economic resilience, lowers post-harvest losses, encourages technological diffusion, and provides immediate financial rewards, agribusiness is a key component of sustainable rural transformation (Fitz-Koch et al., 2018; Martinho, 2020). Academic interest in agricultural entrepreneurship has grown as governments and international development organizations have presented it as a means of achieving the Sustainable Development Goals (Arafat et al., 2020; Salam et al., 2025).

The ensuing literature is marked by significant fragmentation despite this increasing scholarly dedication. Numerous academic fields, including agricultural economics, rural sociology, management and entrepreneurship, development studies, and sustainability science, have conducted research on agripreneurship. Numerous theoretical frameworks, inconsistent language, disparate empirical methodologies, and minimal cross-study synthesis result from this (Cheriet et al., 2020; Boye et al., 2022). This makes it challenging for policymakers seeking evidence-based guidance and academics seeking to place new research to have a thorough understanding of the field's creative frontiers and intellectual architecture.

As a rigorous and impartial method for the methodical assessment of substantial amounts of scientific literature, bibliometric analysis has received widespread acceptance (Donthu et al., 2021). By applying statistical and network-analytic techniques to bibliographic metadata, such as authorship, citations, institutional affiliations, keywords, and journal data, bibliometric techniques enable the delineation of publication trajectories, major contributors, thematic clusters, and patterns of collaboration beyond the constraints of traditional narrative reviews (Aria and Cuccurullo, 2017; Zupic and Čater, 2015). It has been effectively used to produce field-level knowledge to guide future research expenditures in management, agriculture, and rural development research.

This study makes three contributions. First, it provides an agripreneurship-specific bibliometric map of the 2015–2025 decade, a period that includes the post-2020 acceleration of research, and documents the collaboration architecture of the field at country, institution and author levels. Second, it traces the temporal evolution of themes and shows that research attention has moved from the individual entrepreneur, through sustainability outcomes, towards the enabling environment and the ecosystem. Third, it integrates these results into the Three-Level Agripreneurship Ecosystem Framework (TAEF), from which five propositions and an evidence-linked research agenda are derived. The framework responds to repeated observations

that theory building in the rural entrepreneurship literature remains underdeveloped (Pato and Teixeira, 2016; Masoomi et al., 2024).

The remainder of this paper is organised as follows. Section 2 presents the theoretical background, prior reviews and the research gap. Section 3 sets out the research questions and objectives. Section 4 describes the methodology. Section 5 reports the results. Section 6 discusses the findings, presents the TAEF framework and propositions, and sets out the research agenda and implications. Section 7 concludes.

## 2. Theoretical Background and Research Gap

### 2.1 The Conceptual Landscape of Agripreneurship

Agripreneurship's conceptual foundations are derived from classical entrepreneurship theory, particularly opportunity recognition (Venkataraman, 1997), risk-taking under uncertainty (Knight, 1921), and Schumpeterian creative destruction, which are applied to the unique institutional and ecological contexts of agricultural systems (Alsos et al., 2011; Fitz-Koch et al., 2018). (Mcelwee, 2006) created an early typology with a focus on organic, rural, and innovative operations to differentiate between conventional farmers and agricultural entrepreneurs. According to De Lauwere (2005), Dutch agriculture has three primary entrepreneurial traits: market responsiveness, innovation potential, and strategic orientation. Fitz-Koch et al. (2018) presented the most methodical approach to date with a multilayer conceptual framework that integrates organisational, contextual, and human aspects of agribusiness.

Individual-level factors have increasingly been superseded in the study of how institutional contexts, social embeddedness, and network dynamics influence entrepreneurial potential (Discua Cruz et al., 2013; Kalantaridis and Bika, 2006). The Entrepreneurial Ecosystem (EE) perspective, which emphasises the systemic interactions between actors, resources, and institutions that collectively stimulate venture creation (Isenberg, 2011; Mason and Brown, 2014), has recently been applied to agripreneurship contexts, opening up productive new research avenues (Cheriet et al., 2020; Boye et al., 2022). Agripreneurship research has recently focused on digitalisation trends, such as the integration of e-commerce markets, blockchain-enabled supply chain transparency, and AI-assisted decision-making (Cheng et al., 2024; Javaid et al., 2023).

### 2.2 Prior Reviews and Positioning of the Present Study

Several earlier studies have reviewed agricultural and rural entrepreneurship, and this study builds on them (Table 1). Fitz-Koch et al. (2018) offered a narrative review of more than two decades of research on entrepreneurship in the agricultural sector and proposed a multilayer framework. Dias et al. (2019) combined a systematic review with co-word bibliometric analysis and grouped agricultural entrepreneurship research into three streams: entrepreneurial skills and behaviour, entrepreneurial strategies, and community and entrepreneurial activity. Pato and Teixeira (2016) surveyed 181 Scopus-indexed articles on rural entrepreneurship, and Masoomi et al. (2024) analysed 772 rural entrepreneurship articles published between 1981 and 2020 in Scopus and Web of Science. Boye et al. (2022) mapped agripreneurship studies in developing countries, Cheriet et al. (2020) provided an editorial synthesis, and Salam et al. (2025) conducted a systematic literature review organised by predefined topic categories.

**Table 1. Earlier Reviews and Bibliometric Surveys on Agripreneurship and Rural Entrepreneurship, and the Position of the Present Study**

| Study | Focus and period | Method and data | Main contribution | Relation to the present study |
|---|---|---|---|---|
| **Pato and Teixeira (2016)** | Rural entrepreneurship; Scopus records until March 2013 | Bibliometric survey; 181 articles; Scopus | Rural entrepreneurship described as largely European; theory building scarce | Predates 2015; rural rather than agricultural entrepreneurship |
| **Fitz-Koch et al. (2018)** | Entrepreneurship in the agricultural sector; more than 20 years | Narrative literature review | Multilayer framework (organisational, contextual and human aspects); future research opportunities | Qualitative; the present study is quantitative and covers 2015–2025 |
| **Dias et al. (2019)** | Agricultural entrepreneurship: literature published before 2018 | Systematic review with co-word bibliometric technique | Three streams: skills and behaviour; strategies; community and entrepreneurial activity | Predates the post-2020 surge; the present study adds collaboration networks, temporal overlay and a framework |
| **Cheriet et al. (2020)** | Agricultural entrepreneurship; challenges and perspectives | Editorial synthesis | Themes and perspectives for the field | Not bibliometric |
| **Boye et al. (2022)** | Agripreneurship in developing countries (Africa and Asia) | Systematic mapping | Research directions and gaps | Developing-country scope; the present study is global |
| **Masoomi et al. (2024)** | Rural entrepreneurship; 1981–2020 | Bibliometric analysis; 772 articles; Scopus and WoS | Largely European concern; theory building understudied; mostly empirical studies of high-income countries | Rural rather than agri-specific; ends in 2020 |
| **Salam et al. (2025)** | Agricultural entrepreneurship; prospects | Systematic literature review | Prospects organised by predefined topic categories | Thematic review: the present study maps the indexed corpus bibliometrically |

| Study | Focus and period | Method and data | Main contribution | Relation to the present study |
|---|---|---|---|---|
| **Present study** | Agripreneurship; 2015–2025 | PRISMA-aligned screening; WoS; n = 190; VOSviewer performance analysis and science mapping | Three-level collaboration networks; three clusters; three-phase evolution; TAEF; five propositions; research agenda | Agripreneurship-specific, covers the post-2020 surge, adds an ecosystem framework |

Source: authors' compilation from the cited studies.

Three points follow from Table 1. First, the bibliometric surveys either cover rural entrepreneurship broadly (Pato and Teixeira, 2016; Masoomi et al., 2024) or stop before the recent surge in agripreneurship publications (Dias et al., 2019), so the 2015–2025 decade has not been mapped for agripreneurship specifically. Second, to our knowledge, these studies do not report country-, institution- and author-level collaboration networks for agripreneurship together with a temporal overlay of themes. Third, the two bibliometric surveys of rural entrepreneurship both conclude that theory building is underdeveloped, and none of the bibliometric studies in Table 1 integrates the thematic structure of agripreneurship research into a framework that can guide empirical work. The present study is therefore positioned as complementary to these works rather than as the first of its kind.

### 2.3 Research Gap

This study addresses four gaps. First, agripreneurship has not been mapped specifically for the 2015–2025 decade, which includes the post-2020 acceleration in research output; earlier bibliometric surveys addressed rural entrepreneurship broadly or ended earlier (Table 1). Second, the geography of knowledge production is not described: patterns of international and inter-institutional collaboration, and the identities of under-represented research communities, remain obscured. Third, the temporal shift towards sustainability- and ecosystem-centred perspectives has not been documented with chronological science-mapping overlays. Fourth, earlier bibliometric surveys report that theory building is underdeveloped, yet no bibliometric study of this field has integrated its thematic structure into a framework that can guide future empirical work. The present study addresses these gaps with an integrated bibliometric design and an interpretive synthesis (Section 6.4).

## 3. Research Questions and Objectives

### 3.1 Research Questions

The study is guided by the following five research questions:

RQ1: How has agripreneurship research evolved in terms of publication volume and growth rate between 2015 and 2025?

RQ2: Which countries, institutions, and authors have contributed most to agripreneurship research, and what are the patterns of collaboration among them?

RQ3: What are the dominant thematic clusters within the global agripreneurship literature?

RQ4: How have research themes in agripreneurship evolved, particularly with respect to sustainability and entrepreneurial ecosystems?

RQ5: What critical research gaps and future directions emerge from the intellectual and thematic structure of the literature, and how can the clusters be integrated into a framework that guides future research?

### 3.2 Research Objectives

To address the research questions above, the study pursues six specific objectives:

O1. To analyse the temporal growth of agripreneurship research publications over the study period.

O2. To identify the most influential countries, institutions, authors, and journals contributing to the field.

O3. To map co-authorship collaboration networks at country, institution, and author levels.

O4. To identify major thematic clusters in agripreneurship research using keyword co-occurrence analysis.

O5. To document the temporal evolution of research themes using chronological overlay visualisation.

O6. To systematically identify research gaps, synthesise the findings in an integrative conceptual framework (TAEF), and propose evidence-linked future research directions.

## 4. Methodology

### 4.1 Research Design

Based on a bibliometric research design, this study offers a thorough assessment of the intellectual framework and thematic evolution of the worldwide agripreneurship literature by combining science mapping with quantitative performance analysis. According to Donthu et al. (2021) and Aria and Cuccurullo (2017), bibliometric analysis is a well-established, transparent, and replicable method of synthesising huge scholarly corpora that enables the objective discovery of research trends that cannot be found by narrative review alone. The study adheres to the methodological framework put forth by Donthu et al. (2021), which proposes a methodical two-phase approach that consists of: (1) science mapping, which looks at the intellectual and social structure of the field; and (2) performance analysis, which measures the research output, citations, and major contributors.

### 4.2 Data Source and Search Strategy

Data were retrieved from the Web of Science (WoS) Core Collection — the gold-standard database for bibliometric research, recognised for its rigorous indexing standards, high coverage of peer-reviewed journals, and availability of comprehensive citation metadata (Donthu et al., 2021).

A structured, multi-term Boolean search query was developed based on conceptual mapping of the agripreneurship domain from prior literature (Fitz-Koch et al., 2018; Cheriet et al., 2020), incorporating terminological variants used across different research communities:

TS = (agripreneurs OR "agripreneurship" OR "agriculture entrepreneurship" OR "agricultural entrepreneurship" OR "farm entrepreneurship" OR "rural entrepreneurship" OR "agribusiness entrepreneurship" OR "agricultural entrepreneur*" OR "farm entrepreneur*" OR "rural entrepreneur*")

The field's changing lexicon throughout its early stages of growth prompted the intentional inclusion of larger terminological alternatives (e.g., farm entrepreneurship, rural entrepreneurship). This approach guarantees thorough retrieval and lowers the possibility of methodically excluding works that are conceptually relevant but have different terminology. To guarantee conceptual alignment with agripreneurship as described in this study, all recovered records were then put through a thorough screening process.

The decision to use a single database was deliberate. Combining Web of Science and Scopus records requires reconciling different field tags, keyword indexing, author-name disambiguation and affiliation formats, and imperfect reconciliation can distort co-authorship and keyword networks. The WoS Core Collection offers consistent metadata, curated journal selection and standardised cited-reference records, which supports transparent and reproducible network analysis. The trade-off is narrower coverage than a multi-database design; this is acknowledged in Section 7, and the framework proposed in Section 6.4 is accordingly presented as an interpretation of the WoS-indexed literature that should be tested against other sources.

### 4.3 Screening and Data Refinement

The multi-stage screening technique followed an organized procedure in line with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, which was adapted for bibliometric research (see Table 2). An initial retrieval of 663 records was subjected to a variety of temporal (2015–2025), language (English), and document-type filters, yielding 484 records. Titles and abstracts were then carefully selected using predefined relevance criteria to confirm conceptual fit with agripreneurship. Publications that solely addressed non-agricultural rural entrepreneurship without any agripreneurial elements were excluded. Following duplicate removal and data cleaning, which included standardizing author names, keywords, country affiliations, and institutional names, the final analytical dataset comprised 190 peer-reviewed papers.

**Table 2. PRISMA-Aligned Screening Protocol — Record Counts at Each Stage**

| Stage | Criterion/Action | Records |
|---|---|---|
| Initial retrieval — WoS Core Collection | Topic (TS) search; string applied to titles, abstracts and keywords | 663 |
| Temporal filter | 2015–2025 only | 521 |
| Language filter | English-language only | 498 |
| Document type filter | Peer-reviewed articles only (excluded: proceedings, | 484 |

| | | |
|---|---|---|
| | book reviews, editorials, corrections) | |
| Manual title & abstract screening | Conceptual alignment with agripreneurship; excluded: purely general rural/non-agricultural entrepreneurship | 220 |
| Duplicate removal & data cleaning | Standardisation of author names, keywords, and affiliations | 190 |
| **Final analytical dataset** | **Retained for bibliometric analysis** | **190** |

### 4.4 Analytical Techniques

The study integrates two complementary bibliometric approaches, following Donthu et al. (2021). Performance analysis evaluated publication trends, leading countries, institutions, authors, journals, and citation patterns. Science mapping, conducted using VOSviewer (version 1.6.20; Van Eck and Waltman, 2010), examined the intellectual and social structure of the field through three network analyses:

- Co-authorship network analysis at country, institutional, and author levels, with minimum co-authorship thresholds set at 3 documents (countries), 2 documents (institutions), and 2 documents (authors) to ensure network interpretability.
- Keyword co-occurrence analysis using author-supplied keywords, with a minimum keyword occurrence threshold of 3, to identify dominant thematic clusters.
- Temporal overlay visualisation applying average publication year colouring (blue = earlier; yellow = more recent) to document thematic evolution across the study period.
- Interpretive synthesis: cluster content, temporal overlays, collaboration structure, journal distribution and the most-cited knowledge base were triangulated to build the TAEF (Section 6.4). A Theories–Contexts–Characteristics–Methods (TCCM) logic (Paul and Criado, 2020) was used to organise the research agenda (Table 8), and Table 7 shows the link between each framework component and the evidence.

All network visualisations were generated using VOSviewer's force-directed layout algorithm, ensuring that spatial proximity reflects the strength of co-occurrence. Network modularity was assessed to validate the robustness of cluster identification. Full reproducibility is ensured through the reporting of search strings, retrieval dates, software versions, and threshold parameters.

### 4.5 Reliability and Validity

Some protocols were implemented to ensure methodological rigour. To increase data dependability, the WoS Core Collection, which uses stringent indexing criteria, and meticulous data cleaning were employed. Construct validity was ensured by basing the search strategy on published literature and refining it through pilot searches. Numerous complementary analytical

methods (co-authorship analysis, keyword co-occurrence, citation analysis, temporal overlay) were employed to produce convergent evidence and triangulate results. Open publishing of all methodological decisions enables replication and independent verification.

The interpretive framework in Section 6.4 is not derived statistically; it is a theory-informed reading of the bibliometric structure. Its mapping to the evidence is shown explicitly in Table 7, and its propositions are framed as hypotheses for future empirical tests rather than as findings.

## 5. Results

### 5.1 Publication Trends (RQ1)

A distinct growth trend across the study period can be seen in the temporal distribution of agripreneurship publications (Table 3). Annual output rose from four articles in 2015 to 18 in 2020, a compound annual growth rate of roughly 35% over five years, and a further 128 articles were published across 2021–2025; together these account for about 67% of the corpus (cumulative total: 190). The development curve therefore has two phases: a gradual climb from 4 to 14 publications a year between 2015 and 2019, and an acceleration from 2020.

The increase in interest after 2020 is plausibly associated with several factors, although a bibliometric design cannot establish causality: (1) the COVID-19 pandemic revealed weaknesses in food supply chains and sparked policy interest in agricultural enterprise resilience; (2) the mainstreaming of Sustainable Development Goals (SDGs) frameworks that place agricultural entrepreneurship in the service of SDG-2 (Zero Hunger), SDG-8 (Decent Work and Economic Growth), and SDG-12 (Responsible Consumption and Production); and (3) the emergence of digital and precision agriculture technologies, which provided new frameworks for entrepreneurial transformation in emerging and transitional economies.

**Table 3. Annual and Cumulative Publication Trends in Agripreneurship Research, 2015–2025 (n = 190)**

| 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021–25 |
|---|---|---|---|---|---|---|
| **Annual publications** | | | | | | |
| 4 | 6 | 9 | 11 | 14 | 18 | 128 |
| **Cumulative total** | | | | | | |
| 4 | 10 | 19 | 30 | 44 | 62 | 190 |

### 5.2 Journal Distribution and Disciplinary Orientation

Table 4 presents the top ten productive journals in the agripreneurship literature. Sustainability leads overall with 27 publications (14.2% of the corpus) followed by the Journal of Rural Studies (14 publications; 7.4%). Eight articles each (4.2%) have been published in Frontiers in Sustainable Food Systems and the Indian Journal of Agricultural Sciences. The British Food Journal (5; 2.6%), Land Use Policy (4; 2.1%) and the International Journal of Entrepreneurial Behaviour & Research (3; 1.6%) complete the top tier.

Theoretically, this distributional pattern is enlightening. A paradigm shift toward ecosystem-oriented and sustainability-integrated agripreneurship frameworks is supported by the temporal

keyword analysis, and the predominance of Sustainability as the primary outlet shows how agripreneurship research is becoming more and more integrated into sustainability science discourse. The significance of rural development and spatial context for agribusiness research is demonstrated by the Journal of Rural Studies' second-place ranking. One of the top journals, the International Journal of Entrepreneurial Behaviour & Research, demonstrates the field's gradual assimilation into popular entrepreneurship discourse and its triumph against previous marginalisation (Alsos et al., 2011). A caveat applies: because Sustainability alone accounts for 14.2% of the corpus, part of the field's apparent sustainability orientation may reflect where the work is published rather than only what it studies, and the sustainability-related findings in Sections 5.7 and 5.8 should be read with this in mind.

**Table 4. Top 10 Most Productive Journals in Agripreneurship Research, 2015–2025**

| Rank | Journal | Publications(n) | Share (%) |
|---|---|---|---|
| **1** | Sustainability | 27 | 14.2 |
| **2** | Journal of Rural Studies | 14 | 7.4 |
| **3** | Frontiers in Sustainable Food Systems | 8 | 4.2 |
| **4** | Indian Journal of Agricultural Sciences | 8 | 4.2 |
| **5** | Heliyon | 6 | 3.2 |
| **6** | British Food Journal | 5 | 2.6 |
| **7** | Frontiers in Psychology | 4 | 2.1 |
| **8** | Land Use Policy | 4 | 2.1 |
| **9** | SAGE Open | 4 | 2.1 |
| **10** | International Journal of Entrepreneurial Behaviour & Research | 3 | 1.6 |

### 5.3 Citation Analysis and Foundational Literature

Table 5 lists the ten most-cited works in the knowledge base on which agripreneurship research draws, with their Web of Science citation counts. Together they outline the theoretical canon of the field. Dias et al.'s (2019) review in the Journal of Rural Studies leads with 127 WoS citations, which confirms the demand for synthetic treatments of the field; the present study updates that line of work for 2015–2025 and extends it with collaboration networks and an integrative framework (Section 6.4). The second most cited work, a multi-region assessment of agricultural mechanisation services by Van Loon et al. (2020), reflects the field's practical orientation and its links to smallholder development programmes. Several works in Table 5

were published before 2015; they are therefore best read as foundational references on which the 2015–2025 literature draws, rather than as members of the 190-article analytical dataset.

A thematic reading of these works reveals four foundational knowledge pillars: entrepreneurship theory in agricultural contexts (Alsos et al., 2011; Mcelwee, 2006; Venkataraman, 1997); farm diversification and rural enterprise strategies (Barbieri and Mahoney, 2009; Mayer et al., 2016); entrepreneurial ecosystem and embeddedness theory (Discua Cruz et al., 2013; Kalantaridis and Bika, 2006); and technology and digital transformation in agriculture (Javaid et al., 2023). These pillars collectively define the multi-theoretic architecture of contemporary agripreneurship research and map onto the levels and layers of the framework proposed in Section 6.4.

**Table 5. Ten Most-Cited Works in the Knowledge Base of Agripreneurship Research (WoS Citation Counts)**

| Rank | Article | Source | Wos Citation |
|---|---|---|---|
| 1 | Dias, Rodrigues & Ferreira (2019) — What's new in the research on agricultural entrepreneurship? | J. Rural Stud. | 127 |
| 2 | Van Loon et al. (2020) — Scaling agricultural mechanisation services in smallholder farming systems | Agric. Syst. | 121 |
| 3 | Alsos et al. (2011) — Introduction: Researching entrepreneurship in agriculture and rural development | Handbook (Edward Elgar) | 92 |
| 4 | Mayer et al. (2016) — Rural–urban linkages and sustainable regional development: the role of entrepreneurs in linking peripheries and centers | Sustainability | 83 |
| 5 | Barbieri & Mahoney (2009) — Why is diversification an attractive farm | J. Rural Stud. | 80 |

| | | | |
|---|---|---|---|
| | adjustment strategy? Insights from Texas farmers and ranchers | | |
| 6 | McElwee (2006) — Farmers as entrepreneurs: developing competitive skills | J. Dev. Entrep. | 74 |
| 7 | Discua Cruz et al. (2013) — Intrafamily entrepreneurship: the formation and membership of family entrepreneurial teams | Entrep. Theory Pract. | 63 |
| 8 | Kalantaridis & Bika (2006) — Local embeddedness and rural entrepreneurship: case-study evidence from Cumbria, England | Environ. Plan. A | 62 |
| 9 | Javaid et al. (2023) — Disruptive technologies in agricultural operations: AI-driven AgriTech | Agric. Rev. | 62 |
| 10 | Venkataraman (1997) — The distinctive domain of entrepreneurship research | Adv. Entrep. | 62 |

### 5.4 Country Co-Authorship Network (RQ2)

Figure 1 depicts the country-level co-authorship network, with countries represented by nodes (scaled by publication volume), co-authorship ties represented by edges (weighted by frequency), and the average publication year represented by colour (blue = early contributions; green/yellow = more recent). The multipolar structure of the network, which is connected by a dense core of cross-national collaboration, is dominated by the four most prolific national contributors: China, India, the United States, and the United Kingdom.

India has a special bridging function in the network, serving as an intellectual link between existing knowledge centres in the Global North (the USA, UK) and expanding research

communities in sub-Saharan Africa (South Africa, Ethiopia, Kenya) and South/Southeast Asia. This bridging function reflects India's unique status as a nation with a substantial indigenous smallholder agricultural economy and a fast-expanding research infrastructure, making it both an exporter of methodological and theoretical frameworks and a setting for agripreneurship research.

The early network's temporal anchors were the United States, the United Kingdom, and Australia (blue nodes: 2015–2018). From 2019 to 2021, contributions from South Asian organisations and European nations (Portugal, Greece, and Spain) grew (green). The most recent phase (yellow: 2022–2025) is characterised by new entrants from Africa (Uganda, Benin, Ghana) and the Middle East (Iran), which reflects the globalisation of agripreneurship research and the growing recognition of agripreneurship as a priority for agricultural systems in transitional and developing countries.

One major structural finding is that the network shows high regional clustering despite these worldwide contributions: linkages within Europe, Asia, and Africa are denser than those across continents. This structural feature points to a major systemic weakness in the global agripreneurship research architecture: there is still little cooperative research and information sharing between the Global North and South, as well as between different developing-country regions.

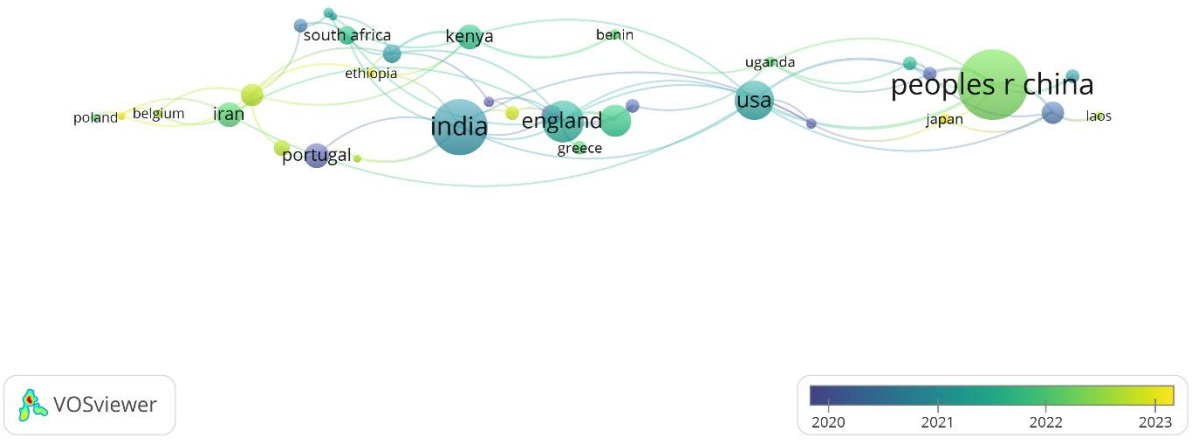



**Figure 1. Country Co-Authorship Network in Agripreneurship Research (VOSviewer, 2015–2025)**

Node size = publication volume; edge thickness = collaboration frequency; colour = average publication year (blue = earlier; yellow = more recent). Minimum threshold: 3 publications per country.

### 5.5 Institutional Co-Authorship Network (RQ2)

Figure 2 depicts the network of institutional co-authorship. The University of Tehran, Tarbiat Modares University (TMU), Aston University, the University of Sheffield, and the University of Patras are among the most prosperous and well-connected establishments. The network architecture reveals two notable sub-clusters: an Iranian institutional cluster with strong internal links among many Tehran-based and regional universities, and a UK-based cluster dominated by Aston University and the University of Sheffield.

The temporal overlay shows a clear generational pattern. While European institutions, particularly those in the UK and Greece, represent earlier research activity (blue, green), Iranian institutions have significantly increased their productivity and collaborative output in the most recent period (yellow), emerging as a regional research leadership hub for agripreneurship. This shift is indicative of broader trends in Iranian agricultural and rural science research intensification as well as the Middle East's and Central Asia's growing interest in agripreneurship challenges.

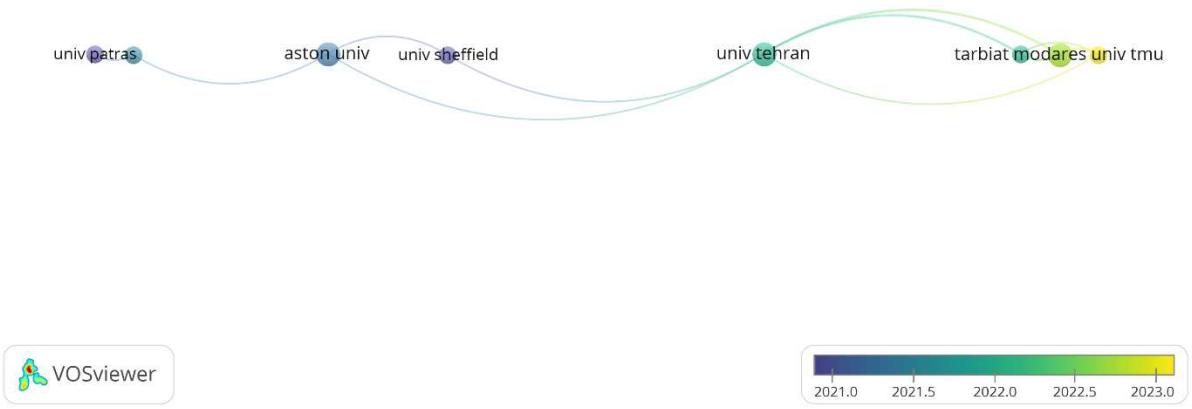



**Figure 2. Institutional Co-Authorship Network in Agripreneurship Research (VOSviewer, 2015–2025)**

Node size = publication count; edge weight = co-authored publications; colour = average publication year. Minimum threshold: 2 documents per institution.

### 5.6 Author Co-Authorship Network (RQ2)

Figure 3 depicts the co-authorship network at the author level. Notable contributors include Nain, M.S., Singh, R., Mishra, J.R., Singh, A.K., and Kumar, A. The most connected nodes

among them are Nain, M.S. and Singh, R., who serve as intellectual bridges that encourage knowledge exchange between research groups. The network is obviously India-centric, as evidenced by the fact that most highly linked authors are connected to Indian agricultural institutes and research organisations.

A generational dynamic is depicted in the overlay visualisation: younger researchers (Mishra, Afroz, Singh; yellow) balance more experienced authors (Sharma, Chahal; blue), indicating diversity and a healthy generational renewal within the research community. However, the striking lack of cross-continental author-level collaboration, with comparatively few connections linking Indian, African, European, and North American academics at the individual level, confirms the pattern of regional clustering displayed at the national and institutional levels. This structural characteristic limits the cross-pollination of ideas, methodological approaches, and theoretical frameworks among research communities examining agripreneurship from different contextual viewpoints.

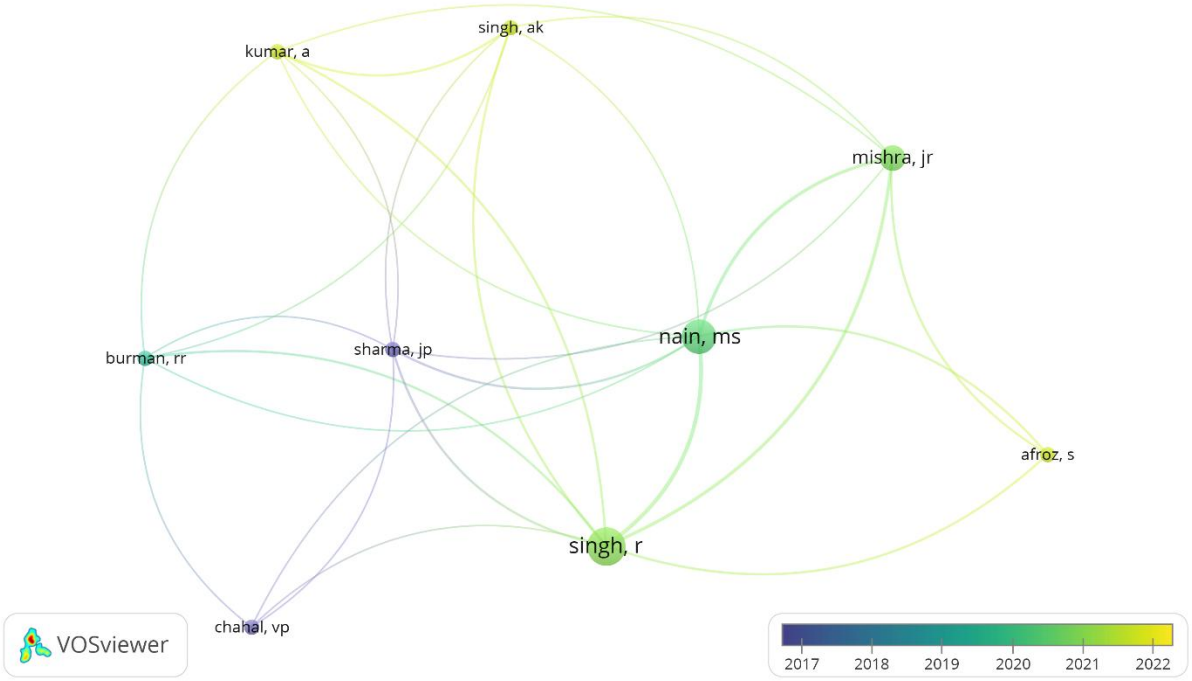



**Figure 3. Author Co-Authorship Network in Agripreneurship Research (VOSviewer, 2015–2025)**

Node size = publication count; edge weight = co-authored papers; colour = average publication year. Minimum threshold: 2 documents per author

### 5.7 Keyword Co-Occurrence Analysis and Thematic Clusters (RQ3)

Figure 4 presents the keyword co-occurrence network derived from author-assigned keywords in the 190-article corpus. The network identifies three dominant thematic clusters (Table 6), each representing a distinct knowledge community within agripreneurship research.

Cluster 1: Entrepreneurial Behavior and Innovation is based on keywords such as entrepreneurship, self-efficacy, entrepreneurial intention, innovation, and entrepreneurial

performance. The core behavioral and micro-level research tradition of the subject is reflected in this cluster, which examines factors impacting agripreneurial decision-making, competency, and performance outcomes at the human and business levels. Theoretical frameworks for innovation management, entrepreneurship theory (Venkataraman, 1997), and social cognitive theory in relation to entrepreneurial intention form the basis of this cluster.

Cluster 2 — Food security, agricultural entrepreneurship, rural development, sustainability, and farm diversification are all included in the category of agriculture, rural development, and sustainability. This cluster connects entrepreneurial activity to rural transformation, food systems resilience, and sustainability transitions, reflecting the macro-level, systemic perspective on agripreneurship. Sustainability's importance as a keyword in this cluster indicates the field's congruence with the worldwide discourse on sustainability research and is compatible with the journal distribution findings, which show that sustainability is the major publication outlet.

Cluster 3 — Training, ICT, institutional support, government policy, financial access, digital agriculture, and market access are among the keywords that make up Policy, Institutions, and Enabling Environments. This cluster reflects the increasing understanding that the quality and coherence of the enabling environment—institutions, laws, and infrastructure that either support or impede entrepreneurial activity in agricultural systems—are just as important in shaping agripreneurship as individual characteristics or structural circumstances.

**Table 6. Dominant Thematic Clusters Identified Through Keyword Co-Occurrence Analysis**

| Cluster | Theme Label | Representative Keywords | Substantive Focus |
|---|---|---|---|
| **1** | **Entrepreneurial Behaviour & Innovation** | entrepreneurship, self-efficacy, entrepreneurial intention, innovation, agripreneurship, entrepreneurial performance | Individual-level determinants of agripreneurial decision-making and performance; psychological and motivational factors |
| **2** | **Agriculture, Rural Development & Sustainability** | agricultural entrepreneurship, rural entrepreneurship, food security, rural development, sustainability, farm diversification | Macro-level linkages between agricultural enterprise creation and rural economic development, food systems, and sustainability transitions |
| **3** | **Policy, Institutions & Enabling Environments** | training, ICT, institutional support, government policy, access to finance, digital agriculture, market access | Contextual and institutional enablers of agripreneurship; digitalisation, capacity building, |

| | | | |
|---|---|---|---|
| | | | and policy frameworks |

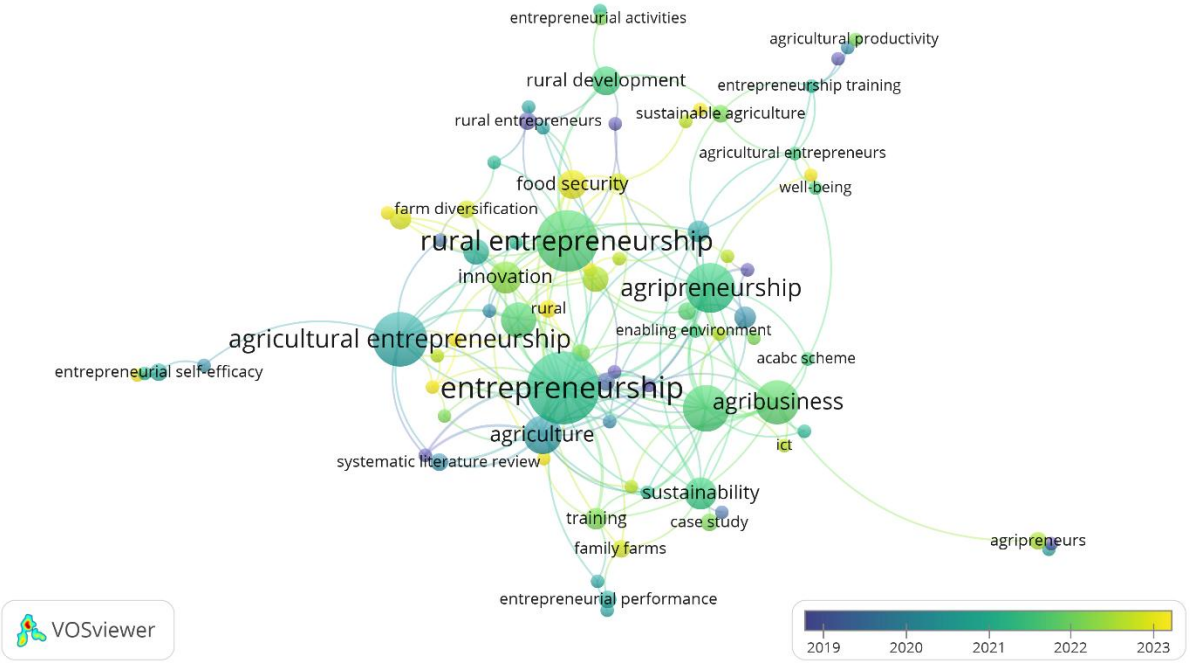



**Figure 4. Keyword Co-Occurrence Network: Thematic Structure of Global Agripreneurship Research (VOSviewer, 2015–2025)**

Node size = keyword frequency; edge weight = co-occurrence count; colour = cluster membership. Minimum keyword occurrence threshold: 3.

**5.8 Thematic Evolution — Temporal Overlay Analysis (RQ4)**

Figure 5 presents the temporal overlay visualisation, in which keyword colours reflect average publication year, enabling documentation of thematic evolution across the study period. The visualisation reveals a clear and directional thematic transition within the agripreneurship literature.

Enterprise creation, agricultural entrepreneurship, rural entrepreneurship, and farm diversification are among the keywords linked to the foundational period (2015–2018; blue). This indicates an early stage of field establishment marked by typological classification, individual entrepreneurial behavior analysis, and definitional work. The increasing but still small publishing volumes found in the temporal trend analysis correlate to this time frame.

Value chain and agribusiness-related subjects emerged during the intermediate era (2019–2021; green), which also saw the consolidation of sustainability, food security, and rural livelihoods as key thematic nodes. This stage corresponds with increased support for the establishment of agricultural enterprises in South Asia and sub-Saharan Africa as well as the rising alignment of agripreneurship research with global SDG frameworks.

The advent of digitalization, ICT, precision agriculture, entrepreneurial ecosystems, enabling environments, gender inclusion, and wellbeing as major research subjects characterizes the most recent era (2022–2025; yellow). This temporal trajectory validates a paradigm transition from enterprise-centric, narrowly focused studies on individual farmers and their immediate decision settings to a more comprehensive, ecosystem-oriented, and sustainability-integrated research program. The discipline is gradually realizing that individual agency, institutional design, market infrastructure, the availability of digital technologies, and sociocultural enabling conditions all co-produce agripreneurial outcomes. These phases, and the way they map onto the three clusters, are synthesised in the framework presented in Section 6.4.

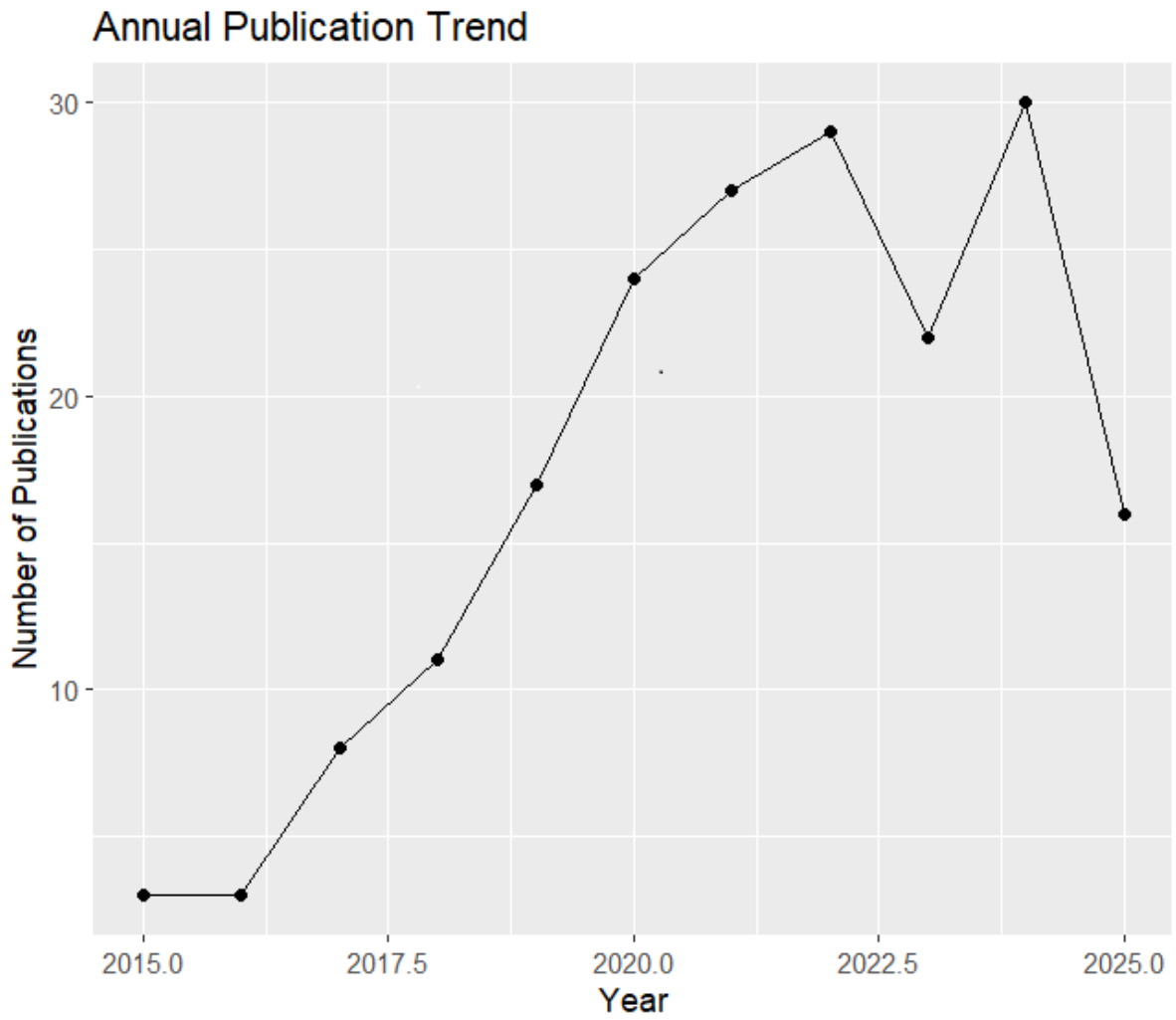



**Figure 5. Temporal Overlay of the Keyword Co-Occurrence Network (VOSviewer, 2015–2025)**

Colour = average publication year of keyword occurrences (blue = earlier; yellow = more recent). Minimum keyword occurrence threshold: 3.

## 6. Discussion

### 6.1 The Rapid Emergence of Agripreneurship as an Academic Field

The publication trajectory shows that agripreneurship has moved from a marginal topic to a rapidly growing research area: output rose from 4 articles in 2015 to 18 in 2020, and 128 further

articles appeared in 2021–2025, so that about 67% of the corpus was published after 2020. Because the corpus is small in absolute terms (n = 190) and drawn from a single database, this growth is best read as the expansion of a young field rather than evidence of maturity. The diversification of journals, countries and thematic approaches nonetheless suggests widening as well as deepening: the corpus spans entrepreneurship, rural studies, food-systems and sustainability outlets (Table 4).

### 6.2 Geographical Asymmetries and Collaboration Gaps

The global distribution of research capability and agricultural policy priorities is reflected in the dominance of the USA, UK, China, and India as top contributors. However, knowledge equality and theoretical diversity in the discipline are significantly impacted by the discovery that collaboration networks are highly regionally localized, with few cross-continental co-authorship linkages. Theoretical frameworks and empirical findings produced in the Global North may not fully capture the institutional, ecological, and socio-economic realities of agripreneurship in Africa, South and Southeast Asia, or Latin America, where the urgency of agricultural transformation is arguably greatest, due to the structural clustering of research communities around national and regional boundaries.

One noteworthy positive structural element is India's bridge position in the global network, which links African and South Asian communities with research centers in North America and Europe. With their profound contextual knowledge of smallholder-dominated, institution-rich, and environmentally diversified agricultural systems combined with their involvement with international theoretical frameworks, Indian scholars seem to act as true intellectual intermediates. Formal international research consortia and partnerships for capacity building should be used to strategically harness this positioning.

It is especially exciting that Iran, Africa, and Southeast Asia have just emerged as new contributors (seen in the yellow temporal overlay for these nodes). It is an indication of the increasing globalization of agripreneurship research and the realization that developing and transitional economies offer particularly rich environments for researching the relationship between sustainable development, entrepreneurial behavior, and agricultural transformation. The theoretical and empirical diversity of the area would be greatly enhanced by strategically promoting South-South research linkages between Latin American, African, and Indian universities.

### 6.3 Thematic Transitions and Theoretical Implications

A theoretically significant three-stage thematic evolution is revealed by the keyword analysis and chronological overlay: an enterprise-centric first phase (2015–2018), a sustainability-integrated second phase (2019–2021), and an ecosystem-oriented third phase (2022–2025). With the focus of research moving from the individual entrepreneur to the firm and finally to the ecosystem, this trajectory reflects more general developments in entrepreneurship theory (Mason and Brown, 2014; Stam and Spigel, 2018). In the context of agripreneurship, this theoretical migration is beneficial because it recognises that individual agricultural entrepreneurs are not isolated but rather are part of intricate socio-technical systems that comprise institutions, laws, infrastructure, social networks, and cultural norms.

Precision agriculture, ICT, and digitalization are significant yellow-node terms in the time overlay, indicating their theoretical significance. Digital technologies represent new

institutional logics that redefine what it means to be an agricultural entrepreneur, what possibilities are available, and who may access them, in addition to being instruments that entrepreneurs embrace (Cheng et al., 2024; Secinaro et al., 2022). As a result, research may be theoretically under-specified if digital adoption is just included as an independent variable in a model of entrepreneurial behaviour. Future theoretical research should examine how digitalisation can reorganise ecosystem designs, competency needs, and agripreneurial opportunity structures.

### 6.4 An Integrative Framework: The Three-Level Agripreneurship Ecosystem Framework (TAEF)

The results in Section 5 describe the structure of the field, but they leave open how the three clusters relate to one another. Earlier bibliometric surveys of rural entrepreneurship concluded that theory building remains underdeveloped (Pato and Teixeira, 2016; Masoomi et al., 2024), and the fragmentation noted in Section 1 suggests that the same holds for agripreneurship. To address this, the clusters, temporal phases, collaboration structure and citation base reported above are integrated into the Three-Level Agripreneurship Ecosystem Framework (TAEF) (Figure 6, Table 7). The framework is an interpretive synthesis grounded in the entrepreneurial ecosystem perspective (Isenberg, 2011; Mason and Brown, 2014; Stam and Spigel, 2018). It is offered as a basis for empirical testing, not as a result that the bibliometric data can confirm.

The framework has three levels. Level 1, the actor level, corresponds to Cluster 1 and concerns the capabilities, motivations and behaviours of agripreneurs, such as self-efficacy, entrepreneurial intention and innovation. Level 2, the enabling environment, corresponds to Cluster 3 and concerns the training, finance, ICT, policy and market-access conditions that shape what actors can do. Level 3, outcomes and systems, corresponds to Cluster 2 and concerns the rural development, food-security, diversification and sustainability outcomes with which the field is ultimately concerned. Two cross-cutting layers run across the levels: digital transformation, which appears among the most recent keywords in the temporal overlay, and the research-system context, reflected in the regionally clustered collaboration networks.

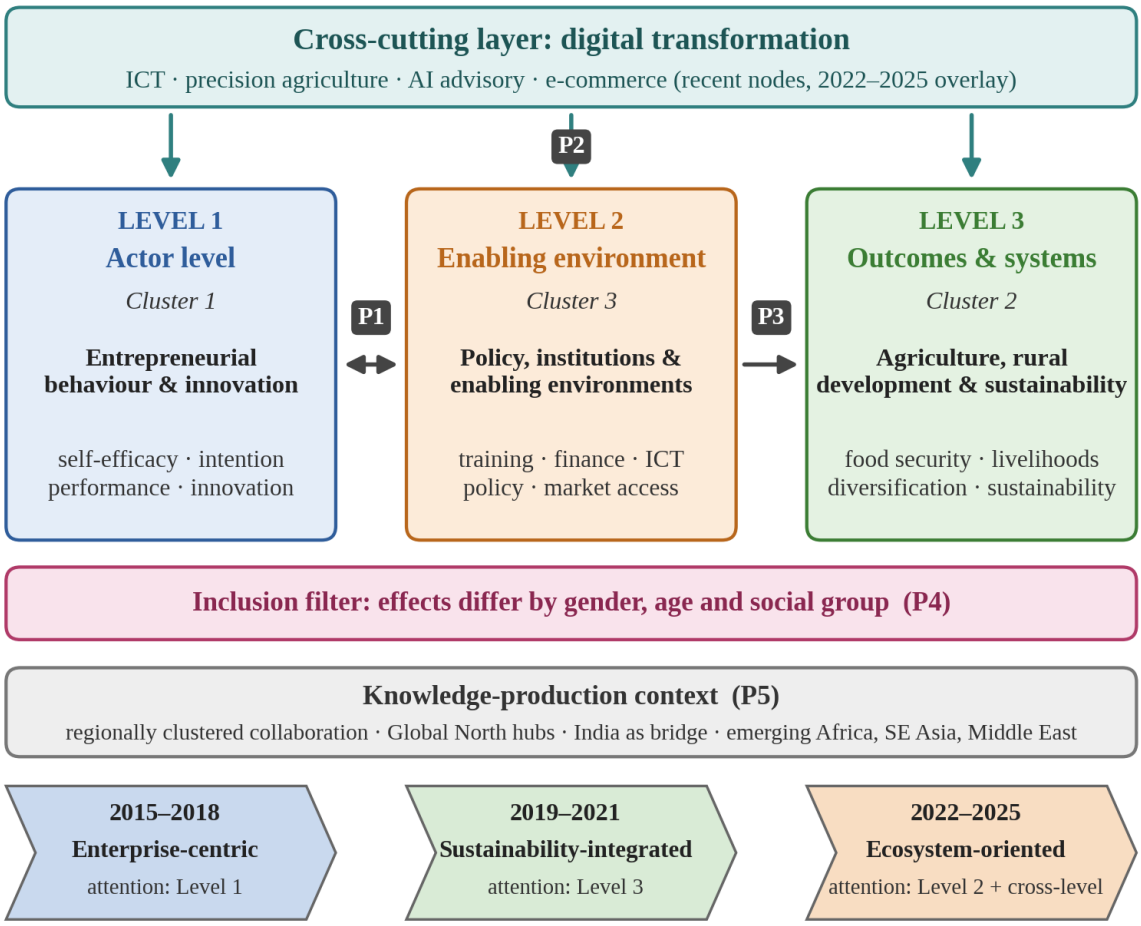



**Figure 6. The Three-Level Agripreneurship Ecosystem Framework (TAEF): Integration of the Thematic Clusters, Temporal Phases and Research-System Context**

Note: P1–P5 denote the propositions in Section 6.4. The framework is an interpretive synthesis of the bibliometric results and has not been tested empirically.

**Table 7. Components of the Three-Level Agripreneurship Ecosystem Framework (TAEF) and Their Grounding in the Bibliometric Evidence**

| TAEF component | Evidence in this study | Anchoring concepts and works | Interpretive reading |
|---|---|---|---|
| **Level 1: Actor level** | Cluster 1 (entrepreneurship, self-efficacy, entrepreneurial intention, innovation, entrepreneurial performance); prominent in the 2015–2018 phase (Sections 5.7–5.8) | Opportunity recognition (Venkataraman, 1997); risk-taking under uncertainty (Knight, 1921); social cognitive theory | Agency of the farmer-entrepreneur; foundational, but increasingly treated as embedded in context |

| TAEF component | Evidence in this study | Anchoring concepts and works | Interpretive reading |
|---|---|---|---|
| **Level 2: Enabling environment** | Cluster 3 (training, ICT, institutional support, government policy, access to finance, digital agriculture, market access); ecosystem and enabling-environment terms among 2022–2025 keywords | Entrepreneurial ecosystems (Isenberg, 2011; Mason and Brown, 2014; Stam and Spigel, 2018); embeddedness (Kalantaridis and Bika, 2006; Discua Cruz et al., 2013) | Structure that conditions agency; the current research front |
| **Level 3: Outcomes and systems** | Cluster 2 (food security, rural development, sustainability, farm diversification); sustainability and food security consolidated in 2019–2021; Sustainability is the leading outlet (Table 4) | Rural development and diversification (Barbieri and Mahoney, 2009; Mayer et al., 2016); Sustainable Development Goals | Outcomes for which the field is accountable; the sustainability label may partly reflect publication venue |
| **Cross-cutting layer: digital transformation** | Digitalisation, ICT and precision agriculture among the latest-period nodes (Figure 5) | Digital skills and agricultural entrepreneurship (Cheng et al., 2024); digital transformation (Secinaro et al., 2022); AI-driven AgriTech (Javaid et al., 2023) | Reorganises opportunity structures and access across levels; needs theorising beyond adoption |
| **Cross-cutting layer: research-system context** | Regional clustering at country, institution and author levels; India's bridging role; new entrants from Africa and Iran (Figures 1–3) | Knowledge equity and theoretical diversity (Section 6.2) | The contextual range of theory depends on who collaborates with whom |

Source: authors' synthesis of Sections 5.4–5.8.

The temporal analysis fits this structure. In 2015–2018, research attention centred on the actor level, through enterprise creation, typological and definitional work and the analysis of individual entrepreneurial behaviour. In 2019–2021 it moved towards Level 3 outcomes, with value chains, food security, rural livelihoods and sustainability. In 2022–2025 it has shifted towards the enabling environment and cross-level interactions, with entrepreneurial ecosystems, enabling environments, digitalisation and gender inclusion. The framework thus reads the three-phase evolution as a progressive widening of the unit of analysis, from the entrepreneur to the outcomes of entrepreneurship, to the system in which both are embedded.

Reading across the levels, five propositions are derived. They are hypotheses for future testing; the bibliometric data do not test them.

- **P1 (agency and environment).** Agripreneurial performance depends jointly on actor-level capabilities (for example, self-efficacy and entrepreneurial intention) and enabling-environment quality (for example, training, finance, ICT and institutional support), so that the effect of capabilities is stronger where the enabling environment is stronger.

- **P2 (digital layer).** Digital technologies act as a structural layer that reshapes both actor capabilities and access to the enabling environment, rather than as a neutral adoption variable.

- **P3 (conditional outcomes).** The contribution of agripreneurial activity to rural development and sustainability outcomes is conditional on enabling-environment quality and is not automatic.

- **P4 (inclusion).** The relationships in P1–P3 differ by gender, age and social group, so that ecosystems with weaker inclusion yield unequal outcomes.

- **P5 (knowledge geography).** Regionally clustered knowledge production limits the contextual range of agripreneurship theory, and North–South and South–South collaboration widens it.

The TAEF complements the multilayer framework of Fitz-Koch et al. (2018), which integrates organisational, contextual and human aspects, in three ways: it is derived from a mapped body of literature rather than a narrative review; it adds digital and research-system layers; and it links each level to observable keyword clusters and temporal phases.

### 6.5 Research Gaps and Future Directions (RQ5)

Synthesising the bibliometric findings with the TAEF yields six research gaps, each linked to evidence from the mapping and organised with a TCCM logic (Table 8). They comprise methodological gaps (ecosystem measurement and longitudinal designs), substantive gaps (the digital layer, the sustainability–entrepreneurship nexus, and gender and social inclusion) and a structural gap (North–South and South–South collaboration). Where bibliometric metadata cannot show a gap directly, as with research designs, the table says so and the gap is treated as a hypothesis for content-based verification.

**Table 8. Research Gaps, Supporting Evidence and Proposed Future Research Directions (TCCM-Informed)**

| Research gap | Evidence from this mapping | Future research direction | Theories, contexts and methods (TCCM) |
|---|---|---|---|
| **1. Ecosystem quantification** | Ecosystem and enabling-environment terms are recent additions in the 2022–2025 overlay (Figure 5), indicating a young research front | Develop and validate composite indices of ecosystem dimensions (capital, infrastructure, institutions, markets, knowledge networks), for example an Agripreneurial Ecosystem Index (AEI) | T: entrepreneurial ecosystem theory. C: comparative, cross-regional. M: composite indicators; multilevel modelling |

| Research gap | Evidence from this mapping | Future research direction | Theories, contexts and methods (TCCM) |
|---|---|---|---|
| **2. Digital technology integration** | Digitalisation, ICT and precision agriculture are among the latest-period nodes (Figure 5); digital agriculture sits in Cluster 3 | Examine how precision agriculture, AI advisory platforms, blockchain and e-commerce alter agripreneurial opportunity structures, beyond adoption studies | T: institutional logics; digital affordances. C: smallholder systems in the Global South. M: mixed methods; multilevel models |
| **3. Sustainability–entrepreneurship nexus** | Sustainability anchors Cluster 2 and Sustainability is the leading outlet (27 articles, 14.2%); whether outcomes are measured cannot be seen in keyword data | Link agripreneurial activity to measured outcomes: environmental resilience, livelihood stability, biodiversity, carbon footprint | T: sustainability transitions; resilience. C: diverse agro-ecological settings. M: outcome-based and longitudinal designs; content coding |
| **4. Gender and social inclusion** | Gender inclusion and wellbeing appear only among the latest-period keywords (Figure 5), and no inclusion term is among the representative keywords of the clusters (Table 6) | Study women, youth and marginalised groups in agripreneurial ecosystems and the equity effects of policy | T: intersectionality; gendered embeddedness. C: sub-Saharan Africa, South and Southeast Asia. M: comparative qualitative and quantitative studies |
| **5. North–South and South–South collaboration** | Regional clustering at country, institution and author levels, with few cross-continental links (Figures 1–3) | Institutionalise international research consortia and joint-authorship programmes across Africa, Asia and Latin America | T: context-sensitive theorising. C: under-represented regions. M: multi-country comparative designs |
| **6. Longitudinal and panel designs** | Research designs are not observable in bibliometric metadata; the prevalence of cross-sectional studies needs verification by coding the corpus (Section 7) | Shift towards longitudinal and panel designs to capture ecosystem dynamics and causal mechanisms | T: process and dynamic-capabilities views. C: comparative panels. M: panel data; event-history analysis; longitudinal mixed methods |

Note: T = theories; C = contexts; M = methods. Source: authors' synthesis.

Setting ecosystem measurement as a top priority is justified by the framework. The three-cluster structure (entrepreneurial behaviour, rural sustainability and enabling environments)

broadly corresponds to the actor, outcome and contextual dimensions of the entrepreneurial ecosystem perspective, yet standardised methods for evaluating how well agripreneurial ecosystems function across contexts remain to be established. Without such tools, comparative studies and policy evaluations stay methodologically constrained. A validated Agripreneurial Ecosystem Index (AEI), analogous to the Global Entrepreneurship Index but tailored to agricultural settings, would be a major methodological advance.

### 6.6 Implications for Theory, Policy and Practice

For theory, the TAEF moves agripreneurship research from a set of cluster-specific studies towards an integrated, multilevel account in which actor capabilities, enabling environments and outcomes are examined together, and in which digitalisation and research geography are treated as structural rather than incidental. The five propositions provide testable starting points, and the agenda in Table 8 specifies the theories, contexts and methods suited to each gap.

For policymakers and practitioners, three implications follow from the mapped structure. First, support programmes are likely to work better when capability building (training and entrepreneurial skills) is combined with enabling-environment measures (access to finance, ICT infrastructure, market access and institutional support) rather than delivered separately (P1). Second, ecosystem-level monitoring requires agreed indicators, which makes the development of an agripreneurial ecosystem index a practical priority. Third, funders and research institutions can strengthen the evidence base by supporting consortia that link Global North hubs, India as a bridging hub and emerging research communities in Africa and Southeast Asia, and by requiring that evaluations report outcomes for women, young people and marginalised groups (P4, P5). These implications are inferences from the mapped literature and the proposed framework and should be tested in context.

## 7. Conclusion

Using 190 peer-reviewed articles indexed in the Web of Science Core Collection between 2015 and 2025, this study has mapped the global agripreneurship literature and synthesised the results in an integrative framework. It combined performance analysis with science mapping (country, institution and author co-authorship networks, keyword co-occurrence clusters and temporal overlay visualisation in VOSviewer), followed by an interpretive synthesis that produced the Three-Level Agripreneurship Ecosystem Framework (TAEF).

Five main findings emerge. First, output grew from 4 articles in 2015 to 18 in 2020, with 128 further articles in 2021–2025, so that about two-thirds of the corpus appeared after 2020. Second, the United States, the United Kingdom, China and India are the leading contributors, with India occupying a bridging position between established and emerging research communities. Third, collaboration networks are strongly clustered by region at all three levels, which limits cross-fertilisation between the Global North and South. Fourth, the thematic structure comprises three clusters that evolved through enterprise-centric (2015–2018), sustainability-integrated (2019–2021) and ecosystem-oriented (2022–2025) phases; these can be integrated in the TAEF, from which five testable propositions follow. Fifth, six research gaps were identified and linked to evidence from the mapping, concerning ecosystem measurement, digitalisation, sustainability outcomes, gender and social inclusion, collaboration and longitudinal designs.

The study contributes in three ways. Theoretically, the TAEF and its propositions respond to repeated observations that theory building in the rural entrepreneurship literature is underdeveloped (Pato and Teixeira, 2016; Masoomi et al., 2024), and they show how agripreneurship keeps its own agricultural identity while being assimilated into mainstream entrepreneurship research. Methodologically, it shows how bibliometric mapping can be coupled with a transparent interpretive synthesis and a TCCM-based agenda. Practically, it gives researchers a structured view of focal areas and gaps and gives policymakers and development practitioners a clear picture of the evidence base and its limits.

The study has several limitations. It is restricted to English-language, peer-reviewed articles indexed in a single database, the Web of Science Core Collection; this choice supports consistent metadata and network analysis but excludes records indexed only elsewhere, non-English work and grey literature, so the results should be read as a map of the WoS-indexed literature. The keyword analysis relies on author-supplied keywords, and the analysis is descriptive-structural: it identifies clusters and temporal trends but does not adjudicate between competing theoretical explanations. The TAEF is an interpretive synthesis, and its propositions are untested. Future research can extend the corpus with Scopus and other sources, code the content of the identified clusters through systematic review methods (including research designs, theories and contexts), run co-citation analysis of the knowledge base, and test the propositions empirically.

In summary, the discipline of agripreneurship study has developed into a vibrant, multidisciplinary, and internationally active scholarly community from a dispersed enterprise-oriented subfield. This trajectory is promising for the advancement of evidence-based policy, rural livelihoods, and sustainable agricultural transformation; however, to fulfil this promise, intentional investment in the research gaps revealed by this study is necessary. The methodological foundation for that investment is provided by this bibliometric analysis.

**Future Research Directions**

The following priorities for the upcoming generation of agripreneurship research are implied by the bibliometric results. To enable systematic comparison analysis across countries and company types, standardised measurement frameworks should be created and validated, with a focus on ecosystem quantification. A significant advancement in theory and practice would be the creation of an Agripreneurial Ecosystem Index (AEI) that is applicable globally. These priorities correspond to the gaps in Table 8 and the propositions in Section 6.4.

To comprehend how various institutional arrangements, policy contexts, and socioeconomic structures impact agripreneurial outcomes, comparative cross-regional studies are desperately needed. In sub-Saharan Africa and South and Southeast Asia, where agriculture predominates, change occurs quickly, and current research outputs are underrepresented, these comparison studies are particularly helpful.

A thorough theoretical analysis of the integration of digital technology is required, one that goes beyond studies on adoption and looks at how digitalisation is radically altering frameworks of agripreneurial potential, ecosystem structures, and competitive dynamics. Long-term empirical research that uses sustainability indicators to develop studies and connect agripreneurial projects to observable environmental and livelihood effects is necessary to

understand the connections between sustainability and entrepreneurship. Social inclusion, gender, and youth are significant yet understudied topics that call for specialised research.

Lastly, encouraging organised worldwide research consortia—particularly South-South partnerships—would improve the discipline's theoretical and empirical diversity and aid in closing the collaboration gap. In order to tackle the intricate system-level problems of food insecurity, rural transformation, and climate change, the field will need to incorporate interdisciplinary viewpoints from environmental science, sociology, technological studies, and policy analysis.

**Declarations**

**Declarations**

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**Ethics approval**: This study involved a survey of agripreneurs and was approved by the Board of Studies Committee, Department of Agricultural Extension, Palli Siksha Bhavana, Visva-Bharati University, Sriniketan, West Bengal, India

**Consent to Participate declaration**: We obtained informed consent from all individual participants included in the study before data collection.

**Consent to Publish declaration**: Not applicable.

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**Data availability. The data are available from the corresponding author**
(shaktiranjandas92@gmail.com) on request.

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