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An Analytical Study on Rating of Agricultural Research Publications

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Abstract: ***Ranking of academic and research journals are widely used in academic circles to assess the quality and impact of journals and the distribution of scientific publications have hyperbolic form. The Impact factor, Eigen factor, SCImago journal ranking, h-index are some of the evaluation tools to assess the impact and quality of journals. An academic or research journal's scoring is established over time through many other factors including citations. Over the years, many ranking systems for journals have evolved, incorporating a variety of methodologies and factors, including frequency of citation, prominence of author, etc. To estimate and evaluate the scientific results published by a scientist or quality of a journal basing on their impact factor is facilitated by the citations number of corresponding author and also journals. This approach obviously is based on a naive idea that the number of citations tells us something essential about scientific value of cited publication.***
Though India has published a number of journals in various branches of knowledge, most of Indian journals do not have good impact factors. In this context, the National Academy of Agricultural Sciences (NAAS) [14] of India has started rating journals published in India and abroad based on certain criteria to assess the quality and impact of the journals. It is the sole Academy that caters to professionals in the field of agriculture in India and also insisted that transparency in the evaluation process would instil greater confidence amongst professionals in the agricultural community [2]. Knowing the impact or importance of the journal will help in decision makings about whether an author will choose to submit an article to that chosen journal as it can capture a scholar's research career. A researcher's publication data often reflects his/her research interests and their social relations. Libraries and librarians also use journal rankings to make decisions about collection development [15]. This paper will analyse what are all the criteria adopted for publication of a scientific paper in agriculture and allied sciences and sources of publications and also present status of the quality of different journals.
Keywords: Eigen factor, Impact factor, NAAS, Scientific journals, Quality and impact

I. INTRODUCTION AND GENESIS OF JOURNAL RANKING

India is publishing a number of journals to cater to the publishing requirements of all branches of science and technology including knowledge management. But, unfortunately, majority of the journals published are not able to get Impact Factor (IF) due to various reasons. The regulatory bodies of higher education and research such as University Grants Commission (UGC), Indian Council of Agricultural Research (ICAR) *etc.* follow the Impact factor and h-index to evaluate the contribution of scientists while conducting interview for promotions and recruitments in the recent past. Further, in India hither to there was no mechanism to rank the scientific journals. As there was a need and scope for ranking of journals published, the ministry of higher education and research has decided to establish a separate body for this purpose. A mechanism of subscription for journals supported by decisions based on IF, NAAS rating of journals and review status can strengthen the consortium in fulfilling information needs of stakeholders in one of the world's largest agricultural system. In this context, considering the importance of ranking of Indian journals which are not having impact factor **[13]** accordingly National Academy of Agricultural Science (NAAS) established in 1990 initiated the process of ranking of journals published in India and abroad to assess the quality and impact of the journals **[14].**

II. OBJECTIVES

A. To study the criteria of NAAS for rating of scientific journals
B. To know about the various journal evaluation/metric tools used for journal ranking
C. To know about the other platforms of social network
D. To analyse and study the Indian and Foreign agricultural journals covered by NAAS rating above 6.0 over past 5 years.

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III. METHODOLOGY

A systematic cum integrative review of work done elsewhere including India was done to screen the related and relevant literature that could be used for writing this paper. Nearly three months had been spent in writing the manuscript; and list of journals published by the selected top rated publishers has been screened and shortlisted based on the subject relevance and those were used for analysis in relation to the NAAS score of India for journals and the paper has been written. For searching of research journals various data bases were used and the top four are Google scholar, Research gate, TNAU e library and Scopus. Through TNAU e library, accessing of Elsevier, Springer, Taylor & Francis, John Wiley and other e-Journals platforms and a special platforms like CeRA (Consortium for e Resource in Agriculture), Indian Journals, Directory of open Access Journal (DOAJ), Web of Science and End Note besides e-Databases like Indiastat, Delnet, and Commodity India and Library Web OPAC were also done.

IV. NEED FOR QUANTITATIVE RANKING OF JOURNALS

Quantitative analysis of journals is a way of traditional peer review may be augmented to gain a more complete picture of a scholar's impact in his chosen field. The three important measures that can be used are (i) number of publications; (ii) number of times an author's publications have been cited; and (iii) the importance of the journal where the article is published *i.e.* Journal Ranking. Knowing the impact or importance of the journal can be helped to take decisions about where an author will choose to submit an article. Libraries and librarians also use journal rankings to make decisions about collection development. In this context, a study has been undertaken to identify the various journal evaluation tools used for ranking of journals internationally with special reference to NAAS rating of scientific journals in India **[15].**

A. NAAS (National Academy of Agricultural Sciences) [14].

The National Academy of Agricultural Sciences (NAAS) located at New Delhi, India took birth as the brain child of late Dr. B. P. Pal. This Academy focuses on the broad field of agricultural sciences including crop husbandry, animal husbandry, fisheries, agroforestry and interface between agriculture and agroindustry. The pivotal role is to provide a forum to Agricultural Scientists to deliberate on important issues of agricultural research, education and extension and present views of the scientific community as policy inputs to planners, decision/opinion makers at various levels.

B. Objectives of NAAS

1) Promote ecologically sustainable agriculture,
2) Recognize and promote excellence of individual scientists in the field of agriculture,
3) Promote interaction among research workers in different institutions and organizations within the country and with the world scientific community,
4) To organize inter-disciplinary analysis of issues of importance to farmers and farming, and prepare further policies designed to advance agricultural research, education and development.

C. Journal scoring in NAAS

The National Academy of Agricultural Sciences is a think that encourages and facilitates scientists to discuss and present their views on critical issues relating to agricultural research, education and extension. The Academy encourages cutting edge research in different fields of agriculture and accords recognition to scientists by electing them as Fellows, giving them Awards and admitting young scientists to Associateship. To get a rigorous assessment of research achievements of the scientist, emphasis is given to their scientific publications. Therefore, a need was felt in the Academy for critically assessing the published work of the nominees for the Fellowship/Associateship and for developing a transparent and quantifiable mechanism that avoids arbitrariness in assessment. Accordingly, the academy initiated a process of rating/scoring of scientific research journals with the primary objective to bring uniformity in the evaluation of publications by the nominees for Fellowship/ Associateship by different Sectional Committees. Thus the score has been developed for use of National Academy of Agricultural Sciences.

S.No	Fellowship of academy	Associate ship of academy
1.	Multiplying NAAS Score of the journal with 0.20. (20 most important research publication)	Multiplying NAAS Score of the journal with 0.40 (10 most important research publication)
2.	NAAS score – 20 = 4.0 Marks	NAAS score – 20 = 8.0 marks
3.	10 = 2.0 marks	10 = 4.0 marks
4.	7.5 = 1.5 marks	7.5 = 3 marks

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D. Category of NAAS score of Research Journals

For determining NAAS score of research journals, the Academy has classified them into the following two categories:-

1) *Category I:* Those journals where Thompson Reuters Impact Factor is available, the scores are assigned as 6.00 + Impact Factor with capping on 20.00.
2) *Category II:* Those journals where Thompson Reuters Impact Factor is not available, the marks are assigned on the basis of information provided by the Publishers in a prescribed proforma and also evaluation of scientific contents of the journals.

E. Criteria of NAAS Adopted for journal Scoring

Sl. No.	Criteria	Weightage
1	Timeliness of publication	5.00
2	Number of papers published	7.50
3	Contributions of papers from overseas	5.00
4	National participation in publications	5.00
5	Citation analysis	10.00
6	Time taken in publication	5.00
7	Online processing	7.50
8	Abstracting services	5.00

V. OVERVIEW OF JOURNAL METRIC/EVALUATION TOOLS

Journal metrics illustrate the impact of a journal on its field. Metrics do not translate into "quality" but they are indicative of importance. They should always be used in conjunction with other evaluative tools to determine a journal's quality.

There are three recognised and respected ranking tools i) journal citation reports (ISI) include impact factor. It is a subscription database from the makers of Web of Science, the Institute for Scientific Information (ISI). The JCR provides rankings for journals included in the Web of Science database and includes journals in science and social science areas, and to a lesser degree in Arts & Humanities. ii) SCImago from Elsevier (SJR- Scientific journal rank) iii) CWTS Journal indicators – SNIP and Eigen factor

A. Major Tools to Evaluate the Quality and Impact of Journals

- Impact factor
- Eigen factor
- Scopus database
- h-index
- cite score
- SCImago Journal Rank & country rank
- Source normalized impact per paper (SNIP)
- Expert survey
- Publication Power approach (PPA)
- Almetrics
- J Rank
- PageRank
- h5-index
- Rubric journal evaluation tool
- Researchers social network
- Computer based model for evaluating scientific journals

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The following paragraphs discuss in brief about the various tools used to evaluate the quality and impact of journals one by one.

1) IMPACT FACTOR (IF) / JOURNAL IMPACT FACTOR (JIF): It is a scientometric index that reflects the yearly average number of citations that articles published in the last two years in a given journal received. Journals with higher impact factors are often deemed to be more important than those with lower ones. Impact factor was devised by Eugene Garfield **[5], [6]** he is a founder of ISI (Institute for Scientific Information) IF wasCalculated yearly starting from 1975 for journals listed in the Journal Citation Reports (JCR). Thomson ISI was sold to Onex Corporation and Baring Private Equity Asia. They founded a new corporation, Clarivate, which is now the publisher of the JCR

a) How to calculate impact factor of a journal?

In any given year, the impact factor of a journal is the number of citations, received in that year, of articles published in that journal during the two preceding years, divided by the total number of "citable items" published in that journal during the two preceding years **[6].**

$$IF_Y = \frac{\text{Citations } y-1 + \text{Citations } y-2}{\text{publications } y-1 + \text{publications } y-2}$$

$$\text{Ex: IF}_{2017} = \frac{\text{Citations 2015} + \text{citations 2016}}{\text{publications 2015} + \text{publications 2016}}$$

The value of impact factor depends on how to define "citations" and "publications"; the latter are often referred to as "citable items". In current practice, both "citations" and "publications" are defined exclusively by ISI as follows. "Publications" are items that are classed as "article", "review" or "proceedings paper.

New journals, which are indexed from their first published issue, will receive an impact factor after two years of indexing; in this case, the citations to the year prior to Volume 1, and the number of articles published in the year prior to Volume 1 are known zero values. Journals that are indexed starting with a volume other than the first volume will not get an impact factor until they have been indexed for three years. Occasionally, *Journal Citation Reports* assigns an impact factor to new journals with less than two years of indexing, based on partial citation data.

b) Uses of impact factor: Impact factors are almost universally accepted as the standard measure of journal quality, and hence of researcher quality too **[4].** It is used to compare different journals within a certain field. The Web of Science indexes more than 11,500 science and social science journals. It is used to evaluate the merit of individual articles and individual researchers. This particular use of impact factors was summarized by **[9].** Use of impact factor as a measure of quality, it is widespread because it fits well with the opinion we have in each field of the best journals in our specialty.

2) Eigenfactor: It was developed by Jevin West and Carl Bergstrom at the University of Washington. It is a rating of the total importance of a scientific journal according to the number of incoming citations, with citations from highly ranked journals weighted to make a larger contribution to the eigenfactor than those from poorly ranked journals **[3].** Eigen factor are more robust than the impact factor metric, which purely counts incoming citations without considering the significance of those citations **[7].**

3) Scopus Database: Scopus is Elsevier's abstract and citation database launched in 2004. Scopus covers nearly 36,377 titles from approximately 11,678 publishers, of which 34,346 are peer-reviewed journals in top-level subject fields: life sciences, social sciences, physical sciences and health sciences. It can also be used in combination with the ***h*-index** to evaluate the work of individual scientists. Scopus brings together superior data quality and coverage, sophisticated analytics and advanced technology in one solution to combat predatory publishing, optimize analytic powers and researcher workflows, and empower better decision making. Scopus gives four types of quality measure tool for each title; those are *h*-Index, CiteScore, SJR (SCImago Journal Rank) and SNIP (Source Normalized Impact per Paper). Scopus data base evaluated the book series, journals, and trade journals. It was reviewed each year to ensure high quality standards are maintained.

4) h-INDEX: Hirsch index - h-index is usually used as a measure of scientific productivity and the scientific impact of an individual scientist, but it can also be used to rank journals. The index is designed to improve upon simpler measures such as the total number of citations or publications.

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Publication		Times Cited	
1	------	87	
2	------	70	
3	------	46	
4	------	32	
5	------	19	
6	------	15	
7	------	10	
8	------	9	Cut-off
9	------	8	
10	------	6	
11	------	4	
12	------	1	

Formally, if *f* is the function that corresponds to the number of citations for each publication, we compute the *h*-index as follows. First we order the values of *f* from the largest to the lowest value. Then, we look for the last position in which *f* is greater than or equal to the position (we call *h* this position). For example, if we have a researcher with 5 publications A, B, C, D, and E with 10, 8, 5, 4, and 3 citations, respectively, the *h*-index is equal to 4 because the 4th publication has 4 citations and the 5th has only 3. In contrast, if the same publications have 25, 8, 5, 3, and 3 citations, then the index is 3 because the fourth paper has only 3 citations.

- f(A)=10,f(B)=8,f(C)=5,f(D)=4,f(E)=3 →h index=4
- f(A)=25, f(B)=8, f(C)=5, f(D)=3, f(E)=3 → h-index=3

5) *CITESCORE:* CiteScore of an academic journal is a measure reflecting the yearly average number of citations to recent articles published in that journal. This journal evaluation metric was launched in December 2016 by Elsevier as an alternative to the generally used JCR impact factors.

a) *How to calculate cite score:* In any given year, the CiteScore of a journal is the number of citations, received in that year, of articles published in that journal during the three preceding years, divided by the total number of "citable items" published in that journal during the three preceding years.

$$CS_Y = \frac{Citations\ y-1 + citations\ y-2 + citations\ y-3}{publications\ y-1 + publications\ y-2 + publications\ y-3}$$

6) *SCImago Journal & Country Rank:* It is a portal - journals and country scientific indicators from the information contained in the SCOPUS database. It is a measure of scientific influence of scholarly journals - the number of citations received by a journal and the importance or prestige of the journals where such citations come from.

$$SJR = \frac{Average\ no\ of\ weighted\ citations\ received\ in\ a\ year}{no.\ of\ documents\ published\ in\ previous\ three\ years}$$

7) *SNIP (Source Normalized Impact Per Paper):* Source normalized impact per paper (SNIP) – a factor released in 2012 by Elsevier based on Scopus to estimate impact. The measure is calculated as SNIP=RIP/(R/M), where RIP=raw impact per paper, R = citation potential and M = median database citation potential **[5].**

8) *Expert Survey:* It is a score reflecting the overall quality or contribution of a journal. Based on the results of the survey of active field researchers, practitioners and students (i.e., actual journal contributors or readers), who rank each journal based on specific criteria **[17].**

9) *Public Power Approach (PPA):* The ranking position of each journal is based on the actual publishing behavior of leading tenured academics over an extended time period. As such, the journal's ranking position reflects the frequency at which these scholars published their articles in this journal **[17**].

10) *Almetrics:* It is used to rate journals based on scholarly references added to academic social media sites **[1].**

11) *J-RANK:* Journals Ranking (JRank) is the digital portal developed by iMaQ Technologies Pvt. Ltd in 2015 containing list of all international journals indexed in ISI-JCR and Scopus-SJR based on the current impact factor (IF) and Quartiles (Q) given by Thomson Reuters and Scopus, respectively. The JRank also gives detailed information about the journal such as country of journal publishing, impact factor history, frequency of journal publishing, active web link etc. All lists of journals based on subjects can also be viewed using JRank portal.

12) *Page Rank:* PageRank – A 1976 a recursive impact factor that gives citations from journals with high impact greater weight than citations from low-impact journals was proposed.[11] Such a recursive impact factor resembles Google Page Rank

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algorithm, though the original Pinski and Narin paper uses a "trade balance" approach in which journals score highest when they are often cited but rarely cite other journals; several scholars have proposed related approaches. In 2006, Johan Bollen, Marko A. Rodriguez, and Herbert Van de Sompel also proposed replacing impact factors with the PageRank algorithm The Eigenfactor is another PageRank-type measure of journal influence, with rankings freely available online, along with SCImago.

13) *h-5 INDEX:* h5-index – this metric, calculated and released by Google Scholar, is based on the h-index of all articles published in a given journal in the last five years. **[11].**

Example:

a) Hirsch reckons that after 20 years of research, an
b) h index 20 = good,
c) 40 = outstanding,
d) 60 = truly exceptional.
e) The advantage of the h-index is that it combines productivity (i.e., number of papers produced) and impact (number of citations) in a single number.

14) *Rubric Journal Evaluation Tool:* The changing mechanisms of scholarly publishing may make it difficult for you to determine where to publish the results of your research or creative works. In order to assist you in making the best decisions for your work, and to avoid journals that may not be credible, the William H. Hannon Library has developed a rubric for the evaluation of journals. Our focus during the development of this tool was specifically to address the concerns of our Loyola Marymount University faculty about Open Access journals, but this rubric may be applied more broadly to any kind of journal. The rubric and related scoring sheet has been developed for your use to review a journal you are considering for your work, to determine if it is a credible publication source. The rubric guides you to consider specific criteria in your review, giving each a score, so that at the end of your review you will know if the journal may be a good, fair, or poor choice for your work.

a) How to use the rubric journal evaluation tool

The journal evaluation tool includes two components, the rubric and the scoring sheet:

- Step 1: Follow the criteria listed on the rubric. The criterion prompts you to look to the journal and publisher web sites to determine if there are markers of credibility or any red flags.
- Step 2: Look at the Rationale column on the scoring sheet to gauge the importance of each criterion.
- Step 3: Categorize each criteria on the rubric into one of three categories: good (receiving a score of 3), fair (a score of 2), or poor (a score of 1).
- Step 4: Mark the score for each criterion on the scoring sheet.
- Step 5: Determine the final score after you have completed the rubric.
- Step 6: Use the Guide to Interpretation at the bottom of the scoring sheet to determine if the total score suggests that the journal is likely a good, fair, or poor choice for publication. From the Journal evaluation sheet the data can be intrepreted.

b) Guide to interpret

Rating total

- 48-38 Good: Within this range the journal meets many of the evaluation criteria defined for credibility. At the higher end of the range the journal would have the fewest credibility concerns.
- 37-27 Fair: Within this range the journal meets some of the evaluation criteria defined for credibility. The author would need to decide whether or not to publish in the journal.
- 26-16 Poor: Within this range the journal meets the fewest of the evaluation criteria defined for credibility [**16]**

15) *Researchers Social Network:* To construct a researcher social network based on data extracted from personal online profiles and metadata of scientific publications, which could be employed to represent the researchers' interests. In particular, the data we investigate are: (1) keywords of publications; (2) personal interests; (3) data about conferences where papers were published; and (4) co-authors of publications **[18].** This network used to evaluate by the researchers themselves by giving ratings. An electronic journal as the heart of an online scholarly community, where academic journals function principally as channels of communication for practicing scholars. **[8]**

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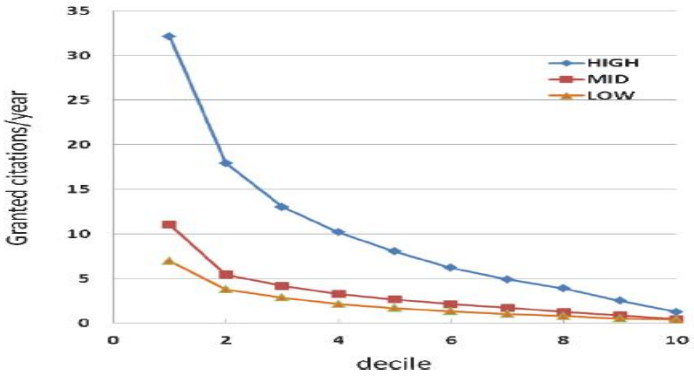
16) *Computer Based Procedure To Evaluate Scientific Original Papers:* Impact Factor (IF) is widely used surrogates to evaluate single articles, in spite of known shortcomings imposed by cite distribution skewness. We quantify this asymmetry and propose a simple computer-based procedure for evaluating individual articles.

Method

1) *Analysis of Symmetry:* Journals clustered around nine Impact Factor points were selected from the medical ''Subject Categories'' in Journal Citation Reports 2010. Citable items published in 2008 were retrieved and ranked by granted citations over the Jan/2008 - Jun/2011 period. Frequency distribution of cites, normalized cumulative cites and absolute cites/decile were determined for each journal cluster.
2) *Positive Predictive Value:* Three arbitrarily established evaluation classes were generated: LOW ($1.3 \leq IF < 2.6$); MID: ($2.6 \leq IF < 3.9$); HIGH: ($IF \geq 3.9$). Positive Predictive Value for journal clusters within each class range was estimated.
3) *Continuously Variable Rating:* An alternative evaluation procedure is proposed to allow the rating of individually published articles in comparison to all articles published in the same journal within the same year of publication. The general guiding lines for the construction of a totally dedicated software program are delineated **[10].**

Figure 1. Probability density functions for granted citations/year based on positive predictive value



Probability density functions for granted citations/year in the three major clusters (HIGH, MID and LOW). Density is a highly significant (p,0.001) function of Impact Factor **[10].**

B. Other Platforms Of Social Network

1) Google Scholar: Google Scholar is a freely accessible web search engine that indexes the full text or metadata of scholarly literature across an array of publishing formats and discipline. You can get citations for articles in the search result list.

a) Click on the Cite link next to your item.
b) Select your citation style.
c) Paste the citation into your working document.
d) Double check and adjust formatting as needed to match your selected citation style.

2) DoI number (Digital Object Identifier): DoI no was Established in 2000. It is a Not for profit membership organization and it was a Website of international Doi foundation. To identify academic, professional, and government information, such as journal articles, research reports and data sets, and official publications though they also have been used to identify other types of information resources, such as commercial videos.

3) Science Direct: It was launched in March 1997. Science Direct helps you find answers to your most pressing research questions, stay on top of your field and gain in-depth insights into trending research topics as you take your next steps in discovery. Science Direct is a website which provides subscription-based access to a large database of scientific and medical research. It hosts over 12 million pieces of content from 3,500 academic journals and 34,000 e-books.

4) Mendeley: It is a free reference manager and academic social network that can help you organize your research, collaborate with others online, and discover the latest research.

a) Automatically generate bibliographies
b) Collaborate easily with other researchers online
c) Easily import papers from other research software

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d) Find relevant papers based on what you're reading
e) Access your papers from anywhere online
f) Read papers on the go, with our iOS and Android apps.

Evolve – to provide study materials for educators in health care and nursing. Knovel – provides faster access to answer for solve engineering problems and Reaxys – provides chemical reaction information is a highly intuitive solution for answering precise chemistry questions.

5) *Research Gate:* ResearchGate is an European commercial social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. It is the largest academic social network in terms of active users. (Nature and times higher education). Research gate users were 15 million users up to 2018 and launched in may 2011 (11 years ago).
6) *Web of science – Clarivate Analytics:* Web of Science connects publications and researchers through citations and controlled indexing in curated databases spanning every discipline. (Subscription based). It was originally produced by the Institute for Scientific Information and is currently maintained by Clarivate Analytics. Identify hidden patterns, gaining insight into emerging research trends.
7) *ORCID- Open Researcher and Contributor id***:** The ORCID Open Researcher and Contributor ID) is a nonproprietary alphanumeric code to uniquely identify scientific and other academic authors and contributor. ORCID ID is a 16-digit number that is compatible with the ISO Standard. It offers an open and independent registry intended to be the *de facto* standard for contributor identification in research and academic publishing. On 16 October 2012, ORCID launched its registry services
8) *Publons:* Publons is a commercial website that provides a free service for academics to track, verify, and showcase their peer review and editorial contributions for academic journals. It was launched in 2012 and by 2018 more than 500,000 researchers have joined the site, adding more than one million reviews across 25,000 journals.

Publons provides

a) tools for publishers to find, screen, contact, and motivate peer reviewers
b) data and publications about global peer review behaviour
c) peer review training for early-career researchers and
d) Features for academics to discuss and evaluate published research.

9) *End note*

a) It is a commercial reference management software package and it was used to manage bibliographies and references when writing essays and articles.
b) It is produced by Clarivate Analytics (previously by Thomson Reuters).

10) *Microsoft Academics:* Microsoft Academic. Microsoft Academic is a free public web search engine for academic publications and literature, developed by Microsoft Research. Re-launched in 2016, the tool features an entirely new data structure and search engine using semantic search technologies**.**

C. Analysis Of Five Year Naas Rating Of Indian And Foreign Agricultural Journals

The following figures and tables illustrates the Indian and foreign agricultural journals rated for the past five years. It will give a good idea on the quantum of publications done by the researchers.

Figure 2. No. of journals in NAAS score list (2016-2020)

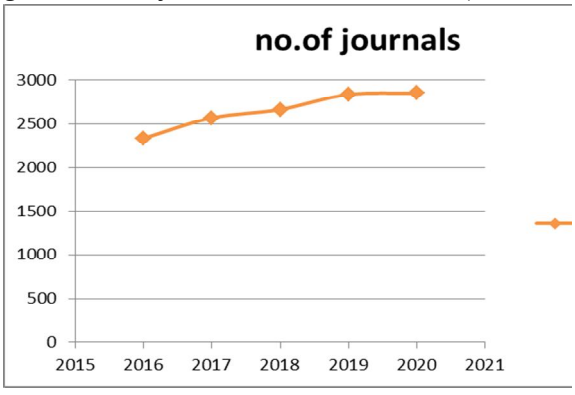

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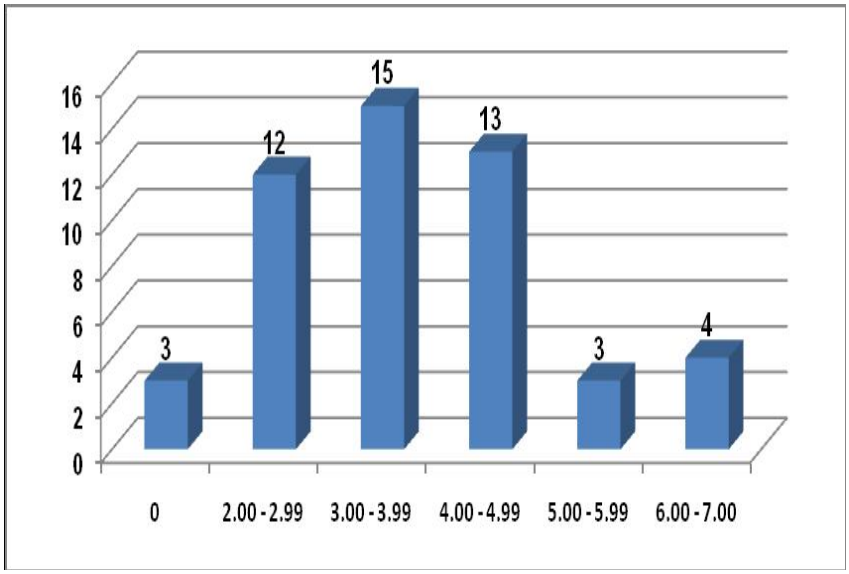
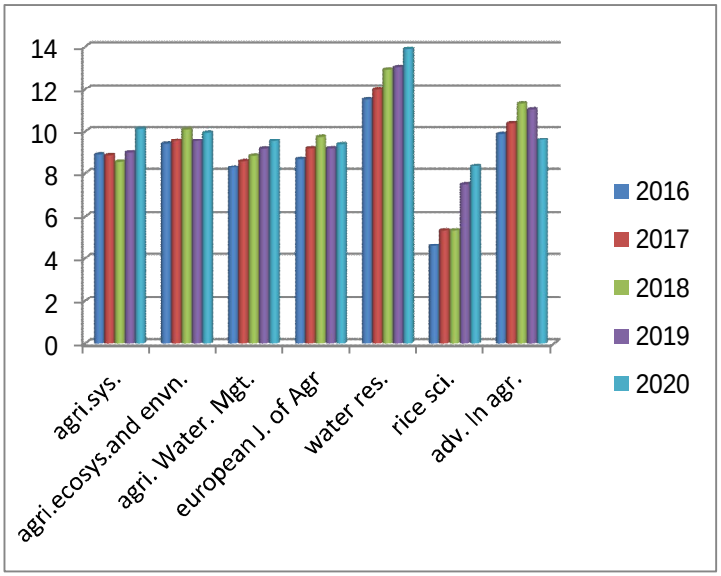
Figure 3. Rating trends of Indian Veterinary journals based on NAAS rate



[8]

Figure 4. Scenario of Elsevier fast publishing journals (2016-2020)



A perusal of the ratings for different journals over a span of five years indicated that among the overseas publications, the ratings of the journals showed both increasing and decreasing trends. A few journals showed a declining trend during initial years and then increased later. Another set of journals showed a steady increase in ratings indicating its quality while the Indian journals almost maintain constant or same ratings without much change over half-a-decade.

VI. CONCLUSION

The academicians and researchers stating that journal rank is a weak to moderate predictor of scientific impact, expensive, delays science and frustrates researchers and journal rank. There is a growing need for journal ranking since such rankings can be useful for getting an idea of the prestige or "impact factor" of a journal. The journal publishers also come forward to submit their journals to the NAAS for the award of NAAS rate can attract the good quality research papers from the academicians and scientists. This article has been written based on the literature collected and gathered. For better understanding kindly go to the respective web sites and do learn. The main focus of this paper is to throw light on various journal ranking details and article assessment platforms available to the research scholars.

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Table 1. Rating trends of Indian agriculture journals from 2016 t0 2020

S.NO	TITLE	CATEGORY	NAAS RATING					FREQUENCY
			2016	2017	2018	2019	2020	
1.	Indian Journal Of Agricultural Sciences	Agronomy and crop science	6.14	6.17	6.22	6.23	6.25	Monthly, Open access
2.	Indian Journal Of Biotechnology	Agriculture and biotechnology	6.39	6.29	6.29	6.37	6.34	Quarterly
3.	Indian Journal Of Experimental Biology	All branches of biology	6.84	7.17	6.00	7.48	6.93	Monthly, open access
4.	Indian Journal Of Fibre And Textiles Research	Environmental and material science	6.63	6.42	6.43	6.37	6.51	Quarterly
5.	Indian Journal Of Genetics And Plant Breeding	All branches of genetics and plant breeding	6.19	6.28	6.32	6.41	6.47	Quarterly
6.	Indian journal of horticulture	Horticulture and agroforestry	6.13	6.13	6.15	6.10	6.11	Quarterly
7.	Indian journal of traditional knowledge	All traditional and indigenous practices	6.41	6.37	7.27	7.06	6.92	Quarterly
8.	Current science	Multi disciplinary	6.93	6.97	6.84	6.88	6.76	Semi-monthly, no open access
9.	Range management and agroforestry	Agriculture and agroforestry	6.06	6.39	6.32	6.64	6.10	Half-yearly
10.	Legume research	Agriculture, and biological sciences						

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Table 2. Trends in NAAS ratings of a few Elsevier publishing journals

S.No	TITLE	CATEGORY	NAAS RATING					FREQUENCY
			2016	**2017**	**2018**	**2019**	**2020**	
1.	Plant science	Agriculture and crop science, plant science	9.61	9.36	9.44	9.71	9.79	Monthly , no open access
2.	Current biology	Agriculture and plant science	15.57	14.98	14.85	15.25	15.19	Quarterly, open access
3.	Current opinion in plant biology	Plant science	13.85	12.78	13.36	13.35	13.51	Bi-monthly, no open access (subs based)
4.	Physiological and molecular plant pathology	Plant science and genetics	7.41	7.37	7.14	7.40	7.68	Quarterly, open access (subs based)
5.	Plant physiology and biochemistry	Physiology, plant science and genetics	8.76	8.93	8.72	8.72	9.40	Monthly, no open access
6.	Perspectives in plant ecology, evolution and systematics	Plant science, Ecology, Evolution, Behavior and Systematics	9.61	9.58	9.12	8.82	8.52	Semi annual, no open access
7.	Applied soil ecology	Soil science and environment	8.64	8.67	8.79	8.92	9.45	Monthly, no open access
8.	European journal of soil biology	soil science , insect science and microbiology	7.72	7.95	8.45	8.07	8.24	Bimonthly, no open access
9.	Geoderma	Soil science	8.77	8.86	10.04	9.74	10.34	semi-monthly, no open access
10.	Pedobiologia	Soil science, ecology and evolution	7.42	7.54	8.00	8.29	7.83	Bimonthly, no open access
11	Soil and tillage research	soil science, agronomy crop science	8.62	8.71	9.40	9.82	10.68	monthly, no open access
12	Soil biology and biochemistry	Soil Science, microbiology	9.93	10.15	10.86	10.93	11.29	monthly , open access (subs based)

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Table 3. Trends in NAAS ratings [7] of a few Springer publishing journals

S.No.	TITLE	CATEGORY	NAAS RATING					FREQUENCY
			2016	**2017**	**2018**	**2019**	**2020**	
1.	Water resources management	Water Science and Technology	8.60	8.44	8.85	8.64	8.99	Bimonthly, no open access
2.	Wood science and technology	Agricultural and Biological Sciences Subcategory: Forestry	7.92	7.64	7.51	7.71	7.91	Bimonthly , no open access (Subs based)
3.	Theoretical and applied climatology	meteorology Subcategory: atmospheric sciences and climatology	8.02	8.43	8.64	8.32	8.72	monthly, no open access (subs based)
4.	Trees structure and function	agriculture and forestry, ecology, physiology and plant science	7.65	7.71	7.84	7.78	7.80	bi-monthly, no open access
5.	Rice	agronomy, plant science Soil Science	9.92	9.42	9.74	9.04	9.51	open access
6.	Waste and biomass volarization	Environ mental Science, Waste Management and Disposal, environmental engineering, sustainability and disposal	-	6.92	7.34	7.87	8.36	monthly, no open access

Table 4. Trends in NAAS ratings of a few Taylor and Francis publishing journals

S.No.	TITLE	CATEGORY	NAAS RATING					FREQUENCY
			2016	**2017**	**2018**	**2019**	**2020**	
1.	Soil and sediment contamination	soil science, pollution, environmental chemistry and health	7.04	7.19	7.21	6.97	6.99	8 issues/year, no open access
2.	Soil use and management	soil science, pollution, agronomy and crop science	7.47	7.82	8.12	7.34	7.96	quarterly no open access
3.	Soil science and plant nutrition	soil science, and plant science	6.73	6.95	7.25	7.12	7.42	bimonthly , no open access
4.	Scandinavian journal of forest research	Agricultural and biological sciences, Forestry	6.25	7.06	7.69	7.60	7.67	8 issues/yr, no open access
5.	Climate and development	Earth and Planetary Sciences Atmospheric Science , environmental science	7.38	7.47	8.05	8.41	8.47	8 issues/year, no open access
6.	Communications in soil science and plant analysis	Soil Science , agronomy and crop science	6.39	6.53	6.59	6.54	6.69	Two issues per month, no open access
7.	Composts science	Soil Science,	-	6.56	6.70	6.89	7.00	quarterly ,no open

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	and utilization	Environmental science						access
8.	Water international	Environmental Science Subcategory: Water Science and Technology	6.69	7.04	7.54	7.96	7.89	quarterly, no open access
9.	International journal of food properties	Food science	6.92	7.59	7.43	7.85	7.40	Yearly, open access
10.	Food and agricultural immunology	Food science and immunology	6.99	7.55	7.39	8.57	8.40	Quarterly, open access
11.	CYTA journal of food	Food science and technology	6.82	6.77	7.18	7.37	7.81	Yearly, open access

Table 5. Trends in NAAS ratings of a few Wiley online publishing journals

S.No.	TITLE	CATEGORY	NAAS RATING					FREQUENCY
			2016	**2017**	**2018**	**2019**	**2020**	
1.	Weed biology and management	weed science	6.54	6.50	6.68	6.78	7.00	quarterly , no open access
2.	Weed research	weed science, agronomy and biological sciences	7.69	7.52	7.78	7.77	7.86	bimonthly , no open access
3.	Water environment research	environmental Science Subcategory: water science and technology	6.87	6.66	6.91	6.83	7.42	monthly , no open access
4.	Water resources research	hydrology and water resources	9.55	9.79	10.40	10.36	7.67	monthly, no open access
5.	Conservation biology	Environ mental science Subcategory: Ecology, Evolution, Behavior and Systematics	10.17	10.27	10.84	11.89	12.19	bimonthly, no open access
6.	Systematic entomology	Ecology, Evolution, Behavior and Systematics, insect sciences	8.78	9.34	10.47	10.24	9.73	quarterly, no open access
7.	The plant genome	Crop Science, plant science and genetics	9.93	9.51	8.74	8.92	10.04	open access

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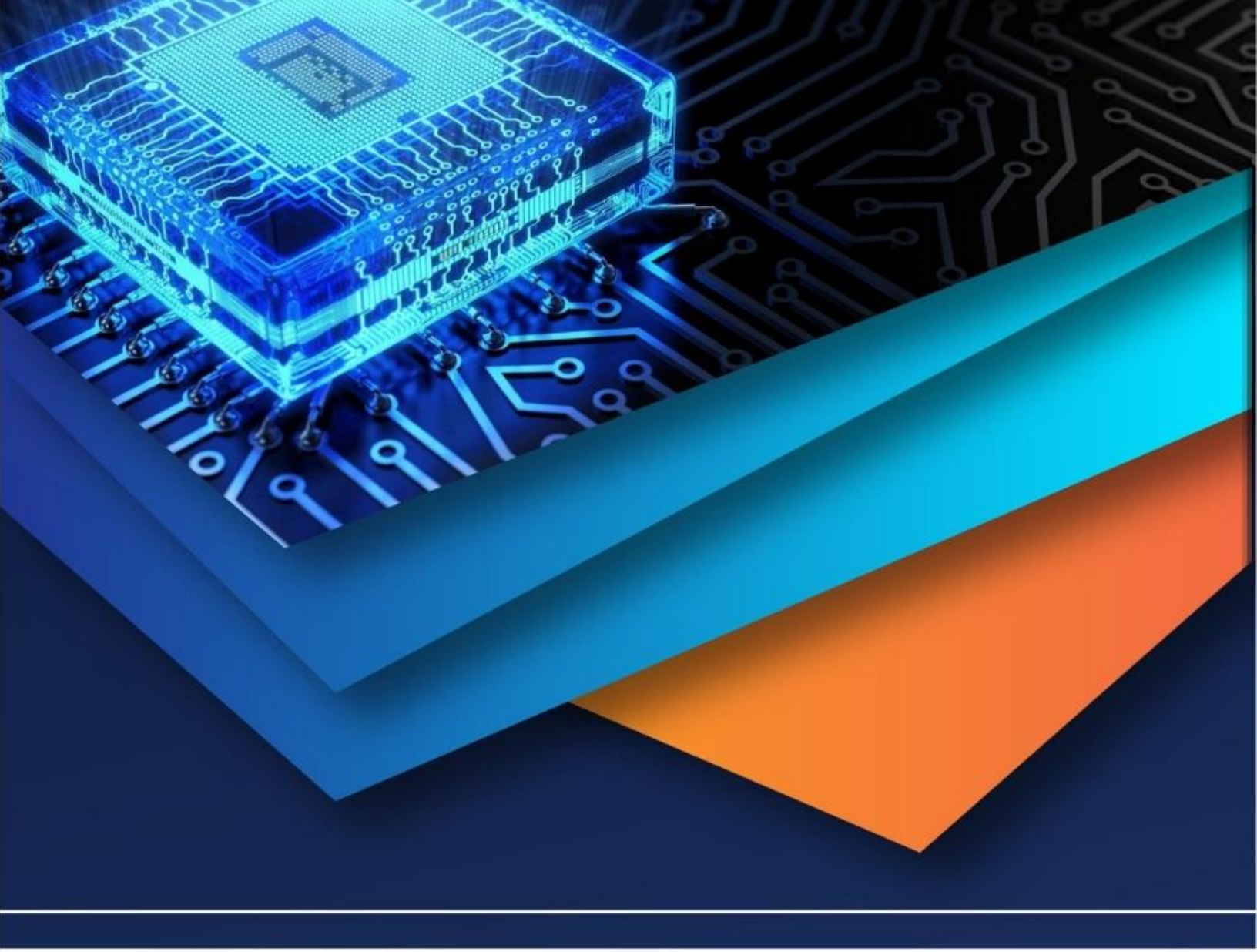

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