International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

INTERNATIONAL JOURNAL OF INNOVATION AND INDUSTRIAL REVOLUTION (IJIREV)
www.ijirev.com

A BIBLIOMETRIC STUDY ON FOOD SECURITY DILEMMA IN MALAYSIA: AN OVERVIEW ON RUMINANT SUPPLY CHAIN PERSPECTIVE

Ahmad Shabudin Ariffin[1*], Muhammad Aizat Md Sin[2], Rozhan Abu Dardak[3]

[1] Faculty of Business and Management Science, Universiti Islam Antarabangsa Tuanku Syed Sirajuddin (UniSIRAJ), Kuala Perlis Campus, 02000 Kuala Perlis, Perlis, Malaysia
Email: shabudin@unisiraj.edu.my
[2] Faculty of Business and Management Science, Universiti Islam Antarabangsa Tuanku Syed Sirajuddin (UniSIRAJ), Kuala Perlis Campus, 02000 Kuala Perlis, Perlis, Malaysia
Email: aizatmdsin@unisiraj.edu.my
[3] Ex Director Of Strategic Management And Innovation Center, Mardi, Persiaran Mardi-UPM, 43000 Serdang, Selangor
Email: rozhanabudardak@gmail.com
[*] Corresponding Author

Article Info:

Article history:
Received date: 26.06.2025
Revised date: 14.07.2025
Accepted date: 21.08.2025
Published date: 01.09.2025

To cite this document:

Ariffin, A. S., Md Sin, M. A., & Abu Dardak, R. (2025). A Bibliometric Study On Food Security Dilemma In Malaysia: An Overview On Ruminant Supply Chain Perspective. *International Journal of Innovation and Industrial Revolution, 7* (22), 306-319.

DOI: 10.35631/IJIREV.722020

Abstract:

Food security has emerged as a critical concern in Malaysia, particularly within the context of the ruminant supply chain, where self-sufficiency levels remain low and dependency on imports continues to rise. This study presents a comprehensive bibliometric analysis to understand the research landscape, trends, and gaps related to the food security dilemma in Malaysia, with a focus on the ruminant supply chain. The analysis aims to identify the evolution of scholarly output, key contributors, and thematic concentrations that can inform future research and policy direction. Using the keywords "Food Security," "beef supply," and "supply chain," relevant literature was retrieved from the Scopus database, yielding a total of 4,460 publications. Data cleaning and standardization were performed using OpenRefine, followed by co-authorship, co-occurrence, and citation network visualizations and analysis using VOSviewer and the Scopus Analyzer tools. The results indicate a growing body of literature in the last decade, with increased interdisciplinary collaboration. However, despite the volume of publications, specific focus on Malaysia's ruminant sector within the broader food security context remains limited. Major contributing countries include Malaysia, Indonesia, and Australia, with institutions such as Universiti Putra Malaysia and Universiti Malaya being prominent in the field. The co-occurrence analysis highlights key themes such as sustainability, supply chain management, and livestock production. This study reveals a pressing need for targeted research efforts addressing local ruminant production challenges, including feed resource constraints, import dependency, and supply chain inefficiencies. In conclusion, while bibliometric insights affirm growing academic interest in food security, they also underscore

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

the underrepresentation of Malaysia's ruminant supply chain issues, thus pointing to vital areas for future investigation and policy intervention.

Keywords:

Food Security, Supply Chain, Ruminant Farming

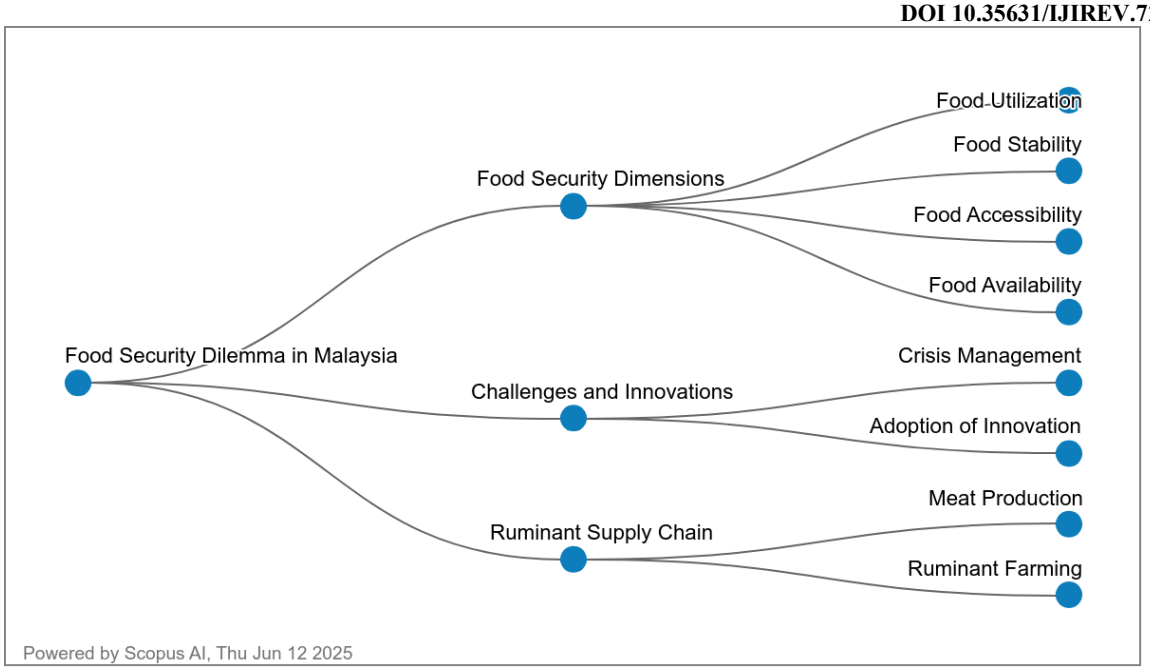
Introduction

Food security in Malaysia is a multifaceted issue influenced by various factors, including production, distribution, and accessibility of nutritious food. The country faces significant challenges due to its heavy reliance on food imports, declining agricultural productivity, and socioeconomic disparities (Mat and Amir 2019; Zulkifli et al. 2025). The ruminant supply chain, which includes cattle and other livestock, is particularly critical as it provides essential protein sources. However, Malaysia's self-sufficiency level in ruminant meat is low, necessitating substantial imports to meet domestic (Abdullah, Ali, and Noor 2020; Mohd Yusof and Ismail 2024) . This study aims to explore the food security dilemma in Malaysia from the perspective of the ruminant supply chain, examining the current state, challenges, and potential strategies for improvement.

The ruminant supply chain in Malaysia is characterized by several inefficiencies and challenges that impact food security. The increasing demand for ruminant meat has not been matched by domestic production, leading to a growing dependence on imports (Abdullah et al. 2020; Abdullah, Ali, and Noor 2021) . Factors such as high production costs, limited adoption of innovative farming techniques, and inadequate support for local farmers contribute to this imbalance. Innovations like artificial insemination and biosecurity measures have the potential to enhance production, but their adoption is hindered by various barriers including lack of education and access to information among farmers. Additionally, environmental factors such as climate change and resource overuse further complicate the stability and sustainability of the ruminant supply chain (Zulkifli et al. 2025).

Addressing the food security dilemma in Malaysia requires a holistic approach that includes strengthening the ruminant supply chain. Key strategies involve promoting the adoption of advanced agricultural technologies, improving logistics and supply chain management, and implementing supportive policies for local farmers (Abdullah et al. 2021; Madhavedi et al. 2025). Collaborative efforts between government, private sectors, and international organizations are essential to enhance domestic production and reduce dependency on imports (Madhavedi et al. 2025; Zulkifli et al. 2025). Furthermore, increasing awareness and education among farmers about innovative practices can drive the adoption of technologies that improve productivity and sustainability in ruminant farming. By focusing on these areas, Malaysia can work towards achieving greater self-sufficiency in ruminant meat production and ensuring long-term food security.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020



The diagram illustrates the complex landscape of Malaysia's food security dilemma, emphasizing three major thematic areas: food security dimensions, challenges and innovations, and the ruminant supply chain. The food security dimensions, comprising food availability, accessibility, stability, and utilization, represent the foundational pillars that determine whether individuals and communities have consistent access to safe, nutritious food. These components are essential for assessing the overall resilience and functionality of the national food system. For example, food availability relates to domestic production and imports, while accessibility depends on economic and physical access. Food stability addresses vulnerability to shocks such as climate change or market disruptions, and food utilization highlights the importance of health, nutrition, and sanitation in food consumption.

The second and third branches of the diagram point to the broader systemic factors influencing food security in Malaysia. The "Challenges and Innovations" node identifies the need for effective crisis management and the adoption of new technologies and practices to cope with both ongoing and emerging threats to food systems. Simultaneously, the "Ruminant Supply Chain" is highlighted as a critical sub-sector that affects meat production and livestock farming practices. These elements are crucial in ensuring local food production can meet rising demand while maintaining sustainability and efficiency. Together, these interconnected themes provide a holistic understanding of the multi-dimensional issues Malaysia faces in striving for a secure and resilient food system.

Literature Review

Current State of the Ruminant Supply Chain

The ruminant sub-sector in Malaysia is underdeveloped, with a low self-sufficiency level in meat production. The demand for ruminant meat has consistently outpaced supply, leading to increased imports and higher prices for local beef compared to imported beef (Abdullah et al. 2020). Innovations in ruminant farming, such as artificial insemination and biosecurity measures, have the potential to enhance production but are not widely adopted due to various

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

barriers. Additionally, the COVID-19 pandemic has further exposed the vulnerabilities in the agricultural sector, including the ruminant supply chain, by disrupting supply networks and highlighting the need for resilient systems.

Challenges in the Ruminant Supply Chain

Several challenges impede the development of a robust ruminant supply chain in Malaysia. These include socioeconomic factors such as household income, high living costs, and insufficient assistance programs, which contribute to food insecurity among vulnerable groups. Environmental factors, including climate change and resource overuse, also pose significant threats to food production. Moreover, global disruptions, such as geopolitical conflicts and pandemics, exacerbate these challenges by increasing costs and straining supply chains. The lack of investment in agricultural research and development and the aging farmer demographics further hinder the sector's growth.

Addressing the food security dilemma in Malaysia, particularly from the ruminant supply chain perspective, requires a multifaceted approach. Enhancing local production through the adoption of innovative farming techniques and improving supply chain resilience are crucial steps. Policymakers must prioritize investments in agricultural research and development, support for farmers, and the implementation of sustainable practices to reduce dependency on imports and ensure a stable food supply. Collaborative efforts between the government, private sector, and international organizations are essential to create a sustainable and equitable food system that can withstand future challenges.

Methodology

Bibliometrics entails the collection, organization, and analysis of bibliographic data from scientific literature (Alves, Borges, and De Nadae 2021; Assyakur and Rosa 2022; Verbeek et al. 2002). In addition to basic metrics—such as identifying publishing journals, publication dates, and prominent authors (Wu and Wu 2017) it also employs advanced methods like document co-citation analysis. A thorough literature review demands a careful, iterative process involving the selection of relevant keywords, systematic searching, and detailed examination of the literature. This method supports the creation of a comprehensive bibliography and ensures reliable outcomes (Fahimnia, Sarkis, and Davarzani 2015). With this approach, the study concentrated on high-impact publications, as these offer valuable insights into the theoretical foundations of the research field. To ensure the accuracy of the data, SCOPUS was used as the primary source (Al-Khoury et al. 2022; Khiste and Paithankar 2017; di Stefano, Peteraf, and Veronay 2010). Furthermore, to maintain quality standards, only peer-reviewed journal articles were included, while books and lecture notes were intentionally excluded (Gu et al. 2019). Publications indexed in Elsevier's Scopus, recognized for its extensive coverage, were collected from 2020 through December 2023 for analysis.

Data Search Strategy

The study utilized a screening process to identify appropriate search terms for article retrieval. It began by querying the Scopus database using the following search string: TITLE ("Food Security" OR "beef supply" OR "supply chain") AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (PUBYEAR, 2023) OR LIMIT-TO (PUBYEAR, 2024)), which initially yielded 92,576 articles. The search query was then refined to focus more specifically on supply chain-

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

related aspects of the terms "Food Security," "beef supply," and "supply chain." This refinement resulted in a final set of 4,460 articles used for bibliometric analysis.

Table 1

The Search String.

Scopus	TITLE ("Food Security" OR "beef supply" OR "supply chain") AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2024))

Table 2
The Selection Criterion Is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2023 – 2024	< 2023
Literature type	Journal (Article)	Conference, Book, Review
Subject Area	Business, Management and Accounting	Besides, Business, Management and Accounting

Data Analysis

VOSviewer is a widely used bibliometric analysis tool developed by Nees Jan van Eck and Ludo Waltman at Leiden University, Netherlands (van Eck and Waltman 2010, 2017). Renowned for its user-friendly interface, the software excels at visualizing and analyzing scientific literature, particularly through network visualizations, clustering, and density mapping. It supports a range of analyses, including co-authorship, co-citation, and keyword co-occurrence, providing researchers with deep insights into research trends and structures. Its flexibility, continuous development, and compatibility with various bibliometric data sources make it a vital tool for both novice and experienced scholars.

One of VOSviewer's key strengths is its ability to convert complex bibliometric datasets into easily interpretable visual maps and charts. The software emphasizes network visualization and is particularly effective in clustering related terms and analyzing keyword co-occurrence. Its interactive features and customizable visual outputs enable efficient exploration of large datasets, while regular updates ensure it stays current with research needs.

For this study, bibliometric data—including publication year, title, author, journal, citations, and keywords—were extracted from the Scopus database (2004–December 2024) in PlainText format and analyzed using VOSviewer version 1.6.19. Utilizing clustering and mapping techniques, the software generated visual representations of the data. Unlike the Multidimensional Scaling (MDS) approach, which focuses on computing similarity metrics

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

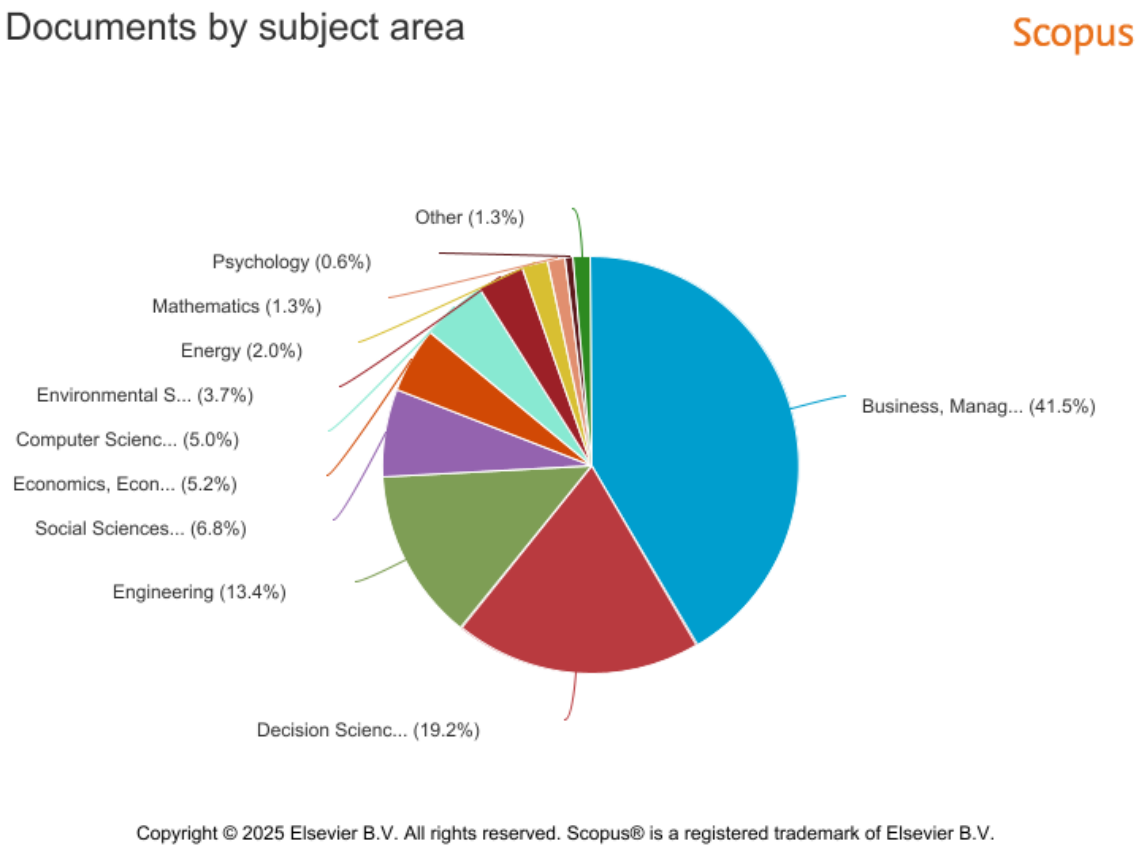
such as cosine and Jaccard indices, VOSviewer adopts a different strategy: it positions items in a low-dimensional space so that their proximity reflects their similarity. It does so using the association strength (AS_{ij}) normalization method, calculated as:

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

This metric represents the ratio of the observed co-occurrences of items i and j to the expected co-occurrences under the assumption of statistical independence (Van Eck and Waltman 2007).

Findings

What The Most Document In Subject Area?



International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

What Are The Most Cited Articles?

Top ten the most article cited

Authors	Title	Year	Source title	Cited by
Shen Z.M.; Sun Y.(Shen and Sun 2023)	Strengthening supply chain resilience during COVID-19: A case study of JD.com	2023	Journal of Operations Management	235
Zhao N.; Hong J.; Lau K.H.(Zhao, Hong, and Lau 2023)	Impact of supply chain digitalization on supply chain resilience and performance: A multi-mediation model	2023	International Journal of Production Economics	216
Dubey R.; Bryde D.J.; Dwivedi Y.K.; Graham G.; Foropon C.; Papadopoulos T.(Dubey et al. 2023)	Dynamic digital capabilities and supply chain resilience: The role of government effectiveness	2023	International Journal of Production Economics	191
Sharma R.; Shishodia A.; Kamble S.; Gunasekaran A.; Belhadi A.(Sharma et al. 2024)	Agriculture supply chain risks and COVID-19: mitigation strategies and implications for the practitioners	2024	International Journal of Logistics Research and Applications	189
Ivanov D.(Ivanov 2024)	Digital Supply Chain Management and Technology to Enhance Resilience by Building and Using End-to-End Visibility During the COVID-19 Pandemic	2024	IEEE Transactions on Engineering Management	188
Li K.; Lee J.-Y.; Gharehgozli A.(Li, Lee, and Gharehgozli 2023)	Blockchain in food supply chains: a literature review and synthesis analysis of platforms, benefits and challenges	2023	International Journal of Production Research	163
Wu X.-Y.; Fan Z.-P.; Cao B.-B.(Wu, Fan, and Cao 2023)	An analysis of strategies for adopting blockchain technology in the fresh product supply chain	2023	International Journal of Production Research	154
Al Rahamneh A.A.; Alrawashdeh S.T.; Bawaneh A.A.; Alatyat Z.; Mohammad A.; Mohammad	The effect of digital supply chain on lean manufacturing: A structural equation modelling approach	2023	Uncertain Supply Chain Management	153

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
IJIREV
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

A.A.S.; Al-Hawary S.I.S. (Al Rahamneh et al. 2023)				
Treiblmaier H.; Garaus M. (Treiblmaier and Garaus 2023)	Using blockchain to signal quality in the food supply chain: The impact on consumer purchase intentions and the moderating effect of brand familiarity	2023	International Journal of Information Management	153
Vu N.; Ghadge A.; Bourlakis M. (Vu, Ghadge, and Bourlakis 2023)	Blockchain adoption in food supply chains: a review and implementation framework	2023	Production Planning and Control	147

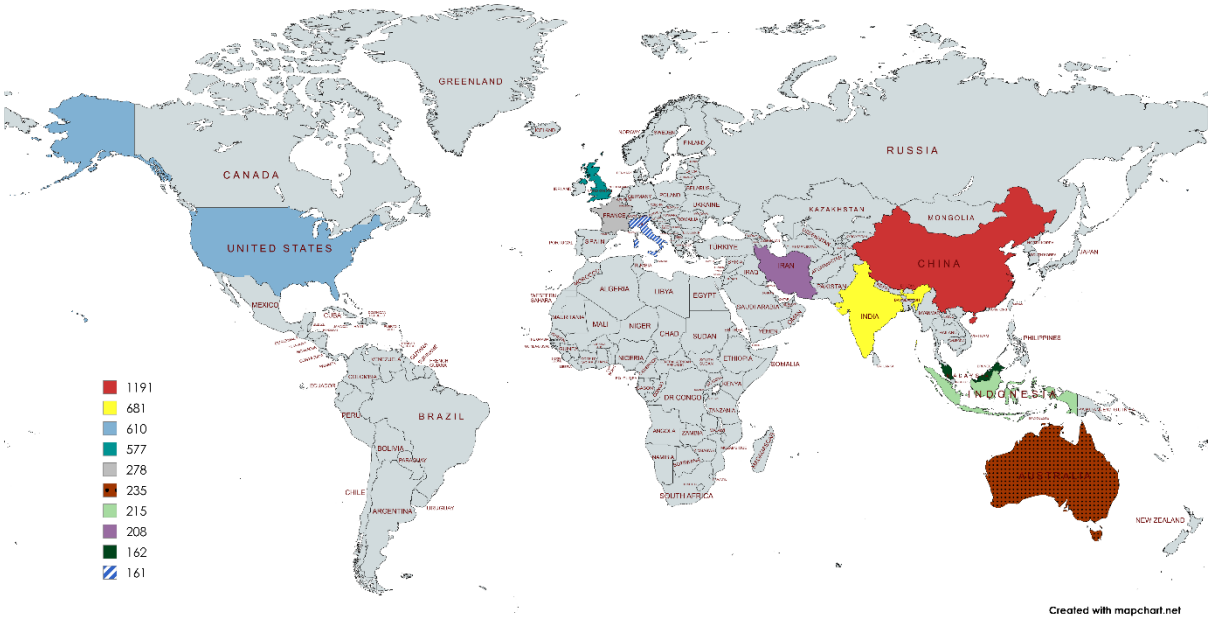
The top ten most cited articles predominantly focus on digital technologies and resilience strategies within supply chains, especially in response to disruptions such as the COVID-19 pandemic. Notably, the most cited article by Shen and Sun (2023) emphasizes a practical case study of JD.com, illustrating how firms can strengthen supply chain resilience. This emphasis on digitalization is echoed across several highly cited works, such as Zhao et al. (2023) and Dubey et al. (2023), which explore how digital transformation, including dynamic digital capabilities and government effectiveness, enhances both resilience and performance. This trend indicates a strong academic and practical interest in how digital tools can mitigate supply chain vulnerabilities in uncertain times.

A significant portion of the articles also focus on the application and implications of blockchain technology in supply chains, particularly in food systems. For instance, Li et al. (2023) and Treiblmaier & Garaus (2023) delve into blockchain's role in enhancing traceability, signalling quality, and influencing consumer behaviour. The clustering of research around blockchain and digital technologies suggests a paradigm shift in supply chain management, with a growing consensus that transparency, traceability, and technology adoption are critical for building agile and resilient supply chains. This aligns with global trends toward digital transformation and increased demand for secure, responsive supply networks post-pandemic.

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

Where Are Top 10 Countries Based On Number Of Publications?

Top Ten Document by Country Territory



COUNTRY/TERRITORY	DOCUMENTS	PERCENTAGE
China	1191	26.70
India	681	15.27
United States	610	13.68
United Kingdom	577	12.94
France	278	6.23
Australia	235	5.27
Indonesia	215	4.82
Iran	208	4.66
Malaysia	162	3.63
Italy	161	3.61

The table highlights the top ten countries based on the number of publications, with China leading by a considerable margin, contributing 26.7% of the total. This suggests a strong emphasis on research and academic output in China, likely driven by extensive government investment in science and technology. India and the United States follow, with 15.27% and 13.68% respectively, indicating their significant roles in global research. The United Kingdom also shows a strong presence at 12.94%, reflecting its established academic institutions and research infrastructure. Together, these four countries account for more than two-thirds of the total publications, demonstrating their dominance in scholarly output.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

The remaining countries—France, Australia, Indonesia, Iran, Malaysia, and Italy—each contribute between 3.61% and 6.23%. While their shares are smaller, their inclusion in the top ten signifies active research communities and growing academic engagement, particularly in emerging economies like Indonesia and Iran. Southeast Asian countries such as Malaysia and Indonesia also show notable contributions, suggesting regional growth in academic productivity. The distribution of publications among these nations indicates both a concentration of research activity in traditional powerhouses and a gradual shift toward greater global participation in scholarly output.

What Are The Popular Keywords Related To The Study?

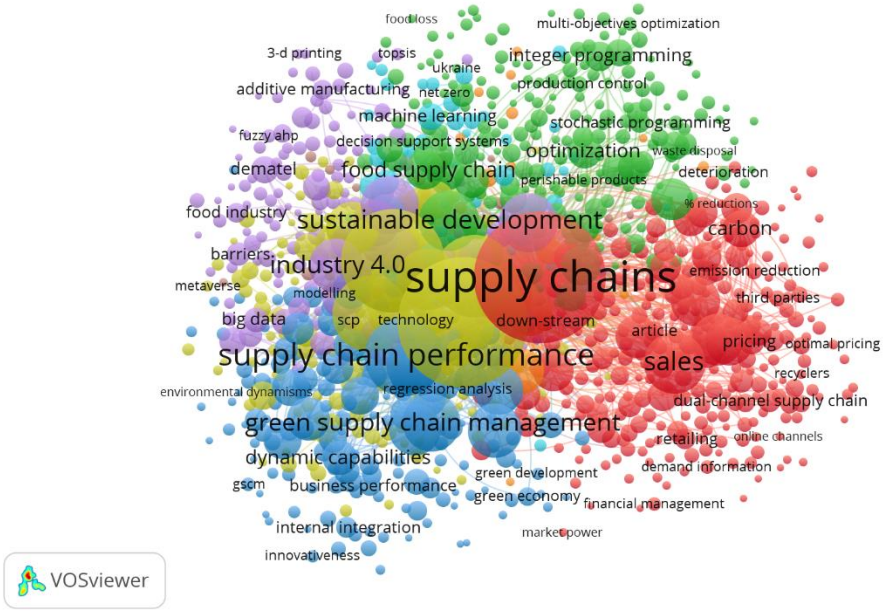


Figure 2: Network Visualisation Map Of Keywords 'Co-Occurrence'

This keyword visualization map, generated using VOSviewer, displays a network of keywords clustered by thematic similarity and frequency of co-occurrence in supply chain research. The most dominant term at the centre is "supply chains", indicating its central role and connectivity to various research themes. Keywords such as "supply chain performance," "sustainable development," and "green supply chain management" appear prominently, reflecting current academic interest in sustainability and performance measurement. These concepts are often interlinked with broader issues like industry 4.0, technology, and carbon emissions, suggesting an evolving focus on digital transformation and environmental impact.

The map reveals five primary color-coded clusters, each representing a distinct thematic focus. The red cluster seems to emphasize market- and economics-related terms such as sales, pricing, dual-channel supply chain, and retailing, pointing to research on supply chain efficiency, pricing strategies, and consumer behaviour. The green cluster contains terms related to operations research, such as optimization, stochastic programming, integer programming, and perishable products, showing strong links to mathematical modelling and logistics. Meanwhile, the blue cluster focuses on performance and integration topics, featuring terms like business performance, internal integration, and dynamic capabilities, which are critical for assessing organizational effectiveness.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

In contrast, the yellow and purple clusters explore innovative and technological advancements. The yellow cluster, which includes industry 4.0, big data, and modelling, highlights research that merges digital technologies with supply chain strategies. The purple cluster includes emerging technologies and methods such as additive manufacturing, machine learning, and decision support systems, indicating a growing interest in intelligent and flexible supply chain systems. Overall, the map illustrates a multidisciplinary landscape in supply chain research, with growing intersections between sustainability, digital transformation, performance analytics, and economic modelling.

What Are Co-Authorship Based On Countries Collaboration?

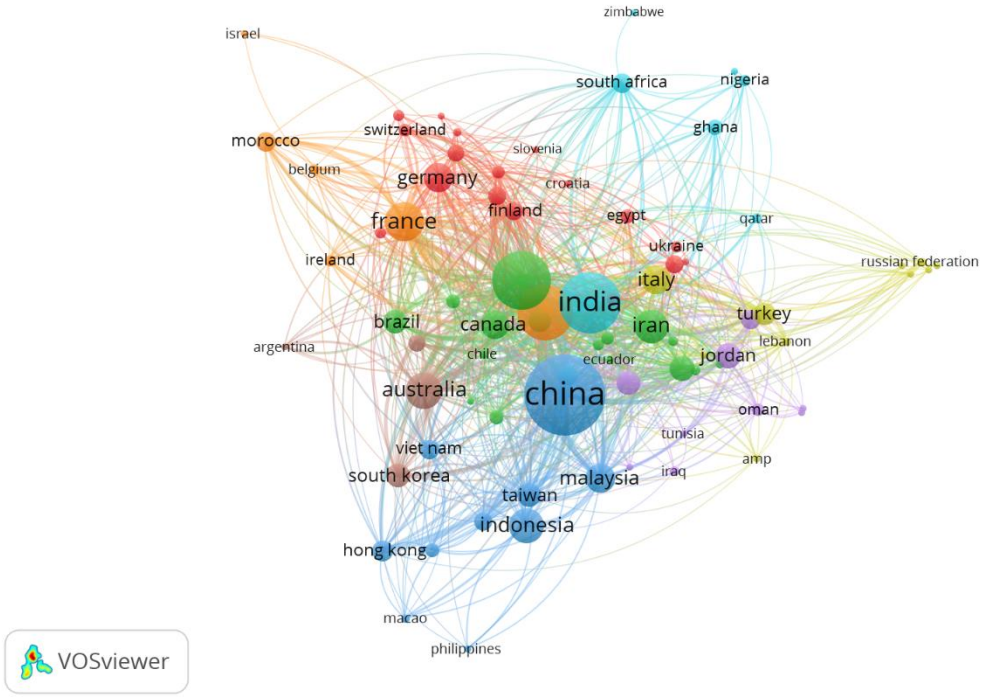


Figure 3: Networks Visualisation Map Of Country Collaboration

Conclusion

The purpose of this bibliometric study was to explore the research landscape concerning the food security dilemma in Malaysia, particularly through the lens of the ruminant supply chain. This analysis sought to identify prevailing trends, influential contributions, and thematic patterns within the literature to inform strategic directions for future research and policy development.

The analysis uncovered a significant growth in scholarly publications on food security and supply chain topics, particularly over the past decade. Notably, there was a marked concentration of research around themes such as sustainability, digital transformation, and supply chain resilience. However, despite an overall increase in publication volume, specific research addressing Malaysia's ruminant sector within the broader food security discourse remains relatively limited. The bibliometric mapping revealed dominant keyword clusters

International Journal of Innovation and Industrial Revolution
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020

emphasizing sustainability, technology adoption, logistics optimization, and economic efficiency, suggesting a multidisciplinary approach to contemporary supply chain challenges.

This study contributes to the field by offering a comprehensive overview of existing academic outputs and identifying research voids, especially in localized contexts such as the Malaysian ruminant industry. By mapping co-authorship networks, keyword trends, and citation patterns, the study provides valuable insights into collaborative structures and thematic priorities, which can guide researchers, institutions, and policymakers seeking to strengthen food system resilience.

In terms of practical implications, the findings underscore the urgent need for targeted research on Malaysia's livestock sector, particularly in addressing persistent challenges such as low self-sufficiency, high import dependency, and underutilization of technological innovations. The study also highlights the potential benefits of enhanced collaboration between academia, government, and industry to improve food production systems and reduce vulnerabilities in the supply chain.

Nonetheless, the study faces certain limitations. It focuses exclusively on English-language journal articles within the business subject area and utilizes only the Scopus database, which may omit relevant research published in other languages or fields. Future research could expand this scope to include other databases, explore qualitative insights, or focus on comparative studies across regions. Furthermore, a more in-depth investigation into specific technological interventions and policy impacts on local ruminant supply chains would offer additional value.

In closing, this research underscores the importance of bibliometric analysis as a tool to trace academic progress, reveal thematic directions, and spotlight underexplored areas within the food security discourse. The findings not only reaffirm the centrality of supply chain issues in addressing food security but also call for deeper, localized, and multidisciplinary investigations to build more sustainable and resilient food systems in Malaysia and beyond.

Acknowledgement
The authors express sincere gratitude to the Universiti Islam Antarabangsa Tuanku Syed Sirajuddin (UniSIRAJ) and colleagues who provided valuable insights and encouragement throughout this study. Appreciation is also extended to the administrative and technical teams involved in data management and analysis. The completion of this work reflects a shared commitment to academic inquiry and the betterment of student mental health in higher education.

References

Abdullah, F. A., J. Ali, and M. S. Z. Noor. 2020. "The Adoption of Innovation in Ruminant Farming for Food Security in Malaysia: A Narrative Literature Review." *Journal of Critical Reviews* 7(6):738–43. doi:10.31838/jcr.07.06.130.

Abdullah, F. A., J. Ali, and M. S. Z. Noor. 2021. "Factors Influencing the Adoption of Innovation in Beef Cattle Farming: A Study in Peninsular Malaysia." in *IOP Conference Series: Earth and Environmental Science*. Vol. 756. Faculty of Agro Based Industry, Universiti Malaysia Kelantan, Jeli Campus, Kelantan, 17600, Malaysia: IOP Publishing Ltd.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020
Al-Khoury, Abeer, Sahraa Anwer Hussein, Muthana Abdulwhab, Zainab M. Aljuboori, Hossam Haddad, Mostafa A. Ali, Ibtihal A. Abed, and Hakeem Hammood Flayyih. 2022. "Intellectual Capital History and Trends: A Bibliometric Analysis Using Scopus Database." *Sustainability (Switzerland)* 14(18). doi:10.3390/su141811615.

Al Rahamneh, A. A., S. T. Alrawashdeh, A. A. Bawaneh, Z. Alatyat, A. Mohammad, A. A. S. Mohammad, and S. I. S. Al-Hawary. 2023. "The Effect of Digital Supply Chain on Lean Manufacturing: A Structural Equation Modelling Approach." *Uncertain Supply Chain Management* 11(1):391–402. doi:10.5267/j.uscm.2022.9.003.

Alves, Josivan Leite, Igor Bernardino Borges, and Jeniffer De Nadae. 2021. "Sustainability in Complex Projects of Civil Construction: Bibliometric and Bibliographic Review." *Gestao e Producao* 28(4). doi:10.1590/1806-9649-2020v28e5389.

Assyakur, Dienda Sesioria, and Elsye Maria Rosa. 2022. "Spiritual Leadership in Healthcare: A Bibliometric Analysis." *Jurnal Aisyah : Jurnal Ilmu Kesehatan* 7(2). doi:10.30604/jika.v7i2.914.

Dubey, R., D. J. Bryde, Y. K. Dwivedi, G. Graham, C. Foropon, and T. Papadopoulos. 2023. "Dynamic Digital Capabilities and Supply Chain Resilience: The Role of Government Effectiveness." *International Journal of Production Economics* 258. doi:10.1016/j.ijpe.2023.108790.

di Stefano, Giada, Margaret Peteraf, and Gianmario Veronay. 2010. "Dynamic Capabilities Deconstructed: A Bibliographic Investigation into the Origins, Development, and Future Directions of the Research Domain." *Industrial and Corporate Change* 19(4):1187–1204. doi:10.1093/icc/dtq027.

Fahimnia, Behnam, Joseph Sarkis, and Hoda Davarzani. 2015. "Green Supply Chain Management: A Review and Bibliometric Analysis." *International Journal of Production Economics* 162:101–14.

Gu, Dongxiao, Tongtong Li, Xiaoyu Wang, Xuejie Yang, and Zhangrui Yu. 2019. "Visualizing the Intellectual Structure and Evolution of Electronic Health and Telemedicine Research." *International Journal of Medical Informatics* 130. doi:10.1016/j.ijmedinf.2019.08.007.

Ivanov, D. 2024. "Digital Supply Chain Management and Technology to Enhance Resilience by Building and Using End-to-End Visibility During the COVID-19 Pandemic." *IEEE Transactions on Engineering Management* 71:10485–95. doi:10.1109/TEM.2021.3095193.

Khiste, G. P., and R. R. Paithankar. 2017. "Analysis of Bibliometric Term in Scopus." *International Research Journal* 01(32):78–83.

Li, K., J. Y. Lee, and A. Gharehgozli. 2023. "Blockchain in Food Supply Chains: A Literature Review and Synthesis Analysis of Platforms, Benefits and Challenges." *International Journal of Production Research* 61(11):3527–46. doi:10.1080/00207543.2021.1970849.

Madhavedi, S., A. Nagandran, W. C. Hoo, A. A. Reddy, and P. Paraman. 2025. "The Impact of Food Security Concept, Supply and Demand Management, Domestic Agriculture, and Agricultural Technology on Malaysia's Food Security: A Delphi Expert Consensus Approach." *International Journal of Innovative Research and Scientific Studies* 8(3):710–26. doi:10.53894/ijirss.v8i3.6606.

Mat, B., and K. N. K. Amir. 2019. "Socioeconomic Factors, Food Supply and Food Security among Communities at the Malaysia-Thailand BOrder: A Human Security Approach." *International Journal of Supply Chain Management* 8(3):1004–9.

International Journal of Innovation and Industrial Revolution
IJIREV
EISSN: 2637-0972
Volume 7 Issue 22 (September 2025) PP. 306-319
DOI 10.35631/IJIREV.722020
Mohd Yusof, H. H., and N. W. Ismail. 2024. *Feeding the Future: The Economics of Ruminant*. Universiti Putra Malaysia, Malaysia: Universiti Putra Malaysia Press.

Sharma, R., A. Shishodia, S. Kamble, A. Gunasekaran, and A. Belhadi. 2024. "Agriculture Supply Chain Risks and COVID-19: Mitigation Strategies and Implications for the Practitioners." *International Journal of Logistics Research and Applications* 27(11):2351–77. doi:10.1080/13675567.2020.1830049.

Shen, Z. M., and Y. Sun. 2023. "Strengthening Supply Chain Resilience during COVID-19: A Case Study of JD.Com." *Journal of Operations Management* 69(3):359–83. doi:10.1002/joom.1161.

Treiblmaier, H., and M. Garaus. 2023. "Using Blockchain to Signal Quality in the Food Supply Chain: The Impact on Consumer Purchase Intentions and the Moderating Effect of Brand Familiarity." *International Journal of Information Management* 68. doi:10.1016/j.ijinfomgt.2022.102514.

van Eck, Nees Jan, and Ludo Waltman. 2010. "Software Survey: VOSviewer, a Computer Program for Bibliometric Mapping." *Scientometrics* 84(2):523–38. doi:10.1007/s11192-009-0146-3.

van Eck, Nees Jan, and Ludo Waltman. 2017. "Citation-Based Clustering of Publications Using CitNetExplorer and VOSviewer." *Scientometrics* 111(2):1053–70. doi:10.1007/s11192-017-2300-7.

Van Eck, Nees Jan, and Ludo Waltman. 2007. "Bibliometric Mapping of the Computational Intelligence Field." Pp. 625–45 in *International Journal of Uncertainty, Fuzziness and Knowldege-Based Systems*. Vol. 15.

Verbeek, Arnold, Koenraad Debackere, Marc Luwel, and Edwin Zimmermann. 2002. "Measuring Progress and Evolution in Science and Technology - I: The Multiple Uses of Bibliometric Indicators." *International Journal of Management Reviews* 4(2):179–211. doi:10.1111/1468-2370.00083.

Vu, N., A. Ghadge, and M. Bourlakis. 2023. "Blockchain Adoption in Food Supply Chains: A Review and Implementation Framework." *Production Planning and Control* 34(6):506–23. doi:10.1080/09537287.2021.1939902.

Wu, X. Y., Z. P. Fan, and B. B. Cao. 2023. "An Analysis of Strategies for Adopting Blockchain Technology in the Fresh Product Supply Chain." *International Journal of Production Research* 61(11):3717–34. doi:10.1080/00207543.2021.1894497.

Wu, Yen Chun Jim, and Tienhua Wu. 2017. "A Decade of Entrepreneurship Education in the Asia Pacific for Future Directions in Theory and Practice." *Management Decision* 55(7):1333–50.

Zhao, N., J. Hong, and K. H. Lau. 2023. "Impact of Supply Chain Digitalization on Supply Chain Resilience and Performance: A Multi-Mediation Model." *International Journal of Production Economics* 259. doi:10.1016/j.ijpe.2023.108817.

Zulkifli, M. F. B., A. A. A. Rahman, N. Zulkifli, A. F. M. Yasid, B. Mat, and M. S. B. Alias. 2025. "Implications Due to Challenges to Food Security in Malaysia." *Journal of Ecohumanism* 4(1):1894–1904. doi:10.62754/joe.v4i1.6005.