

Supplementary Material – Search Strategy and List of Articles Included

The search strategy, including the keywords and Boolean logic used in each database, is presented below. This section aims to ensure the reproducibility of the research. The procedure used to determine the research scope was the PICO framework (P - Problem or Population; I - Intervention; C - Comparison or Control; O - Outcomes), as it is the most appropriate for the research question of this review: *What risks exist in food supply chains and what strategies are used to mitigate them?*

In addition, to find synonyms and terms related to the keywords and to facilitate the expansion and precision of academic searches, the following thesauri were used: IEEE, ERIC, and UNESCO. These specialized thesauri provide a list of relevant terms and concepts in the fields of engineering, education, and social sciences, respectively.

The keywords corresponding to the items of the PICO acronym were used to build the search strategy. The search strategy included the following terms: (“Supply chain” OR “Distribution” OR “Network” OR “Logistics” OR “Value chain”) AND (“Risks” OR “Perils” OR “Dangers” OR “Threats”) AND (“Food industry” OR “Food sector” OR “Food Manufacturing sector” OR “Food processing industry” OR “Food Distributors” OR “food suppliers” OR “food wholesalers”) AND (“Mitigation” OR “minimization”). Table 1 presents the specific parameters by database.

Table 1 – Specific parameters by database

Database	Notes	Number of articles
Scopus	Search conducted in the fields of Title, Abstract, and Keywords. No publication date restriction was applied	124
Web of Science	Search conducted in the Topic field. No publication date restriction was applied.	28
Google Scholar	Search conducted without applying additional filters (such as citation count, H-index, or journal quality) in the initial phase. Screening and quality assessment were performed later, as described in the methodology section.	87
Grey Literature	Four articles were identified and included from grey literature sources, complementing the searches in the formal databases.	4

In Table 2 we present the complete list of articles that were selected and included in this systematic review, after the application of inclusion and exclusion criteria and the quality assessment. This list is essential for the transparency and replicability of the study.

Table 2 – List of articles used in the systematic literature review (SLR)

No.	Title	Author(s)	Method
1	Actor-specific risk perceptions and strategies for resilience building in different food systems in Kenya and Bolivia	(Jacobi et al., 2019)	Case study, interviews
2	A model ISM-MICMAC for managing risk in agri-food supply chain: an investigation from the Andean region of Peru	(Ramos et al., 2021)	ISM–MICMAC
3	A quantitative risk assessment methodology and evaluation of food supply chain	(Rathore et al., 2017)	Grey-AHP, Grey-TOPSIS
4	Achieving resilience through knowledge management practices and risk management culture in agri-food supply chains	(Sun et al., 2023)	PLS-SEM
5	Addressing food supply chain and consumption inefficiencies: potential for climate change mitigation	(Porter & Reay, 2016)	Review and case studies
6	Agriculture supply chain risks and COVID-19: mitigation strategies and implications for the practitioners	(Sharma, Rohit et al., 2020)	Fuzzy Linguistic
7	Agri-food risks and mitigations: a case study of the Brazilian mango	(Pereira et al., 2020)	Case study
8	Agri-food supply chain and disruptions due to COVID-19: effects and strategies	(Sid et al., 2021)	Mixed (qualitative and quantitative)
9	An exploratory study of supply chain risk management in the New Zealand fast food industry	(Cui & Basnet, 2015)	Exploratory study
10	Analysis of mitigation strategy for operational supply risk: An empirical study of halal food manufacturers in Malaysia	(Azmi et al., 2021)	PLS-SEM
11	An integrated approach based-structural modeling for risk prioritization in supply network management	(Hachicha & Elmsalmi, 2014)	ISM and MICMAC
12	Anticounterfeiting and Fraud Mitigation Solutions for High-value Food Products	(Maritano et al., 2024)	Literature review
13	Application of Information-Sharing for Resilient and Sustainable Food Delivery in Last-Mile Logistics	(Gruzauskas et al., 2023)	Agent-based model
14	Assessed versus perceived risks: innovative communications in agri-food supply chains	(Santeramo et al., 2021)	Literature review and experimental study
15	Assessment of the Most Appropriate Measures for Mitigation of Risks in the Agri-Food Supply Chain	(Kuizinaite et al., 2023)	Best–Worst Multi-Criteria Decision Making
16	Building Resilience in Food Security: Sustainable Strategies Post-COVID-19	(Haji & Himpel, 2024)	Structural Equation Modeling (SEM) and survey
17	Building strategic resilience in the food supply chain	(Manning & Soon, 2016)	Systematic literature review
18	Disruption in food supply chain and undernourishment challenges: An empirical study in the context of Asian countries	(Khan, Syed Abdul Rehman et al., 2022)	Generalized Method of Moments (GMM)
19	Evaluation of risks in foodgrains supply chain using failure mode effect analysis and fuzzy VIKOR	(Rathore et al., 2021)	FMEA and fuzzy VIKOR

20	Evaluation of sustainable supply chain risk: evidence from the Iranian food industry	(Tavakoli Haji Abadi & Avakh Darestani, 2023)	BWM and WASPAS
21	Examining risks and strategies for the spice processing supply chain in the context of an emerging economy	(Silva et al., 2023)	AHP–TOPSIS
22	Extenuating operational risks through digital transformation of agri-food supply chains	(Ali & Govindan, 2023)	Quantitative analysis
23	Food defence system in food industry: perspective of the EU countries	(Bogadi et al., 2016)	Literature review
24	Food defence systems as an answer to food terrorism	(Jurica et al., 2019)	Literature review
25	Food defence: Refining the taxonomy of food defence threats	(Manning, 2019)	Literature review
26	Food fraud and mitigating strategies of UK food supply chain during COVID-19	(Soon-Sinclair, Nyarugwe, & Jack, 2023)	Mixed methods (survey and semi-structured interviews)
27	Food safety and employee health implications of COVID-19: A review	(Trmčić et al., 2021)	Literature review
28	Food supply chain disruption due to natural disasters: Entities, risks, and strategies for resilience	(Reddy et al., 2016)	Literature review
29	Fragile food supply chains: Reacting to risks	(Dani & Deep, 2010)	Literature review and case analyses
30	Framework for evaluating risks in food supply chain: Implications in food wastage reduction	(Ali et al., 2019)	DEMATEL and Grey theory
31	Global supply chain design considerations: Mitigating product safety and security risks	(Speier et al., 2011)	Literature review and case analyses
32	Green food supply chain management as a solution for the mitigation of food supply chain management risk for improving the environmental health level	(El Ayoubi & Radmehr, 2023)	Questionnaire-based research and statistical analysis (EFA, CFA, multiple regressions)
33	How to Prevent and Cope with Coincidence of Risks to the Global Food System	(Fan et al., 2021)	Literature review
34	Information Security Challenges in the Digitalisation of the Austrian Food Industry: Assessment of Food Suppliers and Implications	(Hetzenauer et al., 2023)	Quantitative and qualitative research
35	Investigating the Interrelationships among Vulnerability Factors in Supply Chain: An Analysis with DEMATEL Method in Agri-food Industry	(Hatem et al., 2019)	DEMATEL
36	Making supply chain traceability strategic: insights from the food industry	(Hoang et al., 2023)	Grounded Theory
37	Managing climate change risks in global supply chains: a review and research agenda	(Ghadge et al., 2020)	Literature review and text mining
38	Managing disruptions and risks amidst COVID-19 outbreaks: role of blockchain technology in developing resilient food supply chains	(Sharma, Manu et al., 2022)	FAHP and WASPAS
39	Managing global food supply chain risks: A scenario planning perspective	(Deep & Dani, 2009)	Qualitative scenario analysis
40	Managing operational risks through knowledge sharing in food supply chains	(Ali & Gurd, 2020)	Quantitative survey

41	Managing transaction risks in interdependent supply chains: An extended transaction cost economics perspective	(Wever et al., 2012)	Transaction Cost Economics (TCE)
42	Mitigate risks in perishable food supply chains: Learning from COVID-19	(Kumar, Anish et al., 2021)	Fuzzy Best–Worst Method (F-BWM)
43	Mitigating halal food integrity risk through supply chain integration	(Ali et al., 2013)	Case study and interviews
44	Mitigating impact of risks on economic integration between entities in agrifood supply chain	(Pardaev et al., 2023)	FLQOWA model
45	Mitigating physical hazards in food processing: Risk assessment and preventive strategies	(Onyeaka et al., 2023)	Literature review
46	Mitigating the risk of specific supply chain disruptions through blockchain technology	(Alkhudary et al., 2024)	Systematic literature review
47	Modeling Sustainable Risks Mitigation Strategies Using a Morphological Analysis-Based Approach: A Real Case Study	(Elmsalmi et al., 2021)	Morphological analysis
48	Prioritising food loss and waste mitigation strategies in the fruit and vegetable supply chain: A multi-criteria approach	(Magalhães et al., 2022)	Fuzzy SWARA and Fuzzy WASPAS
49	Prioritising the risks in Halal food supply chain: an MCDM approach	(Khan, Shahbaz et al., 2022)	Fuzzy AHP
50	Proactive risk mitigation strategies and building strategic resilience in the food supply chain: a review	(Afifa & Santoso, 2022)	Literature review
51	Propagation of risks and their impact on performance in fresh food retail	(Srivastava et al., 2015)	Interpretive Structural Modeling (ISM)
52	Quantifying Sources of Risk in Global Food Operations and Supply Chain	(Smith, 2007)	Analytic Hierarchy Process (AHP)
53	Reducing food loss and waste in supply chain operations	(Luo et al., 2022)	Literature review and semi-structured interviews
54	Research on dynamic analysis and mitigation strategies of supply chains under different disruption risks	(Yang & Liu, 2018)	System dynamics
55	Resilient strategies and sustainability in agri-food supply chains in the face of high-risk events	(Zavala-Alcívar & Verdecho, 2020)	Literature review
56	Ripple effect in the supply chain: an analysis and recent literature	(Dolgui et al., 2018)	Literature review, quantitative analysis, modeling, simulation
57	Risk analysis of the agri-food supply chain: A multi-method approach	(Zhao et al., 2020)	Thematic analysis, TISM, and fuzzy MICMAC analysis
58	Risk and resilience in agri-food supply chains: the case of the ASDA PorkLink supply chain in Scotland	(Leat & Revoredo-Giha, 2013)	Case study
59	Risk assessment and mitigation strategy in the halal food supply chain in the Covid-19 pandemic	(Wahyuni et al., 2021)	Failure Mode and Effects Analysis (FMEA)
60	Risk management capability within Malaysian food supply chains	(Nikou & Selamat, 2013)	Literature review and pilot study
61	Risk management for agri-food supply chains	(Keramydas et al., 2015)	Literature review and case studies
62	Risk mitigation in a meat supply chain with options of redirection	(Bogataj et al., 2020)	Net Present Value (NPV), planning and control

63	Risk mitigation strategies according to the supply actors' objectives through MACTOR method	(Elmsalmi & Hachicha, 2014)	MACTOR method, case study
64	Risk mitigation via integrating house of risk and probability impact matrix in halal food supply chain	(Lestari et al., 2021)	House of Risk (HOR) and Probability Impact Matrix (PIM)
65	Risk propagation and its impact on performance in food processing supply chain: A fuzzy interpretive structural modeling based approach	(Chaudhuri et al., 2016)	Fuzzy Interpretive Structural Modeling (FISM)
66	Risks and risks mitigations in the supply chain of mangosteen: a case study	(Astuti et al., 2014)	Fuzzy AHP and ISM
67	Roles of company directors and the implications for governing for the emerging impacts of climate risks in the fresh food sector: A review	(Guerin, 2022)	Literature review
68	Strategies for the safety management of fresh produce from farm to fork	(Julien-Javaux et al., 2019)	Literature review
69	Supply Chain Management: Strategy, Planning, and Operation	(Chopra & Hugos, 2018)	Literature review, case study
70	Supply Chain Metrics	(Lambert, 1998)	Literature review, quantitative analysis, modeling, simulation
71	Supply chain resilience reactive strategies for food SMEs in coping to COVID-19 crisis	(Ali, Mohd Helmi et al., 2021)	Literature review and case study
72	Supply chain risk and SME business continuity strategies in the food industry during COVID-19 pandemic	(Mohezar et al., 2023)	Semi-structured interviews, thematic analysis
73	Supply chain risk management and its mitigation in a food industry	(Diabat et al., 2012)	Interpretive Structural Modeling (ISM)
74	Supply chain risk management identification and mitigation: A case study in a Chinese dairy company	(Yu & Huatuco, 2016)	Semi-structured interviews, FMEA
75	Supply chain risk management: a literature review	(Afifa et al., 2021)	Literature review
76	Supply Chain Risk Perception: Understanding the Gap Between Theory and Practice	(Adeseun et al., 2018)	Literature review, case study, questionnaires, Z-Test
77	Supply risk management: A case study of halal food industry in Malaysia	(Azmi et al., 2021)	Exploratory Factor Analysis (EFA), regression
78	Sustainability risk management in the agri-food supply chain: literature review	(Choirun et al., 2020)	Literature review
79	Sustainable food supply chain management	(Li et al., 2014)	Literature review
80	Sustainable supply chains for supply chain sustainability: impact of sustainability efforts on supply chain risk	(Gouda & Saranga, 2018)	Literature review, case study, empirical analysis
81	The 11 sins of seafood: Assessing a decade of food fraud reports in the global supply chain	(Lawrence et al., 2022)	Food fraud database analysis, literature review
82	The health and technological implications of a better control of neoformed contaminants by the food industry	(Birlouez-Aragon et al., 2010)	Literature review, analysis of food fraud data
83	The impact of food regulation on the food supply chain	(Aruoma, 2006)	Literature review, critical analysis
84	The Power of an Integrated Monitoring Technology System for Minimizing	(Ben-Tzur et al., 2015)	Literature review, case study

	Quality and Food Safety Risks in Fresh Produce Supply Chain		
85	The role of industry 4.0 technologies in mitigating supply chain disruption: Empirical evidence from the Australian food processing industry	(Ali, Imran et al., 2024)	Empirical study, survey data analysis
86	The use of trade data to predict the source and spread of food safety outbreaks: An innovative mathematical modelling approach	(Garre et al., 2019)	Mathematical modeling
87	The value of utilising stochastic mapping of food distribution networks for understanding risks and tracing contaminant pathways	(Conrad et al., 2012)	Stochastic mapping, probabilistic modeling
88	Towards food supply chain resilience to environmental shocks	(Davis et al., 2021)	Literature review, qualitative and quantitative review
89	Unauthorized food manipulation as a criminal offense: Food authenticity, legal frameworks, analytical tools and cases	(Jurica et al., 2021)	Literature review
90	Unleashing the value of artificial intelligence in the agri-food sector: where are we?	(Trabelsi et al., 2023)	Literature review, bibliometric analysis
91	Urban food supply chain resilience for crises threatening food security: a qualitative study	(Hecht et al., 2019)	Qualitative study