Research Article

Indian Journal of Extension Education
Vol. 61, No. 1 (January–March), 2025, (25-31)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Global Research Trends in Family Farming: A Bibliometric Insight

Swati Suman[1], Ajay Kumar Prusty[2]*, Atanu Deb[3], Alka Kumari[4] and G. Sriker Reddy[5]

[1]Ph.D. Scholar, [2]Assistant Professor, [3]Associate Professor, [4]PG Scholar, Agricultural Extension Education, M.S. Swaminathan School of Agriculture, Centurion University of Technology & Management, Odisha-761211, India
[5]Assistant Professor, Agriculture Extension Education, School of Agriculture, SR University, Warangal, Telangana-506371, India
*Corresponding author email id: prusty.ajay@gmail.com

HIGHLIGHTS

- Family farming accounts for 80 per cent of global food production and supports the SDGs, making it essential for biodiversity conservation, climate resilience, and global food security.
- Contribution to family farming research from Brazil and European countries showing global interest in this dynamic research field.
- Research focus has shifted from traditional agricultural practices to interdisciplinary themes like agroecology, gender roles and rural development
- The incorporation of digital technology, youth participation, and the deepening of agricultural ties between urban and rural areas.

ARTICLE INFO

Keywords: Agriculture sustainability, Agroecology, Climate-resilient, R studio, VOSviewer.

https://doi.org/10.48165/IJEE.2025.61105

Conflict of Interest: None

Research ethics statement(s): Informed consent of the participants

ABSTRACT

Family farming is considered as most sustainable form of agriculture, which is accepted worldwide. It is integral to food production, rural livelihood and cultural heritage. The concept of family farming changed significantly over time. The study utilizes the bibliometric analysis approach to examine the dynamic concept of family farming in the agricultural sector over the decade. The data is extracted from the Scopus database from 2015-2024 and analysed using bibliometric tools such as R Studio and VOSviewer. The study presents a thorough and measurable evaluation of the contributions from different countries, keyword frequencies and research trends with thematic evolution, offering a more empirical knowledge of the subject. The study investigates that the research has increasingly emphasized integrated and sustainable practices such as agroecology, gender role in farming and rural development policies. This shift reflects a growing recognition of family farming's role in promoting sustainable agriculture, addressing global challenges and shaping a food-secure future for generations to come. To advance this crucial area of research, researchers, policymakers, and family farmers themselves must continue to work together.

INTRODUCTION

The concept of "family farming" is frequently used in popular and scientific articles, but there is no single and accepted definition that explains the concept of family farming. There are more than 600 million family farms worldwide which utilize only 30 per cent of the workforce but produce over 80 per cent of the world's food in terms of value (Food and Agriculture Organization, 2014). It plays a significant role as stewards of ecosystems, panoramas and cultural treasures making them essential to the development of more inclusive, environmentally friendly, adaptable and efficient agri-food systems. The family farm can be linked to entrepreneurial skills, options, hazards, and personal achievement from a financial point of view. From a social point of view, the family farm is linked to family virtue, the practice of solidarity, continuity, and commitment (Szydlik, 2008). The connection between these two perspectives suggests that family farming represents a way of life that is founded on customs and beliefs about working and living, in addition to being

Received 21-11-2024; Accepted 19-12-2024

an economic endeavour (Nain et al., 2014). The family can be seen as a kind of filter between the farm and the non-farm world, separating ideas, resources, and energy (Fuller et al., 2021).

Family farming is a traditional form of agriculture, characterized by family workforce and intergenerational transfer of knowledge which maintain agricultural biodiversity, cultural heritage and rural livelihoods (Suess-Reyes & Fuetsch, 2016). In the last few decades, family farming has made a shift to address contemporary issues such as food security, climate change and livelihood development. It increasingly focuses on sustainability, aiming to reduce environmental impact, improve soil health and enhance climate resilience by exploring agroecological methods, organic farming and integrating traditional knowledge with modern techniques (Chao, 2024; Kumari et al., 2024). More research has been done on socio-economic aspect of family farming, which involves factors like agricultural inputs, credit and market accessibility. Studies emphasized the role of family farming in reducing rural poverty and promoting social inclusion (Chandran et al., 2023). Researchers aim to formulate policies that support the sustainability and growth of these family farms. Technological advancements such as precision agriculture, digital tools and innovative farming techniques have been studied to understand their impact on family farms. These technologies have the potential to reduce labour demands, enhance productivity and improve resource management whereas, issues like cost, accessibility, and capacity building among farmers are also considered. Research also emphasizes the significance of gender roles and youth engagement, as empowering women and youth in the sector can lead to improved agricultural outcomes and community development (Saha et al., 2024). This bibliometric study explores trends in family farming research, focusing on publications, geographical contribution and key themes in academic and scientific community. It seeks to analyse the diverse and complex nature of family farming and shifts in the thematic areas of research over the decade and ultimately, contribute in the development of a sustainable and resilient agricultural system.

METHODOLOGY

Bibliometric analysis is a systematic and quantitative approach to research trends and evolution in a specific field. It analyses and visualizes the structure and dynamics of scholarly communication, giving insights into the development and trajectory of a field (Javed et al., 2024). The study adopted a bibliometric analysis approach to evaluate the research trends in the agricultural sector concerning family farming within the last decade. The data for this analysis was sourced from the Scopus database, using the search string: KEY (family AND farming) AND PUBYEAR > 2014 AND PUBYEAR < 2025 AND (LIMIT-TO (EXACTKEYWORD, "FamilyFarming") OR LIMIT-TO (EXACTKEYWORD, "FamilyFarm")) AND (LIMIT-TO (SUBJAREA, "AGRI") OR LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")). The study utilizes Scopus data due to its wide coverage and high-quality indexing. The search aimed to research articles published between 2015 and 2024 that focused on family farming and related topics, with the subject areas restricted to agriculture (AGRI) and social sciences (SOCI). The articles classified under the keywords "family farming" and "family farm" were only included in the study, ensuring a focused exploration of research trends specifically within these domains. The type of document for the study was limited to research articles ("ar") to ensure consistency and high data quality.

A bibliometric search was conducted in October 2024. It resulted in retrieving 605documents from 248 different sources for ten years. All the relevant metadata such as title, names of authors, and journal names with year of publication and keywords and citations were downloaded for analysis. This period was chosen to provide a comprehensive understanding of recent developments and trends in family farming research and the changing trends in this field.

The collected data was processed and analysed using the R Studio and VOSviewer, which are robust tools for bibliometric analysis (Roy et al., 2024). Data on publication volume was taken from Scopus results, citations by country, three field plot, trend analysis, tree map and thematic mapping are analysed by R Studio while Co-occurrence Network is analysed by VOSviewer. This methodology provides a systematic and quantitative assessment of family farming research trends, providing valuable insights into the academic discourse related to this crucial topic.

RESULTS

Growth of research in family farming

Family farming has been an upsurge growth area of research, which gained significant momentum, especially since the mid-2000s. These grew in close association with international efforts towards global food security, climate resilience, and SDGs. The United Nations declared 2014 as the "International Year of Family Farming," and research experienced a surge in both policy and academic focus for the subject. Because family farms often have a spot in sustainable agricultural development, much of today's writing points out their role in biodiversity conservation, adaptation to change because of climate, and stability in terms of rural economic forms. The volumes of publications on family farming from 2015 to 2024 show the influence of the International Year of Family Farming in 2014. First, it increased to 50 in 2015 and then decreased marginally in 2016, but it surged with a rapid increase to 65 in 2017 with the global debate on sustainable agriculture and food security. The COVID-19 pandemic led to a great peak with 80 publications in 2020 and stabilizing around 60-65 publications from 2017 to 2019 emphasizing family farms within localized food systems. Again, publications declined from 2021 onwards, fluctuating around 60-65, indicating normalization in research interest. The trend suggests that while family farming remains important, it may be competing with emerging research areas or experiencing shifts in focus due to changing global priorities or economic pressures.

Family farming is practiced worldwide, but research-oriented activities have been concentrated in some regions only. The graph illustrates the contribution of different countries to family farming research, measured by the number of documents published. There are tremendous discrepancies in the volume of output across a vast number of countries. Brazil stands out as the top contributor, with approximately 400 documents, well above any other countries in this family farming research France ranks second in terms of the

number of publications, with around 80 publications. Spain and the United States are close behind with the moderation at about 50-60 documents. Argentina and the United Kingdom have similar levels of contributions, each with approximately 40-50 documents. Countries like Colombia, Germany, Italy, and the Netherlands have smaller but significant contributions of about 30-40 document each.

The contributions of various countries to family farming research, based on the number of citations their publications have received was analysed. Brazil leads significantly with 901 citations, reflecting its dominant role and influence in family farming studies, likely due to its vast rural landscape and importance of family farming in its agricultural sector. Austria follows with 408 citations, highlighting its focus on sustainable and small-scale farming. Ireland ranks third with 204 citations, reflecting a long tradition of family agriculture. Other European countries are Spain (180), Switzerland (163), Italy (138), and Germany (105), which shows significant academic interest in family farming within Europe. China with 136 citation and the United Kingdom with 128 citations, showing that the topic transcends the European context, while Argentina having 114 citations, which underlines the importance of family farming research in Latin America besides Brazil. This distribution highlights geographically dispersed interest with Brazil and the European countries being the leaders of citation impact in this particular field.

Thematic evolution of research

Research themes undergo significant transformations over the years providing insights into how the research landscape shifts and develops. In bibliometric studies this thematic evolution can be visualized through three-field plot diagram (Figure 1) showing the interconnectedness between authors (left column, AU), countries (middle column, AU_CO) and keywords (right column, DE). The diagram shows that most of the authors on the left side such as "nunes em", "de freitas af", "rover oj" etc. are connected with Brazilin central column. After Brazil most of the authors are linked with France. Other countries such as Colombia, Argentina, Spain, Ireland, Italy, USA, Mexico and Chile are having very fewer connections to authors. Brazil in the central column is connected with the keywords in the right column majorly with "Family Farming" and also with "Rural development", "Family Farm" and "Agroecology". France, Columbia and Argentina also show some connections with keywords "Family Farming", "Rural development", "Sustainability" and "Food security".

"Family farming" is the most prominent keyword which is strongly linked with Brazil and also linked with France, Columbia, Argentina and very few connections with rest of the other countries. "Rural development", "Family Farm", "Agroecology", "Sustainability" and "Food security" are other prominent keywords linked mainly with Brazil and very few link with other countries. Additional keywords such as "Public policy", "Agricultura familiar" and "Public policies" are not so prominent but have fewer links with countries like Brazil and France.

The trend of keyword usage in family farming research from 2015 to 2024 is depicted in the graph (Figure 2), which also demonstrates how different themes have developed and become more popular in the sector. Every row is a distinct term, and the circle's size indicates how frequently that term was used in a particular year. Early studies (2015-2017) focused heavily on traditional themes such as livestock farming, agricultural practice, and rural society. "Gender role" began appearing in 2017, reflecting growing attention to gender dynamics in farming. From 2017 onwards, research expanded to include food production and family farms, indicating an increased focus on agriculture, agricultural worker and rural development. The word, 'family farms', has the highest frequency during this time. Geographically, Brazil and Amazonia emerged as a key focus during this time. The years 2019-2021 marked a peak in research output, especially around topics like farming systems, rural economy, agroecology, gender relations and smallholder. Recent trends (2021-2023) show a continued focus on rural economy and crop production. "Farmers' attitude" and "cluster analysis" continued to be used in 2022 and 2023.

The tree map (Figure 3) depicts the distribution of research topics by the frequency of occurrence of keywords. More extensively studied topics are represented by larger areas. "Family Farm" (29%) and "Brazil" (12%) are the two most investigated

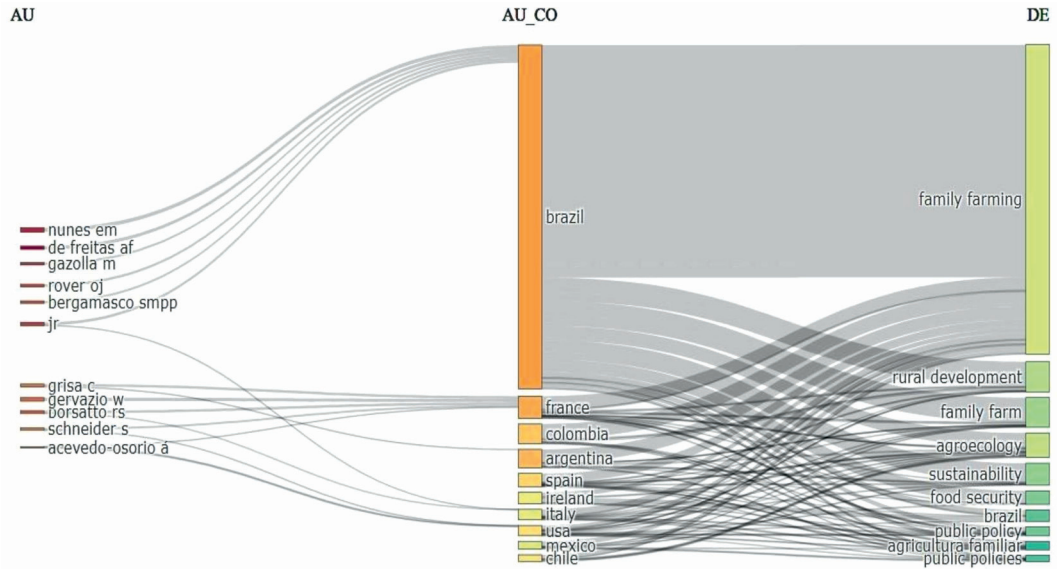

Figure 1. Three-field plot analysis of author, countries and keywords

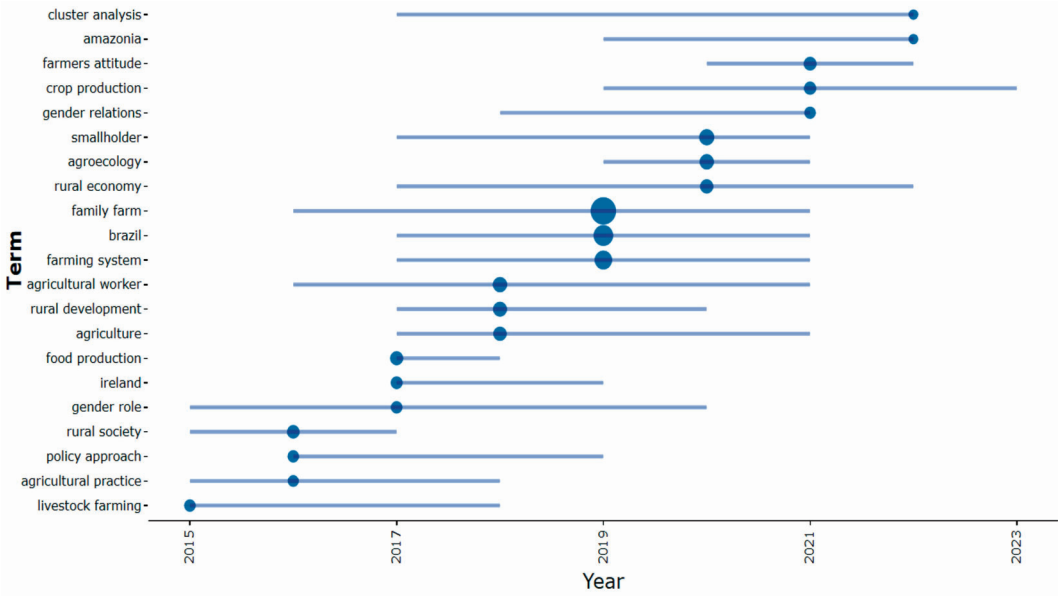

Figure 2. Trend analysis of keywords

Figure 3. Tree map of keywords

themes, showing that they are the most studied subjects. Other heavily studied subjects include "farming system" (8%), "smallholder" (4%), "sustainability" (4%), and "agricultural production." Smaller categories such as "agricultural policy" (3%), "food security," and "rural economy" (3%) are examples of niche research keywords. In contrast, more specialized topics that are less common in the dataset include "food production," "agricultural development," "governance approach," and "decision making," which account for 2% of the total.

Thematic mapping of keywords (Figure 4) is a strategic diagram used in bibliometric analysis that plots themes or subjects according to two dimensions: centrality (X-axis) and density (Y-axis). This method is commonly used to examine the structure of the study area. The diagram shows that the research on family farms mainly focused on "smallholder farming" and "sustainability" as these are closely related to family farming.

The map is divided into four quadrants: *Motor themes* (Top-right quadrant): these themes are well-developed and highly relevant in the research field. The placement of terms such as "Brazil," "agroecology," "rural development," and "agricultural policy" here suggests that they are not just thoroughly researched but also essential to the area of study. These topics are probably essential to research on agricultural development and policy, especially in the Brazilian study. *Basic theme* (bottom-right quadrant): these themes have high relevancy but lower development. Terms like "family farm", "farming system", "smallholder" and "sustainability" fall under this category indicating that they are crucial but need to be more developed. These topics are fundamental and frequently serve as the basis for research on family farming and agricultural sustainability.

Niche theme (Top-left quadrant): these themes are having high density and low centrality, showing that they are well-developed but not crucial for larger study area. The terms "females", "male", "adult" and "farms" are distinct but not significant for the primary research goals. *Emerging or declining themes* (bottom-left quadrant): themes in this quadrant have both low

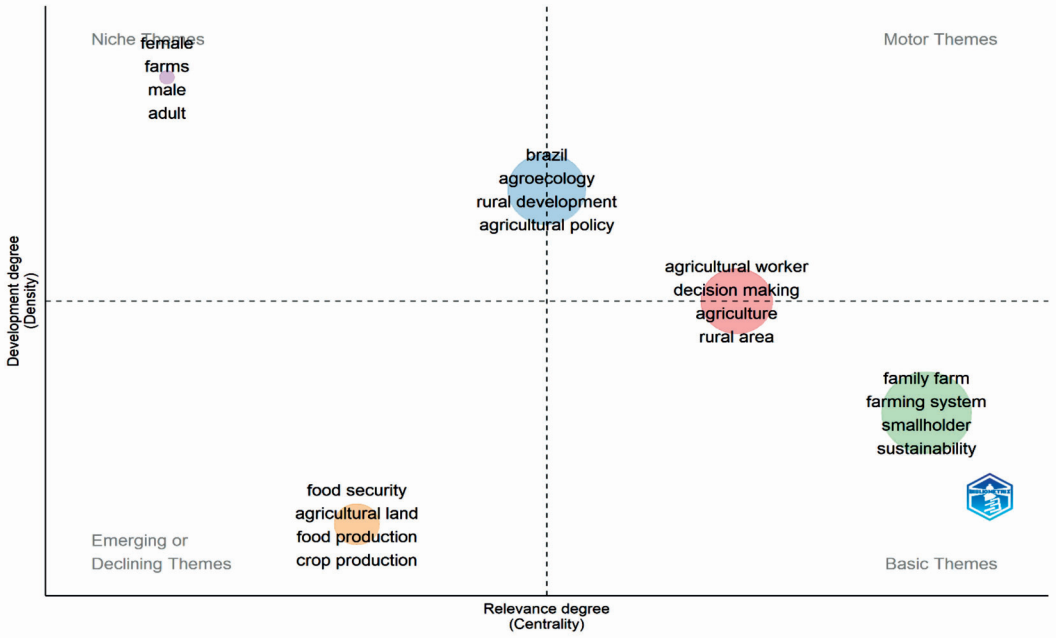

Figure 4. Thematic mapping of keywords

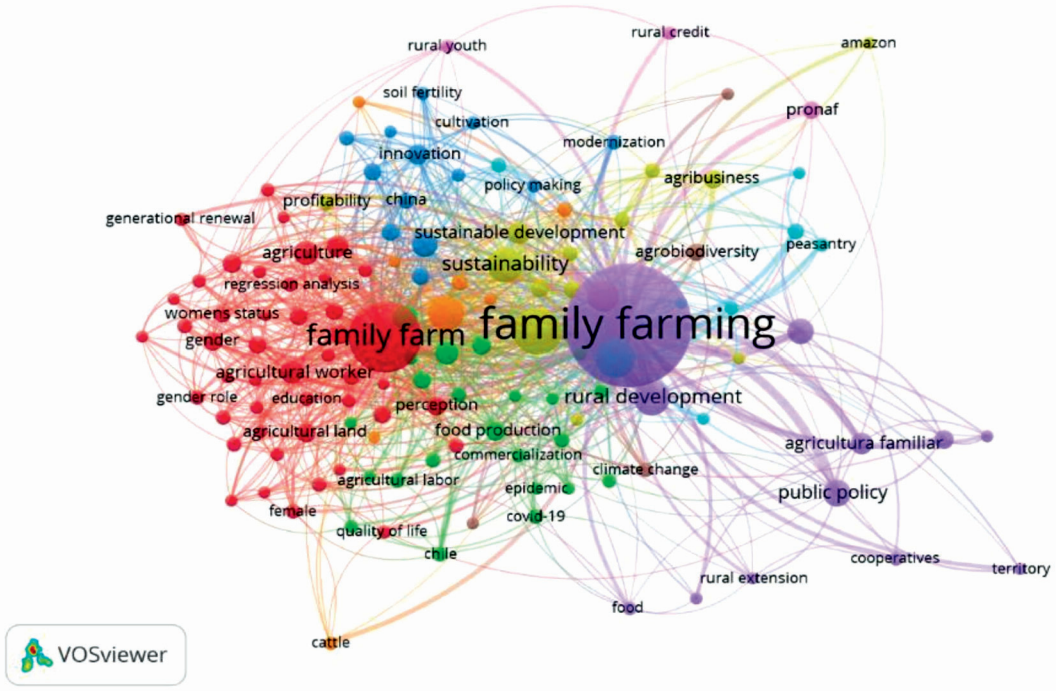

Figure 5. Co-occurrence network of keywords

density and centrality, indicating that either these themes are emerging or declining. The presence of keywords like "food security", "agricultural land", "food production" and "crop production" may suggest that the focus is moving from these conventional subjects to more comprehensive integrated topics like family farming system and sustainability.

Figure 5 represents the co-occurrence network map which depicts the association of keywords related to family farming. In this diagram, keywords are represented as nodes, larger nodes denote a higher frequency of the specific term and the thickness of connecting links shows the strength of co-occurrence network. The network is grouped into seven clusters denoted by seven colours, indicating clusters of closely related terms among which only four clusters are important because the cluster contain larger nodes.

Core research area

The co-occurrence network shows some keywords with larger nodes which indicates the focus of research in these areas such as "family farming", "family farms", "Brazil" and "farming system". Strong thematic cluster is present around these core research areas which is interconnected with other subtopics. *Central cluster (purple)*: In this cluster, keywords such as "family farming", "rural development" and "public policy" are dominant. The term "family farming" has largest node in the diagram showing its high-frequency

in the study area. *Red cluster*: Keywords such as "family farm", "agriculture", "women status" and "gender" are central showing focus of the research on social aspect. *Yellow cluster*: keywords like "Brazil", "sustainability" and "sustainable development" are dominant and show the co-occurrence. Finally, *Orange cluster*: This cluster has dominant keywords such as "farming system" and "smallholder" and has a smaller number of terms.

DISCUSSION

The present study reveals dynamic trends in family farming research over the decade, which has been mainly driven by the global initiative of the United Nations' 2014 declaration of the "International Year of Family Farming". The shift in research due to this trend, highlights family farming's role in food security, biodiversity conservation and climate resilience (Alam & Shrestha, 2021). After 2014 publication volume surged and then stabilized showing that family farming is important but it is now competing with emerging research areas like digital and climate- smart agriculture (FAO, 2024).

Geographically, Latin America and Europe account for the majority of the research activities, with France and Brazil as top contributors. Although agriculture acts as a primary industry for poverty reduction and employment in majority of Asian countries, family farming is not noticeable due to lack of land reforms, smaller farm size, mechanization of farms, diverse farming practices, resource scarcity and lack of younger generation involved in farming etc. (Ye & Pan, 2016). Brazil has a prominent role in terms of citation and publication volume which emphasize that family farming is deeply embedded in the country's agricultural system. Significant contributions can be seen by European countries, particularly Austria, where studies focus on small-scale sustainable farming. High citation impacts from countries like China and Argentina suggest that their research is very relevant outside of Europe and Latin America. These trends highlight the continued academic interest in family farming even though the focus shifted due to global economic research priorities. High-frequency terms like "Family farming", "Rural Development," and "Agroecology" highlight the socioeconomic and environmental features of family farms in Brazil and worldwide (Valverde et al., 2022). The prevalence of keywords like "Sustainability" and "Food Security" across the nations demonstrates the increased interest in family farms as agents of food security and climate resilience on a global scale. Early research emphasized on conventional agricultural areas while subsequent studies included social issues such as "Gender Roles" and economic factors related to "Rural Development". This development shows that policy talks on rural livelihoods and the function of family farming in regional food systems have sparked an increasing interest in the socioeconomic patterns seen on family farms (Graeub et al., 2016). Dominant topics like "Family Farm" and "Brazil" take up a lot of space on the tree map, indicating their importance in the conversation around family farming. This focus on Brazil is in line with the country's sizable family farm industry, which is essential to both rural employment and food supply. The study reflects a research field that is moving toward integrated and sustainable agricultural methods, with a strong focus on "Agroecology" and policies in the Brazilian context. Fundamental topics like family farms and sustainability remain central yet underdeveloped, representing areas for further growth in research, while traditional agricultural themes appear to be giving way to more holistic approaches in the study of family farming. In the study of family farming, traditional agricultural themes seem to be giving way to more holistic approaches, while fundamental subjects like sustainability and family farms remain important but underdeveloped, indicating possibilities for continued research expansion (Holloway et al., 2021). The Co-occurrence Network consolidates these results, which reveals robust thematic clusters around keywords like "Family Farming" and "Public Policy" reflecting their crucial linkage in the field. Overall, this analysis suggests that family farming is an interdisciplinary research area, with central hubs of study expanding from rural livelihoods and food security towards integrated socio-economic and environmental frameworks (Kumar et al., 2015).

Family farming promotes a balanced ecosystem using agroecological techniques like organic farming, crop variety, and traditional agriculture, which improve soil health, reduce chemical inputs, and sustain biodiversity (Mishra et al., 2022) which aligns with Sustainable Development Goals (SDGs) 15 (Life on Land), 13 (Climate Action) and 2 (Zero Hunger) (Chao, 2024). Family farms' varied crop and animal systems are more resilient to climatic shocks, supporting climate adaptation and mitigation efforts. They are essential for food security and sovereignty in accordance with SDGs 2 and 12 (Responsible Consumption and Production), as they stress local control over food systems (Chandana et al., 2022). Family farms contribute to 80 per cent of global food production, contributing to regional and global food systems (Lowder et al., 2021). They also contribute to SDGs 1 (No Poverty) and 8 (Decent Jobs and Economic Growth). Family farms promote social participation, enhance socioeconomic well-being, and reduce hunger and poverty. The productivity and sustainability of family farms depend on agrarian policy, land tenure, and tackling gender inequality (SDG 5). Improving women's access to resources and decision-making supports resilient rural livelihoods and sustainable family farming.

Research on family farming has increased significantly, but there are challenges, such as need for longitudinal studies, a lack of attention to particular geographical areas and the need to assess the economic feasibility of family farming in light of market integration and globalization (Cecconello et al., 2023). One such example is India. Even though India is home for 24 per cent small holder farmers of the world, research on family farming is still limited because, it is challenging to develop and implement effective interventions tailored to the needs of small family farms and difficulty of reaching and studying this dispersed group. Additionally, the complexity of their diverse farming practices, lack of infrastructure in rural areas, lack of funding for research specifically targeted at smallholders and the belief that research on large-scale farms may be more commercially viable adds up to the challenges (Aubron et al., 2022). Future studies will examine new topics including digital technology, youth engagement, and the relationship between family farming and urban agriculture, in addition to sustainability, climate change adaptation, and food security.

CONCLUSION

The study highlights the evolving landscape of research on family farming, revealing a dynamic and growing field of study in the agricultural sector. With significant contributions from Brazil, Europe and China, the study demonstrates the expanding global interest. From its traditional roots, the focus has shifted towards more holistic and sustainable approaches, encompassing agroecology, gender roles, and rural development policies. Family farming aligns seamlessly with the United Nations' SDGs, particularly in ensuring food security, environmental conservation, and climate action. As research continues to evolve, future directions will explore the integration of digital technologies, youth engagement, and urban-rural agricultural connections, further cementing family farming's vital role in fostering resilient and sustainable food systems worldwide. Ultimately, this transformative field holds immense promise for addressing pressing agricultural challenges and shaping a food-secure future for generations to come.

REFERENCES

Alam, G. M., & Shrestha, R. B. (2021). Promote sustainability of family farming for climate-resilient food systems in South Asia. *Regional action plan to implement the UNDFF for achieving the SDGs in South Asia*, *16*, 175.

Aubron, C., Bainville, S., Philippon, O., & Dorin, B. (2022). Neither corporate, nor family: the Indian "Patronal" Farm. *Frontiers in Sustainable Food Systems*, *6,* 850545. https://doi.org/10.3389/fsufs.2022.850545

Cecconello, E. R. F., Moro, L. D., Foguesatto, C. R., Breichtenbach, R., Neckel, A., Spanhol, C. P., Vieira-Filho, J. E. R., & Mores, G. D. V. (2023) Challenges and potentialities of sustainability in the institutional food market of family farming. *Sustainability*, *15*, 15796. https://doi.org/10.3390/su152215796

Chandana, T. S., Praveena, P. L. R. J., Lakshmi, T., Subramanyam, D., & Reddy, B. R. (2022). Sustainable livelihood security of integrated farming systems practicing farmers through different enterprise combinations in Andhra Pradesh. *Indian Journal of Extension Education*, *59*(1), 101-106. https://epubs.icar.org.in/index.php/IJEE/article/view/131873

Chandran, V., Saurav, S. K., Chakravarty, R., & Ashok, K. (2023). Contribution of integrated farming system (IFS) units towards household income in Kerala. *Indian Journal of Extension Education*, *59*(3), 69–73. https://doi.org/10.48165/IJEE.2023.59313

Chao, K. (2024) Family farming in climate change: Strategies for resilient and sustainable food systems. *Heliyon, 10*(7), 1-16. https://doi.org/10.1016/j.heliyon.2024.e28599

Das, D. (2007). Persistence of small-scale, family farms in India: A note. *The Journal of International Trade & Economic Development*, *16*(3), 401–410. https://doi.org/10.1080/09638190701527004

Food and Agriculture Organization (2014). Family farmers feeding the world, caring for the earth. Available from: https://www.fao.org/docrep/019/mj760e/mj760e.

Food and Agriculture Organization (2024). Family farming and climate-resilient agrifood systems.https://openknowledge.fao.org/server/api/core/bitstreams/8791a135-9fef-45f7-a54a-ad3fedf0b5cb/content

Fuller, A. M., Xu, S., Sutherland, L., & Escher, F. (2021). Land to the tiller: The sustainability of family farms. *Sustainability*, *13*(20), 11452; https://doi.org/10.3390/su132011452

Graeub, B. E., Chappell, M. J., Wittman, H., Ledermann, S., Kerr, R. B., & Gemmill-Herren, B. (2016). The state of family farms in the world. *World Development, 87*, 1–15. https://doi.org/10.1016/j.worlddev.2015.05.012

Holloway, L., Catney, G., Stockdale, A., & Nelson, R. (2021). Sustainable family farming futures: exploring the challenges of family farm decision making through an emotional lens of 'belonging.' *Sustainability, 13*(21), 12271. https://doi.org/10.3390/su132112271

Javed, S., Husain, F., Malik, N., & Pandey, K. (2024). Bibliometric analysis of leverage, liquidity and profitability: revealing literature gaps, author collaborations, and key insights. *International Research Journal of Multidisciplinary Scope, 5*(3), 583-598. http://dx.doi.org/10.47857/irjms.2024.v05i03.01014

Kumar, S., Bhatt, B. P., & Dwivedi, S. K. (2015). Family farming- a mechanism to contribute towards global food security. *Indian Farming*, *64*(12), 13–18.

Kumari, A., Deb, A., Prusty, A. K., Suman, S., Rout, D. S., & Amar, A. K. (2024). Preservation of the indigenous medicinal knowledge network of the Bonda tribe. *Indian Journal of Extension Education*, *60*(4), 40-46. https://doi.org/10.48165/IJEE.2024.60408

Lowder, S. K., Sánchez, M. V., & Bertini, R. (2021). Which farms feed the world and has farmland become more concentrated? *World Development, 142*, 105455. https://doi.org/10.1016/j.worlddev.2021.105455

Mishra, B., Nanda, S. S., Mishra, R., & Panda, P. K. (2022). IFS approaches for sustainable livelihood of small and marginal farmers in Odisha. *Indian Journal of Extension Education*, *47*(3&4),153-157. https://epubs.icar.org.in/index.php/IJEE/article/view/129084

Nain, M. S., Singh, R., & Sharma, J. P. (2014). Promotion and investment in family farming for food and nutritional security. *Indian Farming, 64*(8), 2-6.

Roy, P., Maji, S., Jirli, B., Singh, P., & Nain, M. S. (2024). Scopus indexed Indian Journal of Extension Education: Crafting improvement strategy through altmetric and bibliometric analysis. *Indian Journal of Extension Education*, *60*(2), 1-10. https://doi.org/10.48165/IJEE.2024.60201

Saha, P., Prusty, A. K., Nanda, C., Ray, S., & Sahoo, B. (2024). Professional insights provided by women extension personnel in Odisha. *Indian Journal of Extension Education*, *60*(3), 101-105. https://doi.org/10.48165/IJEE.2024.603RN03

Suess-Reyes, J., & Fuetsch, E. (2016). The future of family farming: A literature review on innovative, sustainable and succession-oriented strategies. *Journal of Rural Studies, 47*, 117–40. https://doi.org/10.1016/j.jrurstud.2016.07.008

Szydlik, M. (2008). Intergenerational solidarity and conflict. *Journal of Comparative Family Studies, 39*(1), 97-114. https://doi.org/10.3138/jcfs.39.1.97

Valverde, R. O., Mesías, P. A., & Peris-Blanes, J. (2022). Just transitions through agroecological innovations in family farming in Guatemala: enablers and barriers towards gender equality. *Environmental Innovation and Societal Transitions, 45*, 228–245.

Ye, J., & Pan, L. (2016). Concepts and realities of family farming in Asia and the Pacific. International Policy Centre for Inclusive Growth (IPC-IG) Working Paper No. 139. Available from https://openknowledge.fao.org/server/api/core/bitstreams/06920fee-8cf8-4fb8-8b29-f7bea68a7683/content