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Article

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Review

A systematic review and bibliometric analysis on agribusiness gaps in emerging markets

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ABSTRACT

Despite the numerous opportunities offered by globalisation in most agribusiness sectors of African and Asian economies, the sector is still struggling to capitalise on these opportunities and catch up with the trends in developed and emerging markets. Consequently, the current study systematically examined the gaps in the agribusiness industry in Africa and Asia and their significant effects on its growth in the emerging global market. Using both qualitative and quantitative approaches, we employed the PRISMA technique in identifying 122 relevant articles from Google Scholar and Scopus databases. The data was analysed using Bibliometric tools such as VOS viewer, R-package *Bibliometrix* and MS Excel. The results reveal that publications on the evolution of the agribusiness industry and its gaps have increased over the past 15 years, with the majority of the journals expanding their scope to prioritize the economic development of the agriculture sector in both Africa and Asia. Scholars from developing and developed countries observed a high level of intellectual collaboration. Likewise, the investment in agribusiness research projects was also at the middle peak, with less funding from developing countries' governments. Journals on agribusiness are limited, particularly downstream agribusinesses, with only one journal focussing specifically on agribusiness studies in developing countries. Five major gaps characterised the agribusiness sector, including business management and entrepreneurship skills and training gaps, inadequate knowledge and skills of the youth, inadequate skills and knowledge among females in agribusiness, and technology and innovation gaps. Barriers and challenges such as poor governance and institutional reforms, social and cultural norms, poor market systems, and inadequate flow of information within the agribusiness industry were also identified as gaps. The findings suggest that governments of developing economies should commit funds to agribusiness projects and research projects tailored to solve developing countries' issues to spark the necessary gains from the agribusiness sector.

Introduction

The impact of globalisation and trade openness has been sensed across all sectors in both developing and developed countries (Monaco, 2023; Amornkitvikai and Charoenrat, 2024). It has influenced the adequate levels of resources (human, physical and financial) available in an economy and overall productivity (Badu-Prah et al., 2023; Ajam et al., 2023). Though globalisation's role in economic growth cannot be underestimated, it is known that openness to trade or liberalisation of trade is not a guarantee of economic growth, however, no national economy has enjoyed long-run growth without being engaged in foreign trade and investment (Anderson et al., 2023; Badu-Prah et al., 2023). For instance, it is a crucial driver of economic efficiency given that opening up to trade helps in decreasing significantly reduced mark-ups (Rodríguez del Valle and Fernández Vázquez, 2024; Saxer, 2024); enhances the performance of agricultural firms and corporations as they adhere to standard operational principles to enhance their corporate responsibilities (Martos-Pedrero et al., (2024); enables agribusiness firms and corporations to adapt to a global agrifood market context characterized by high competition and concentration, thereby encouraging the agribusiness firms to establish expansion strategies through mergers, acquisitions or strategic alliances to increase their market share and expand their geographical scope of action (Martos-Pedrero et al., 2024).

Notwithstanding the enormous contribution of the agribusiness industry to the GDP of many developing countries in Asia and Africa and the benefits emerging from globalisation, the industry is also faced with many gaps that retard its progress; making it challenging for the sector

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to match up the emerging market trend and capitalised on the numerous opportunities posed by globalisation. Meanwhile, a remedy to these gaps requires careful consideration of the performance of the agribusiness industry to enable developing countries to achieve SDGs efficiently and effectively and, most importantly, respond to the changes posed by globalisation (Louw et al., 2013; Chebbi, 2010; Usman, 2016; Dias et al., 2018; Pramanik, 2021; Lavie et al., 2023). To fully actualise the potentials relevant to achieving the SDGs of the agribusiness sector may demand a call for a shift in the strategic implementation of policies, cogent reforms, and programmes by the government, NGOs, and other agricultural donors (Bose et al., 2018; FAO, 2022; Bannor et al., 2022). The changes also require adapting to market changes due globalisation, shifting consumer behaviour, stricter environmental regulations, food safety and product quality improvements, biotechnology, big data, value chain integration, and sustainability (Bose et al., 2018; Lan et al., 2020; Arthur et al., 2024; Bannor et al., 2023).

Generally, before the implementation of the UN Sustainable Goals, agriculture in Africa and Asia was initially seen as a low-tech sector with limited dynamics until recent recognition, where the sector has been seen as an avenue for job creation, poverty elimination and solutions for food insecurity issues in both regions (Aulisi et al., 2015; Dias et al., 2019a). The agricultural sector has evolved through different phases, like agricultural entrepreneurship (otherwise referred to as agripreneurship in this study) and agribusiness (Dias et al., 2019b). Here, agribusiness applies business, entrepreneurship, financial, accounting, and human resources management principles to capitalise on opportunities along the agricultural value and supply chains. Given this, agribusiness emphasises solving social and economic challenges through profit-making activities on agricultural value and supply chains (Adesina and Favour, 2016; Adelakun et al., 2019; Oliveira, 2019; Soava et al., 2020; Bannor et al., 2022).

Despite the importance and potential of the agribusiness industry, the industry is associated with numerous gaps, such as inadequate relevant entrepreneurial, technical and managerial skills, low technological advancement, and adverse climatic conditions coupled with the ageing agricultural population in developing countries (Van Rooyen, 2014; Musa et al., 2018; Fitz-Koch et al., 2018; Barzola et al., 2020; Oliveira et al., 2020; Bannor et al., 2021). Also, low innovation management and scale-up entrepreneurial initiatives characterised the agribusiness industry. Likewise, poor extension service linkage between agripreneurs and agricultural statutory bodies, ownership as well as management challenges (Bahua, 2018; Quaicoo and Bannor, 2023), and lack of proper educational reforms pose some of the challenges hampering the growth of the industry (Duckett, 2008; Thoto et al., 2021; Bose et al., 2017; Shukri et al., 2017).

Taking these into account, several previous empirical studies endeavoured to explain the skills and knowledge gaps among several stakeholders and actors in the agribusiness industry in Africa. For instance, Tesfamicheal & Ayele (2018) examined the relationship between agribusiness development and youth employment in Ethiopia, whereas in Kenya, (Mulwa et al., 2023) analysed the knowledge gap among farmers' suitable crop selection. In Benin, (Thoto et al., 2021) described the characteristics of agripreneurs and knowledge and skills gaps. Competency training needs for global south international workers in agroforestry were also examined by Flanagan et al. (2023). Likewise, financial literacy competencies among women agripreneurs were studied. In Papua New Guinea, a study was done on approaches for developing learner- and problem-centred teaching materials to overcome agribusiness challenges by smallholder farmers (Hainzer et al., 2023). Meanwhile, overcoming these challenges can help improve the agribusiness industry in developing countries and contribute immensely to achieving UN SDGs (Amanor, 2019; Devkota et al., 2022).

Several literature reviews have been performed on these empirical studies to consolidate the findings for future research and policy direction in agribusiness. For example, Zougmoré and Partey (2022) reviewed pieces of literature on the gendered knowledge gaps on the use of ICT in agriculture and climate response in West Africa; (Leitão et al., 2024) reviewed the literature on the capabilities of agribusinesses and performance; Akella et al. (2023) reviewed the literature on blockchain technology usage for sustainable agriculture by evaluating the enablers and barriers; the adoption of blockchain technology for innovative and sustainable and farmers agribusiness decision-making and performance (Taramuel-Taramuel et al., 2023). Relative to interventions, Yami et al. (2019) reviewed the literature on several agribusiness interventions and their relationship to agribusiness participation among the youth. On the other hand, Babu et al. (2016) reviewed agribusiness education offerings and identified capacity gaps for policy and practice recommendations.

Notwithstanding these reviews and empirical studies, there remains evidence of fragmented literature on agribusiness gaps that require deep review and consolidation for effective policy formulation, recommendations, and future studies to address the scattered narratives and identify potential areas for improvement. Besides, most of these studies were not centred on the combined emerging economies of Africa and Asia. Further, the literature used in most reviews was few, and bibliometrics, a critical tool for evaluating the evolution of studies in literary reviews, was rarely used. This study, therefore, carefully synthesizes existing literature on the scope of the agribusiness sector and its gaps in emerging markets of Africa and Asia. This is the first study that systematically reviews extensive literature within the 15-year publication range on the discourse by employing both systematic literature review (SLR) and bibliometrics in evaluating the evolution of the agribusiness industry and its gaps in Africa and Asia.

To achieve the objectives and draw insightful conclusions on the current subject, the following questions guided the researchers in drawing valuable conclusions: (a) What are the publication trends and the evolution of the agribusiness industry in Africa and Asia? (b) What are the gaps within the agribusiness? and (c) What are some of the challenges affecting the growth and progress of the agribusiness industry to achieve sustainable development goals in Africa and Asia? These questions guided the authors in finding potential and relevant papers and drawing insightful conclusions on the current discourses.

Methodology

Consistent evaluation of acceptable papers for systematic reviews and bibliometric analyses is crucial for supporting research hypotheses using scientific search engines like Google Scholar and Scopus (Donthu et al., 2021). Articles were identified and carefully assessed using the systematic review approach proposed by Moher et al. (2010) and Briner and Denyer (2012). The approaches involve (1) the development of research questions and objectives of the study, (2) the identification of potential articles using recognised scientific search engines, (3) articles assessment and screening for consideration, (4) setting eligibility criteria which include both Inclusion and Exclusion and (5) data extraction and coding which allow for a thorough assessment of article contents and analysis. The techniques have further been explained below.

Article search and identification Strategy

The choice of scientific database (search engines)

Choosing a specific scientific database for conducting research plays a crucial role in the research process and the conclusions established from the findings (Falagas et al., 2008; Mongeon and Paul-Hus, 2016). The articles for the study were retrieved from Google Scholar and Elsevier's Scopus databases. For decades, using these two databases together with Thomson Reuters's Web of Science has been paramount in conducting systematic reviews and bibliometric analyses. The choice of preferences for the two databases is much linked to the academic arguments surrounding the coverage and metrics of the two databases. For instance, recent longitudinal studies on the comparison of the coverage and metrics of Google Scholars, Scopus and Web of Science by Harzing

and Alakangas (2016) and Martín-Martín et al. (2018) indicate that Google Scholar provides more comprehensive coverage and metrics and that Scopus and Web of Science were fairly similar in terms of coverage. However, based on growth Elsevier's Scopus was found to have a higher growth rate compared to Google Scholar and Web of Science. This is because Scopus has recently committed to expanding its coverage of pre-1996 publications and citations further (Harzing and Alakangas, 2016; Mongeon and Paul-Hus, 2016). A little substantial growth was also observed in the Thomson Reuters Web of Science, with a slight metric variation in the publication and citation across disciplines. Overall, the publication and citation metrics of Scopus and Web of Science were found to be different. The variations in coverage and metrics across the three databases require the application of caution when using any of the databases, given that they all have their strength and weaknesses (Falagas et al., 2008). According to Mongeon and Paul-Hus (2016), it is recommended to employ multiple databases when conducting a systematic review and bibliometric analysis to address the issue of biases. Given these arguments, the authors employed Google Scholar and Scopus to expound on the scope of the discourse and draw insightful conclusions from the study. However, publications retrieved from the former were crosschecked with Beall's list of predatory journals to ensure the review did not include papers of low quality and predatory papers.

Articles retrieving strategy and the choice of search strings in both databases

The first strategy involved a preliminary search for articles exploring the scope of the agribusiness industry. The key term 'Agribusiness' was first used to generate more potential scientific articles from both search engines, given the scope of the study. Furthermore, an advanced search was conducted with Boolean search operators using cogent keywords and phrases which include the following: "Agricultural AND entrepreneurship"; "Agricultural Entrepreneurial", "Agricultural" OR "Agribusiness" AND "Entrepreneurship"; "Agribusiness AND Management"; "Entrepreneurship AND Agricultural Development"; "Agricultural Entrepreneurship AND Farmer" OR "Producer Youth AND Agribusiness AND Entrepreneurship"; "Youth AND Agricultural AND Entrepreneurship"; "Agricultural Production AND Entrepreneurship Skills"; "Agricultural Entrepreneurship AND Developing Economies' Training"; "Agribusiness skills AND Constraints OR Challenges"; and "Agribusiness AND Skills Development". The keyword strings were further combined with words like "Africa" and "Asia".

Likewise, the techniques were further used in retrieving the articles in Google Scholar which entailed the use of the advanced search procedure in Google Scholar this time with an asterik (*) and inverted

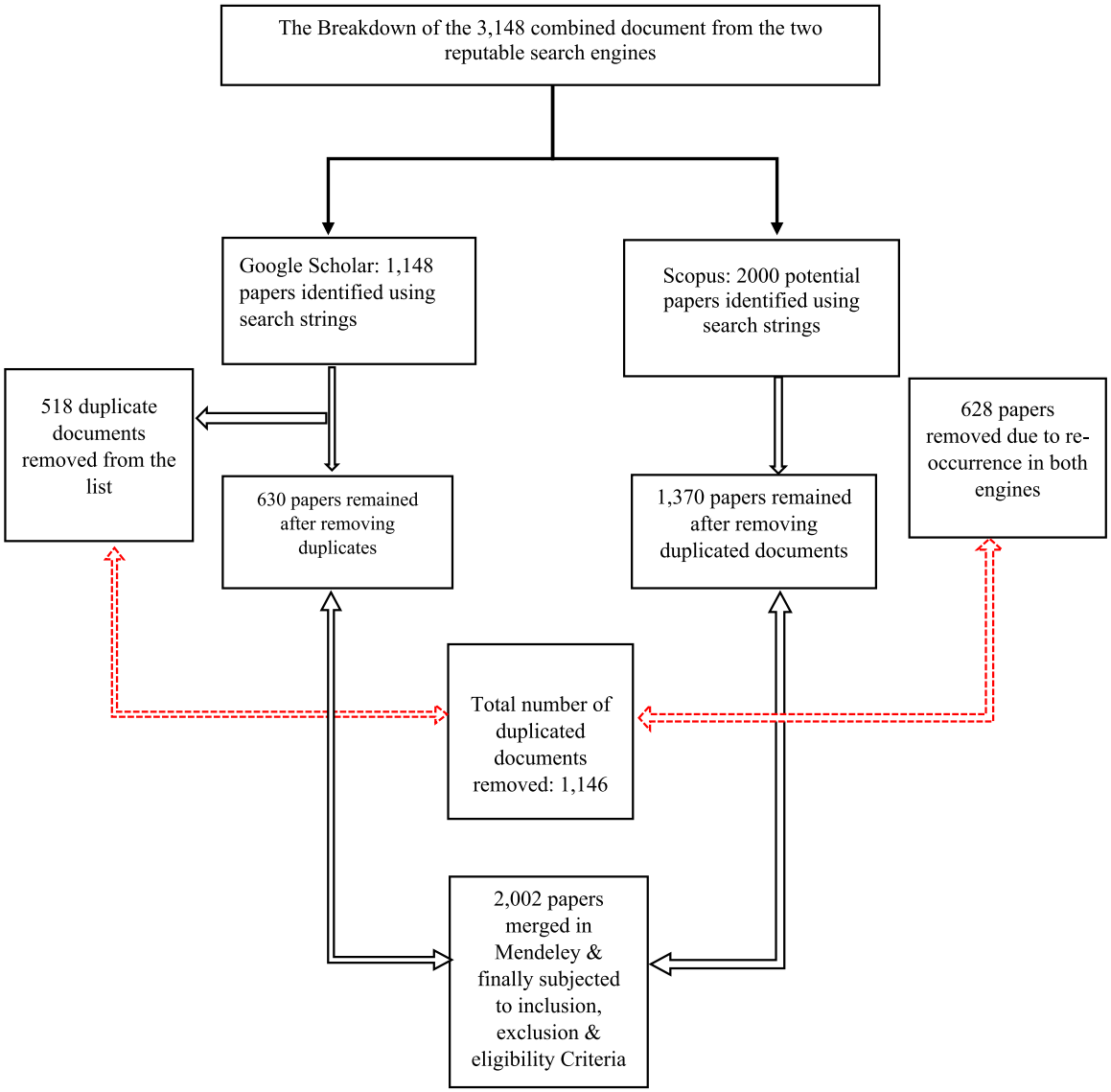

Fig. 1. The breakdown of the article retrieval process from both the two reputable databases (Google Scholar & Scopus-Step 1).

commas (“”) attached to the keywords and phrases used. For instance, using the advanced technique we used words like *agricultural entrepreneurship *agricultural* *agricultural* *entrepreneurship*; “Agricultural skills” *agribusiness entrepreneurship* *agribusiness* *management*”; “*entrepreneurship*” “*agricultural Development*”; *agricultural entrepreneurial* *farmer* *producer* *youth* *agribusiness entrepreneurship* “*Africa*” “*Asia*” *skills* “training”.

Relying on the advanced technique in both search engines, adopting asterisks and inverted commas as part of the key strings in Google Scholar and boolean search operators, together with the initial generic term, rendered 3,148 potential articles. 1,148 papers surfaced from Google Scholar, whereas 2000 potential articles were retrieved from the Scopus database (Fig. 1). The high volume of papers from Scopus may be attributed to the authors’ consistency and stringed usage of advanced search operators in Scopus as compared to Google Scholar.

Article screening and eligibility criteria

The article screening strategy thoroughly considers all the potential papers retrieved for quality assessment and inclusion (Moher et al., 2010). A typical comparison of all the articles retrieved from both search engines allowed for the exclusion of duplicate publications from the saved list. One thousand one hundred and forty-six (1,146) articles were duplicates excluded in the first stage of the article assessment (see also Fig. 1). This included 518 papers from Google Scholar and 628 papers from Scopus. The duplicate papers in Google Scholar were the scientific articles that appeared multiple times in institutional (author affiliations) repositories, association repositories, and scholarship communities like academia, ResearchGate, and others. This is very common in Google Scholar as a common search will result in the same article appearing in the main journal and other repositories. 628 papers found duplicates in Scopus were documents that re-appeared in the other search engine (Google Scholar). At this point, 630 papers retained in our google scholar saved list while 1,370 documents were maintained in Scopus for evaluation. To carefully assess and determine the quality of papers to be included in our study, the authors further exported the RIS file format from the two data bases and merged all in Mendeley Desktop application software (**Note:** *Mendeley desktop is different from Mendeley Reference app. The former has more advanced features and command than the latter)*. The combination of the articles summed up to 2,002 articles in our newly created Mendeley desktop folder (See Fig. 1). Using the advanced techniques in Mendeley we further screened the articles; this time, the article title and abstract were considered. In addition, irrelevant subject areas, non-peer-reviewed papers (i.e., papers from predatory journals) and papers published in languages other than English were excluded, reducing the article volume to 621 papers (see Figs. 1 & 2). More so, another set of eligibility criteria was considered, for instance, limitations were set on articles published from 2008 to 2023 (15 years) with a focus on the agribusiness industry in Asia and Africa. Proceeding with the limitation criteria, a careful review of the paper’s contents resulted in the exclusion of 504 papers published outside the study’s scope. The use of the Mendeley desk top app in conducting systematic literature review has over the years, been employed by many researchers in consolidating scattered ideas on a discourse (Reis et al., 2022; Strauss et al., 2024; Katoch et al., 2024; Janarthanan et al., 2024). In addition, possible

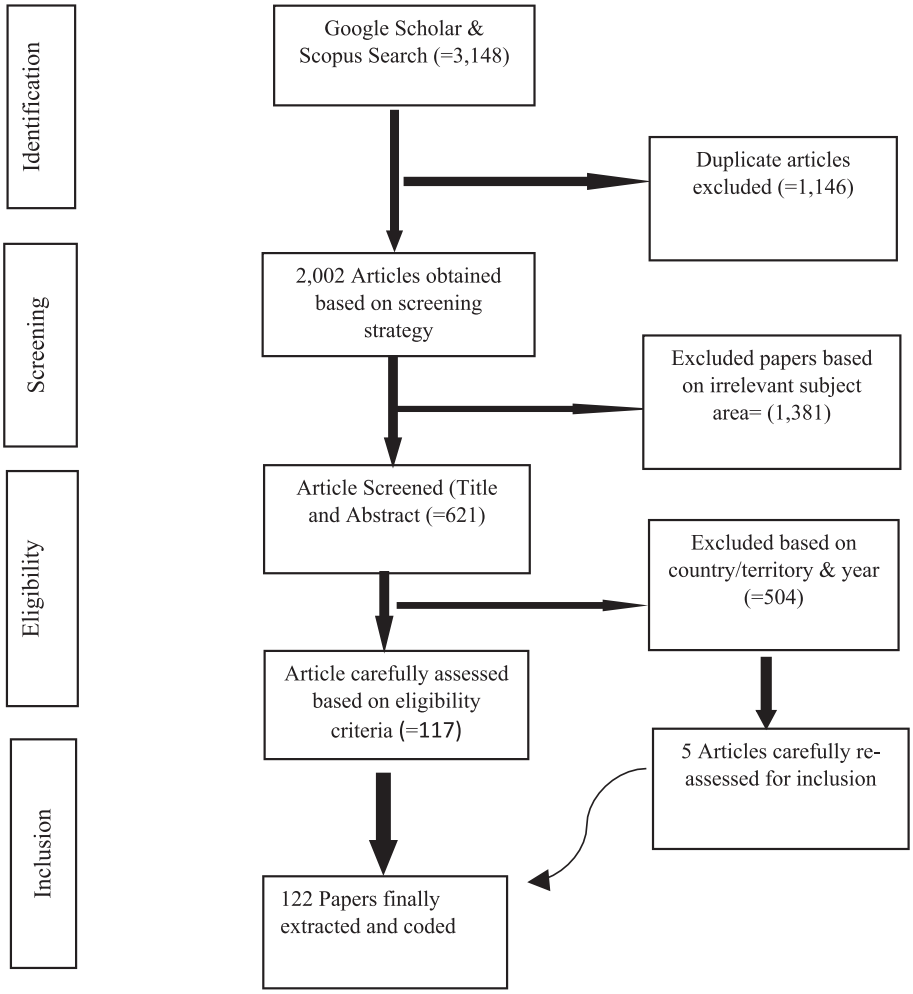

Fig. 2. Articles Identification and Extraction Procedure (Step 2).

reasons for the document size reduction may be inferred from the underlying research questions and protocols guiding authors to achieve the study's overall objective.

Article quality assessment and inclusion

A total of 117 articles were finally retained, given the content review and the research focus of the papers on both continents. However, a careful re-assessment of the excluded articles in the previous stage resulted in 5 relevant articles, later added to the 117 retained articles, making 122 papers (see Fig. 2). The reconsideration of 5 papers resulted from a revisit of subject areas excluded in the preceding stage. A content analysis of the 5 articles qualified their inclusion in the 117 documents. Even in the latest PRISMA statement, a section indicating that re-assessing paper content for eligibility is crucial, given that the scientific document conveys information relevant to actualising the study's objectives (Page et al., 2021). Therefore, 122 papers were finally included, extracted, coded and analysed to achieve the study's objectives.

Data subjectivity and validation

Researchers should carefully assess articles using high-quality scientific papers from reliable journals to tackle economic and social issues. It is common to see non-peer-reviewed papers have their way into some reputable search engines' databases (Beall, 2015). According to Wallace and Perri (2018), predatory journals offer quick manuscript evaluations and sell journal space, often with article fees assessed post-acceptance, boosting revenue. The retrieved papers were subjected to the Australian Business Dean Council List and Beall's list of predatory journals to authenticate their quality. This was done to weed out predatory journals and articles deemed to sell lousy science for financial gains (Beall, 2015).

Method of data analysis

Bibliometrics technique

It is certainly getting harder to stay up-to-date with everything that is published owing to the rate at which academic articles are being released. The focus on empirical input has led to several disjointed research streams (Ellegaard and Wallin, 2015; Aria and Cuccurullo, 2017). The growing number of publications has impeded the ability to actively gather evidence through a series of prior research papers and gain expertise. Because of this, literature reviews are becoming more important in synthesising previous research findings to effectively use the body of knowledge, advance a particular line of inquiry, and offer evidence-based insight into the practices of exercising and maintaining professional judgement and expertise (Aria and Cuccurullo, 2017; Donthu et al., 2021).

Many scholars use both qualitative and quantitative literature review methodologies to comprehend and arrange prior results to curate and synthesise the findings of previous academic publications. Among these, the use of bibliometrics in the statistical assessment of science, scientists, or scientific activities has the potential to provide a methodical, transparent, and repeatable evaluation process (Aria and Cuccurullo, 2017; Mora et al., 2017; Kumar et al., 2023; Arthur et al., 2024). Bibliometrics provides more unbiased and trustworthy analyses than other types of analysis. In the face of overwhelming new information, data, and conceptualization development, bibliometrics has become increasingly important. It offers a structured analysis of large amounts of data, enables one to infer trends over time, identifies shifts in discipline boundaries, finds the most prolific scholars and institutions, and presents an overall picture of extract research (Cuccurullo et al., 2016; Yu et al., 2020; Donthu et al., 2021; Aria and Cuccurullo, 2022).

Typically, bibliometric analysis methods need specialised analytical instruments like the R-package (Bibliometrix), Gelphi, Cite Space, CiteNetExplorer, HistCite, VOS viewer, etc. Nonetheless, many academics have frequently utilised the R-package and VOS viewer to conduct research more closely aligned with the present methodology (Linnenluecke et al., 2019; Dia et al., 2019a; Moral-Munoz, 2020). Research and analysis may be conducted in a free, flexible, and extendable environment using these two comprehensive statistical tools with many features (Linnenluecke et al., 2019).

We used VOS viewer and the R-Package (Bibliometrix) tool to analyse the main data we obtained from the Google Scholar and Scopus database to give an overview and pinpoint the gaps in the agricultural industry in both areas. To provide a thorough overview of the current discourse, we have touched the surface of some of the common features of both tools, given their extensive and wider features in performing science mapping and performance analysis, which in turn go beyond the goals of the current study (Linnenluecke et al., 2019; Hallinger and Kovačević, 2019; Donthu et al., 2021). Some of the performance and science mapping analysis features adopted include Word Mapping (Co-occurrence of Keywords), Intellectual Collaboration Network (Co-authorship by Country), network visualization of journals connectivity (Citation by Sources), Scientific Production (Yearly trends of articles), and Three-Field Plot (Country, Keyword & Sources). Statistical techniques complement each other, hence giving a bigger picture of the gaps within the agribusiness industry. We have, therefore, concisely discussed the techniques employed below to connect the dots on systematic literature review and Bibliometric analysis.

(a) Word Mapping (Keyword Co-occurrences Network)

By employing word co-occurrences to map and cluster terms taken from author keywords, titles, or abstracts in a bibliographic collection, word mapping is used to create the conceptual structure of a framework (Aria and Cuccurullo, 2017). The size of a node in a word map represents how frequently it occurs. The co-occurrences of the nodes in the same publications are shown by the curves connecting them. The number of times the two keywords appear together increases with the interval between nodes. Similarly, with word clouds, the font size indicates how frequently the words occur together (Van Eck and Waltman, 2013; Yu et al., 2020; Moustakas, 2022). Likewise, the strength of the bonds is reflected in the thickness of the link. Keywords grouped and joined by an arrow have a relationship and a shared conceptual meaning (Oliveira et al., 2022).

(b) Intellectual Collaboration Network

In a scientific collaboration network, authors are the nodes, and co-authorship is the link. It is among the most well-studied types of scientific collaboration (Bannor et al., 2023; Arthur et al., 2024) for the linkages and items that make up the intellectual network. Therefore, a collection of items with the connections among them makes up a network. Determining the intellectual structure typically leads to the establishment of non-overlapping clusters. Clusters are not required to encompass every element on a map completely. An item's weight inside a cluster signifies its significance (Van Eck and Waltman, 2013). Therefore, an item with a greater weight is considered more essential than an item with a lower weight in the network representation of the intellectual structure. Again, the greater the connectedness among authors according to affiliation or nation, the thicker the relationship between the clusters (Van Eck and Waltman, 2013; Donthu et al., 2021b; Aria and Cuccurullo, 2022).

(c) Network Visualisation (Citation by sources)

We embraced the citation by source network visualisation. Items are now shown in network visualisation by their label and, by default, a circle. The item's weight affects both the label's size and the item's circle. Both the item's label and its circle enlarge with increasing weight. An item's colour is dictated by the clusters to which it belongs (Van Eck and Waltman, 2013; Aria and Cuccurullo, 2017). Also, the

visualisation's distance between the two journals roughly represents how linked they are to one another in terms of co-citation relationships. Generally, the stronger the relatedness of two journals, the closer they are positioned to one another. Lines indicate the strongest co-citation connections between journals (Van Eck and Waltman, 2013). Colour represents journal impact factors since the study used overlay visualisation. For example, blue-coloured journals have an impact factor of less than 1, green-coloured journals have an impact factor of about 2, and yellow-coloured journals have an impact factor of three or more (Waltman et al., 2010; Van Eck and Waltman, 2010).

(d) Scientific Production (Yearly Trend of Articles)

The quantity of papers published within the assessment year range is highlighted in the scientific production, providing a distinct publishing pattern on the discourse. The amount of scientific output was estimated based on annual patterns and the subject's development since it is relevant to extending the field's reach and forecasting future developments (Oliveira et al., 2022; Hossain et al., 2020). To generate descriptive statistics on the number of documents derived from the Scopus database, we used a conventional Excel sheet with bibliometric tools like *R-Package-bibliometrix* and VOS viewer. In the following section, the articles' trends are further displayed graphically. Many academics have embraced the scientific output (yearly trends of articles) to analyse the performance of journals and the yearly evolution of publications on a given subject in a specific research domain (Dias et al., 2019a; Goodell et al., 2023; Bannor et al., 2023).

(e) Three-Field Plot

Utilising the R-package Bibliometrix, the Three-field Plot analysis was carried out. Using a Sankey graph to plot several characteristics at once is a helpful feature offered by the web-based application (Linnenluecke et al., 2019). A Sankey plot with a section size proportionate to the node values is used in a field plot to illustrate the relationship between the three fields. All items in the three field plots are positioned beside rectangles (Ingale and Paluri, 2020). One way to depict the relationship between elements in a separate row is by varying the rectangle's height. The height of the rectangle increases with the strength of the elemental relationships (Igwaran and Edoamodu, 2021; Phoong et al., 2022;). This method may estimate the relationship among a few factors, such as authorship, keywords, country, reference, document, and journal sources (Linnenluecke et al., 2019). This study looked at the relationships among essential factors like author keywords, journal source, and country. The interpretation of the relationship between the chosen components of the contemporary discourse has been covered in the subsequent section of the paper.

Results and discussions

Annual scientific production (Publication Patterns)

Fig. 3 indicates the annual scientific publication of articles published on the current discourse. The number of documents published within the fifteen years has been presented. The development of the agribusiness industry in Asia and Africa has gained increasing concern over the past 15 years (see Fig. 3). Based on the document size, 22 papers, representing 18.03 % of the total articles retrieved, were published in 2021, signifying the highest annual. Twenty-one (21) publications were recorded in 2023 (signifying 17.21 % of the total publication), making it the second-highest scientific production year. The year 2020 also saw an increase in publication volume, accounting for about 12.129 %. This put the 2020 scientific production year in a third position. A ten-year assessment of the annual scientific publication trend indicates that only 49 papers (representing 40.160 % of the publications) were published from 2008 to 2018. This indicates the lowest annual scientific output on the scope of agribusiness and its gaps in Africa and Asia.

Surprisingly, within the five-year range from 2019 to 2023, 73 (59.84 %) publications were observed, which indicates the highest scientific publication output within the five-year range assessment compared to the last decade (see Fig. 3). The high volume of papers may be attributed to the agribusiness industry's economic contribution to

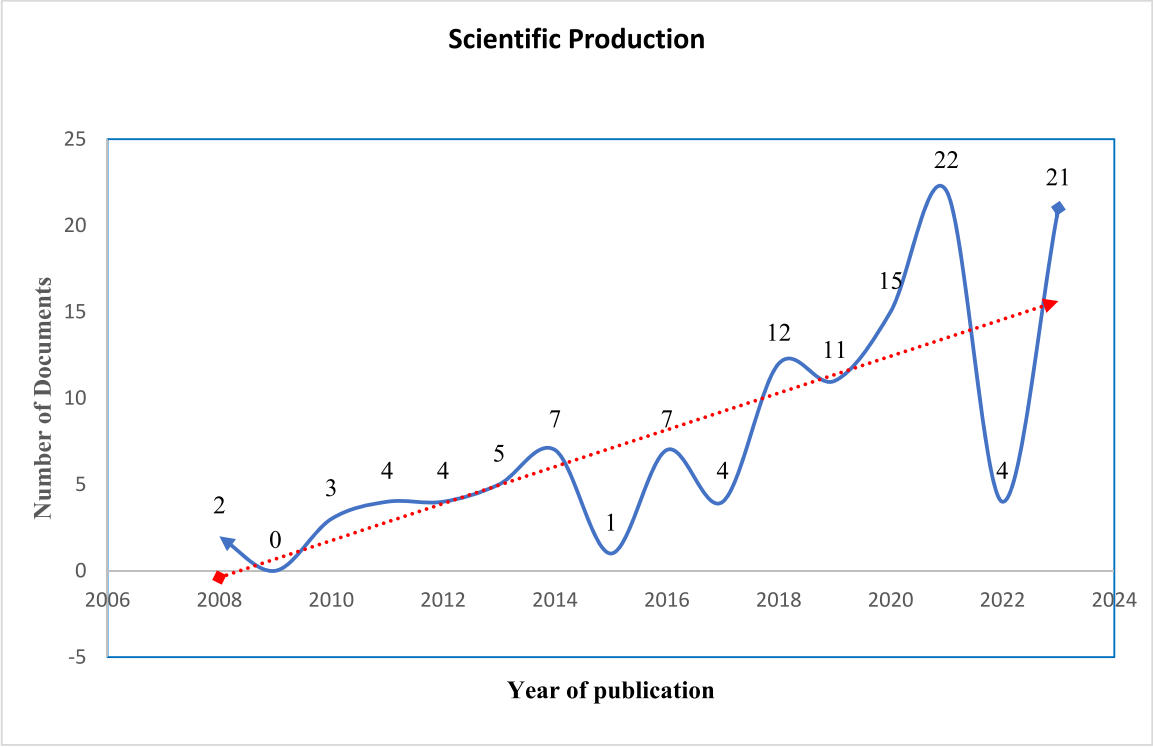

Fig. 3. Annual Scientific Production.

developing countries' development, the rising of agribusiness specialisation in academia as well as agribusiness education, which has, over the years, gained increasing concern from governments and agricultural organisations, with papers increasing from 2019 to 2023 (Chebbi, 2010; Davis et al., 2012; Otache, 2017; Kaki et al., 2023). For instance, scientific papers published for the past five years have focused on implementing and incorporating digitalisation into agribusiness (Atuahene-Gima, 2019; Abdelnabby et al., 2020). Again, content assessment of the articles published within the five-year range revealed the focus on women's entrepreneurship development in conjunction with the establishment of farmer training schools (Obayelu et al., 2020; Chilemba and Ragasa, 2020; Barzola et al., 2020), which could also be another possible reason (refer to Table 2). Another possible reason could be that the global pandemic (COVID-19), which had an immense implication on many sectors like agribusiness, attracted the attention of organisations and scholars from 2019 to 2023 (Salman Abdou, 2020). The pandemic also shattered many countries' strategic social and economic plans, resulting in agribusiness firms' low productivity pace and agribusiness supply chain disruption.

In recency, studies have indicated that the agricultural sector is one of the major contributors of greenhouse gases, which has attracted increasing concern on the part of scholars. This could be another perfect ground for the high volume of publications over the past 5 years (Chaudhary et al., 2023; Christian et al., 2023). Meanwhile, the excess emission of greenhouse gases affects weather variabilities, influencing agricultural production and disrupting ecosystems in most of Africa and Asia (Erickson and Fausti, 2021; Ojango et al., 2023; Luo et al., 2023). Global concern over greenhouse gas emissions in agriculture drives international organisations to develop mitigation plans, addressing economic development within other sectors (Zhang et al., 2023; Luo et al., 2023).

Interestingly, the ten-year range (2008–2018) assessment of annual scientific production also indicates that, even though only 40.50 % of the papers were published on the current discourse within that period compared to the five-year range (2019–2023), the less volume of the articles had the highest years of citation as compared to the 73 papers (59.84 %) (refer to Fig. 3). This may also be linked to agribusiness's constant evolution and dynamics, which, for instance, has begun inclining to new agricultural innovations and means of production (Ben Amara et al., 2020; Osabohien, 2023). Another reason could be the growing and widening nature of the global agricultural supply chain, which has attracted scholarly attention over the years (Lin et al., 2023). The analysis proves that the sustainability of the agribusiness industry in the light of achieving the UN SDGs has gained much attention.

Journal impact assessment

Journal performance carried out is presented in Table 1 and Fig. 4. The assessment of journal output was based on the journal's total publication and citations, h-index, and subject areas. The papers retrieved from Scopus and Google Scholar emanated from 93 journal sources. Of the 93 journals, only 30 of the journal sources met the eligibility criteria for the top ranking (see Table 1). The top 30 journals published 58 papers (47.5 %) on the discourse. From the results in Table 1, the *Journal of Agribusiness in Developing Economies (JADEE)*, managed by Emerald Publishing, had 7 publications representing 12.07 %, with a total citation of 36. The journal also had an h-index of 3, indicating that at least three of the publications have been cited at least 3 times, making it the first leading journal among the 30 sources. The increasing number of papers from the *JADEE* may be attributed to the journal's concentration on agribusiness studies, particularly on emerging economies. It goes without admitting that journals concentrating on agribusiness research are limited in most credible publishing houses compared to contemporaries in agricultural economics. This is because most institutions have been unable to delineate the distinct field of agribusiness from extension and agricultural economics, limiting the studies needed to develop the agribusiness sector. Journals need to develop agribusiness-specific journals if academia is to advance research in the area in the coming years. Fig. 5 shows the recent papers from the leading journals cited in *the Journal of Development Studies* and the *Journal of Agricultural Extension* (see Fig. 5). The *International Food and Agribusiness Management Review (IFAMR)*, fully managed and controlled by the International Food and Agribusiness Management Association (IFAMA), appeared in the second position with a complete publication of 5 (8.62 %) (see Fig. 4 & Table 1). The journal had an h-index of 2 with a total citation of 11. This signifies that at least two of the journals' papers have been cited twice. It is interesting to note that, journals in the agribusiness specifically dedicated to agribusiness downstream issues are limited. This is surprising since agribusiness studies have increased over the years. Publishers would need to prioritise and have journals dedicated to various issues on agribusiness, particularly the downstream.

Sustainability (Switzerland) and the *Journal of Agricultural Extension* took the third position with a total publication of 4 (6.89 %) and a total citation of 51, higher than the first two leading journals (see Fig. 4). Conversely, the journal *Sustainability* had an h-index of 3, indicating that at least three papers have been cited at least thrice. The Multidisciplinary Digital Publishing Institute fully controls the journal. Again, the *Journal of Agricultural Extension* also had a total citation of 23 with an h-index of 2, which signifies that at least two of the papers from the journal have been cited twice. Three papers were equally published by the *Journal of Rural Studies*, the *Journal of African Business* and the *African Journal of Economics and Management*. The total summation of their article volume constitutes 15.51 %. The remaining journals, *World Development*, *Livestock Research for Rural Development*, *Journal of Enterprising Communities*, *Custo e Agronegocio*, *Agricultural and Food Economics*, and *Agrekon,* had 2 publications each, constituting 20.68 % of the total papers. Surprisingly, the journal *World Development* had the highest citation score of 311 (also see Appendix 1). The journal also has an h-index of 2, indicating that, at least two of the journal's papers have been cited twice. Elsevier Publishers fully manages this journal, and it has the widest Subject area compared to the remaining 30 journals. Journals like Food Policy have cited papers from the World Development Journal (see Fig. 5). Based on the citation score, the *Journal of Rural Studies* had the second-highest citation score of 149. Again, this journal focused on subject areas such as social and political sciences, geography, and planning and development.

Finally, the journals that were not considered in the top 30 resulted from the eligibility criteria set by the authors in commuting for the journal's local analysis. However, the remaining 80 journals had subject areas like Business, Management and Accounting (39), Environmental Science (11), Computer Science (5), Energy (6), Engineering (3), Arts and Humanities (4), Decision Sciences (3), Veterinary (2), Chemical Engineering (1), Chemistry (1), Mathematics (1), and Multidisciplinary (1). The assessment of journal impact and subject areas shows that, over the past 15 years, agribusiness gaps in emerging markets have attracted increasing concern across all disciplines given the diverse subject areas of the journals.

Funder/Sponsor

Analysis of funding institutions, the institution's location, the number of documents, and the specific papers sponsored have been presented in Table 2. A total of 37 articles, representing 30.32 % of all the articles retrieved for the study, were fully funded by 51 institutions. To draw insightful conclusions based on the analysis presented, articles were individually assigned to the funding institutions to elaborate on the sponsors' significant effort, resulting in 70 articles per the analysis. From the results, the agency *International Fund for Agricultural Development (IFAD)*, which has its headquarters in Italy, took the first leading position with a total publication of 5 (7.14 %). Over the years, agricultural development has been at the heart of the *IFAD*, specifically in Africa. Their focus has been on unveiling issues relating to youth participation

Table 1
Journal Impact Assessment.

Journal	Subject Areas	Publisher	TP	TC	H-index	Authors
Journal of Agribusiness in Developing Economies	Agricultural and Biological Sciences: Agricultural and Biological Science (Miscellaneous), & Social Sciences: Development, Economics Econometrics and Finance	Emerald Publishing	7	36	3	Obonyo et al., 2023; Singh and Kapoor, 2023; Owot et al., 2023; Devkota et al., 2022; Barzoala Iza et al., 2020; Dentoni et al., 2020; Gill and Mathur, 2018
International Food and Agribusiness Management Review	Business and International Management & Agricultural and Biological Sciences: Food Science	International Food and Agribusiness Management Association	5	11	2	Lynch et al., 2014; Patel, 2014; Van Rooyen, 2014; Simpson and Cheong, 2014; Sudarshan Rao, 2012
Sustainability (Switzerland)	Social Sciences: Geographical, planning and Development, Computer Science: Computer Science & Environmental Sciences: Environmental Science (Miscellaneous)	Multidisciplinary Digital Publishing Institute (MDPI)	4	28	3	Garima et al., 2023; Altuzarra et al., 2021; Soava et al., 2020; Mohiuddin et al., 2020
Journal of Agricultural Extension	Social Sciences: Education, Social Sciences: Development & Agricultural and Biological Sciences: General Agricultural and Biological Sciences	Agricultural Extension Society of Nigeria	4	23	2	Adelakun et al., 2019; Musa et al., 2018; Agbarevo et al., 2018; Adesina and Favour, 2016
Journal of Rural Studies	Social Science: Sociology and Political Sciences, Social Sciences: Development, Social Sciences: Geography, Planning and Development	Elsevier	3	149	3	Paschen et al., 2021; Dias et al., 2019a; Dias et al., 2019b
Journal of African Business	Social Sciences: Development, Social Sciences: Geography, Planning and Development	Taylor & Francis	3	3		Dossou et al., 2023; Michaela Quaicoo and Bannor, 2023; Kaki et al., 2023
African Journal of Economic and Management Studies	Economics, Econometrics and Finance: General Economics, Econometrics and Finance; Business & Management and Accounting: General Business, Management and Accounting	Emerald Publishing	3	23	2	Osabohien, 2023; Obayelu et al., 2020; Otache, 2017
World Development	Social Science: Sociology and Political Sciences; Economics, Econometrics and Finance: Economics and Econometrics; Social Sciences: Development & Social Sciences: Geography, Planning and Development	Elsevier	2	311	2	Bellemare and Bloem, 2018; Davis et al., 2012
Livestock Research for Rural Development	Agricultural and Biological Sciences: Animal Science and Zoology	Centro para la investigacion en Sistema Sostenibles de Production Agropecuaria	2	8	2	Nkwasibwe et al., 2015; Ampaire and Rothschild, 2010
Journal of Enterprising Communities	Economics, Econometrics and Finance: Economics and Econometrics; Business, Management and Accounting: Strategy and Management & Business, Management and Accounting: Business and International Management	Emerald Publishing	2	5		Khan et al., 2023
Custo e Agronegocio	Business, Management and Accounting: Accounting &, Agricultural and Biological Sciences: Agronomy and Crop Science	Universidade Federal Rural de Pernambuco	2	7	2	Bose et al., 2018; Bose et al., 2017
Agricultural And Food Economics	Agricultural and Biological Sciences: Agricultural and Biological Science (Miscellaneous), Economics, Econometrics and Finance: Economics and Econometrics & Agricultural and Biological Sciences: Food Science	Springer Nature	2	0	1	Magbondé et al., 2023; Adeyanju et al.,2023
Agrekon	Social Sciences: Geography, Planning and Development, Economics, Econometrics and Finance: Economics and Econometrics, & Agricultural and Biological Sciences: Agronomy and Crop Sciences	Taylor and Francis	2	29	2	Louw et al., 2013; Vermeulen et al., 2008
African Journal of Management	Business, Management and Accounting: Business and International Management; Business, Management and Accounting: Strategy and Management	Taylor and Francis	1	8	1	Babu et al., 2016
African Journal of Agricultural Research	Agricultural and Biological Sciences: General Agricultural and Biological Sciences	Academic Journals	1	3	1	Maliwichi et al., 2011
African Journal of Food, Agriculture, Nutrition and Development	SOCIAL Sciences: Development; Agricultural and Biological Sciences: Agricultural and Biological Sciences(miscellaneous)	African Scholarly Science Communications Trust (ASSCAT)	1	1	1	Thoto et al., 2021
African Renaissance	Social Sciences: Political Sciences: and International Relations; Social Science: Sociology and Political Sciences, Social Sciences: Public Administration: Social Science: Development	Adonis and Abbey Publishers Ltd	1	2	1	AlabiOluwakemi et al., 2019
Agrarian South	Social Sciences: Cultural Studies Social Sciences (miscellaneous)	Sage	1	20	1	Amanor, 2019
Agribusiness	Agricultural and Biological Sciences: Animal Science and Zoology;	Wiley-Blackwell	1	0	1	Su et al., 2023

(*continued on next page*)

Table 1 (*continued*)

Journal	Subject Areas	Publisher	TP	TC	H-index	Authors
	Social Sciences: Geography, Planning and Development					
Agricultural Economics (United Kingdom)	Economics, Econometrics and Finance; Economics and Econometrics; Agricultural and Biological Sciences: Agronomy and Crop Sciences	Wiley-Blackwell	1	0	1	Das et al., 2023
Agricultural Finance Review	Agricultural and Biological Sciences: Agricultural and Biological Sciences (Miscellaneous); Economics and Econometric and Finance: Business, Management and Accounting: Strategy and Management	Emerald Publishing	1	0	1	Cherotich et al., 2022
Agriculture And Natural Resources	Agricultural and Biological Science: General Agricultura and Biological Sciences	Kasetsart University	1	0	1	Suryaningrat et al., 2021
Agronomy Journal	Agricultural and Biological Sciences: Agronomy and Crop Science	Wiley- Blackwell	1	8	1	Erickson and Fausti, 2021
Annual Review of Resource Economics	Economics, Econometrics and Finance; Economics and Econometrics	Annual Reviews Inc.	1	29	1	Byerlee and Deininger, 2013
Arab Gulf Journal of Scientific Research	General Business, Management and Accounting; General Environmental Science: Social Sciences: Education	Arab Gulf Journal of Scientific Research	1	0	1	Kumi and Bannor, 2023
Business Strategy and Development	General Economics, Econometric and Finance, Social Sciences: Development: Business, Management and Accounting: Strategy and Management	Wiley-Blackwell	1	8	1	Ben Amara et al., 2020
Chemical Engineer	Chemical Engineering: General chemical engineering; Chemistry: General Chemistry	Institute of Chemical Engineering	1	0	1	Duckett, 2008
China Agricultural Economic Review	Agricultural and Biological Sciences: Agricultural and Biological Sciences (Miscellaneous); Economics and Econometrics and Finance: Economics and Econometrics	Emerald Publishing	1	22	1	Chebbi, 2010
Cogent Social Sciences	Social Science: General social sciences	Cogent OA	1	6	1	Mmbengwa et al., 2021
Ecological Economics	Economics, Econometrics and Finance: Economics and Econometrics; Environmental Science: General Environmental Science	Elsevier	1	24	1	Dell'Angelo et al., 2021

Note: TP = Total Publication; TC = Total Citation

in Agribusiness and rolling out holistic approaches that can be adopted to ensure inclusion and the development of the agricultural entrepreneurial skills of African youth to help address the issue of poverty, unemployment and food security (Adeyanju et al., 2021; Kaki et al., 2023; Osabohien, 2023; Magbondé et al., 2023). Funding institutions such as *Consortium pour la recherche économique en Afrique*, *Direktion für Entwicklung und Zusammenarbeit*, *National Natural Science Foundation of China*, *Nederlandse Organisatie voor Wetenschappelijk* and *World Bank Group* who have their head offices in Kenya, Switzerland, China, the Netherlands and the United States, respectively, took the second leading position with an equal publication of 2, constituting 14.28 % (see Table 2). The increasing number of publications from these institutions may be referred to the agribusiness industry's transformation agenda theme, which seeks to link smallholder farmers to a new agricultural economy, create opportunities for farmers to easily access relevant agricultural inputs required to enhance their productivity, and hence accelerate and transform the economic growth of developing countries in Asia and Africa (Cavatassi et al., 2021; Cherotich et al., 2023; Lin et al., 2020). Similarly, many international organisations have focused on recovering economic growth from the recent 'economic crush' caused by COVID-19 to help actualise the UN SDGs (UNIDO, 2021). Again, the volume of papers could also be attributed to the international market bond among Europe, America, Australia, Asia and Africa, as more studies indicate that Africa and Asia export most of their agricultural raw materials to European and American countries (FAO, 2022; Anderson, 2023; Badu-Prah et al., 2023). Forty-five (45) publications, representing 78.58 % of the total, were funded by the remaining 45 institutions, as indicated in Table 2. Notably, a country like the US had the highest number of institutions funding most papers on the current discourse. European Union has also been persistent in contributing their quota in transforming the agribusiness industry in Africa and Asia to create a sustainable future in the agribusiness industry. More funding institutions have also emerged from countries like Switzerland, China, the Netherlands, Australia, and the UK. Table 3

Given the potential 37 publications fully funded by the 51 institutions and organisations, the results indicate that, even though the growth and development of economies of developing countries in both continents have been the focus of both local and international organisations, the funding rate remains low per the output presented in Table 2. A possible reason for the low research funding could be that a considerable percentage of the funds are invested in human skills and training development in both regions compared to research projects. Another reason could be that these institutions' funds are used to develop projects to revamp the agricultural sector rather than research projects. However, considering the low number of articles per the analysis, we argue that overcoming the challenges to change the agribusiness narratives requires more monetary support in research projects to turn around developing nations' social and economic fortunes.

Intellectual collaboration network

Fig. 6 presents the analysis of intellectual collaboration. Over the past 15 years, papers from 49 countries have been published on the agribusiness gaps in emerging markets. The total collaboration of papers was individually assigned to each country, resulting in 184 publications. Fig. 6 shows that the USA is the leading country, with a complete publication of 19 papers representing 10.32 %. Over the years, scholars from the US have successfully collaborated with academics from the Netherlands (*the blue node adjacent to the United States*), Nigeria, Ghana (*the smaller green node adjacent to Nigeria*), China, Uganda, Canada, Kenya (*one of the green nodes close to Nigerian and Ghana*), Ethiopia (*smallish green node closer to Tanzania*), Tanzania (*green node close to Switzerland*), Ecuador, Italy, India, Malawi, Jordan, Germany, France (*the red node between Germany and Jordan*), and Austria (*the node between*

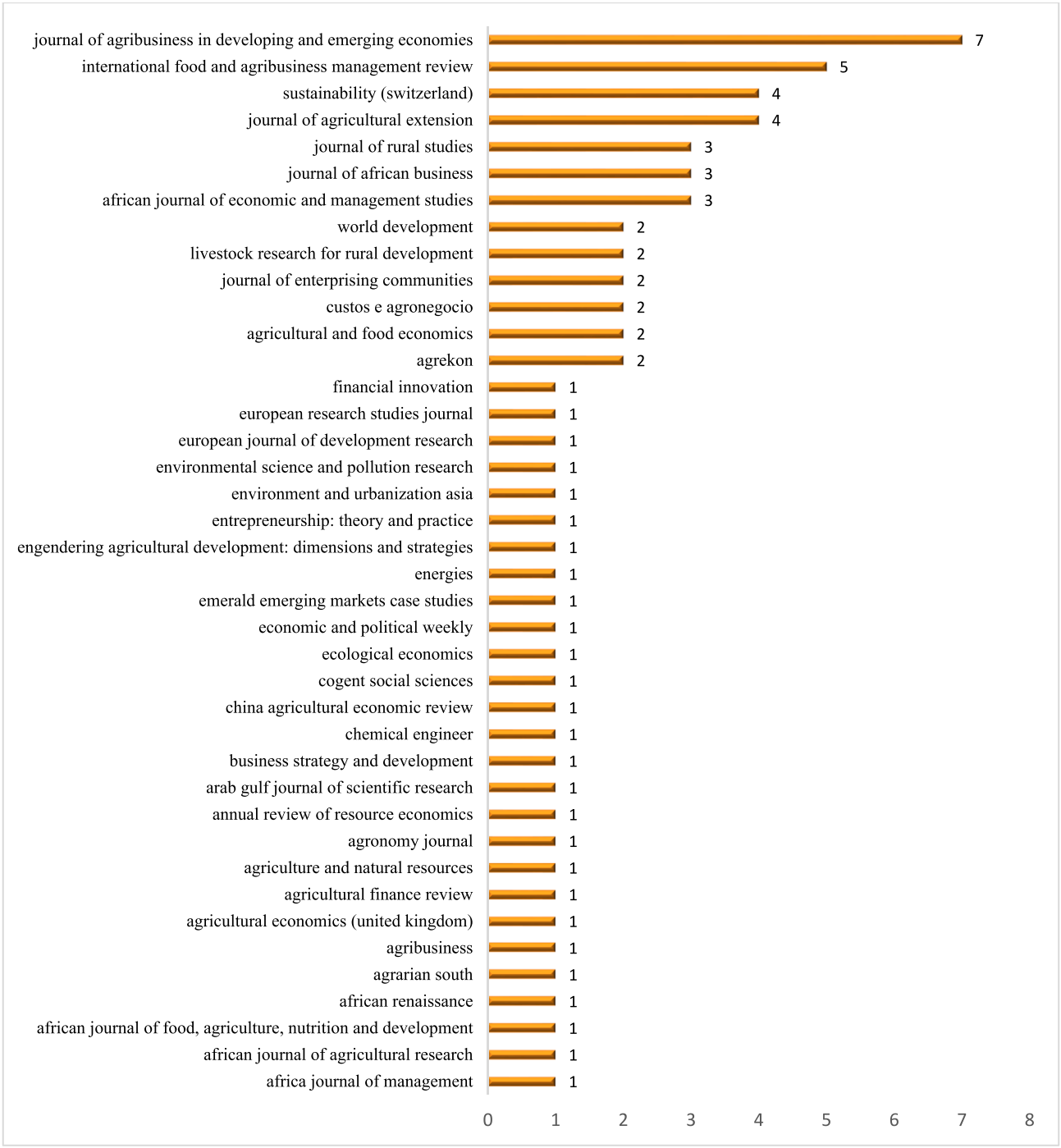

Fig. 4. Journal Impact Assessment.

Fig. 5. Network Virtualisation of Citation by Sources.

Germany and China) in transforming the agribusiness industry (see Fig. 7 & Appendix 2). Publications based on collaboration with the US focused on special topics related to food security, agricultural transformation, gender inequalities, developing countries, female labour participation, youth, agribusiness, and entrepreneurship (see Fig. 8). As indicated earlier, the US has been receiving agricultural raw materials from most of the developing countries in Africa and Asia, and even some parts of Latin America, and this has led to the US focusing on building the

Table 2
Analysis of Funders/Sponsors.

Funder/Sponsor	Country	No. Document	Authors
International Fund for Agricultural Development	Italy	5	Magbondé et al., 2023; Osabohien, 2023; Kaki et al., 2023; Adeyanju et al., 2021; Davis et al., 2012
Consortium pour la recherche économique en Afrique	Kenya	2	Cherotich et al., 2023; Adeyanju et al., 2021
Direktion für Entwicklung und Zusammenarbeit	Switzerland	2	Prügl., 2021; Cavatassi et al., 2011
National Natural Science Foundation of China	China	2	Lin et al., 2023; Qing et al., 2021
Nederlandse Organisatie voor Wetenschappelijk	Netherland	2	Kilelu et al., 2022; Dentoni et al., 2020
World Bank Group	United States of America	2	Das et al.,2023; Adeyanju et al., 2021
Alabama Commission on Higher Education	India	1	Farooq et al., 2020
Asian Development Bank	Philippines	1	Adeyanju et al., 2023
Australian Centre for International Agricultural Research	Australia	1	Barzola et al., 2020
Centro Internationale de la Papa	Netherlands & Norway	1	Cavatassi et al., 2011
Commonwealth Scientific and Industrial Research	Australia	1	Mohiuddin et al., 2020
Conselho nacional de Desenvolvimento Cientififfico e Tecnològico	Brazil	1	Oliveira et al., 2020
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior	Brazil	1	Oliveira et al., 2020
Covenant University	Nigeria	1	Osabohien et al., 2023
Danish International Development Agency	Denmark	1	Chakravarty et al., 2021
Deanship of Academic Research, University of Jordan	Jordan	1	Shukri et al., 2017
Department for International Development, UK Government	United Kingdom	1	Kazandijian et al., 2019
Department for International Development (appeared twice)	United Kingdom	1	Klasen, 2019
Department of Agriculture and Water Resources, Australian Government	Australian	1	Paschen et al., 2021
Deutsche Forschungsgemeinschaft	Germany	1	Amanor, 2019
Earmarked Fund for Modern Agro-industry Technology Research System	China	1	Tanui et al., 2012
Escuela Superior Politécnica del Litoral	Ecuador	1	Barzola et al., 2020
European Commission	European Union	1	Lin et al., 2023
European Regional Development Fund	European Union	1	Lin et al., 2023
European Research Council	European Union	1	Dell' Angelo et al., 2021
Eusko Jaurlaritza	Spain	1	Altuzarra et al., 2021
Friedreich's Ataxia Research Alliance	United States of America	1	Chakravarty et al., 2021
Fundamental Research Funds for the Central Universities	China	1	Su et al., 2023
Fundação para a Ciência e a Tecnologia	Portugal	1	Dell' Angelo et al., 2021
H2020 Marie Skłodowska-Curie Actions	European Union	1	Dell' Angelo et al., 2021
Horizon 2020	European Union	1	Dell' Angelo et al., 2021
Horizon 2020 Framework Programme	European Union	1	Dell' Angelo et al., 2021
Inter-American Foundation	United States of America	1	Oliveira et al., 2019
Islamic Development Bank	Saudi Arabia	1	Lisk et al., 2013
Japan Society for the Promotion of Science	Japan	1	Dao et al., 2021
Ministry of Knowledge Economy	South Korea	1	Dell' Angelo et al., 2021
National Institute for the Humanities and Social Sciences	South Africa	1	Mmbengwa et al., 2021
National Institute of Food and Agriculture	United States of America	1	Bellemare and Bloem, 2018
National Office for Philosophy and Social Sciences	China	1	Lin et al., 2023
Vlaamse Overheid	Belgium	1	Chelimba and Ragasa, 2020
Université de Fribourg	Switzerland	1	Nkoumou Ngoa and Song, 2021
Universität Witten/Herdecke	Germany	1	Osabohien, 2023
University of California Berkeley	United States of America	1	Oliveira et al., 2019
Universitas Jember	Indonesia	1	Suryaningrat et al., 2021
Secretaría de Educación Superior, Ciencia, Tecnología e Innovación	Ecuador	1	Barzola Iza et al., 2020
Secretaría de Educación Pública	Mexico	1	Dentoni et al., 2020
Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung	Switzerland	1	Prügl et al., 2021
Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung	Switzerland	1	Prügl et al., 2021
Priority Academic Program Development of Jiangsu Higher Education Institutions	China	1	Tanui et al., 2012
National Socio-Environmental Synthesis Center	United States of America	1	Dell' Angelo et al., 2021
National Science Foundation	United States of America	1	Dell' Angelo et al., 2021

capacity of smallholder farmers in these regions (AFDB, 2017; FAO, 2022). India took the second leading position with 16 papers (8.69 %). Scholars from India have networked with researchers from countries like the United States, Italy and South Africa, given the four countries' focus on critical issues like agribusiness, contract farming, agro-processing, and youth. The increasing number of papers from India may be attributed to the economic significance of the agricultural sector to the nation's GDP, which has attracted scholarly attention over the years (Grover et al., 2014; Gill and Mathur, 2018). The rise in population coupled with postharvest losses, which in turn has resulted in food insecurity, has been one of the challenges facing the agribusiness industry of India, and this has propelled government and private institutions to derive innovative means and strategies of turning their abundant agricultural raw materials into finished products (Grover et al., 2014). Again, another reason could be that agribusiness development in India is influenced by religious doctrines and beliefs which

Table 3
Emergent Themes.

Business Management and Entrepreneurship Skills and Training Gaps		Low Participation of Youth in Agribusiness	Gender Gaps-Low Female Participation in Agribusiness	Technology and Digital Innovation Gaps	Barriers and Challenges in Agribusiness
Devkota et al., 2023	Dias et al., 2018	Magbondé et al., 2023	Das et al., 2023	Zhu, 2023	Kumi and Bannor, 2023
Garima et al., 2023	Baiyegunhi et al., 2019	Adeyanu et al., 2023	Sudheer et al., 2023	Asif, 2023	Arvianti et al., 2023
Kaki et al., 2023	Agbarevo and Iworie, 2018	Osabohien, 2023	Dossou et al., 2023	Li et al., 2023	Khan et al., 2023
Kilelu et al., 2022	Bahua, 2018	Mmbengwa et al., 2021	Parveen, 2022	Su et al., 2023	Owot et al., 2023
Thoto et al., 2021	Marliyah et al., 2018	AlabiOluwakemi et al., 2019	Nkoumou Ngoa and Song, 2021	Singh and Kapoor, 2023	Erickson and Fausti,2021
Hassan et al., 2021	Ducket, 2008	Adelakun et al., 2019	Pramanik, 2021	Ullah et al., 2021	Chakravarty et al., 2021
Kleyn and Ciacciariello, 2021	Davis et al., 2012	Wossen and Ayele, 2018	Dao et al., 2021	Erickson and Fausti, 2021	Nwofoke et al., 2019
Ben Amara et al., 2020	Maliwichi et al., 2011	Adesina and Favour, 2016	Prügl et al., 2021	Cherotich et al., 2022	Bellemare and Bloem, 2018
Chilemba and Ragasa, 2020	Ampaire and Rothschild, 2010		Altuzarra et al., 2021	Dell''Angelo et al., 2021	Musa et al., 2018
Dentoni et al., 2020	Qing et al., 2021		Mohiuddin et al., 2020	Abdelnabby et al., 2020	Mishra et al., 2016
Dias et al., 2019	Ben Amara et al., 2020		Baruah and Singh, 2020	Barzola et al., 2020	Tukaew et al., 2016
Baiyegunhi et al., 2019	Handayani et al., 2020		Akhtar et al., 2020	Atuahene-Gima and Amuzu, 2019	Grover et al., 2014
Amanor et al., 2019			Farooq et al., 2020	Shukri Al-Rimawi, et al., 2017	Lynch et al., 2014
Adelakun et al., 2019			Yildirim, 2020	Van Paassen et al., 2014	Patel, 2014
Dias et al., 2019b			Klasen, 2019	Adekunle and Fatunbi, 2013	Van Rooyen, 2014
Bose et al., 2018			Kazandjian et al., 2019	Abdelnabby, 2020	Lisk, 2013
Agbarevo and Iworie, 2018			Kumar et al., 2018	Barzola Iza et al., 2020	Louw et al., 2013
Bahua et al., 2018			Hussain, 2011		Byerlee, and Deininger, 2013
Marliyah et al., 2018			Darmanto et al., 2021		Tanui et al., 2012
Fitz-Koch et al., 2018			Hassan et al., 2021		Cavatasssi et al., 2011
Gill and Mathur, 2018			Altuzarra et al., 2021		Hussain and Yaqub, 2010
Bose et al., 2017			Soava et al., 2020		Vermeulen et al., 2008
Otache, 2017			Baruah and Singh, 2020		Suryaningrat et al., 2021
Babu et al., 2016			Obayelu et al., 2020		Salman Abdou, 2021
Darmanto and Yuliari, 2016					Amanor, 2019
Nkwasibwe et al., 2015					Musa et al., 2018
Davis et al., 2014					Oberlack et al., 2016
Simpson and Cheong, 2014					Simpson and Cheong, 2014
Todo and Takahasi, 2013					Chebbi, 2010
Sudarshan Rao, 2012					Hussain and Yaqub, 2010
Rahman and Rahman, 2012					Vermeulen et al., 2008

promote entrepreneurship in some parts of India (Gill and Mathur, 2018). It is proven that cultural and societal values and norms inform entrepreneurship decisions, and this could be a perfect ground for increasing participation in the agriculture sector (Magbondé et al., 2023). Nigeria, the African country, took the third lead with 16 articles, representing 7.06 %. Scholars from Nigeria have collaborated successfully with scholars from the United States of America, Switzerland, Nigeria and Benin. Most papers among the four countries focused on agribusiness, entrepreneurship, agriculture, youth, female participation, agricultural entrepreneurship, and economic growth (see Fig. 8). According to the National Bureau of Statistics of Nigeria (2015), agriculture was the major contributor to the country until 1956, when the oil was fully discovered in Oloibiri in the Delta State of Nigeria. Much of the attention was shifted to the petroleum industry, leaving the agricultural sector behind. However, since the petroleum industry could not absorb much of the nation's labour force, there appeared to be high unemployment and poverty among the people in Nigeria, particularly those living in rural areas (Nwibo et al., 2016). This propelled the government to reconsider the agriculture sector by making available resources and introducing incubation programmes that will help develop the agricultural entrepreneurial (agripreneurial) skills of the farmers and the youth (Adelakun et al., 2015; AlabiOluwakemi et al., 2019; Obayelu et al., 2020). This reason could be one of the significant factors that led to the high volume of publications from the country on the current discourse (see Fig. 5 and Appendix 2). Nine (9) papers from China, South Africa, and Ghana, constituting 27 papers, were published.

Researchers in China had more network collaboration with scholars in Germany, Indonesia, France, Jordan, Macau, Canada, the UK and the US. Scholars in Ghana have worked with researchers in the US, Italy, Nigeria, Switzerland and India. Only one scholarly connection was found between scholars in South Africa and India. Papers from the three countries focused much on topics like agribusinesses, agriculture, entrepreneurship, agricultural entrepreneurship and Youth. The Netherlands, Kenya, and Indonesia had 7 papers each, followed by Germany with 6 publications. The rest of the country's scholars collaborated to publish papers less than 6, which amounted to 83 papers, representing 45.11 % (see Fig. 6 and Appendix 2). The high number of Intellectual Network collaborations indicates that amid modern

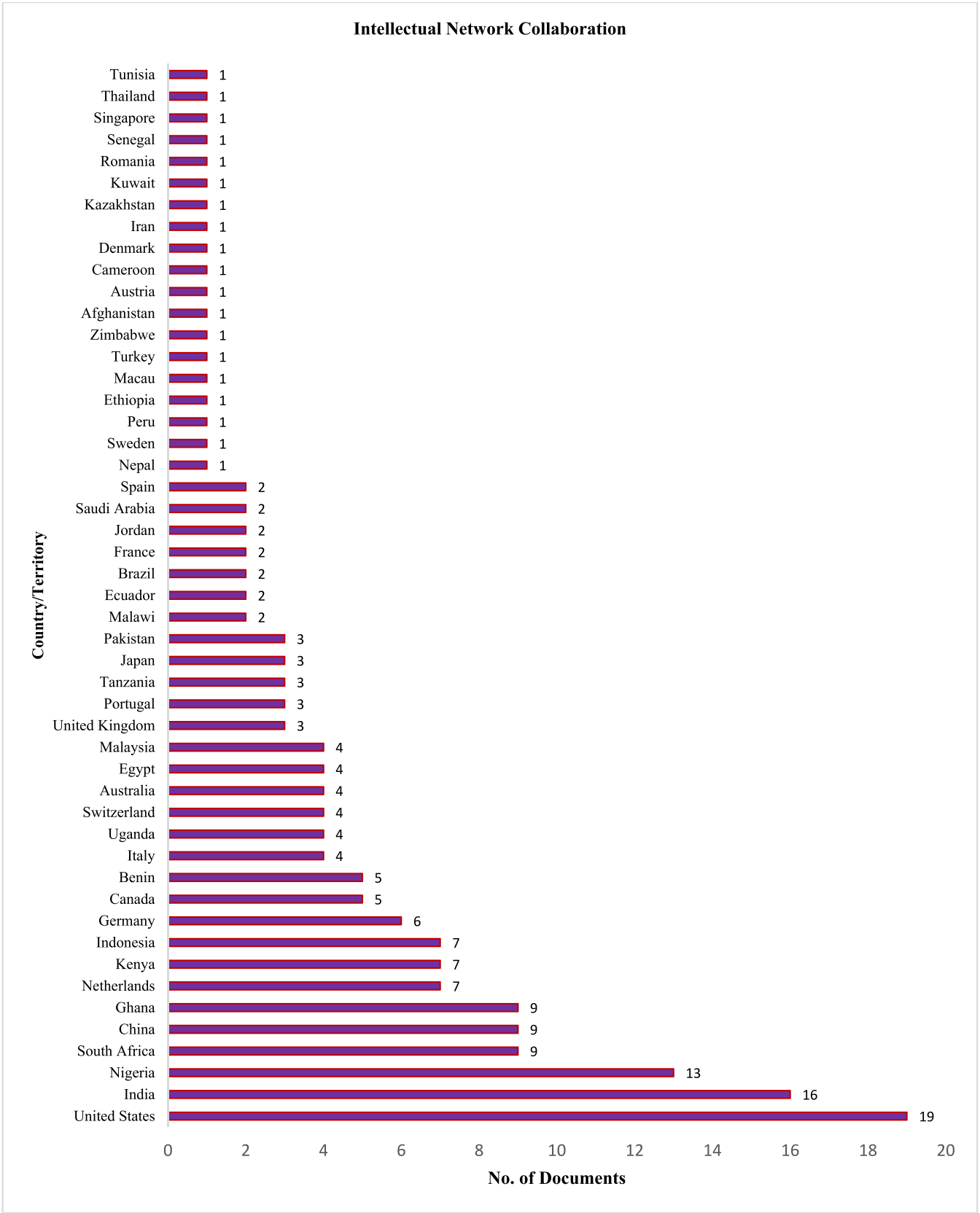

Fig. 6. Intellectual Network Collaboration.

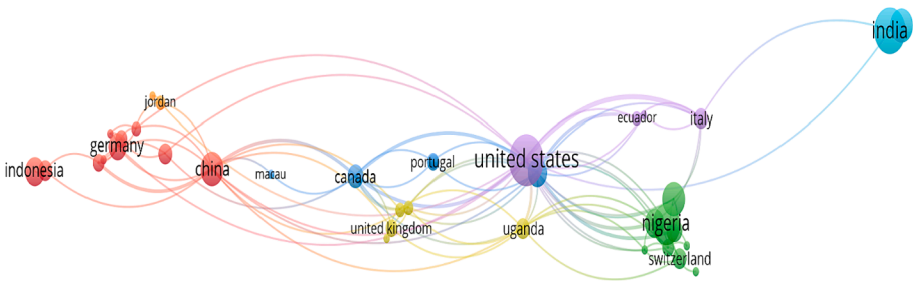

Fig. 7. Network Visualization of Intellectual Collaboration.

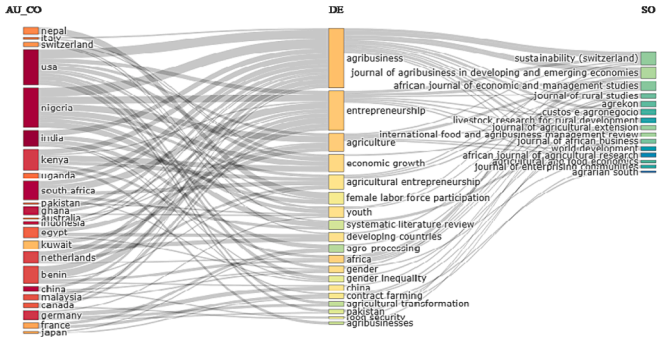

Fig. 8. Three-field Plot Analysis of Country, Keyword and Source.

globalisation, the transformation of the agribusiness industry in developing countries has attracted global concern, given its importance in addressing some economic challenges (Qing et al., 2021; Handayani et al., 2020).

Occurrences of author keywords

To examine the scope of the agricultural production, trends and gaps in the agribusiness industry in Africa and Asia, a network analysis of the authors' key keywords was carried out. From the results in Fig. 9, the terms "agribusiness", "entrepreneurship", "agriculture", "Africa", "economic growth", "gender", "youth", and "developing countries" have predominantly been used in all the articles included in the study. However, the key terms "agribusiness" and "entrepreneurship" stand out, indicating that these two keywords have consistently been used in almost all the articles included in the study (see also Appendix 3). Again, seven clusters were formed; the term "agribusiness" has co-occurred 26 times and with total link strength of 127. The term "entrepreneurship" has also co-occurred 17 times with a total link strength of 73 (see Appendix 3).

It is evident that the key term "agribusiness" has consistently been used together with words like "agricultural value chain", "barriers to entry", "agricultural extension", "agency problem", "land grab", "youth", "entrepreneurship", "agri-business", "employment creation", "value chain", "farm size", "Pakistan", "food security", "SMEs", "contract farming", "agro-processing", and "Uganda". Similarly, the key term "entrepreneurship" has also been consistently used with words like "enhancement", "innovation", "business performance", "agricultural services", "agribusiness", "context", "economic growth", "opportunity" and "propensity score matching" (see Fig. 10).

Given the clusters' colour and strength, the initial seven clusters formed were further regrouped, allowing for the emergence of five themes in consultation with the literature. The themes include "Business management and entrepreneurship skills and training gaps", "Low youth participation in agribusiness gap", "Gender gaps—low female participation in agribusiness", "Technology and innovations gaps in agribusiness", and "Barriers and challenges in the agribusiness industry", which are further discussed in the subsequent sections to draw more insight on the current discourse. The analysis of keywords and cluster formation indicates how the agribusiness industry has been at the heart of many scholars as a key to transforming the nature of agricultural production in both regions; however, its thematic generation is best established in consultation with the available literature. Accordingly, a thorough content assessment gives the scholar a clearer picture of the evolution of the subject (Dias et al., 2019; Donthu et al., 2021b; Bannor et al., 2023). Infrequently used keywords or keywords appearing in small sizes can be considered for future research to help deepen and broaden the agribusiness scope in both regions (Donthu et al., 2021a).

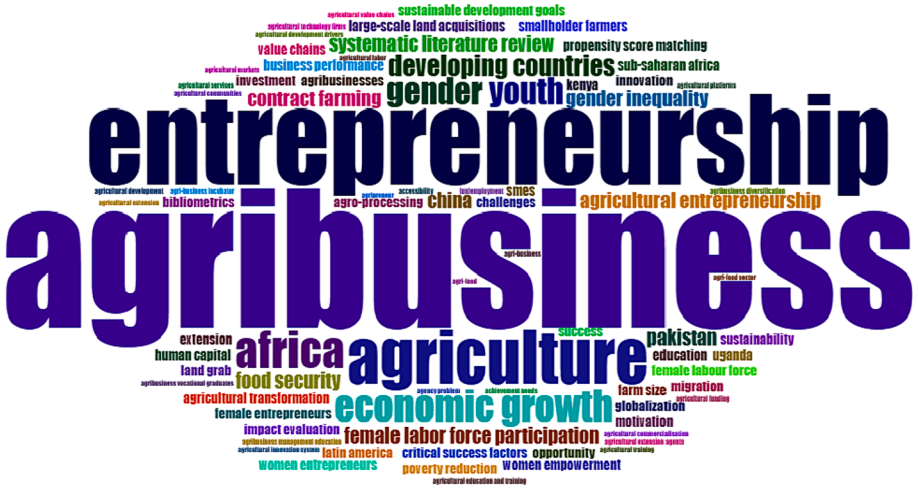

Fig. 9. Word Cloud Analysis.

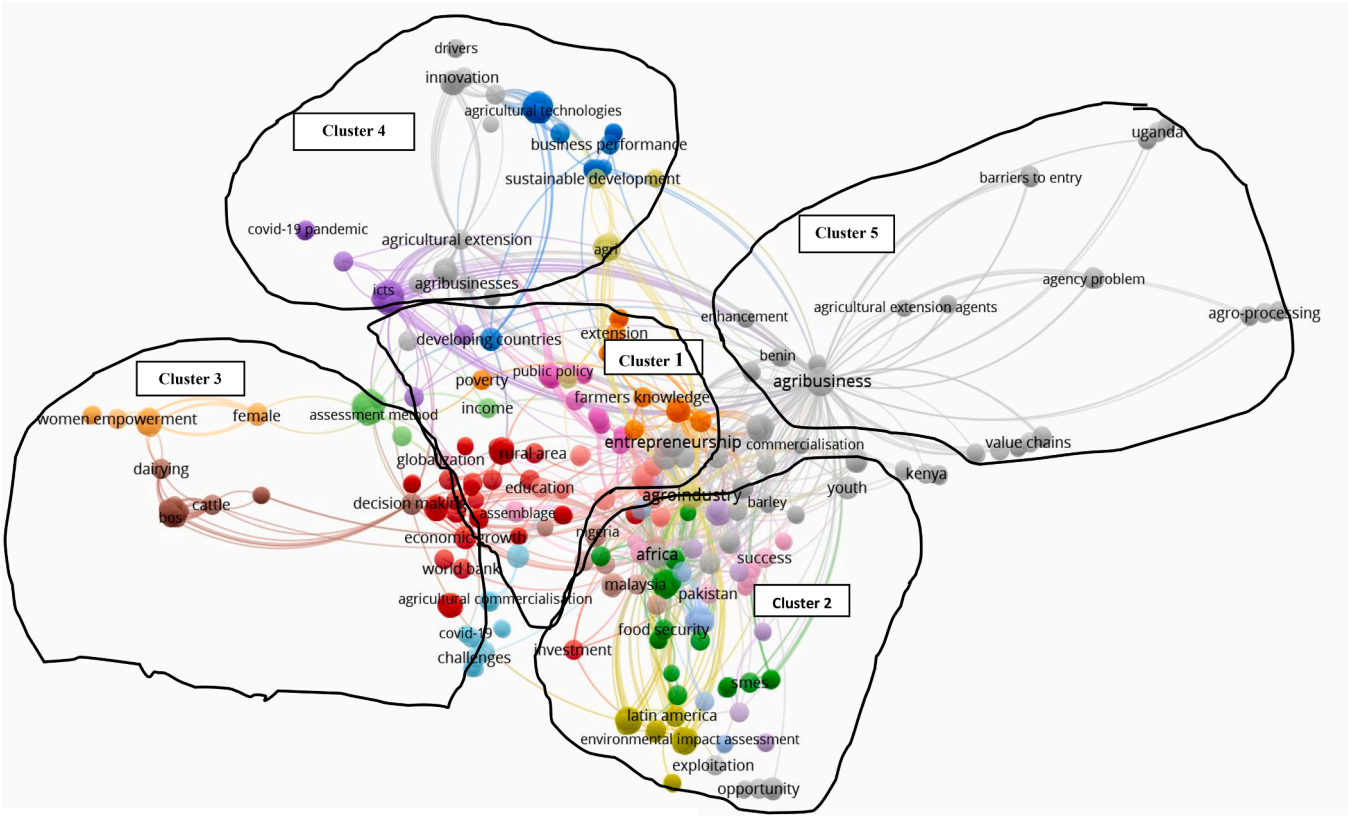

Fig. 10. Occurrence of Keywords.

Emergent themes

Business Management and entrepreneurship skills - training gap (Cluster 1)

The agribusiness sector is crucial for economic development and counterbalancing food insecurity, unemployment, poverty, and environmental damage in Africa and Asia (World Bank, 2020; Ben Amara et al., 2020). Currently, both continents are among the leading global producers of food crops such as cashew, coffee, cocoa, tea, mango, grapes and palm oil (Tanui et al., 2012; Oliveira et al., 2020; FAO, ECA, AUC, 2021), with considerable amount exported for revenue generation and wealth creation (World Bank, 2020). Despite its significant contribution, there are some gaps that retard the progress of the agribusiness industry (Osabohien et al., 2023). Globalisation and trade openness have also created unhealthy competition between local and international agribusiness industries. For instance, the traditional method of agricultural production and politicisation of business in developing countries, together with training and skill gaps, have been some of the significant barriers to the growth of the agribusiness industry (Maliwichi et al., 2011), making it difficult for agribusiness value chain actors to capitalise on the numerous job opportunities within the agricultural value chain (AFDB, 2017; Abdelnabby, 2020). Meanwhile, the overhauling development of every country relies heavily on entrepreneurship (Rahman and Rahman, 2012). Inculcating it in agricultural production accelerates the economic growth of countries across the globe (Singh and Krishna, 1994; Thoto et al., 2021).

De facto, evaluating its effectiveness requires a comprehensive understanding of the scope of the agribusiness industry, most specifically the skill needs of all actors involved in the value chain (AlabiOluwakemi et al., 2019). Creating a sustainable agribusiness industry requires tailoring relevant and robust skills training to meet the needs of targeted agripreneurs in developing countries, as this can improve the overall performance of all actors (Sudarshan, 2012; Marliyah et al., 2018). Given this, governments in developing nations have launched agribusiness incubation programmes to revitalise agriculture, enhance farmers' entrepreneurial skills, and promote youth participation in agribusinesses; yet, the agripreneurs lack the requisite skills to be more efficient and more productive (Adeyanju et al., 2023; Kaki et al., 2023; Magbondé et al., 2023).

A body of literature posits that entrepreneurship orientation, innovation, technological orientation, and business opportunity recognition are crucial for agribusiness sustainability and efficacy in meeting emerging market needs (Patel, 2014; Fitz-Koch et al., 2018; Abdelnabby et al., 2020; Asif, 2023; Kaki et al., 2023). Similarly, essential skills such as marketing, management, entrepreneurial, technology, accounting, financial, risk management, and opportunity capitalisation (Ogunmodede et al., 2017; Kuckertz et al., 2017; Abdelnabby, 2020; Osabohien, 2023) are crucial needs of the agribusiness sector. These skills, including innovation, decision-making and risk-taking ability, as well as coordinating farm activities, are crucial for agripreneurship (Bannor et al., 2022). Over the years, scholars have argued that exposing farmers to innovation and technical training has been impactful in combating the high level of postharvest losses, which in turn has improved the sustainable income of farmers (Ampaire and Rothschild, 2010; Handayani et al., 2020).

Going beyond assessing the effort and implementation of agribusiness programmes by government and NGOs in both regions to carefully examine the scope of the agribusiness industry and its gaps, as well as relevant agribusiness and entrepreneurship (agripreneurship) skills needed—together with increasing participation in training programmes—remain crucial for agripreneurs to take on new opportunities along the chain. Apart from these programmes, understanding the needs of agripreneurs and creating a supportive environment through effective leadership also ensure the success and development of agribusinesses (Hussain and Yaqub, 2010; Chebbi, 2010, 2011; Garima et al., 2023). Meeting global emerging market demand and creating sustainable

futures through agricultural production also requires placing much importance on relevant skills training that is geared towards improving the entrepreneurial skills of value chain actors, given its importance of contributing to the United Nations' SDGs (; Barzola et al., 2020; Olatunji and Christiana, 2020; Paschen et al., 2021). Therefore, addressing these skills gaps and providing a supportive environment for farmers and agribusiness value chain actors can improve the industry (Singh and Krishna, 1994; Simpson et al., 2014; Kumar et al., 2018; Amanor, 2019).

Inadequate knowledge and skills of the youth in agribusiness (Cluster 2)

Youth are growth engines crucial for economic development and advancement. In advanced countries, development policies and educational reforms have been implemented to encourage youth participation in the agricultural sector as opposed to developing countries. These policies and agricultural educational reforms harness human capital resources to transform agribusiness (Adeyanju et al., 2021; Mmbengwa et al., 2021). In developing countries, youth are often discouraged from agricultural production due to outdated, de-skilled labour, high investment, and perception of the sector as risky. According to Magbondé (2023), agricultural education reforms in developing countries most often neglect agribusiness-friendly institutions in terms of policy formulation structure development; likewise, these institutions have a greater impact on developing entrepreneurship traits in the youth in developing countries. Additionally, formal and informal institutions have been found to play a significant role in youth entrepreneurship development by informing entrepreneurship decisions and activities that could take either productive, non-productive or destructive forms (Baumol, 2007).

Poor institutional reforms have resulted in unproductive and destructive activities such as rent-seeking and corruption to thrive, curbing productive entrepreneurial activities (Magbondé, 2023). Many scholars have argued that formal institutions in most developing countries, for decades, have failed to link agriculture curriculums to real-life market and entrepreneurship situations to promote the development of the agribusiness industry (Embi et al., 2019; Adeyanju et al., 2021). The outdated agricultural courses at the university level are not tailored to meet the needs of the agribusiness industry, leaving many young graduates destitute and resulting in high unemployment, food insecurity, and poverty in developing nations (Ogunmodede et al., 2020). This issue has been compounded by the lack of technical and practical skills of authorities responsible for teaching agribusiness programmes, making it arduous to unlock the entrepreneurial potential of the youth in both Africa and Asia (Otache et al., 2017; Agbarevo and Iworie, 2018).

Meanwhile, providing hands-on training in the curriculum of agricultural courses can impact the entrepreneurial ability of the youth and encourage them to take chances within the agricultural value chain (Kilelu et al., 2022). Some scholars have also opined that critical factors such as behavioural beliefs (the perceived ease or difficulty of performing the behaviour assumed to reflect experience as well as anticipated impediments and obstacles), subjective norm beliefs (social pressure to perform or not to perform a behaviour), motivation to comply (behaviour and motivation to obey to reference hope/expectation), control belief (belief of opportunity and resources that individuals own to conduct a behaviour), control belief power (power or capability that is owned by one to control perceived factors for facilitating or obstructing a behaviour), and intentions (a sense on something or business activity in agricultural sector from upstream to downstream) are critical factors influencing entrepreneurial desirability, especially among the youth to participate in agricultural production (Ridha and Wahyu, 2016).

Inadequate knowledge and skills of female and marginalised groups in agribusiness (Cluster 3)

The feminisation of the paid labour force revolutionised the 20th century, granting women economic freedom and significant social transformation (Hussain, 2011). The advent of a new consciousness and extensive public dialogue about gender equity has been accompanied by a fundamental cultural transformation (Wajcman, 2013; Mohiuddin et al., 2020). The liberal commitment to gender equality is now widely acknowledged and even codified in legislation (Mohiuddin et al., 2020). Gender fairness in Western cultures has progressed, but emerging nations, particularly in Asia and Africa, face challenges due to cultural, social, and legal conventions. Feminisation in the paid labour force limits women's participation in agribusiness and entrepreneurial skills development programmes (Mustapha and Subramania, 2016; Mkpado and Mkpado, 2020; Farooq et al., 2020; Baruah and Singh, 2020; Dao et al., 2021; Salman Addou, 2021).

For instance, in Nigeria, females are more passionate about agricultural production, but gender norms lower their chances of entering higher-profit value chains (Das et al., 2023). Likewise, in Eswatini (Swaziland), social norms prevent women from engaging in formal activities, leading male farmers to have more entrepreneurial skills. Inadequate entrepreneurship skills and gender gaps in agribusiness, particularly in Africa, in turn, have resulted in a high level of occupational sex segregation (Darmanto and Yuliari, 2016; Nkoumou Ngoa and Song, 2021; Bannor et al., 2021; Thoto et al., 2021; Oppong and Bannor, 2022).

Previous studies indicate that gender disparity issues persist in Asia due to social norms and the structure of legal systems (Mustapha and Subramaniam, 2016). One critical example to recount is the high level of gender disparity in the agribusiness industry of India, which has resulted in women agripreneurs lacking innovation and entrepreneurial skills due to cultural and social norms (Mehta et al., 2021; Sudheer et al., 2023). In Indonesia, gender occupational disparities in agribusiness are attributed to social, cultural, and institutional norms preventing women from occupying certain positions within the agricultural value chain (Dermanto and Yuliari, 2016). Similarly, in Saudi Arabia, gender discrepancies in opportunity, such as female enrolment rates in schools have been observed to be lower than male enrolment rates, and this has been one of the current issues under discussion which have attracted the attention of researchers, policymakers and NGOs, given the significant contribution of the agriculture sector to the economic development of the country (Hassan et al., 2021; Parveen, 2022).

Broadly, gender discrepancies in agricultural production impact growth and human capital, limiting diversity and deterring countries from tapping into available human capital (Cherotich et al., 2020; Akhtar et al., 2020; Oppong and Bannor, 2022). Occupational inequity between men and women stifles the development of innovative ideas by reducing labour force efficiency (Kazandjian et al., 2019; Klasen, 2019; Farooq et al., 2020; Prügl et al., 2021; Oppong and Bannor, 2022). Promoting gender equality in agricultural and agribusiness initiatives enhances employment and farmer livelihoods (Hussain, 2011; Pramanik, 2021; Altuzarra et al., 2021). Likewise, well-structured entrepreneurial programmes and formal recognition of females can accelerate women's participation in the sector and encourage their involvement in economic decision-making (Salman Abdou, 2021; Oppong and Bannor, 2022). Though the government, institutional structures, and cultural factors may hinder females' participation in the labour market (Oppong and Bannor, 2022), it is also imperative to know the willingness of individuals to appreciate the opportunities within the agribusiness value chain and capitalise on them. More so, establishing strong social networks is crucial for encouraging women's participation in agribusiness in developing countries and improving engagement and overall performance (Bannor et al., 2020; Dossou et al., 2023).

Technology and innovations gaps in agribusiness (Cluster 4)

The agricultural production revolution demands innovation and technological advancement to transform the supply chain into a value chain to enable agripreneurs to be more productive and efficient in

reducing costs and increasing profits (Atuahene-Gima and Amuzu, 2019; Ben Amara et al., 2020; Osabohien et al., 2023; Singh and Kapoor, 2023). Adopting innovations in the agribusiness industry for sustainability in developing nations supports long-term growth, lowers production costs, boosts profits, conserves resources, and minimises environmental effects (Ben Amara et al., 2020; Chakravarty et al., 2021; Zhu, 2023). Technological innovations are beneficial for maintaining a competitive edge and improving the performance of agricultural businesses (Asif, 2023). Technology in agriculture promotes sustainable environments by enhancing natural processes, reducing adverse effects, and enabling companies to respond to regulatory pressure and to legitimise operations (Asif, 2023).

Accordingly, agribusiness firms improve resilience, performance, and profit maximisation through digital capabilities, supply chain governance, and innovative technology, leading to market expansion and efficiency (Lin et al., 2023; Su et al., 2023). Technological innovation efficiency enables agribusiness firms to access resources, explore new markets, and reduce marketing risks, significantly correlating with government subsidies and external support (Nwofoke, 2023; Singh and Kapoor, 2023; Su et al., 2023).

Despite the immense significance of technological innovations in agribusiness, its adaptation and implementation remain challenging, creating a huge gap between advanced and developing countries agriculture sector (Van Paassen et al., 2014). For instance, the lack of information sharing and management along the agricultural supply chain has resulted in high food fraud in agricultural marketing (Bannor et al., 2023). A recent study by Obonyo et al. (2023) found scanty information sharing in the African perishable agrifood supply chain, with traditional communication being one of the attributes of poor information sharing along the value chain. Likewise, good management practices of information documentation and sharing can enable agribusiness firms to develop robust supply chain resilience, increase profit, reduce the incidence of fraud and restore the integrity of the food supply chain (Owot et al., 2023; Bannor et al., 2023). Digitalization within the agricultural value chain can also encourage the symmetric flow of information, helping actors reduce production costs and gain a competitive market advantage (Lin et al., 2023).

Top agribusiness firms are crucial in agricultural digitalisation, providing guidance, support, and information on smallholder farmers' innovations, markets, and distribution channels (Lin et al., 2023). It is worth noting that the introduction of new agricultural technological innovations does not necessarily guarantee their intense use by agripreneurs; therefore, agri-tech institutions must first understand the needs of farmers and the nature of agribusiness industries in developing countries when developing new technologies in revamping the sectors (Singh and Kapoor, 2023).

Barriers and challenges in the agribusiness industry (Cluster 5)

The agribusiness industry in Asia and Africa looks promising, given the increasing exportation of industrial raw materials globally; however, the sector is faced with numerous challenges hampering its growth. Some of the challenges include inadequate research focus on the needs of small and medium agribusiness enterprises, poor market and rural infrastructure that support market operations (particularly roads and power) (Kilelu et al., 2022), poor legal and contractual protection for farmers, lack of well-structured land tenure and grabbing systems (Vermeulen et al., 2008; Lisk, 2015; Musa et al., 2018; Dell' Angelo et al., 2021; Khan et al., 2023), nascent development of value chain in commercial and high-value crops, and productivity stagnation due to poor inputs market (e.g., seed, agrochemicals, and fertiliser) (Nkwasibwe et al., 2015; Barzola et al., 2020; Dentoni et al., 2020).

Conversely, a low level of technological and innovation advancement has resulted in a high level of postharvest losses between farm and market, which has created limited access to appropriate modern technology and limited technical capacity of smallholder farmers and agroprocessing industries (Tanui et al., 2012; Oberlack et al., 2016; Chilema and Ragasa, 2020; Suryaningrat et al., 2021). Poor farm management practices on the part of producers pose a challenge that has impacted agricultural lands for some time now and caused ecosystem disruption (Arvianti et al., 2023). Again, policy constraints on the part of institutions such as feeble research-extension-education linkage, poor policy and governance regulation structure, poor governance reforms towards economic liberation and market access (Baiyegunhi et al., 2019; Davis and Sulaiman, 2014; Dossou et al., 2023), limited connection to regional or world market, and disconnection between agricultural education and agribusiness needs have hampered the growth of the agricultural sector in developing countries (Byerlee and Deininger, 2013; Bellemare and Bloem, 2018; Marliyah et al., 2018; Erickson and Fausti, 2021).

The burdensome nature of taxation and environmental regulations on agribusiness firms make it challenging for agribusinesses to effectively execute their operations (Rajaei et al., 2011; Dossou et al., 2023; Kumi and Bannor, 2023). Meanwhile, assessing and dealing with the barriers and constraints in the agribusiness industry would create enabling environments that can ensure the growth and development of the agribusiness industry (Brenya et al., 2022). More so, tackling the challenges at both local and international levels can help contribute to sustainable development goals and enhance the sector's ability to capitalise on the opportunities offered by globalisation in Africa and Asia.

Conclusion

This study systematically examined the scope of the agribusiness industry and its gaps in meeting the emerging market demands in Africa and Asia.. The study adopted the PRISMA approach in retrieving 122 papers published within a decade-and-a-half-year range from the electronic databases of Scopus and Google Scholar. Bibliometric statistical tools such as Excel, VOS viewer, and R-package Bibliometrix were employed to analyse the data. We found that publications on the agribusiness gaps in emerging markets have increased over the past fifteen years, with most journals expanding their scope to position the agribusiness industry as one of their prioritized issues. There has also been a high level of intellectual collaboration between scholars in both developed and developing countries, with the majority of the collaboration happening among researchers in the United States, India, Nigeria, South Africa, China and Ghana. Journals in the agribusiness domain, particularly the downstream issues, are limited. Further, Investment in agribusiness research projects in each region was also low, given the total number of publications that received sponsorship from funding institutions. Five major gaps characterised the agribusiness sector to experience growth and compete with the merging market competition and economic disruption caused by globalisation, including business management and entrepreneurship skills and training gaps, inadequate knowledge and skills of the youth, females and marginalised groups in agribusiness, and technology and innovation gaps. Barriers and challenges such as poor governance and institutional reforms, social and cultural norms, poor market systems, and inadequate flow of information within the agribusiness industry were also identified as gaps.

Implication for practices and policy

The low level of agribusiness journals dedicated to downstream agribusiness studies is worrying and limits studies relevant to downstream agribusiness studies for practice and policy. It is therefore suggested that credible publishers develop agribusiness-specific journals for academia to advance research in the area in the coming years. Further, funding for agribusiness studies has primarily been from developed countries. It betrays the commitment of developed countries' policymakers to developing the agribusiness sector. Therefore, governments should commit funds to agribusiness projects and research projects

tailored to solve developing countries' issues to spark the necessary gains from the agribusiness sector. Further, inserting entrepreneurial and managerial curricula into agribusiness education and extension services is crucial for entrepreneurial decisions, especially among youth. Such training could also be gendered, aiming to address gender discrepancies in agribusiness knowledge while promoting female participation in the industry. More so, we argue that Agri-tech Companies must also consider the needs of value chain actors and understand the nature of the agribusiness industry in developing countries since introducing new technological innovations does not guarantee intense usage by agricultural value chain actors. Regarding policy, strengthening research-extension linkages and increasing funding capacity for research institutions is necessary for closing the gaps and transforming the agribusiness industry in both regions to match the merging market trends and disruptions caused by globalisation.

Implications for future research

The findings pose a future agenda for scholars to help create a sustainable agriculture sector in Africa and Asia. Future research should focus on the relationship between the funding of agribusiness projects by developing countries' international development partners vis-a-vis developing countries' governments. Further studies on African agribusiness scientists' contributions to agribusiness studies will be interesting to study in the future. Further, a study on the relationship between agribusiness education and agripreneurship participation among the youth will be interesting to review. Likewise, a review of various pieces of training by developing countries' Ministry of Agriculture pieces of training to assess the agribusiness education extension services and their impact on the youth and other culturally marginalised groups such as women would be crucial. The feminisation of the paid labour force in agribusiness should be given world recognition since the issue of gender discrepancies persists in some parts of Africa and Asia. As we work towards ensuring regional economic development and creating values along the chain, value addition and value chain-driven agribusiness are crucial to reducing losses and maximising value actors' income. Therefore, agricultural value addition creation should be a topic of interest, particularly considering the agro-processing industries in Africa and Asia. Digitalisation in agricultural supply and value chains can further be explored as a critical tool in developing and accelerating the growth of the agribusiness industry in both regions.

Limitations of the study

Despite the enormous contribution of the study in critically identifying the gaps within the agribusiness industry in both contents, the study must be viewed from a few limitations. First is the authors' choice of keywords and phrase strings when generating the articles. Secondly, the definition of exclusion and inclusion criteria set by the authors may have resulted in the exclusion of relevant articles deemed appropriate for the study since we limited our focus to articles published in Africa and Asia. Thirdly, the option for the publication period in English and the language of publications may also change some of the study's conclusions. Further, the preference for specific scientific article search engines and the unexamined effect of methodological approaches adopted on their merit may have influenced the study's results. Also, though the authors used keywords related to agripreneurship, they did not use the exact keyword in any of the searches and hence could have missed publications that could otherwise be part of this review. Therefore, excluding the term agripreneurship should be considered in future studies.

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Competing interests

The authors declare that they have no competing interests.

Data availability statement

The data used for the study is from the Scopus database using keywords as indicated in the methodology, which is widely available for any researcher.

Author contribution

All authors contributed to the design, data search, analysis, interpretation of data, drafting of the paper, critical analysis of content, proofreading, and final approval of the version to be published.

Ethics approval statement

None

Permission to reproduce material from other sources

Not needed

CRediT authorship contribution statement

Richard Kwasi Bannor: Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Conceptualization. **Kingsley Kofi Arthur:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Investigation, Formal analysis, Data curation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix 1:. Descriptive Statistics of Journal Sources (54 Journal Sources)

Journal Name	No. of Documents	TC	TLS	Journal Name	No. of Documents	TC	TLS
Journal of Agribusiness in Developing and Emerging Economies	7	36	2	China Agricultural Economic Review	1	22	0
International Food and Agribusiness Management Review	5	11	1	Cogent Social Sciences	1	6	0
Journal of Agricultural Extension	4	23	0	Ecological Economics	1	24	0
Sustainability (Switzerland)	4	28	0	Economic And Political Weekly	1	2	0
African Journal of Economic and Management Studies	3	23	2	Emerald Emerging Markets Case Studies	1	6	0
Journal of African Business	3	3	1	Energies	1	1	0
Journal of Rural Studies	3	149	3	Engendering Agricultural Development: Dimensions and Strategies	1	0	0
Agrekon	2	29	0	Entrepreneurship: Theory and Practice	1	127	3
Agricultural And Food Economics	2	0	1	Environment and Urbanization Asia	1	1	0

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Journal Name	No. of Documents	TC	TLS	Journal Name	No. of Documents	TC	TLS
Custos e Agronegocio	2	7	0	Environmental Science and Pollution Research	1	9	0
Journal of Enterprising Communities	2	5	1	European Journal of Development Research	1	6	2
Livestock Research for Rural Development	2	8	0	European Research Studies Journal	1	1	0
World Development	2	311	3	Financial Innovation	1	6	0
Africa Journal of Management	1	8	1	Food Policy	1	57	1
African Journal of Agricultural Research	1	3	0	Global Environmental Change	1	135	0
African Journal of Food, Agriculture, Nutrition and Development	1	1	1	Ids Bulletin	1	2	0
African Renaissance	1	2	0	Indian Journal of Animal Sciences	1	0	0
Agrarian South	1	20	0	Indian Journal of Ecology	1	0	0
Agribusiness	1	0	0	Indian Journal of Human Development	1	1	0
Agricultural Economics (United Kingdom)	1	0	0	Indian Journal of Labour Economics	1	0	0
Agricultural Finance Review	1	0	0	Indian Journal of Marketing	1	1	0
Agriculture and Natural Resources	1	0	0	Information and Management	1	2	0
Agronomy Journal	1	8	0	International Journal of Applied Business and Economic Research	1	3	0
Annual Review of Resource Economics	1	29	0	International Journal of Emerging Markets	1	2	0
Arab Gulf Journal of Scientific Research	1	0	0	International Journal of Entrepreneurial Behaviour and Research	1	102	0
Business Strategy and Development	1	8	0	International Journal of Entrepreneurship	1	1	0
Chemical Engineer	1	0	0	International Journal of Interdisciplinary Social Sciences	1	1	0

Appendix 2:. Descriptive Statistics of Intellectual Collaboration Network by 49 Countries

Country	No. of Documents	TC	TLS	Country	TDC	TC	TLS
United States	19	733	24	France	2	5	6
India	16	91	4	Jordan	2	7	4
Nigeria	13	54	4	Malawi	2	18	7
China	9	51	16	Saudi Arabia	2	8	0
Ghana	9	73	5	Spain	2	39	3
South Africa	9	119	1	Afghanistan	1	6	3
Indonesia	7	22	1	Austria	1	17	0
Kenya	7	216	10	Cameroon	1	10	1
Netherlands	7	116	18	Denmark	1	103	0
Germany	6	309	7	Ethiopia	1	204	5
Benin	5	37	6	Iran	1	5	1
Canada	5	156	14	Kazakhstan	1	3	3
Australia	4	119	4	Kuwait	1	0	1
Egypt	4	7	1	Macau	1	3	2
Italy	4	37	9	Nepal	1	2	1
Malaysia	4	33	3	Peru	1	29	4
Switzerland	4	351	7	Romania	1	8	0
Uganda	4	220	12	Senegal	1	0	2
Japan	3	26	4	Singapore	1	2	0
Pakistan	3	20	6	Sweden	1	127	1
Portugal	3	169	3	Thailand	1	11	0
Tanzania	3	205	7	Tunisia	1	22	0
United Kingdom	3	164	7	Turkey	1	3	0
Brazil	2	41	6	Zimbabwe	1	4	0
Ecuador	2	41	5				

Appendix 3:. Descriptive statistics of co-occurrence of top 100 keywords

Keywords	Occurrences	TLS	Keywords	Occurrences	TLS	Keywords	Occurrences	TLS	Keywords	Occurrences	TLS
Agribusiness	26	127	Globalization	2	12	agri-business	1	4	agtech	1	4
entrepreneurship	17	73	human capital	2	10	agri-business incubator	1	4	anacardium occidentale	1	4
Agriculture	10	48	impact evaluation	2	8	agri-food	1	4	apiculture	1	4
Africa	7	29	innovation	2	6	agri-food sector	1	5	archetypes	1	4
economic growth	6	26	investment	2	10	agribusiness diversification	1	3	Asia	1	6
Gender	5	22	Kenya	2	9	agribusiness management education	1	3	assemblage	1	7
Youth	5	26	land grab	2	9	agribusiness vocational graduates	1	2	attitude and employment	1	2

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Keywords	Occurrences	TLS	Keywords	Occurrences	TLS	Keywords	Occurrences	TLS	Keywords	Occurrences	TLS
developing countries	4	14	large-scale land acquisitions	2	9	agricultural commercialisation	1	5	attitude-change	1	4
agricultural entrepreneurship	3	12	Latin America	2	9	agricultural communities	1	5	Barley	1	3
China	3	17	migration	2	14	agricultural development	1	4	barriers to entry	1	7
contract farming	3	17	motivation	2	8	agricultural development drivers	1	3	base erosion	1	2
female labour force participation	3	11	opportunity	2	12	agricultural extension	1	6	Benefits	1	6
food security	3	11	poverty reduction	2	7	agricultural extension agents	1	2	Benin	1	7
gender inequality	3	14	propensity score matching	2	7	agricultural funding	1	4	born global	1	9
Pakistan	3	13	smallholder farmers	2	9	agricultural innovation system	1	3	Brazil	1	7
systematic literature review	3	11	Smes	2	11	agricultural labour	1	5			
agribusinesses	2	8	sub-Saharan Africa	2	8	agricultural markets	1	7			
agricultural transformation	2	13	success	2	9	agricultural platforms	1	4			
agro-processing	2	7	sustainability	2	8	agricultural services	1	5			
bibliometrics	2	7	sustainable development goals	2	9	agricultural technology firms	1	8			
business performance	2	8	Uganda	2	9	agricultural training	1	3			
Challenges	2	9	value chains	2	11	agricultural value chains	1	6			
critical success factors	2	10	women empowerment	2	11	agripreneur	1	6			
Education	2	9	women entrepreneurs	2	8	Agripreneurs	1	5			
Extension	2	6	(un) employment	1	8	Agripreneurship	1	6			
farm size	2	9	Accessibility	1	5	agripreneurship development	1	6			
female entrepreneurs	2	6	achievement needs	1	3	agro-industries	1	5			
female labour force	2	7	agency problem	1	7	agrochemical traders	1	3			

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