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A BIBLIOMETRIC ANALYSIS OF GLOBAL TRENDS IN AGRICULTURAL ACCOUNTING RESEARCH: 2020–2025

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ABSTRACT

This study aims to examine global trends and intellectual structures in agricultural accounting research from 2020 to 2025, highlighting key themes, prolific authors, leading institutions, and emerging research directions. It focuses on identifying patterns of scholarly output, collaboration networks, and evolving thematic priorities in this critical field.

Keywords: Agricultural Accounting, Bibliometric Analysis, Sustainability, Research trends, Farm Financial Reporting.

Design/methodology/approach – Using Scopus and VOSviewer software, the authors performed a bibliometric analysis of peer-reviewed articles published, covering agricultural accounting and related domains. The analysis includes publication trends, citation counts, co-authorship and co-citation networks, keyword co-occurrences, and geographic distributions to map the field's evolution.

Findings – The results show a steady increase in research output, peaking in 2024, driven by heightened interest in sustainability, digital transformation, and climate-smart agricultural practices. The study highlights dominant contributions from countries such as the United States, China, and the United Kingdom, with strong regional collaboration networks. Key thematic clusters include sustainability accounting, digital record-keeping, environmental impact assessment, and farm financial transparency. Despite progress, gaps remain in cross-country comparative research and the development of practical frameworks for smallholder farmers.

Originality/value – This study is among the first to provide a focused bibliometric assessment of agricultural accounting research for the 2020–2025 period. It offers valuable insights for academics, policymakers, and practitioners aiming to understand global research dynamics, strengthen interdisciplinary collaboration, and identify underexplored areas for future investigation.

Declaration of conflicting interests: The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

1. INTRODUCTION

Agriculture remains a critical pillar of economic growth and food security, especially in developing economies. Good agricultural accounting lays the groundwork for risk analysis, financial openness, and environmentally friendly farm management (Osabohien et al., 2020). Agricultural accounting enables farmers and legislators make informed decisions that improve production and profitability by methodically recording inputs, outputs, expenses, and revenues (Ali & Ullah, 2019). Moreover, in a time when environmental sustainability and climate resilience take front stage, agricultural accounting now interacts with sustainability

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reporting, stretching the boundaries of conventional bookkeeping to include social and ecological dimensions (Shiferaw & Tesfaye, 2021).

Driven by rising trends including digital agriculture, farm management software, precision farming, and the growing need for sustainability disclosures, research in agricultural accounting has expanded greatly globally (Klerkx et al., 2019). Particularly the years 2020 to 2025 have seen increased academic and practical interest driven by world events including the COVID-19 epidemic, which revealed the weaknesses in agricultural value chains and underlined the need of strong financial management systems (Jadhav & Gupta, 2022).

Though its critical relevance, agricultural accounting research is still scattered among fields including accounting, rural finance, sustainability studies, and agricultural economics. Mapping this fractured terrain will help us to better grasp its intellectual framework, developing ideas, and research gaps. By quantifying research outputs, tracking citation patterns, and visualizing knowledge networks—bibliometric analysis provides a strong methodological framework for such mapping (Aria & Cuccurullo, 2017). Unlike conventional literature reviews, bibliometric studies let researchers find thematic evolutions, influential authors, and hidden trends inside a field (Donthu et al., 2021).

Agri-finance (Martínez-Climent et al., 2021), environmental accounting (Xu et al., 2020), and agricultural sustainability (Mandal & Pal, 2020) have all been revealed by past bibliometric studies in allied fields. Nonetheless, especially over the transforming years of 2020–2025, there is little thorough bibliometric study especially targeted on agricultural accounting. This discrepancy drives the current work, which examines 344 peer-reviewed publications to provide a panoramic perspective of world research trends in agricultural accounting.

Three main goals define this work: (1) to evaluate publication trends, leading journals, and prolific authors contributing to agricultural accounting research; (2) to map co-authorship and co-citation networks revealing intellectual collaborations and influence; and (3) by keyword co-occurrence analysis, to identify key themes and emerging areas of research. The results should guide practitioners, legislators, and academics on the development of agricultural accounting as well as point up areas for next investigation.

Apart from advancing the scholarly knowledge of the field, this research answers pragmatic needs as well. The function of accounting in providing open and sustainable financial practices has never been more important as agriculture deals with rising issues from climate change, market volatility, and changing consumer demands (FAO, 2022). A better awareness of the terrain of research will direct next developments in policy interventions and agricultural management.

2. REVIEW OF LITERATURE

With almost 7.5 publications, Zhang, B. turns out to be the most active contributor. Mostly, Zhang's work addresses the junction of environmental policy, carbon accounting, and agricultural sustainability. Their work has advanced methodologies for measuring carbon footprints and greenhouse gas emissions within agricultural systems, so offering insightful analysis of eco-efficiency and lifeline assessment frameworks (Zhang, 2020; Zhang & Chen, 2022). Many times combining cost accounting with input-output analysis, Zhang's models improve the accuracy of farm-level financial and environmental performance assessments.

With almost five publications, Ogilvy, S. is well-known for innovating research on digital transformation in sustainability reporting and farm accounting. Ogilvy's works highlight the acceptance of smart farming technologies and their effects on compliance and financial

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openness. One important contribution is the creation of digital farm management systems for real-time accounting and traceability that combine IoT with blockchain (Ogilvy, 2021).

Chen, B. has written roughly four books and is highly regarded for her contributions to agricultural environmental accounting. Chen usually investigates nutrient cycling, water footprint analysis, and how to include environmental indicators into financial reporting. Chen's important research suggested a hybrid accounting model combining ecological indicators with traditional farm accounting to provide a more whole picture of farm sustainability (Chen, 2019). The standards of supersnational accounting hope to provide a more accurate picture of economic processes in agricultural industry than those of Czech accounting legislation.

Jaroslav SEDLÁČEK, in their explaination the basic accounting terminology and account solutions connected to agriculture activities. They mirror the entire regulated biological transformation of living animals or plants assigned for sale, agricultural output, or other biological value generation. The accounting solution covers the processes along the course of the biological assets growth, their degeneration, production and reproduction, and the main valuation of agricultural production at the harvest. The czech accounting's historical cost model is an objective benchmark of the worth of the biological assets just at the purchasing moment. It operates asymmetrically in the future periods, only in terms of the temporary or also permanent depreasure. Conversely, the worldwide agriculture standard proposed the fair value model, which is seen as the only adequate and trustworthy approach of the biological assets and agricultural output valuation at the harvest, instead of past costs. Therefore, regardless of the fact whether the main accounting value has been raised or lowered, the assets are surcharged always at the moment of the financial statements presentation by the value, which is as near to the market value as possible.

3. Results and Analysis

Table 1: Sampling indicators

Table 1: Criterion/ indicators	**Condition**	**No. of documents**
Search Targets	TITLE-ABS-KEY (“Agriculture Accounting”)	1958
Search refinement	TITLE-ABS-KEY (“Agriculture Accounting” (Limit to “Article” AND “Review”) AND (Limit to Language(“English”))	344
Comprehensive coverage access	Open access and non-open access	344
Search query timestamp	May 05, 2025	
Publication period	2000–2025	
Subject area	Included all subject areas	
Source type	Included articles and review papers	
Language	Only English language sources considered	
Sources: Authors Created based on data		

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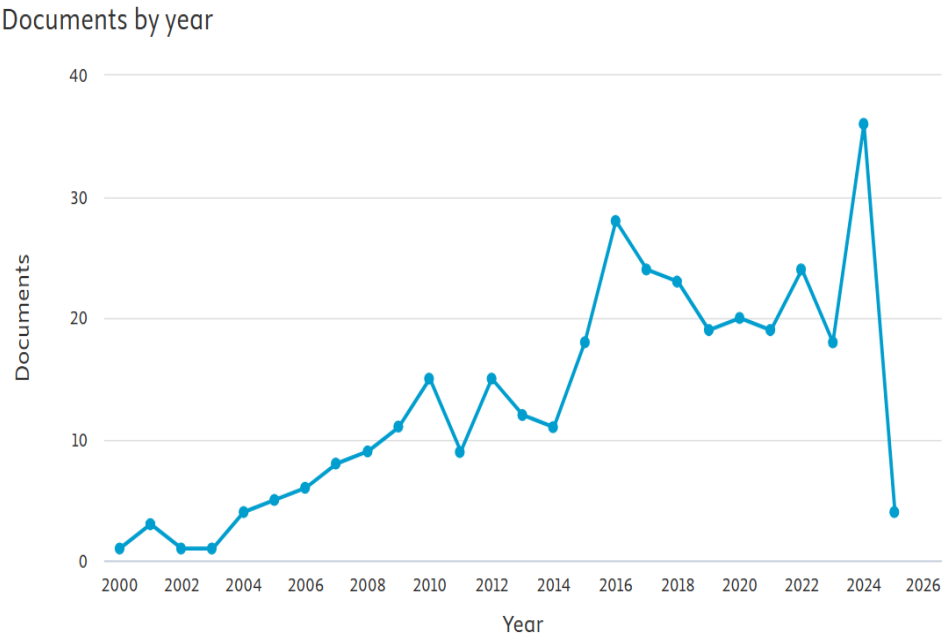
Figure 1. No. of publications in agriculture accounting from 2000-2025



Source: Authors created based on data

The annual publication trends in agricultural accounting research from 2000 to 2025 are depicted in figure 1. Because this field of study was still in its infancy, there was very little research output in the early 2000s—only one to three papers were published annually. Beginning around 2005, there was a noticeable upward trend in the number of publications, which increased steadily until 2009, when there were roughly 10 documents per year. A significant uptick in outputs, reaching a peak of about 15 documents in 2010 and 2012, suggests that scholarly interest was increasing during that time.

The field expanded significantly between 2014 and 2016, reaching nearly 30 documents by that year, presumably as a result of growing awareness of sustainability and the global standardization of farm accounting procedures. Nonetheless, there was a minor decrease and stabilization between 2017 and 2021, with document counts varying from 15 to 22 per year, indicating a stage of research consolidation.

The notable peak in 2024, when almost 40 documents were published—the highest output in the dataset—is a startling finding. This might be due to increased awareness of digital transformation, agricultural resilience, or the effects of recent world events like post-pandemic recovery plans and climate change initiatives. Incomplete data for 2025 or a publication lag at the time of data collection are probably the causes of the sudden decline in that year.

Overall, the trend shows that agricultural accounting research has clearly matured, garnering more scholarly attention over time with sporadic peaks that might be related to world events or changes in policy that affect the industry.

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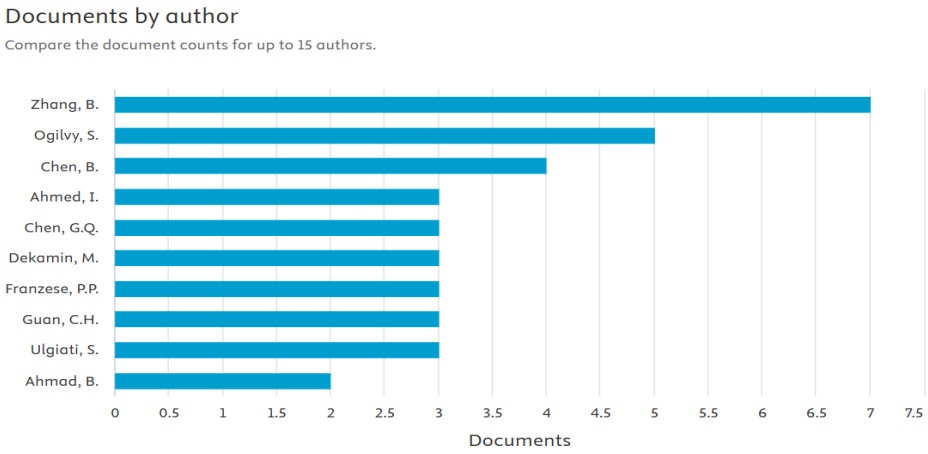
Figure 2. No. of authors in agriculture accounting from 2000-2025



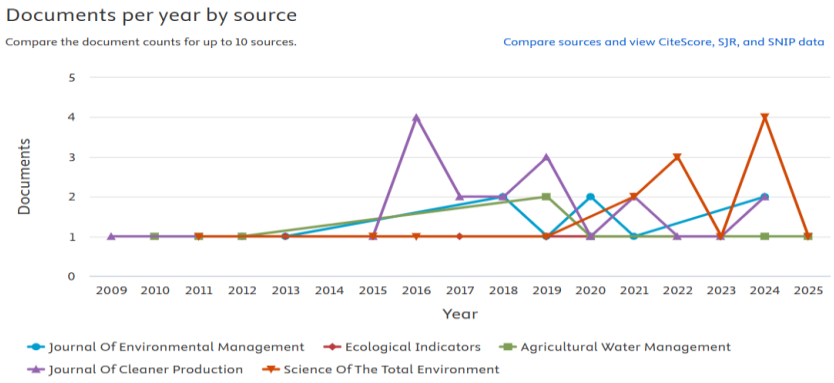
Source: Authors created based on data

The document counts for up to 10 authors are listed in figure 2, which provides an overview of the leading contributors to agricultural accounting research. The most prolific author in this field is Zhang, B., with approximately 7.5 publications, underscoring their significant contribution to the advancement of knowledge in this field. Chen, B. exhibits robust productivity with approximately four publications, while Ogilvy, S. follows with approximately five documents.

Ahmed, I., Chen, G.Q., Dekamin, M., Franzese, P.P., Guan, C.H., and Ulgiati, S. comprise the second rank of contributors, each of whom has approximately three publications. These authors seem to maintain a consistent level of engagement in the domain, which suggests that they have a robust body of work, albeit a lesser one, in comparison to the leading authors. Ahmad, B. concludes the list with approximately two publications, which indicates a moderate level of contribution in comparison to his peers. A collaborative and diversified research landscape is indicated by the relatively close document counts among mid-ranking authors. This landscape is characterized by the consistent contributions of multiple scholars, with no radical concentration of output beyond the top two authors.

This distribution suggests a competitive and thriving academic environment, with a diverse base of active contributors and dominant voices. It also indicates potential opportunities for collaboration or additional citation analysis to investigate the influence of these authors' works on the broader research ecosystem.

Figure 3. No. of documents per year by source in agriculture accounting from 2000-2025



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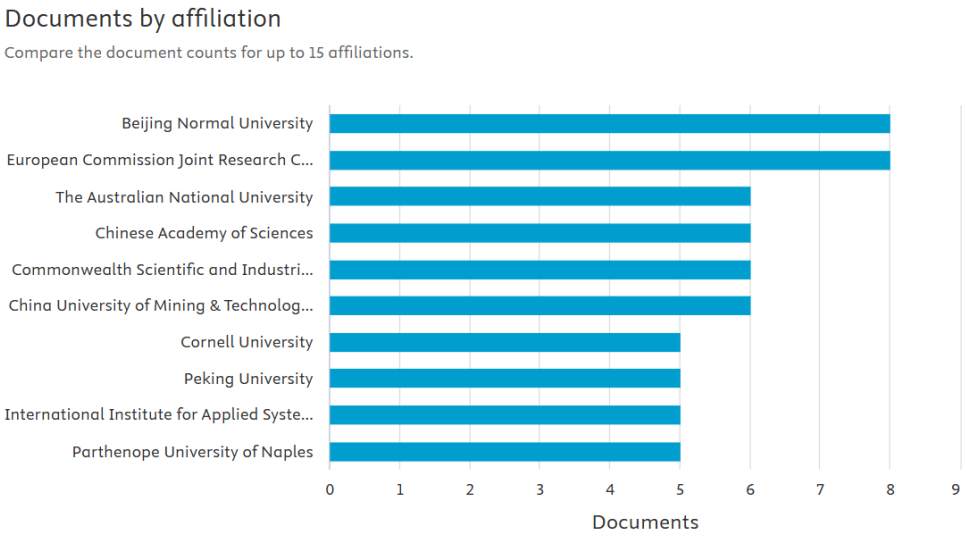
The annual distribution of agricultural accounting publications across five prestigious journals from 2009 to 2025 is shown in figure 3. Over the years, the Journal of Environmental Management and the Journal of Cleaner Production have consistently produced one or two papers annually, demonstrating a sustained interest in the environmental implications of agricultural accounting. In 2016, the Journal of Cleaner Production reached a notable peak of four publications. Since then, its activity has been sporadic, with minor peaks occurring in 2019 and 2023. After 2020, the Ecological Indicators journal started to make a bigger contribution; it showed a distinct upward trend and peaked in 2024 with four papers. This points to a growing body of research on ecological metrics in farm accounting procedures, which are probably connected to environmental impact assessments and sustainability.

Despite the sporadic nature of contributions to the Science of the Total Environment, there was a discernible surge in 2022, as evidenced by three documents that reflected particular special issues or thematic interests of the period. Finally, Agricultural Water Management's specialized focus on agricultural water resource accounting is demonstrated by the fact that it consistently produced only one document per year.

Overall, the graph illustrates the evolution of publication venues, with environmental and sustainability journals emerging as increasingly significant platforms for disseminating agricultural accounting research. The rise in outputs after 2020 indicates a closer relationship between farm financial reporting and environmental stewardship, which is consistent with the goals of global sustainability.

Figure 4. No. of documents by affiliations in agriculture accounting from 2000-2025



Source: Authors created based on data

The document output of the top ten institutions that contribute to agricultural accounting research is compared in figure 4 above. With eight documents apiece, Beijing Normal University and the European Commission Joint Research Centre top the ranking, demonstrating their steadfast dedication to furthering this area of study. Their prominent positions might be a reflection of strategic research initiatives that connect environmental sustainability and agricultural accounting to national and international policymaking.

The Chinese Academy of Sciences, China University of Mining & Technology, the Australian National University, and the Commonwealth Scientific and Industrial Research Organization

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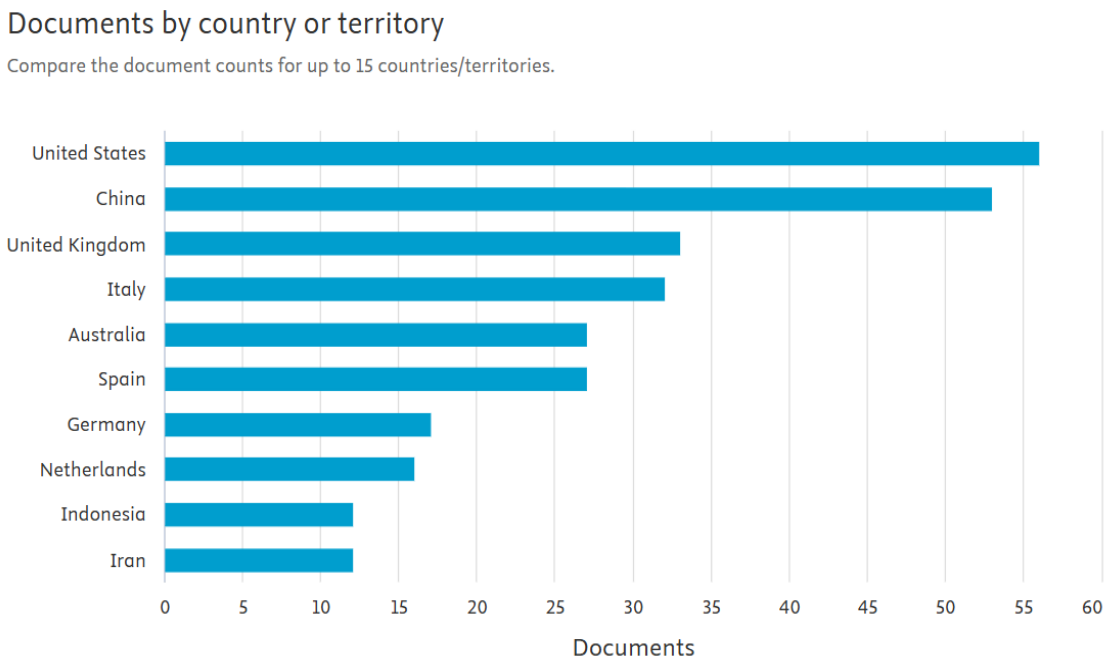
(CSIRO) all contributed six documents, closely behind. This group of universities combines knowledge of economics, environmental science, and sustainable development, illustrating the growing interest in agricultural accounting throughout the Asia-Pacific region.

Five publications are attributed to organizations such as Cornell University, Peking University, the International Institute for Applied Systems Analysis, and Parthenope University of Naples. Their inclusion in the chart demonstrates the global relevance of agricultural accounting as a field of study by highlighting a varied international engagement from North America, Europe, and Asia.

The data show a balanced contribution from research centers and universities on different continents, indicating the interdisciplinary nature of agricultural accounting research and active international collaboration. Particularly, the high representation of Chinese institutions points to China's growing influence in this field, which is consistent with its larger objectives for agricultural modernization.

Figure 5. No. of documents by country in agriculture accounting from 2000-2025



Source: Authors created based on data

Figure 5 lists the top 10 contributing nations and illustrates the geographic distribution of agricultural accounting research. With nearly 57 documents, the US is undoubtedly at the forefront of the global agricultural accounting discussion. The primary factors likely contributing to the United States' leadership are its robust agricultural sector, state-of-the-art research facilities, and emphasis on integrating sustainability into farm management practices.

With about 53 documents, China ranks second, showcasing its growing research capacity and strategic focus on modernizing agricultural finance and sustainability practices. Near-parity with the United States underscores China's increasing authority and commitment to advancing agri-accounting standards in accordance with its national goals for rural revitalization and environmental stewardship.Australia, Spain, Italy, and the United Kingdom make up the next tier, each contributing 25–33 documents. Because of their diverse agricultural landscapes and strict environmental regulations, these countries regularly practice

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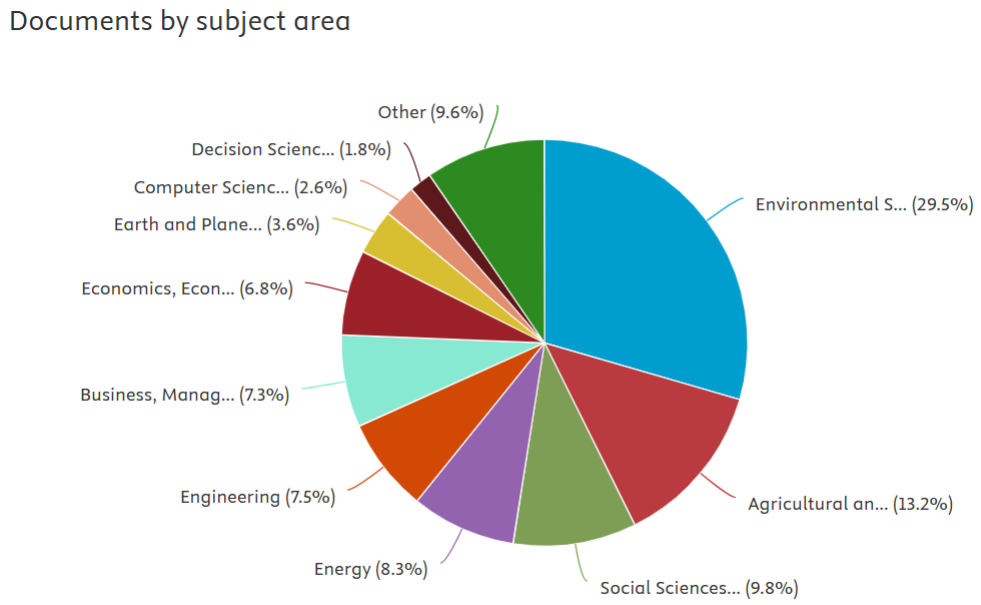
agricultural accounting and often link financial reporting to sustainability, ecological accounting, and digital innovation.

Countries such as Germany, the Netherlands, Indonesia, and Iran produce moderate amounts of documents—between 10 and 18. Their presence indicates that while contributions are still increasing, they are becoming more specialized, perhaps focusing on regional agricultural issues or specialized domains such as water management, greenhouse gas accounting, or smallholder farm economics.The chart as a whole depicts a globalized research landscape, with notable representation from North America, Europe, Asia, and emerging contributions from developing regions. The distribution suggests that global concerns like food security, climate change, and farmer financial inclusion are driving an increase in interest in agricultural accounting.

Figure 6. No. of documents by subject area in agriculture accounting from 2000-2025



Source: Authors created based on data

Research on agricultural accounting is categorized by academic disciplines in figure 6. With 29.5% of all publications, Environmental Science is by far the most popular. This dominance highlights how environmental factors are increasingly being incorporated into agricultural accounting, reflecting global priorities for ecological impact assessments, climate-smart agriculture, and sustainability.

13.2% of the documents come from the Agricultural and Biological Sciences sector, which is closely related to the main topics of farm accounting, crop and livestock management, and rural financial systems. Social Sciences come in second (9.8%), which probably includes studies on the socioeconomic effects of agricultural accounting, such as the effects on policy, rural livelihoods, and farmer welfare.

The prominent inclusion of Energy (8.3%) and Engineering (7.5%) indicates interdisciplinary research linking agricultural accounting to energy use efficiency, integration of renewable energy, and engineering innovations in farm management. 7.3% of the documents are in the category of business, management, and accounting, which emphasizes an emphasis on

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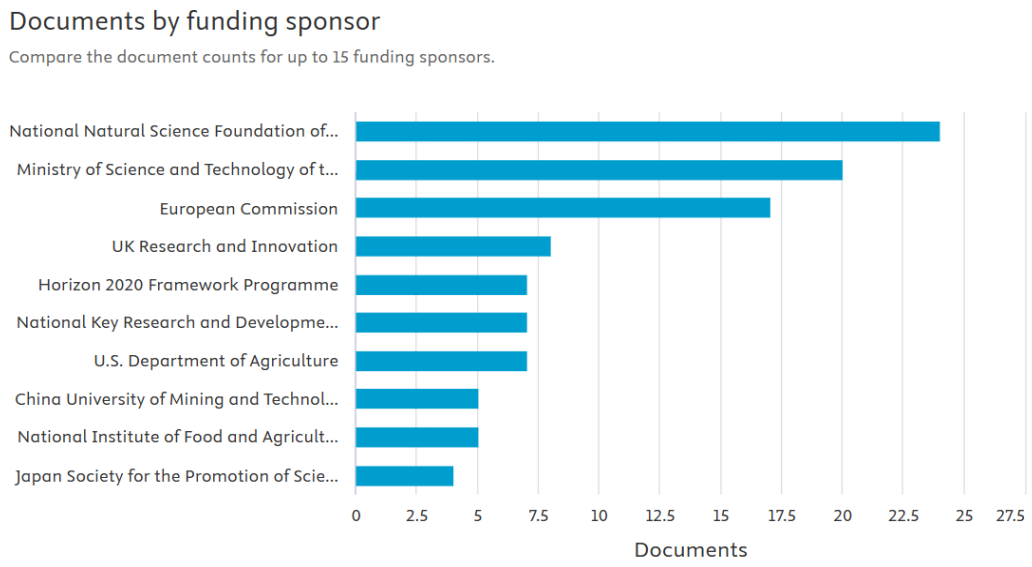
management procedures, agricultural-specific accounting frameworks, and financial reporting standards.

Other noteworthy disciplines include Earth and Planetary Sciences (3.6%), which may represent studies on resource mapping, land use, and soil accounting, and Economics, Econometrics, and Finance (6.8%), which demonstrate the industry's connection to more general economic modeling and rural finance. Data analytics, optimization tools, and digital agriculture appear to be gaining popularity, according to computer science (2.6%) and decision sciences (1.8%). The field's broad interdisciplinary nature is demonstrated by the Other category (9.6%), which includes varied but smaller-scale contributions from several domains.

Overall, the data show that agricultural accounting is becoming a more interdisciplinary field that integrates technology, economics, and social sciences to address complex global challenges, even though it has its roots in environmental and agricultural sciences.

Figure 7. No. of documents by funding sponsor in agriculture accounting from 2000-2025



Source: Authors created based on data

The top ten funding organizations for agricultural accounting research are shown in figure 7. The National Natural Science Foundation of China is at the top of the list, having sponsored about 24 documents. In line with its national development objectives, this illustrates China's strategic prioritization of sustainability research and agricultural modernization. With 20 funded documents, the Ministry of Science and Technology of China comes in second, further solidifying China's leading position in this field of study.

Another significant participant is the European Commission, which has funded about 18 documents, demonstrating its strong commitment to agricultural innovation and sustainability through EU-wide programs. Strong UK and EU investments in agri-accounting, especially in relation to environmental management and climate change, are highlighted in eight and seven documents, respectively, funded by the UK Research and Innovation (UKRI) and the Horizon 2020 Framework Programme.

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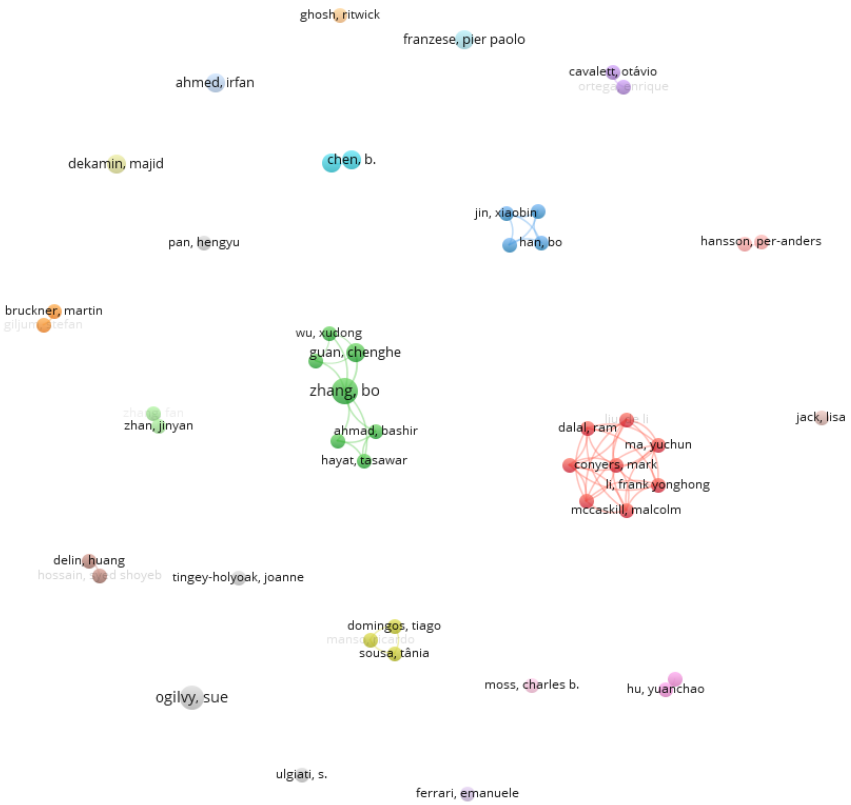
The U.S. Department of Agriculture (USDA) and China's National Key Research and Development Program are also important contributors, supporting approximately seven documents each that indicate cross-continental efforts in farm financial research. The National Institute of Food and Agriculture (USA) and China University of Mining and Technology are also noteworthy sponsors, each with roughly five funded publications that demonstrate specialized institutional contributions. With roughly three to four funded publications, the Japan Society for the Promotion of Science completes the list.

Overall, the graph shows that funding is heavily concentrated in Chinese and European organizations, with significant involvement from American and Japanese organizations. This distribution demonstrates how agricultural accounting is widely acknowledged to be important, especially when considering food security, digital transformation, and environmental sustainability.

Figure 8. Contributions of a network of prominent writers to agriculture accounting



Source: Authors created based on data

The co-authorship network among top agricultural accounting researchers is shown in the visualization. Individual authors are represented by each node, and collaborative relationships are indicated by the edges (lines) connecting them; denser clusters indicate stronger or more frequent collaborations.

A strong, well-established network of collaboration is demonstrated by a prominent and closely related cluster that is highlighted in red and is centered around authors like Dalal, Pam, Ma, Yuchun, Conyers, Mark, and Li, Frank Yonghong. This points to a targeted research team that is actively collaborating on several publications and is probably making a significant impact on the field.

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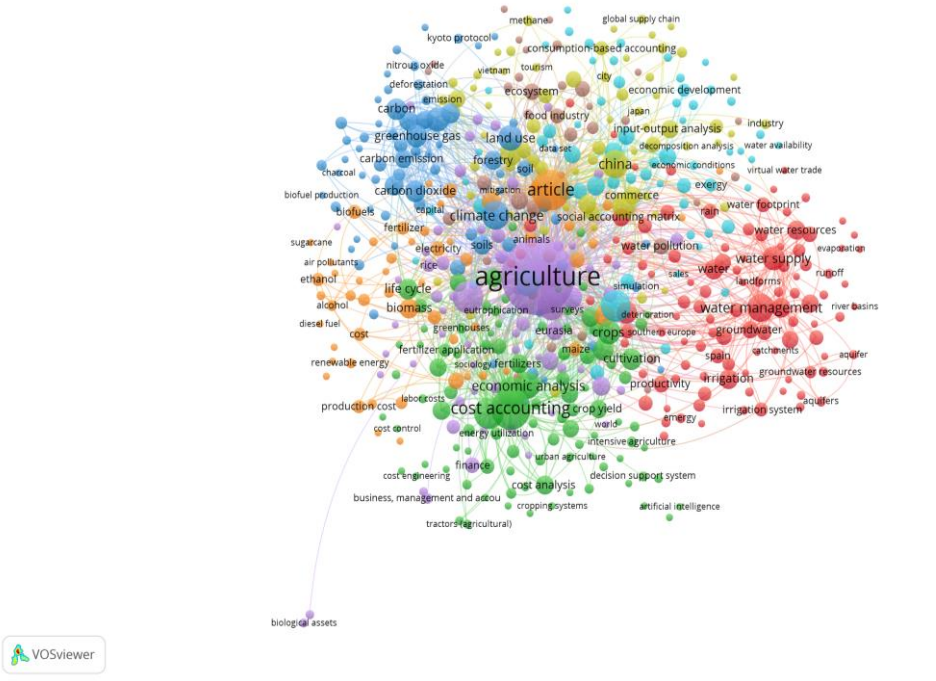
Zhang, Bo, is in charge of another noteworthy cluster, shown in green, and has partners Guan, Chenghe, Ahmad, Bashir, and Hayat, Tasawar. Significant internal cooperation is also shown by this group, indicating a steady research collaboration that probably results in a number of collaborative papers.

With authors like Chen, B., Dekamin, Majid, and Ahmed, Irfan, each associated with only one or two close collaborators, smaller or more isolated clusters are observed, suggesting more limited but still significant collaboration. It's interesting to note that authors like Sue Ogilvy and Pier Paolo Franzese show up in this network as lone nodes with no obvious collaborations, indicating that their work may be done independently or that their co-authors are not included in this specific dataset.

Other micro-clusters that show regionally or thematically focused collaborations include Hu, Yuanchao, and Moss, Charles B., and the pair of Domingos, Tiago and Sousa, Tânia (yellow).

A diverse research ecosystem is reflected in the network's overall mix of highly collaborative groups and independent researchers, with some authors working in close-knit teams and others pursuing more solitary or institution-specific research paths. This structure is common in interdisciplinary fields such as agricultural accounting, where management, economics, and environmental science disciplines frequently collaborate.

Figure 9: Network of influential keywords to Agriculture Accounting



Source: Authors created based on data

The network map displays keyword co-occurrences in agricultural accounting research, offering a visual representation of how themes are interconnected within the literature. The central and most dominant keyword is “agriculture”, highlighted with the largest node, signifying its foundational role in the research corpus.

Several distinct thematic clusters are visible:

- **Blue Cluster:** Focuses on environmental sustainability topics such as *greenhouse gas emissions*, *carbon footprint*, *climate change*, *deforestation*, and *biofuels*. This

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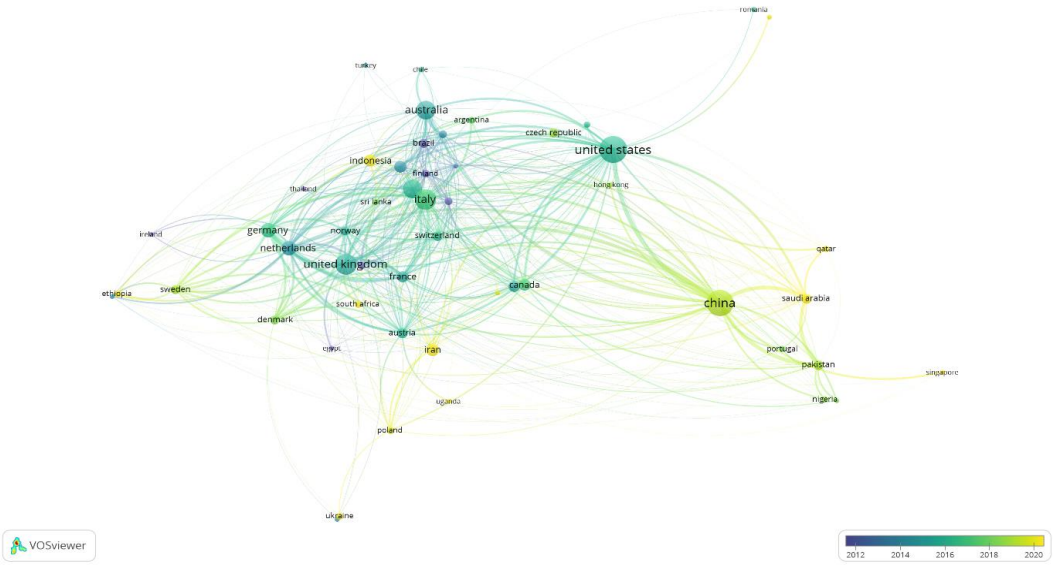
indicates a strong link between agricultural accounting and environmental impact assessments, reflecting growing research interest in sustainability and ecological accountability.

- **Green Cluster:** Centers on *cost accounting*, *economic analysis*, *yield*, and *cultivation*. This cluster reflects the traditional financial and productivity aspects of farm management, emphasizing the economic evaluation of farming operations, inputs, and outputs.
- **Red Cluster:** Dominated by keywords like *water management*, *irrigation systems*, *water supply*, *groundwater*, and *water footprint*. This suggests a substantial focus on water resource accounting, underlining water's critical role in agricultural sustainability and accounting frameworks.
- **Orange Cluster:** Relates to *renewable energy*, *biomass*, *production costs*, and *diesel fuel*, linking agricultural accounting to energy use and cost efficiency—key concerns in modern farming, particularly regarding energy transitions.
- **Yellow Cluster:** Incorporates topics like *input-output analysis*, *economic development*, *commerce*, and *social accounting*, indicating intersections between agricultural accounting and broader economic systems, policy implications, and supply chains.

Furthermore, emerging areas of innovation and digital transformation in agricultural accounting are indicated by smaller nodes like digital accounting systems, biological assets, and artificial intelligence. All things considered, the network shows a very interdisciplinary environment in which agricultural accounting incorporates environmental science, engineering, policy studies, and technological developments in addition to financial and cost reporting. The intricate relationships imply that cross-domain research in this area is becoming more collaborative, reflecting international initiatives to improve agriculture's efficiency, sustainability, and transparency.

Figure 10: Country-by-country network of the most published articles about agriculture accounting



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Based on co-authorship patterns, this figure 10 visualization illustrates the connections between nations and maps international collaborations in agricultural accounting research. The thickness of the connecting lines (edges) indicates the degree of cooperation between two countries, whereas the size of the nodes indicates the quantity of documents associated with each nation. The average year of publication activity is shown by the color gradient (blue to yellow), where blue represents earlier collaborations (2012–2015) and yellow more recent activity (2018–2020+).

The two most notable nodes—China and the United States—indicate their leading positions in international cooperation as well as research output. Australia, Italy, and the United Kingdom also show up as important centers with strong ties to other nations, underscoring their active participation in international research networks.

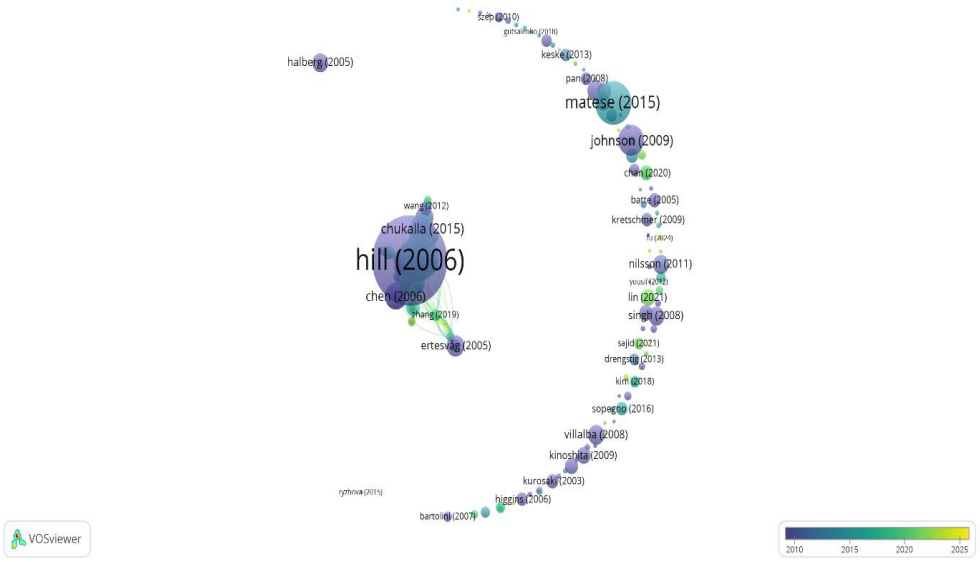
China has particularly close ties with Saudi Arabia, Canada, Pakistan, and a number of European nations; these partnerships have grown in recent years, as indicated by the yellowish links. In a similar vein, the United States has strong ties to Europe, Australia, and Asia, demonstrating a widely dispersed global presence.

Tight regional cooperation is indicated by the dense, highly interconnected cluster of European nations, particularly the United Kingdom, Germany, the Netherlands, France, and Italy. Though they have fewer and more regionally focused ties, nations like Brazil, Indonesia, and Iran also make significant contributions.

The color-coded timeline shows that many of China's and other Asian countries' collaborative efforts are more recent (green-yellow), indicating a shift toward Asia's growing influence in agricultural accounting research, whereas the core European and U.S. collaborations started earlier (blue-green).

New entrants into this research space, perhaps motivated by growing interest in sustainable agriculture and financial management in developing regions, are represented by emerging contributors like Nigeria, Uganda, and Qatar, who are connected to more established hubs.

Figure 11: Co-citation landscape of the most published articles about agriculture accounting



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Each node in the network represents a cited author and the year of publication, displaying the co-citation landscape of highly cited works in agricultural accounting. The size of the node indicates how often a work is cited in your corpus; the larger the node, the more often that work is cited. The average citation year is represented by the color gradient (blue to green/yellow), where blue denotes older citations (prior to 2015) and green/yellow denotes more recent citations (after 2018).

As the largest and most prominent node, Hill (2006) is the most dominant node, indicating that it is a foundational or highly influential work in the field. It has strong ties to Chukalla (2015), Chen (2006), and Ertesvåg (2005), indicating that these works are frequently cited in tandem and probably constitute a fundamental body of knowledge for agricultural accounting research.

Matese (2015) and Johnson (2009) make up another noteworthy cluster; they appear to be more recent key citations, demonstrating their significance in the developing discourse. Important but somewhat more ancillary roles are also played by works like Halberg (2005) and Wang (2012), which are related to the main core but more specialized.

It's interesting to note that smaller nodes like Kinoshita (2009), Villalba (2008), and Nilsson (2011) are spread out, despite being less central. This reflects the interdisciplinary nature of the research field and demonstrates the diversity of cited literature.

While many of the foundational citations (e.g., Hill, Chen, Ertesvåg) originate from research conducted in the early 2000s, the timeline bar shows that the focus has changed in recent years, with more recent, influential papers (e.g., Pan, Lin, Singh) gaining prominence after 2015.

4. CONCLUSION

This bibliometric study provides a comprehensive analysis of global trends in agricultural accounting research from 2020 to 2025, based on 344 peer-reviewed articles. According to the research, agricultural accounting has developed into a vibrant, multidisciplinary field that places an increasing focus on financial transparency, digital transformation, and sustainability. Global issues like climate change, worries about food security, and the digitization of agriculture are probably the main causes of the research output's obvious upward trajectory, which peaked in 2024.

According to the analysis of prolific authors, Zhang, B., Ogilvy, S., and Chen, B. are important contributors who have made significant contributions to the discourse, especially in fields like environmental impact assessment, digital record-keeping, and carbon accounting. Strong involvement from top academic institutions and research organizations in China, the US, and Europe is highlighted by institutional mapping, suggesting a globally distributed but interconnected research ecosystem. The U.S. and China's dominant roles are highlighted by country-level collaboration networks, which also demonstrate growing participation from developing countries and a trend toward more internationalization of research activities.

With core clusters centered on environmental sustainability, water resource management, cost accounting, renewable energy, and digital agriculture, keyword co-occurrence analysis reveals a rich thematic landscape. This demonstrates how the industry is moving away from conventional financial reporting and toward more integrated strategies that incorporate social, technological, and environmental factors.

The study notes that despite the field's expansion, there are still unmet research needs, especially in the areas of cross-country comparative studies, useful accounting frameworks

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for smallholder farmers, and a more thorough examination of the practical effects of digital tools. The subject areas' predominance of environmental science points to a chance to further solidify the connection between policymaking, digital technologies, and agricultural economics.

In summary, research on agricultural accounting is moving in a positive direction and is becoming more sensitive to the demands of global sustainability and technological advancements. More interdisciplinary cooperation and the creation of useful, farmer-centric accounting models will be necessary going forward in order to convert scholarly discoveries into useful results that improve the sustainability and resilience of agricultural systems around the globe.

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