

RESEARCH ARTICLE

Trends and Patterns of Publications in the Indian Journal of Agricultural Sciences Through Bibliometric Analysis

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ABSTRACT

The Indian Journal of Agricultural Sciences is the most prominent journal in India committed to experimental agriculture. It publishes articles in all branches of agriculture, including agronomy, genetics, breeding, cytology, soil sciences, agroforestry, horticulture, water management, microbiology, agricultural engineering, plant diseases and pests, statistics, and economics. The paper describes the outcomes of a bibliometric analysis of the publication “Indian Journal of Agricultural Sciences” from 2008 to 2022. The data were collected from the Scopus website and analyzed in R software version 4.3.2. Over 4000 peer-reviewed papers in the Scopus database were explored with the default indicators of bibliometric software tools. The findings revealed that the number of publications had a negative growth rate (-4.99%) during the given period, and a greater number of articles were published in 2020 (388). The top five most productive authors were K. A. Gomez (326), M. L. Jackson (292), V. G. Panze (210), S. Kumar (194), and A. K. Singh (188). The results showed that the number of articles increased gradually during 2015-2020, and the decline in publishing of articles was recorded after 2021. The most productive institution was the ICAR-Indian Agricultural Research Institute, followed by Punjab Agricultural University. India leads in the corresponding author's contribution, followed by China and Iran. Additionally, India dominates in citation, production over time, and co-author contribution.

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INTRODUCTION

Bibliometrics is the use of statistical approaches to the analysis of manuscripts, books, and other publications, particularly those with scientific content. Bibliometric approaches are widely utilized in library and information science. Pritchard coined the term bibliometrics in 1969 to replace the term “statistical bibliography”. The term refers to the study of document and publication trends using mathematical and statistical methodologies. In Eastern European countries, bibliometric methods have been employed

first to track science and scientists (Thanuskodi S, 2010). Bibliometrics is defined as “the development and application of mathematical models and techniques to all aspects of communication. Bibliometrics is the quantitative study of literature as they are reflected in bibliographies. Its task, modestly enough, is to provide evolutionary models of science, technology, and scholarship. Beck (1978) defined it as “the quantitative evaluation and inter-comparison of scientific activity, productivity and progress.”

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According to the National Academy of Agricultural Sciences, The Indian Journal of Agricultural Sciences has a rating of 7.2, and this journal has an international impact factor of 0.11. The journal focuses on original articles that report on the findings of problem-oriented, completed research in India and other countries with similar agricultural difficulties. Short notes are published based on preliminary data of topical value. The magazine also publishes critical review articles authored by competent scientists who have done major investigations in their disciplines and are capable of pointing out research gaps and recommending new courses of investigation. The journal also publishes book reviews. Articles are accepted on the following broad disciplines: Agric. Engineering & Technology, Genetics, Agronomy, Forestry, Agric. Social & Economic Sci., Fertilization, Biometry, Biosciences, Cytology, Ecology, Microbiology, Environmental Sciences, Horticultural Sciences, Pest, and Weed Control. This journal has an h-index of 30, and its publisher is the Indian Council of Agricultural Research.

Objectives:

The current study was undertaken to analyze the following aspects:

- To analyze the annual scientific production of the journal
- To find out the annual average citations
- To study the authorship pattern, relevant authors, and authors' production over time
- To trace out the author's local impact by h-index
- To analyze the trend topics and frequency of words
- To study the country's scientific production and citation
- To study the subject coverage of articles
- To find out the relevant affiliations and their production over time
- To analyze the collaboration network of different countries and authors

Methodology:

The bibliometric analysis was carried out using the Scopus database and R packages with R Studio. Comprehensive data were collected from the Scopus

database, and the data extraction was done on 15.10.2023 through Scopus API, which employed specific queries. The data was collected in CSV file format. Pre-processing involved eliminating duplicate files and correcting preliminary article details in Microsoft Excel. The comprehensive data of 3996 articles, book chapters, proceedings, meeting abstracts, editorial materials, reviews, and corrections were downloaded from the Scopus database. The latest version 4.3.2 of RStudio was downloaded and established the bibliometric package within the R environment to analyze and map the bibliographic data. The web interface for bibliometrics was given by the application called Biblioshiny.

Biblioshiny enabled the performance of relevant bibliometric and visual analyses on an interactive web interface, significantly reducing the information input intensity and usage threshold. This analysis covered critical key metrics such as h-index, counts of publication and citation, collaboration pattern, thematic map, clustering by coupling and citation network. The investigation was limited to the particular time span (2008-2022) and the specific journal. Scopus, R packages, R Studio, R conf, Biblioshiny, and Microsoft Excel are the basic software tools used for this data analysis.

Results:

The data provided (Table 1) offers valuable insights into a bibliometric analysis spanning from 2008 to 2022. The dataset, consisting of 3996 documents from the IJAS source, shows an annual growth rate of -4.99%, which indicates that the volume of publications has decreased over time. These records have an average age of 7.68 years, which implies that a significant portion of the research may have been done years before it was published. Remarkably, an average of 3.443 citations per document was identified, indicating the scholarly significance of this research.

There are 9181 author's keywords and 950 keyword terms in the dataset. It includes 6288 authors in total, and 3.478% of the papers have international co-authorships, which is notable because it shows cross-border cooperation. Articles (3834) are the most common document type, followed by reviews (149), which correspond to the primary publishing method.

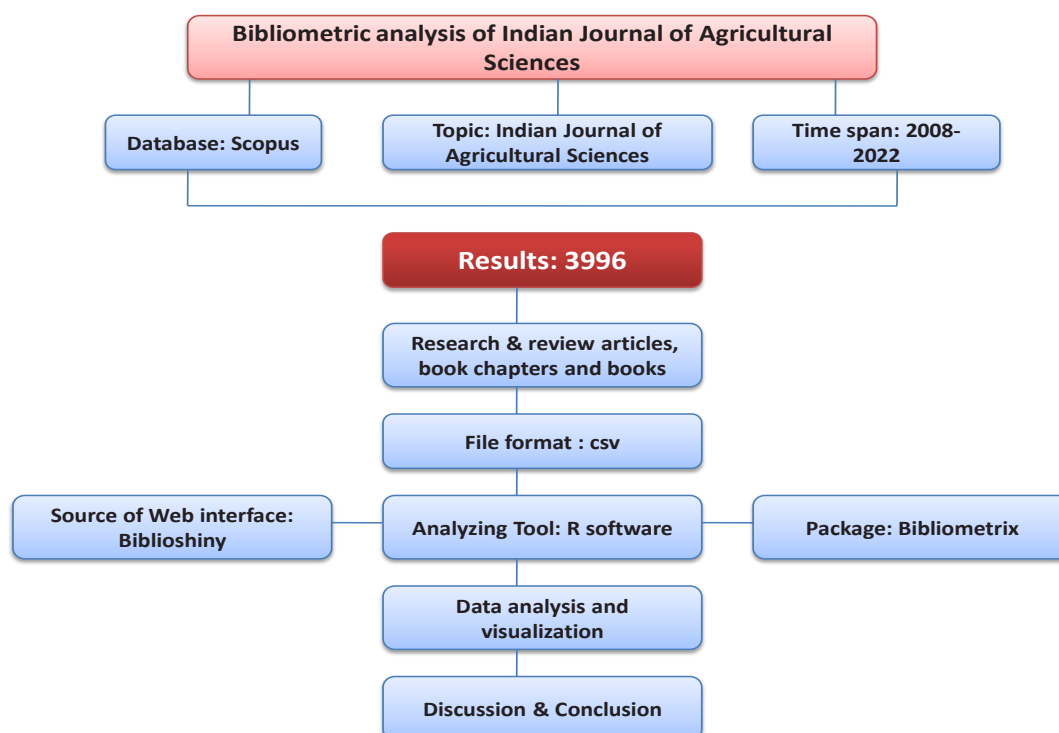


Figure 1: Flow chart of the bibliometric analysis

Table 1. Summary of Indian Journal of Agricultural Sciences (2008-2022)

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2008:2022
Sources (Journals, Books, etc.)	1
Documents	3996
Annual Growth Rate %	-4.99
Document Average Age	7.68
Average citations per doc	3.443
References	69314
DOCUMENT CONTENTS	
Keywords Plus (ID)	950
Author's Keywords (DE)	9181
AUTHORS	
Authors	6288
Authors of single-authored docs	103
AUTHORS COLLABORATION	
Single-authored docs	122
Co-Authors per Doc	4.36
International co-authorships %	3.478
DOCUMENT TYPES	
Article	3834
Erratum	6
Review	149
Short survey	7

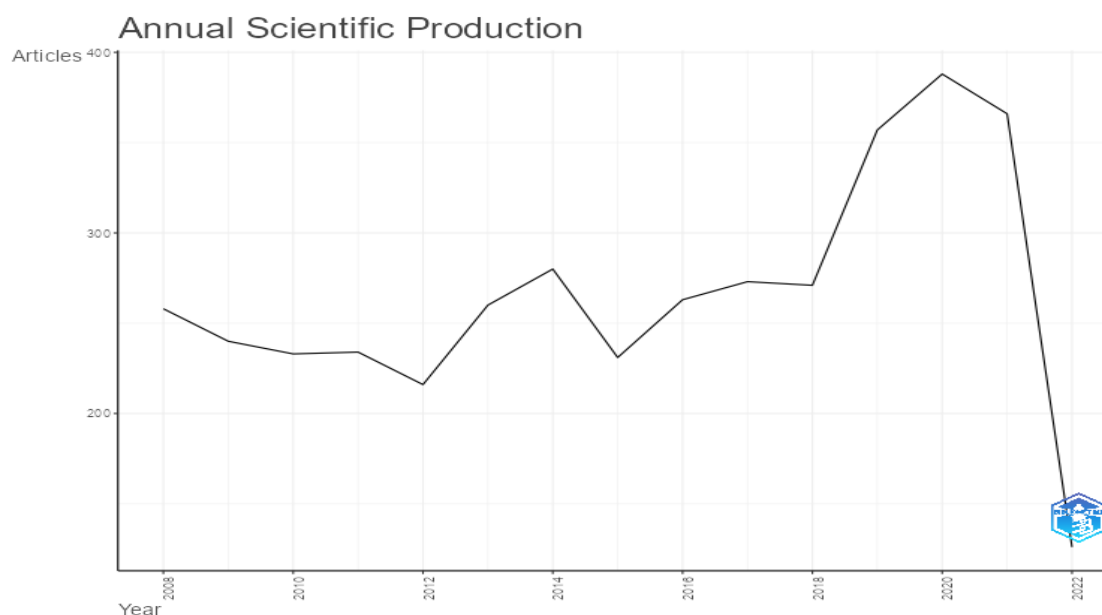


Figure 2: Annual Scientific Production

Annual scientific production

The data (Figure 2) shows the number of publications released each year between 2008 and 2022. It indicates an upward trend in the work of scholars. Interestingly, there is a remarkable increase in publications from 2015 to 2020, and 1,783 articles were published over this period. However, the trend reverses in the subsequent years, with a noticeable decline in publications, reaching a mere 126 publications in 2022. This data suggests a potential evolution in research goals or publication patterns over time, possibly driven by various factors such as a global epidemic, research funding, and shifting research trends, which in turn influence academic output.

Average citations per year

The data (Figure 3) shows the “Indian Journal of Agricultural Sciences” average annual citations from 2008 to 2022. It indicates a remarkable pattern in the influence of journal citations. From 2008 to 2022, the average number of citations per year remained reasonably constant at approximately 3-6, suggesting that the articles’ influence and significance remained stable. The average number of citations increased between 2008 and 2011, then continued to fall gradually, reaching a peak fall during 2019-2022. This implies that during those years, the “Indian Journal of Agricultural Sciences” experienced notable growth in its intellectual impact, possibly due to improved

editorial policies or increased interest in the journal’s publications among scientists.

Documents by subject area and type in ‘Indian Journal of Agricultural Sciences’

Analyzing document types in bibliometric analysis holds significant importance as it provides insights into the characteristics, distribution, and impact of different types of scholarly documents within a research field. Document types refer to various forms of publications such as articles, reviews, conference papers, books, patents, theses, and more. Figure 4 indicates a higher number of publications were made in Agricultural science (27.7%), followed by soil science (13.4%) and engineering (8.0%). The lowest contribution was recorded in the fields of biochemistry (3.6) and followed by medicine (3.6).

Most documents were published as an article (67.7%), followed by Erratum (13.5%) and review articles (6.8%). The dominance of a single type of document analysis can occur due to various reasons, reflecting specific characteristics and trends within a particular research field or discipline. The articles were dominated due to academic disciplines prioritizing journal articles as the primary form of scholarly communication and dissemination of research findings. Similarly, articles typically undergo rigorous peer review, enhancing their credibility and acceptance within the academic community (Patil *et al*, 2022).

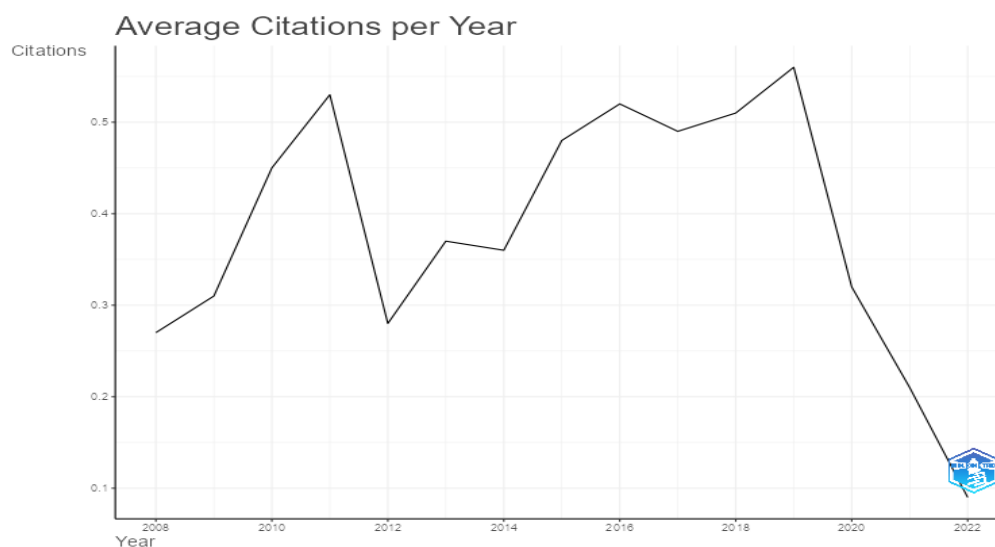


Figure 3. Average citations per year

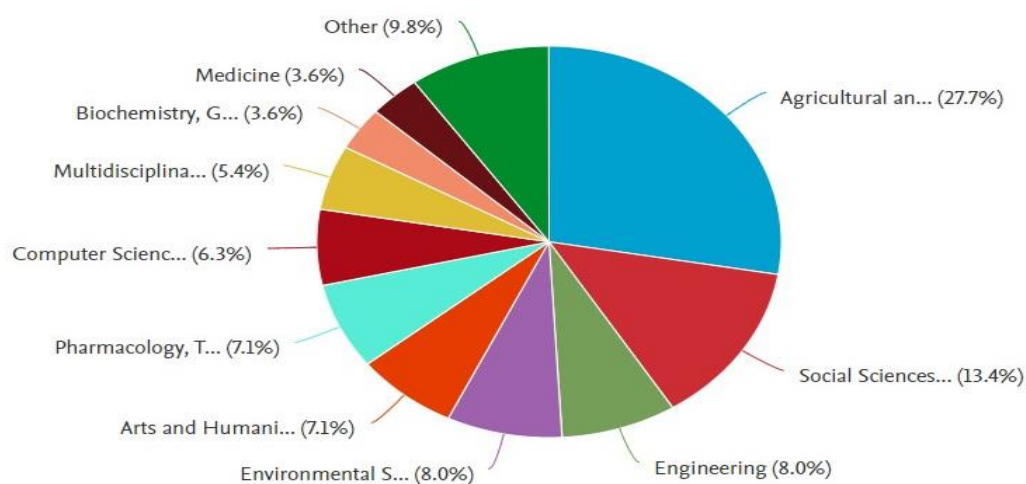


Figure 4. Documents by subject area in 'Indian Journal of Agricultural Sciences'

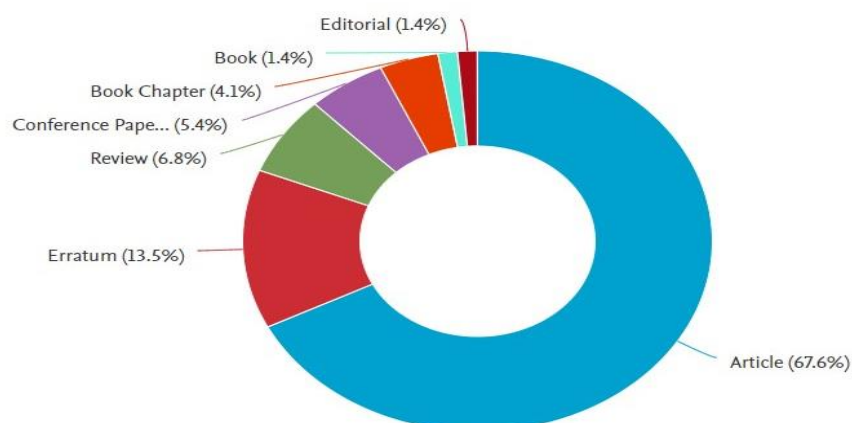


Figure 5. Documents by Type in 'Indian Journal of Agricultural Sciences'

Sources production over time & most local cited sources in the *Indian Journal of Agricultural Sciences*

In the “Indian Journal of Agricultural Sciences,” the source production increased gradually over time. The years 2020 and 2021 recorded higher source production of 388 and 366, respectively. There are various reasons that play a significant role in the production of sources in journals. Some critical factors include increased research output, globalization of research, specialization and interdisciplinary studies, the open access movement, demand for prestigious output, technology advancement, commercial interest, and emerging fields and trends.

G.A. Gomez’s articles were the most cited in the Indian Journal of Agricultural Sciences, with 326 citations, followed by M.L. Jackson’s articles

(292). There are several reasons for higher citation of individuals articles. These include innovative research, relevance and timeliness, interdisciplinary appeal, publication in High-impact Journals, citation networks, open access and accessibility, policy Influence or practical applications, collaborations and co-authorship, and continuous engagement and follow-up work.

Author’s contribution and Author’s production in the *Indian Journal of Agricultural Sciences*

In “Indian Journal of Agricultural Sciences, “the list of most prolific authors is dominated by Indian scientists. The highest number of articles was published by Kumar A, with 272 publications, followed by Kumar S (238) and Kumar R (191). This concluded that Indian scientists and scholars are frequently

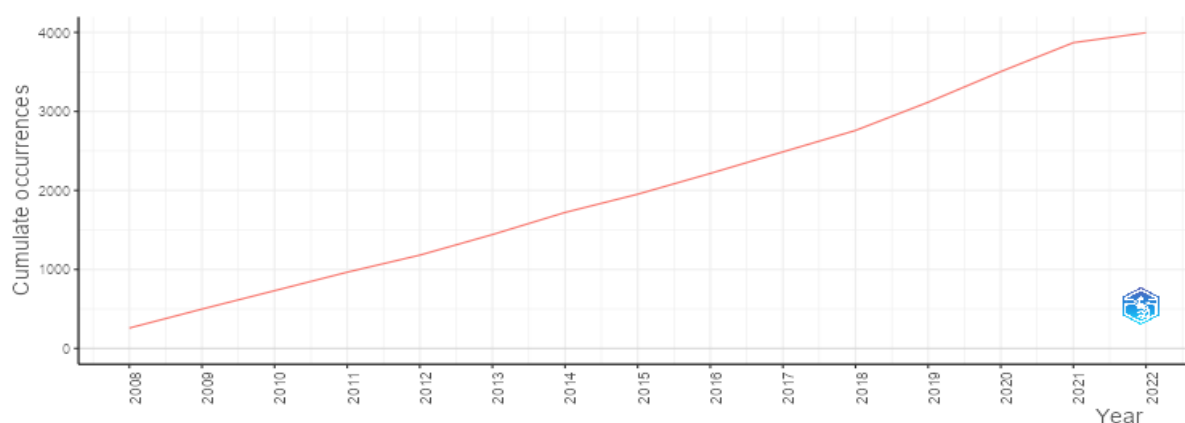


Figure 6: Sources of production over time in “Indian Journal of Agricultural Sciences”

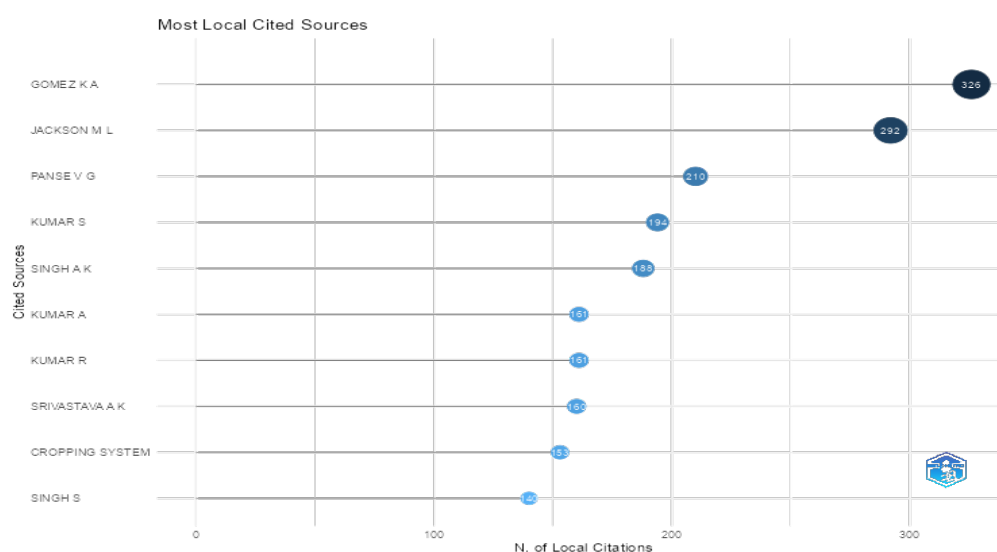


Figure 7: Most locally cited sources in “Indian Journal of Agricultural Sciences”

contributing to Indian Agricultural Sciences. The authors' production over time increased from 2018 to 2020, and in the preceding years, stable productivity was identified among the authors.

Yaacob *et al.* (2021) concluded that multiple factors affect the author's contribution and publication in Journals. These factors include visibility and Promotion, author reputation and authority, career advancement, funding requirements, research activity expansion, collaborative research, advancements in technology

and data analysis, specialization and Fragmentation of Knowledge, publishing opportunities, globalization of research collaboration, pressure to stay relevant, and increased competition.

Author's local impact by h-index in the Indian Journal of Agricultural Sciences:

The h-index is a metric used to measure the productivity and impact of a researcher's work. It was proposed by physicist Jorge E. Hirsch in 2005 as a way to quantify both the productivity (number

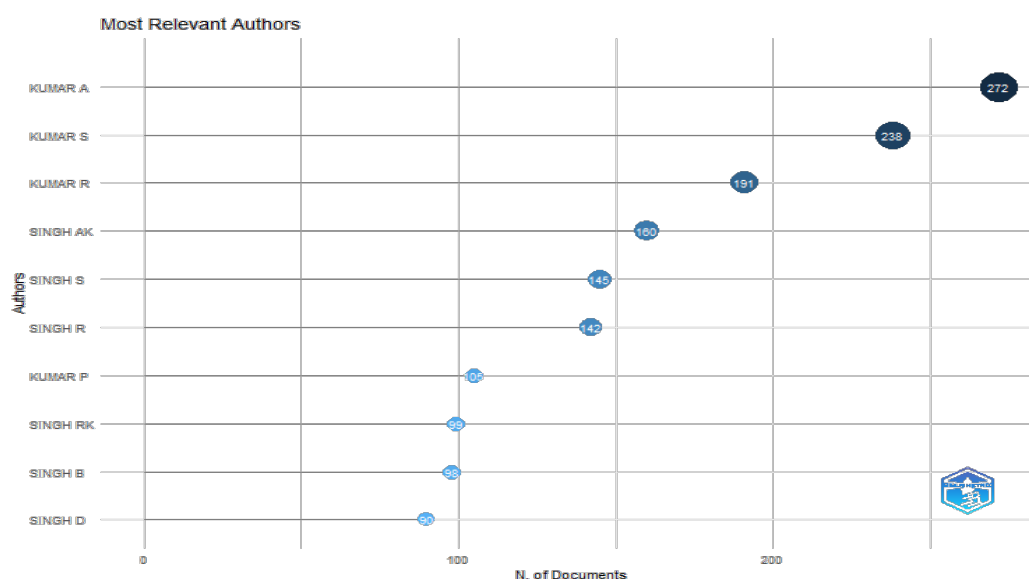


Figure 8: Most relevant authors in "Indian Journal of Agricultural Sciences"

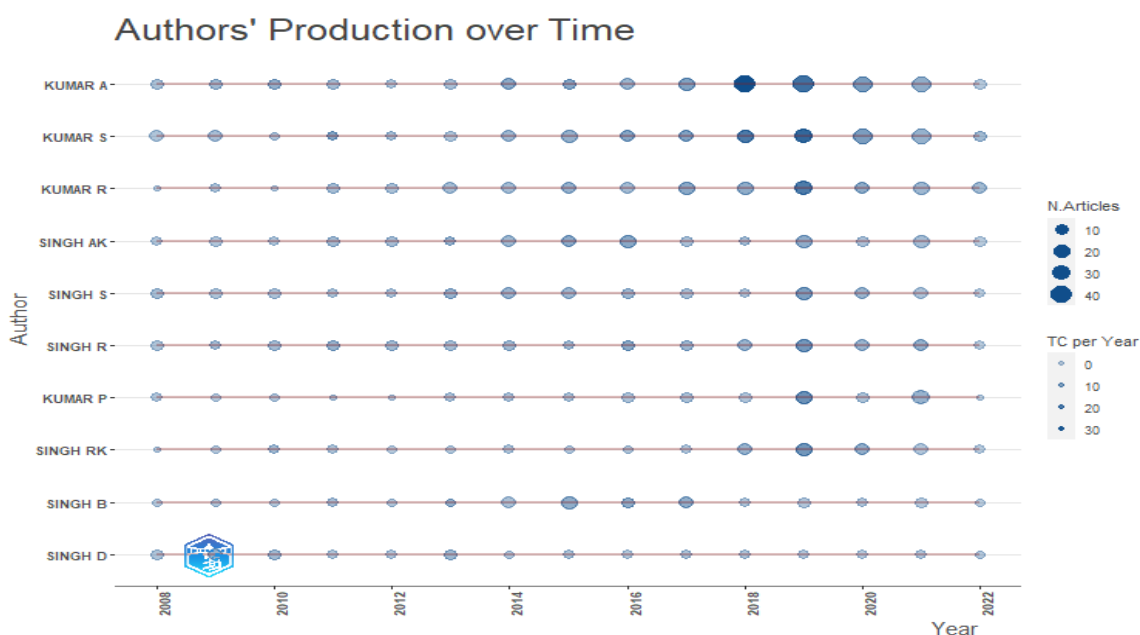


Figure 9: Author's Production over time in "Indian Journal of Agricultural Sciences"

of publications) and the impact (citation counts) of a scientist's research output. Rather than just displaying the total number of citations or publications, the h-index provides a single number that aims to quantify the productivity and impact of a researcher's work (Groote *et al.*, 2012). It does have several drawbacks, though, including not taking the age of the researcher or the citation conventions of the particular subject into consideration. Figure 8 illustrates the Author's local impact, as measured by h-index, in the Indian Journal of Agricultural Sciences.

The authors Kumar S, Kumar A, and Singh R have the highest local impact, with h-indices of 15, 14, and 12, respectively, indicating they have a substantial number of moderately cited articles in this journal (Figure 10). An h-index between 10 and 20 indicates that the author has produced a collection of scholarly papers that have been cited at least 10 to 20 times each. It signifies a respectable level of impact within their field. This range often implies that the author has been active in research for some time and has made a noticeable contribution to the field. They might have several influential papers that have significantly contributed to academic discourse.

Most prolific Affiliations and Affiliations production over time in the Indian Journal of Agricultural Sciences

According to the data (Figure 11), several esteemed organizations and universities are major contributors to the "Indian Journal of Agricultural Sciences." The top three affiliations in terms of publications published

are ICAR-Indian Agricultural Research Institute, Punjab Agricultural University, and CCS Haryana Agricultural University, demonstrating their significant impact and presence in the field. Some important factors for higher affiliations productions were research funding, collaborations and networks, research culture and support, faculty & researcher profile, technology and infrastructure, geography and regional factors.

Affiliations production over time was denoted in Figure 12. It indicates that the Indian Agricultural Research Institute achieved higher affiliation production within the specified time frame. The gradual elevation and steady linear production were associated with the affiliations of Banaras Agricultural University and Punjab Agricultural University. ICAR-Indian Agricultural Research Institute recorded its highest production in 2019 and reached its peak in 2021.

Corresponding Authors country, Country's Scientific production, and most cited countries in 'Indian Journal of Agricultural Sciences'

India has the highest number of articles with corresponding authors, with 1,875 publications. The majority of these articles (1,811) are single-country publications (SCP), indicating a strong research presence within India. However, there are also a significant number (64) of multiple-country publications (MCP), demonstrating international collaborations. China is the second most productive country with 17 articles. It has a significant number of SCP (15), but also a considerable number of

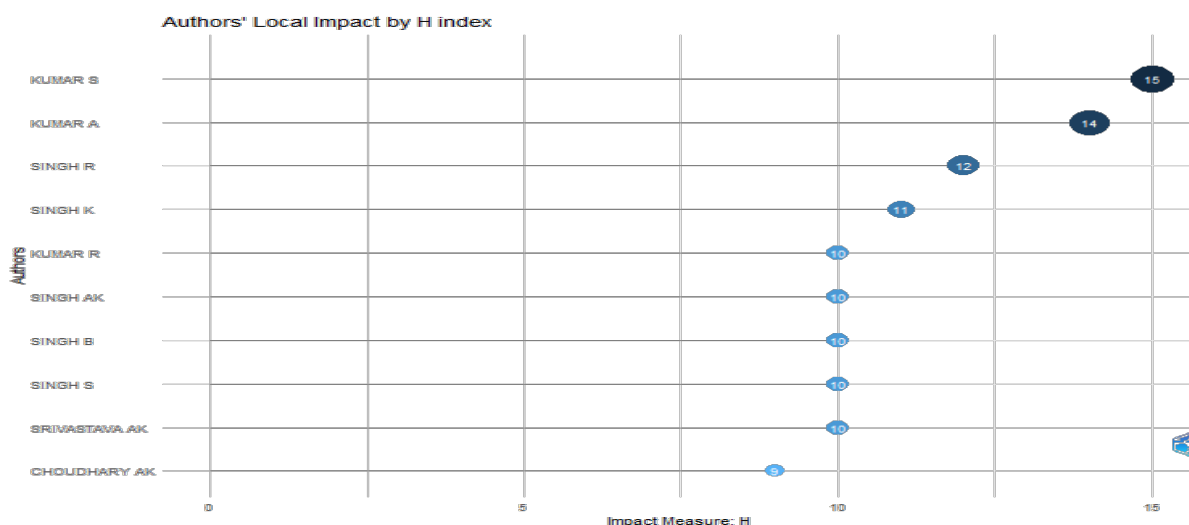


Figure 10: Author's local impact by H index in 'Indian Journal of Agricultural Sciences'

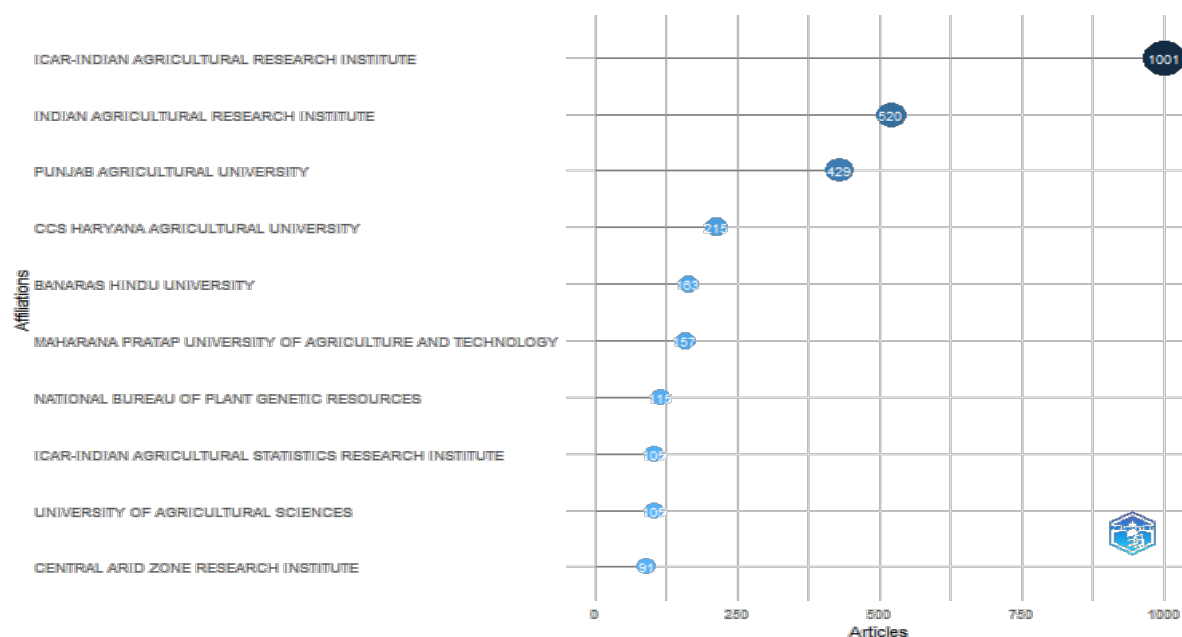


Figure 11: Most prolific Affiliations in 'Indian Journal of Agricultural Sciences'

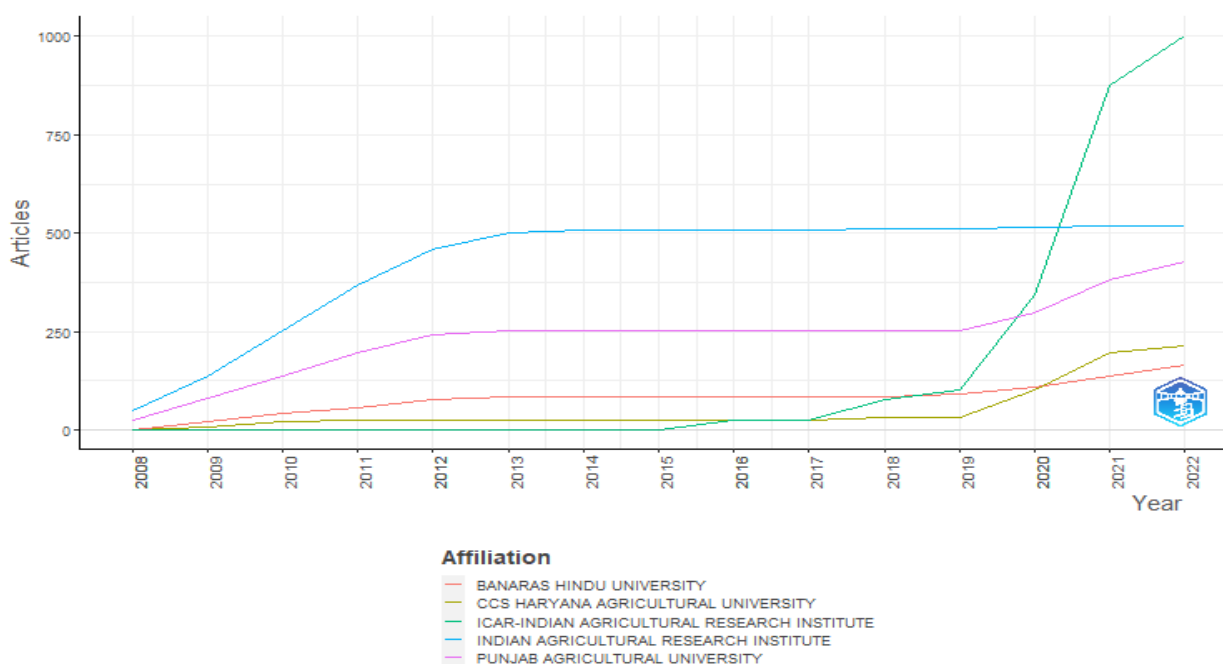


Figure 12: Affiliations production over time in 'Indian Journal of Agricultural Sciences'

MCP(2), indicating both domestic and less international research contributions. India leads in the frequency of publication (0.46) over the total frequency of 0.41 in the publishing of articles.

The data (Figure 13) represents the scientific production of various countries in the "Indian Journal of Agricultural Sciences." India stands out as the leading contributor to the journal, with a significant scientific production of 16,591 articles. This reflects

the substantial research activity and impact of India in the field of life sciences. China is the second most prolific country with 172 articles. China has shown remarkable growth in scientific production, indicating its increasing presence and influence in the field. A similar trend was observed in the total citations of articles. India leads with the overall citation of 6364, followed by Turkey (54), with average citations of 3.4 (India) and 4.5 (Turkey).

Table 2: Corresponding Author Countries in ‘Indian Journal of Agricultural Sciences’

Country	Articles	SCP	MCP	Freq	MCP Ratio
Total	2057	1991	66	0.5148	0.03
India	1875	1811	64	0.4692	0.03
China	17	15	2	0.0043	0.12
Iran	13	11	2	0.0033	0.15
Turkey	12	12	0	0.0030	0.00
Egypt	4	4	0	0.0010	0.00
Australia	2	1	1	0.0005	0.50
Serbia	2	2	0	0.0005	0.00
Thailand	2	2	0	0.0005	0.00
Afghanistan	1	1	0	0.0003	0.00
Bulgaria	1	1	0	0.0003	0.00

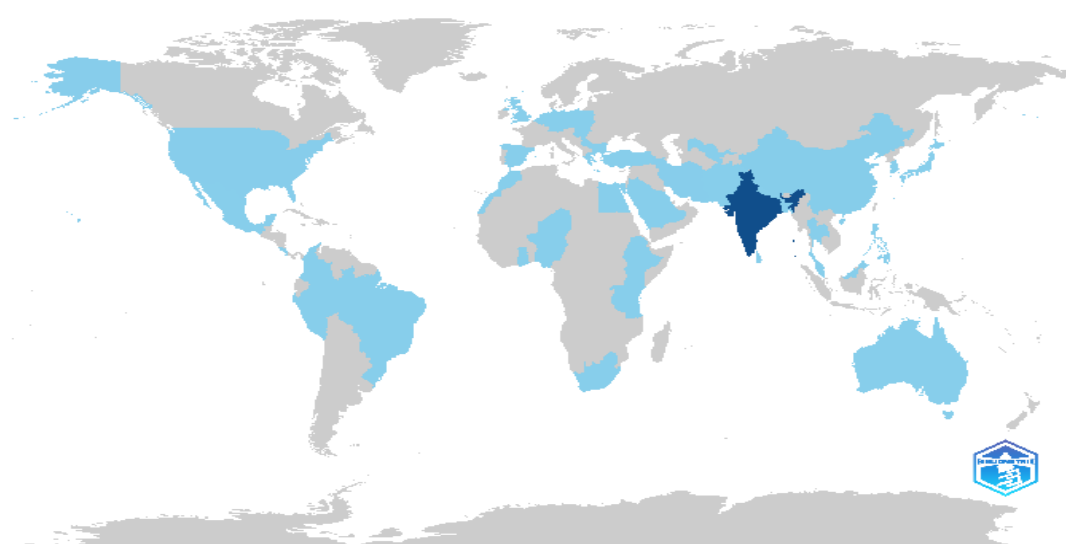


Figure 13: Country Scientific production in the ‘Indian Journal of Agricultural Sciences’

There are different factors involved in higher and lower scientific production throughout the globe. Some important reasons for low competition include limited funding, infrastructure challenges, an underdeveloped education system, political instability, language barriers, talent emigration, cultural factors, and limited access to information and resources. Countries with robust research budgets and funding allocations tend to produce more articles due to increased resources available for research. Similarly, countries actively engaged in international collaborations benefit from knowledge exchange, joint projects, and increased article production.

Most relevant used words and word frequency over time in ‘Indian Journal of Agricultural Sciences’

The most appropriate words were illustrated in the Indian Journal of Agricultural Sciences were illustrated in Figure 14. The frequency of these terms reveals information about the areas of focus and research within the journal. The term “frequency of words” describes how frequently a given word or term appears in a body of research papers. Assessing word frequency can reveal information about several research-related topics, trends, and the dominance of concepts within a field.

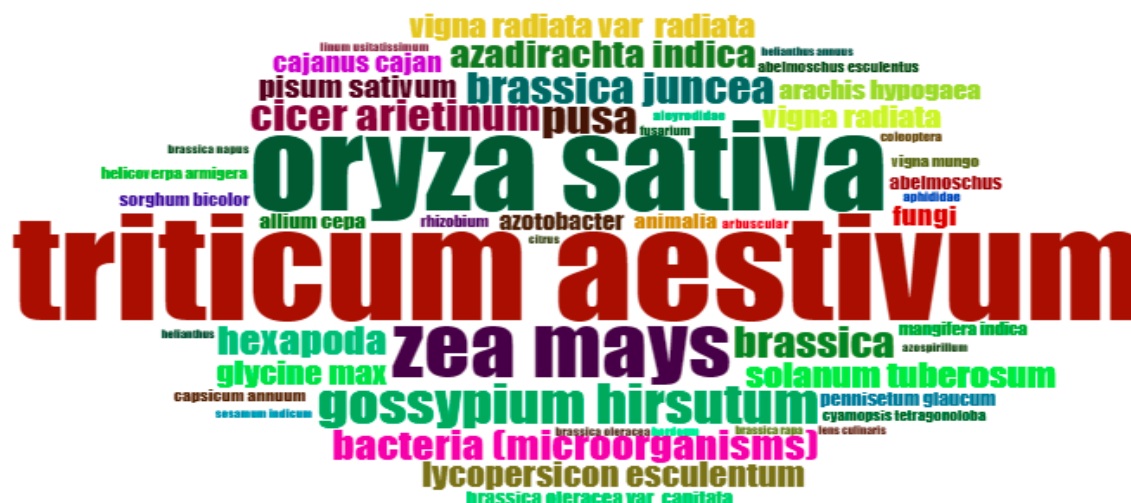


Figure 14. Most relevant words in 'Indian Journal of Agricultural Sciences'

High-frequency terms often indicate common topics or subjects in literature. Words that appear frequently in a particular field or discipline could be indicators of essential ideas, approaches, or topics. Analyzing word frequency helps identify keywords or terms that authors frequently use. These keywords are essential for understanding the central focus of research articles and can be used to categorize or index documents. Word frequency changes over time can reveal new trends, changes in the focus of study, or a declining popularity of subjects in a field. Analyzing how the frequency of specific terms evolves can provide insights into the dynamic nature of research (Aria and Cuccurullo, 2017). Visual tools like network analysis, word clouds, or clustering techniques can help in interpreting the relationships between high-frequency words, identifying clusters of related terms, and visualizing the overall structure of the research landscape.

The word '*Triticum aestivum*' appears 170 times in the analyzed time span, followed by '*Oryza sativa*' (143) and *Zea mays* (99). This indicates that the major research work was done in wheat crops, followed by rice and maize. The other appropriate words are *Gossypium hirsutum* (65), followed by PUSA (52) and *Brassica juncea* (51). It shows that cotton research was predominant for the period of time. The term 'PUSA' reminds us that the research works may relate to the varieties released by Indian Agricultural Research Institutes and the research works carried out in the IARI-PUSA campus. The repeated use of the word 'Brassica' for a specific period of time revealed that researchers have shown interest in vegetable

research, particularly in relation to crucial Indian food crops.

Some other frequent words are 'bacteria' (48) and 'hexapoda' (46). This concluded the research on the breeding of wheat and insects, which was carried out by the researchers for the specified duration.

Most relevant topics used in 'Indian Journal of Agricultural Sciences'

The most relevant topics and their analysis show Research shifting or changes in the focus of research. There are different methods available to interpret the research shift. Those are co-citation analysis, cluster analysis, mapping techniques, topic modeling, comparative analysis, expert validation, and contextual understanding. Temporal analysis leads to changes in the frequency of words, keywords, or specific terms over time, and it indicates shifts in research focus. In cluster analysis, grouping publications into clusters based on similarities in content or keywords can help identify shifts in research themes (Raparelli and Bajocco, 2019). Changes in the composition or size of these clusters over time indicate shifts in the field's focus.

More research was carried out on the topic of *Triticum aestivum*, with a higher frequency of publications in this area, followed by *Oryza sativa* and *Zea mays* (FIGURE 13). Figure 13 indicates a shift in research focus from major cereals to vegetables and various diseases in major food products over recent years. The research work on “tomato leaf curl virus”

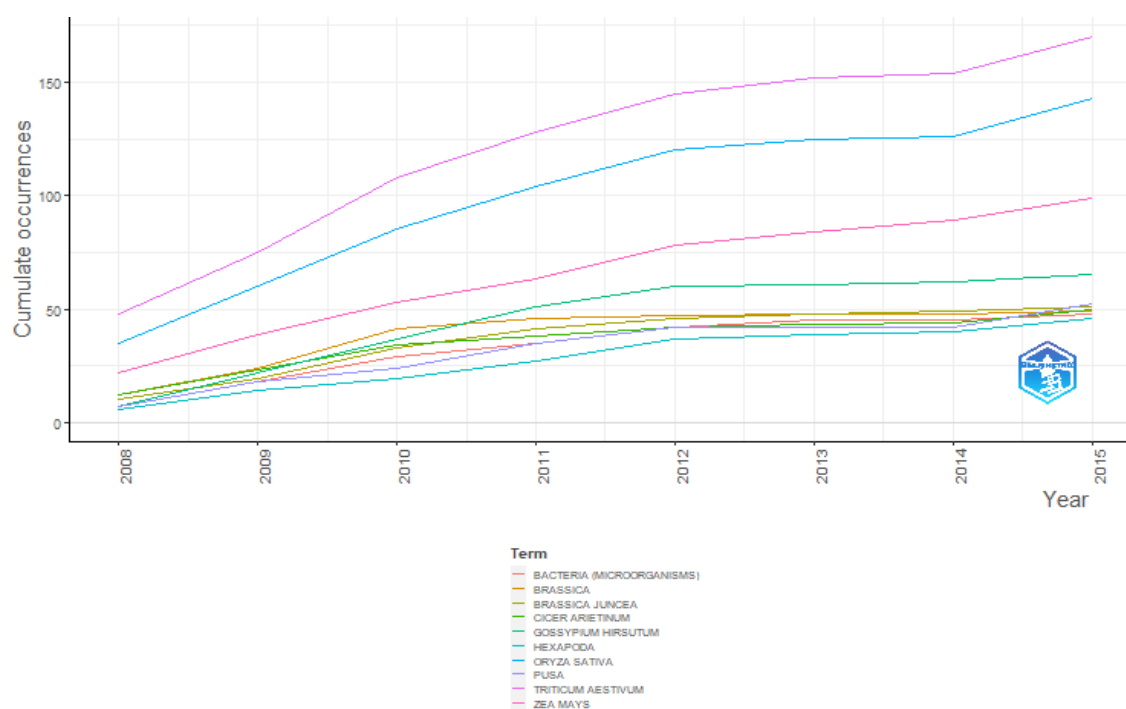


Figure.15: Most frequent words in ‘Indian Journal of Agricultural Sciences’

was carried out from 2010 to 2015, followed by research on gladiolus. The Indian Journal of Agriculture Science conducted significant research on weeds and pulse crops between 2008 and 2012. Following this, the focus of research shifted to vegetables and flower crops.

Keywords: Co-occurrence Network and collaboration of the network of authors in the Indian Journal of Agricultural Sciences

The keyword co-occurrence network (KCN) and authors network collaboration were discussed in this topic to gain further insight into the trends in the field of life science, which primarily includes Agricultural sciences. The co-occurrence of terms in a network can reveal necessary information about the connections between different ideas, terms, or subjects in research papers. As part of this analysis, a network is developed, with nodes representing terms (such as keywords, author names, and research topics) and edges (connections between nodes) for the terms’ co-occurrence within the same document, paper, or context.

The lines (edges) between nodes (terms, keywords, authors, etc.) represent the connections between these entities based on their co-occurrence within documents, articles, or other sources

(Van Leeuwen, 2006). The lines indicate the strength and existence of connections between the nodes. Higher connection was recorded with the words ‘*Triticum aestivum*’ and ‘*Oryza sativa*’ (Figure 18). It indicates a strong relationship between these two nodes. Similarly, the words *Brassica* and *Brassica oleraceae* had a good connection, and it shows a closer association or higher frequency of co-occurrence between those terms.

Similarly, Figure 14 indicates a collaboration network of different authors with domestic and international scientists. Analyzing the collaboration network of authors involves understanding the relationships between authors based on their co-authorship patterns in scholarly publications. This network helps reveal collaborative patterns, influential authors, research communities, and the structure of scientific collaboration within a specific field or research domain. The thick lines between authors indicate a cohesive network where authors tend to form clusters or groups.

Authors who exhibit high degrees of relationship or degree centrality can be considered significant individuals or network hubs. They might serve as

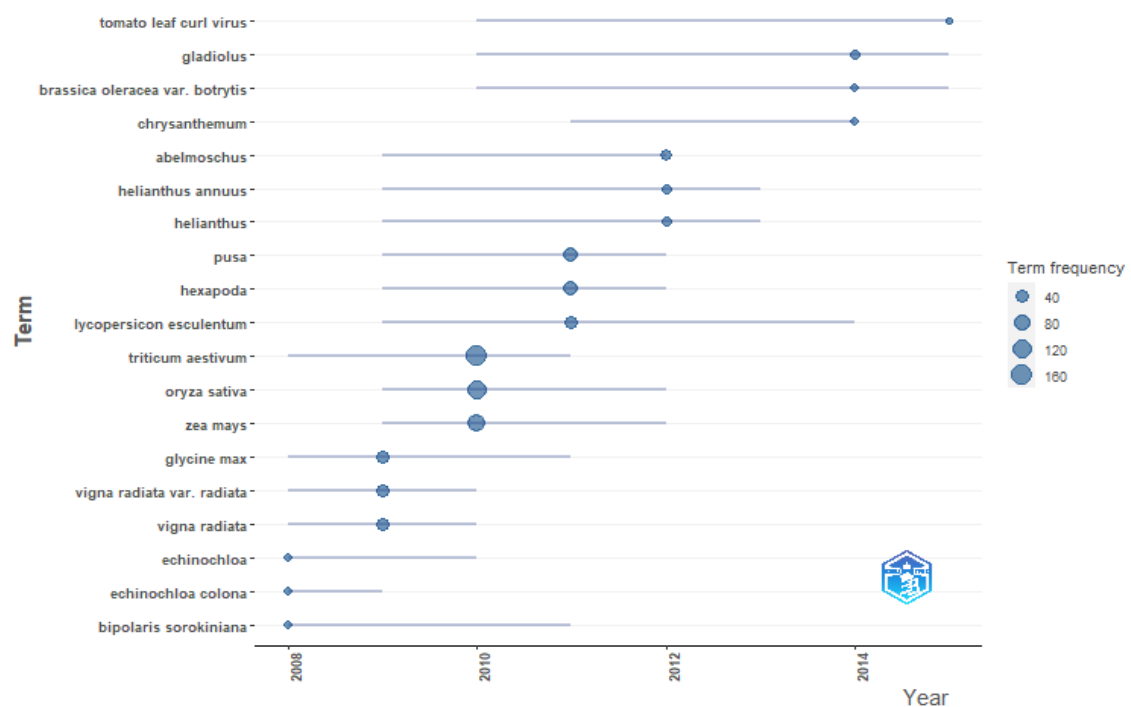


Figure.16: Most Trend topics in 'Indian Journal of Agricultural Sciences'

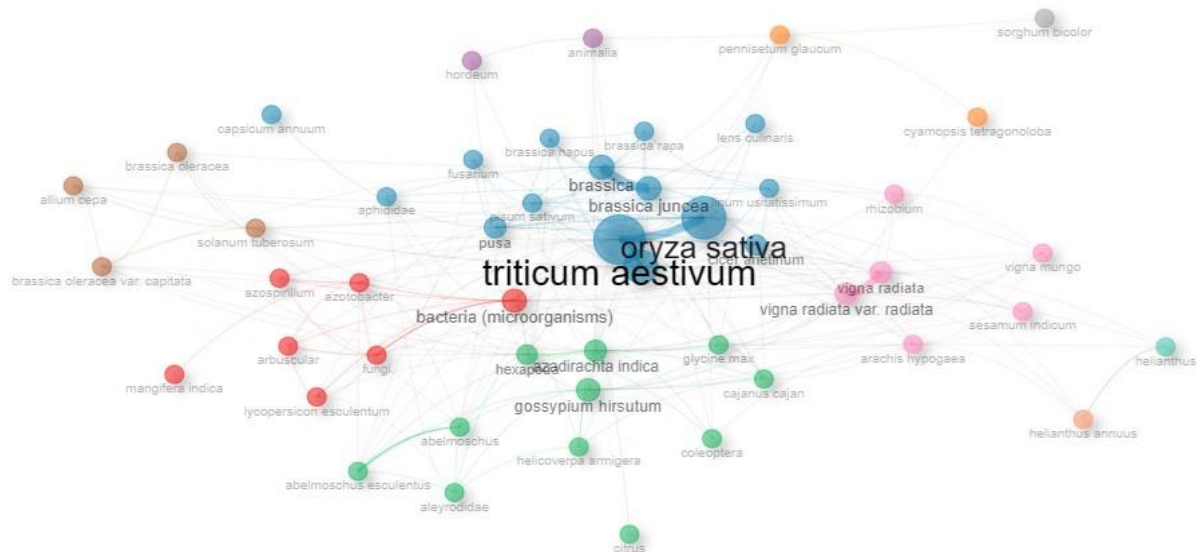


Figure 17. Keywords Co-occurrence Network in the 'Indian Journal of Agricultural Sciences'

powerful intermediaries between various authorial communities or research groups. In Figure 18, Kumar S and Kumar A had a high degree of relationship, and they act as bridges between different clusters or groups of authors, facilitating connections across the network. The essential advantages of analyzing the collaboration network of authors include identifying key

players, understanding research dynamics, mapping research communities, assessing interdisciplinary research, tracking the evolution of scientific trends, facilitating collaboration opportunities, supporting decision-making, and validation and evaluation (Qin *et al.*, 2022).

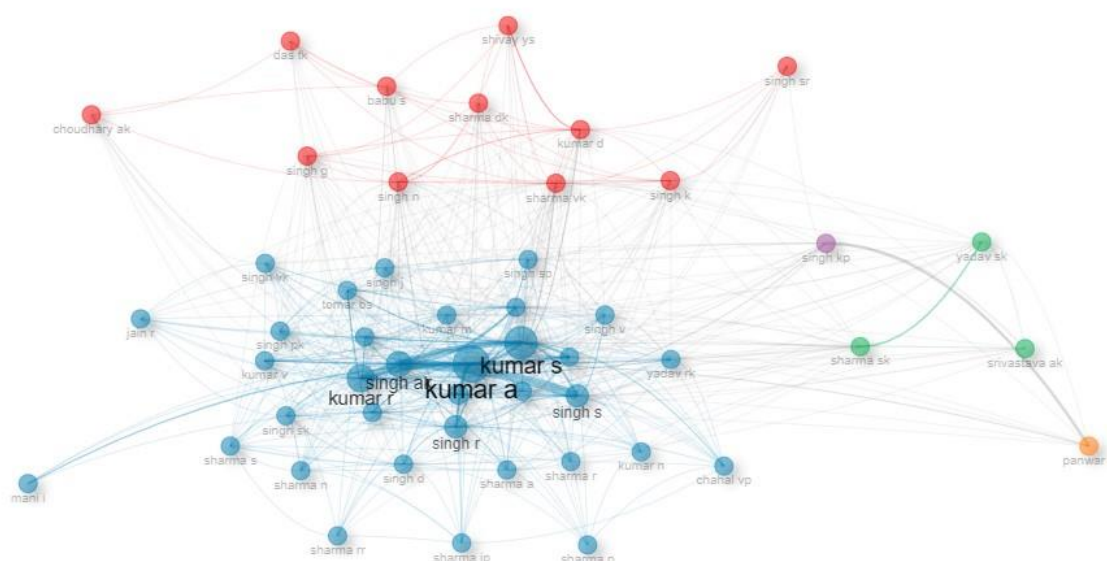


Figure 19. collaboration of a network of authors in the Indian Journal of Agricultural Sciences

CONCLUSION

Bibliometrics is the study of the literature's structure through a variety of methods, including citation analysis, rank-frequency distributions, and counting. The study of literature's structure is essential to many fields, particularly in the area of information retrieval. The journal has published 3996 publications during the period of study. The present study reveals that the majority of the contributions appeared under Agricultural science (27.7%), followed by Soil science (13.4%). The primary research was carried out on Wheat, Rice, and Maize. Similarly, most contributions come from India, with a minimal number of contributions from foreign authors. It concluded that *Triticum aestivum* and *Oryza sativa* are the most predominant words by abstract and frequently repeated words in the article content. The study revealed that the highest contributions were from ICAR- Indian Agricultural Research Institute (1521 articles) and Punjab Agricultural University (429). Indian Journal of Agricultural Sciences is the highly preferred journal for the scientists of the agricultural community.

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have been instrumental in bringing this work to fruition. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethics Statement

This study did not involve humans or animals. The research was conducted exclusively on plants/inanimate materials, and therefore, ethical approval was not required.

Originality and Plagiarism

The authors confirm that this manuscript is an original work and has not been published elsewhere, either in part or in whole. The authors affirm that the manuscript is free from plagiarism in any form.

Consent for Publication

All authors have read and approved the final version of the manuscript and consent to its submission and publication in the journal.

Competing Interests

The authors declare that there are no competing interests, financial or non-financial, that could have influenced the research or its interpretation.

Data Availability

The data supporting the findings of this manuscript are available in the Scopus database. Additional details can be obtained from the corresponding author upon reasonable request.

Author Contributions

Konappan Surya prepared the manuscript. Ramanujam Krishnan provided guidance and supervision for the work.

REFERENCE:

- Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
- De Groote, S. L., & Raszewski, R. (2012). Coverage of Google Scholar, Scopus, and Web of Science: A case study of the h-index in nursing. *Nursing Outlook*, 60(6), 391–400. <https://doi.org/10.1016/j.outlook.2012.04.006>
- Indian Journal of Agricultural Sciences. (2023). Bibliometric analysis of Indian Journal of Agricultural Sciences. *Indian Journal of Agricultural Sciences*. Retrieved from <https://epubs.icar.org.in/index.php/IJAgS>
- Patil, R. R., & Kumar, S. (2022). Priority selection of agro-meteorological parameters for integrated plant diseases management through analytical hierarchy process. *International Journal of Electrical and Computer Engineering*, 12, 649–659. <https://doi.org/10.11591/ijece.v12i1.pp649-659>
- Qin, Y., Xu, Z., Wang, X., & Škare, M. (2022). Green energy adoption and its determinants: A bibliometric analysis. *Renewable and Sustainable Energy Reviews*, 153, 111780. <https://doi.org/10.1016/j.rser.2021.111780>
- Raparelli, E., & Bajocco, S. (2019). A bibliometric analysis on the use of unmanned aerial vehicles in agricultural and forestry studies. *International Journal of Remote Sensing*, 40(24), 9070–9083. <https://doi.org/10.1080/01431161.2019.1569793>
- Scopus. (2023). Indian Journal of Agricultural Sciences. Retrieved from <https://www.scopus-com.elibrarytnau.remotexs.in/results/results>
- Thanuskodi, S. (2010). Bibliometric analysis of the journal Library philosophy and practice from 2005–2009. *Library Philosophy and Practice*. Retrieved from <http://www.webpages.uidaho.edu/~mbolin/thanuskodi-lpp.htm>
- Van Leeuwen, T. (2006). The application of bibliometric analyses in the evaluation of social science research. *Scientometrics*, 66, 133–154. <https://doi.org/10.1007/s11192-006-0010-8>
- Yaacob, A., & Gan, J. (2021). Bibliometric analysis of global research developments on the role of technology during Covid-19: Current trends and future prospect. *Journal of Content Community*, 13, 166–180. <https://doi.org/10.37200/IJPR/V13I9/PR210923>