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STUDY OF INDIAN PUBLICATIONS OUTPUT ON AGRICULTURE –A BIBLIOMETRIC ANALYSIS

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Abstract

This study attempts to document the Indian publications output on Agriculture in global literature, which is available in the electronic form using bibliometric and mapping technique. The data for this study were retrieved from Web of Science database. Agriculture literatures which are not covered in Web of Science database were not taken for analysis. Using search string, the term 'Agriculture' in 'topic' and 'India' in 'Address' published in 1989-2016,data generated were analyzed. In all, 4,105 document results were generated between 1st January 1989 and 31st December, 2016. The collected data were analyzed with the assistance of 'Histcite Software' and 'MS-Excel' for data classification or to eliminate duplication from downloaded data.Using illustrations in the form of diagram and table the result of the study were discussed broadly. The result indicates that large number of publications in Agriculture were reported in the year 2016, with a total of 606 documents. Indian Institute of Technology (210) topped the list in institutional analysis followed by Indian Agricultural Research Institute (198). The result also revelaed that out of 4 languages, English reported 4102 literature and stood first among the all source languages. Word analysis brought out the fact that the word 'article' constituted 3384 followed by 'Review'. Among all authors globally "Kumar A" has published 111 items in Agriculture literature and was the top contributor in Agriculture. Journal of 'Current Science" has published maximum of 224 publications in Agriculture. Among the subjects, 'Environmental Sciences' had the highest number of output (691), followed by 'Agronomy (504). The study concluded that more works on Agriculture should be encouraged nationally. To preserve the information and to enhance the academic excellence globally, literature in Agriculture should be in electronic form.

Keywords: Vessel density, vulnerability, mesomorphy, vessel diameter.

INTRODUCTION

Agriculture is as old as civilization and constitutes the cultivation and breeding of animals, plants and fungi for food, fiber, biofuel, medicinal plants and other products used to sustain and enhance human life. Agriculture was the key factor in rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that nurtured the development of civilization. The study of agriculture is known as agricultural science. The history of agriculture dates back thousands of years, and its development has been driven and defined by greatly different climates, cultures, and technologies. Industrial agriculture based on large-scale monoculture farming has become the dominant agricultural methodology (Agriculture, 2017).

Agriculture in India dates back to Indus Valley Civilization Era and even before that in some parts of Southern India. Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and fisheries accounted for 13.7% of the GDP (gross domestic product) in 2013 engaging about 50% of the workforce. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India (Agriculture in India, 2017).

Today Information scientists are applying very many techniques to assess the publication on a particular area. The bibliometrics and scientometrics are popular methods used throughout the world to assess the publication on a particular area.

OBJECTIVES

A publication on 'Agriculture' is plenty, which is available in various forms. To study, assess, analyse and to document the publication pattern in the field of Agriculture is the main focus of this work. Publications on Agriculture at India level were are analyzed using several techniques by modern day scientists. Lack of major Scientometric and Bibliometric studies on analysing the publication outcome in the field of Agriculture

motivated the investigators to take-up this study. This paper attempts to completely profile the Publications on 'Agriculture' and to analyse quantitative and qualitative data to describe publication patterns within a field of research. Broadly speaking, the results may also help to determine university rankings. The purpose of the present study was to analyse the Indian publications on the field of Agriculture which is available in the electronic form. The objectives of this research was to find out the publication pattern in term of year-wise, language-wise, document type wise and to identify the top ten institutions, journals, contributing authors and subject area in Agriculture.

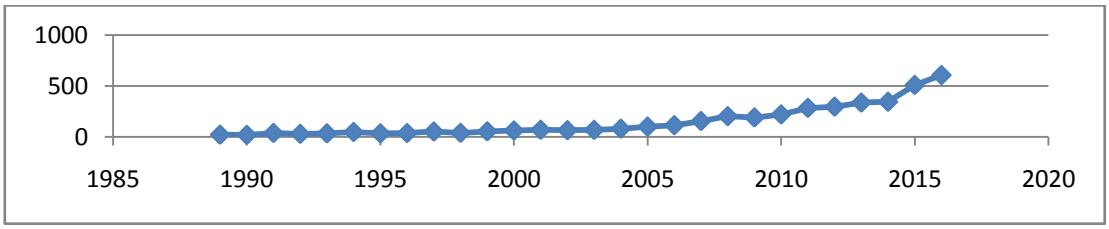
DATABASE AND METHODOLOGY

Modern world is flooded with huge number of databases, among them Web of Science, Scopus and PubMed are very popular. The present study tries to decipher the data available on Agriculture publications limited to one renowned database. The investigator has selected 'Web of Science' for the following valid reasons. Kalidasan & Vigneshwaran (2015) viewed that Web of Science is an online product of Thomson Reuters of United States of America and it is one among the highly reputed international and multidisciplinary database in which the literature on technology, science, medicine, arts & humanities and 250 odd other fields are included. It has a wide range of coverage starting from the year 1864 onwards and most of its journals were in English. Web of Science has more than 90 million plus records which includes full text articles, reviews, editorials, chronologies, abstract, proceedings (journals and book-based), technical papers and so on. Chadegani, et al., (2013)compared the Web of Science and Scopus databases and observed that Web of Science had strong coverage and most of its journals were written in English.

The data for this study were retrieved from the Web of Science database. Agriculture literatures which are not covered in Web of Science database were not taken for analysis. Using search string in Web of Science, the term 'Agriculture' in 'topic' and 'India' in 'Address' published in 1989-2016, all types were analyzed. In all, 4,105 documents results were found in Web of Science database from 1st January 1989 to 31st December, 2016. The collected data were analyzing with the assistance of 'Histcite Software' and 'MS-Excel' for data classification or to eliminate duplication from downloaded data. The date studied in Web of Science related to agriculture literature were limited to Indian works between 1st January 1989 and 31st December, 2016.

RESULTS

I. YEAR-WISE DISTRIBUTION OF PUBLICATIONS ON AGRICULTURE



Graphological interpretation was found to reveal, that the total number of documents available was 4105. In the year 2016, maximum of 606 documents are published in Agriculture. The analysis also revealed that steady increase in the productivity was observed since 2010 onwards.

II. TOP TEN INSTITUTIONS IN PUBLISHING AGRICULTURE LITERATURE

S.No	Institution	Records	Percent	TLCS	TGCS
1	Indian Institute of Technology	210	5.1	178	3683
2	Indian Agricultural Research Institute	198	4.8	207	2805
3	International Crops Research Institute for the Semi-Arid Tropics	143	3.5	136	2661
4	Banaras Hindu University	113	2.8	88	2163
5	Punjab Agricultural University	82	2.0	50	714
6	Jawaharlal Nehru University	71	1.7	59	1047
7	CSIR	67	1.6	38	1276
8	University of Delhi	67	1.6	37	963
9	GB Pant Institute of Himalayan Environment& Development	55	1.3	99	793
10	Central Research Institute for Dryland Agriculture	51	1.2	67	583

TLCS= Total Local Citation Score **TGCS**= Total Global Citation Score

Institution-wise distribution was contributed by 3256 institutions around the India. The researchers had taken top ten productive institution for this analysis which brought out the significant role of Indian Institute of Technology (210), the leader of the pack closely followed by Indian Agricultural Research Institute (198). Among these institutions Tamil Nadu Agricultural University got 30th with the total record of 26.

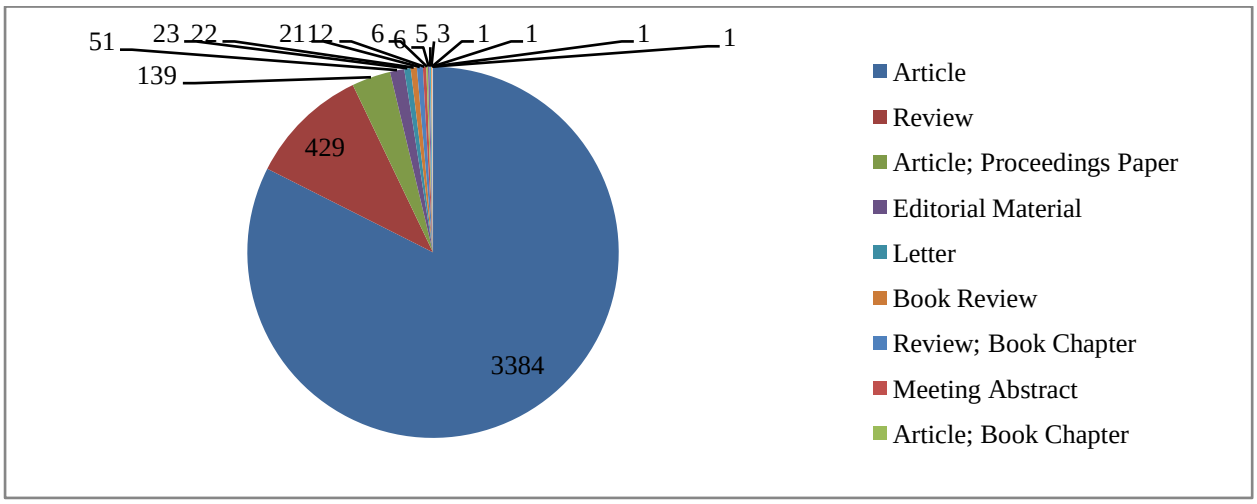
FIGURE-I: MAPPING OF INSTITUTIONS PRODUCTIVITY

III. LANGUAGE-WISE DISTRIBUTION OF PUBLICATIONS

S.No	Language	Records	%
1	English	4102	99.926 %
2	German	1	0.024 %
3	Italian	1	0.024 %
4	Spanish	1	0.024 %

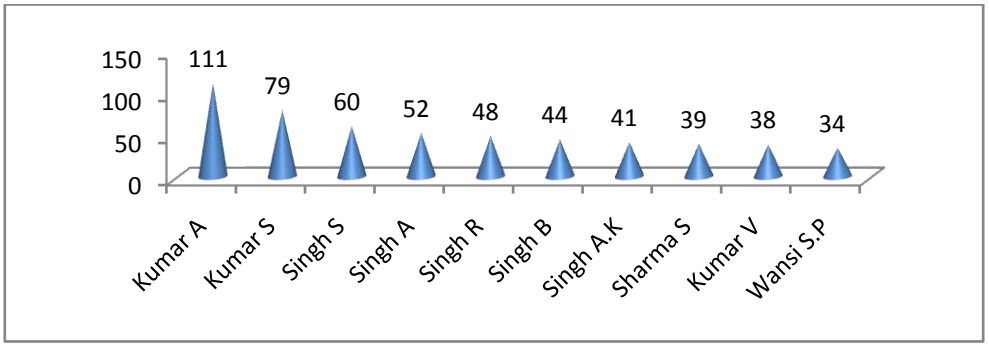
It could be noted that Agriculture scientists used to bring out their publication in different type of languages in India. English was the most preferred language of agricultural science reporting 4102 literatures dominating all other languages whose literature may vanish in years to follow.

IV. DOCUMENT-WISE DISTRIBUTION OF PUBLICATIONS



The analysis helped to classify Agriculture publications have been classified into sixteen types of documents. The above pie analysis reveals that 'article' has constituted 3384 of total documents of source, followed by 'Review'. Out of 4105 documents on Agriculture, more than 82.44% were in the form of 'article' type.

V. TOP TEN CONTRIBUTING AUTHORS



By analyzing the authorship pattern, Indian authorship accounted for large number of authors publishing in Agriculture. Out of 9865 authors the above bar diagram shows the top ten authors productivity on Agriculture. It also indicates the number of works done by each of them 'KumarA' has published 111 items on Agriculture, followed by 'KumarS'.

VI. JOURNAL WISE DISTRIBUTION OF PUBLICATIONS

S.No	Journal	Records	Percent	TLCS	TGCS
1	Current Science	224	5.5	211	2150
2	Indian Journal of Agricultural Sciences	101	2.5	36	218
3	Environmental Monitoring and Assessment	71	1.7	32	804
4	Agricultural Water Management	48	1.2	93	1111
5	Indian Journal of Animal Sciences	48	1.2	7	98
6	Indian Journal of Agronomy	44	1.1	7	66
7	Research on Crops	43	1.0	0	5
8	Indian Journal of Traditional Knowledge	39	1.0	10	65
9	Journal Of Agrometeorology	38	0.9	10	55
10	Agriculture Ecosystems &Environment	36	0.9	92	1320

TLCS= Total Local Citation Score **TGCS**= Total Global Citation Score

It could be noted that Agriculture scientists brought out their publications in different type of sources. The present investigation had taken top ten published journals, which published Agriculture literature. Out of 1182 Journals, 'Current Science' has published 224 publications and stood first among the all source title followed by Indian Journal of Agricultural Sciences that published 101 publications.

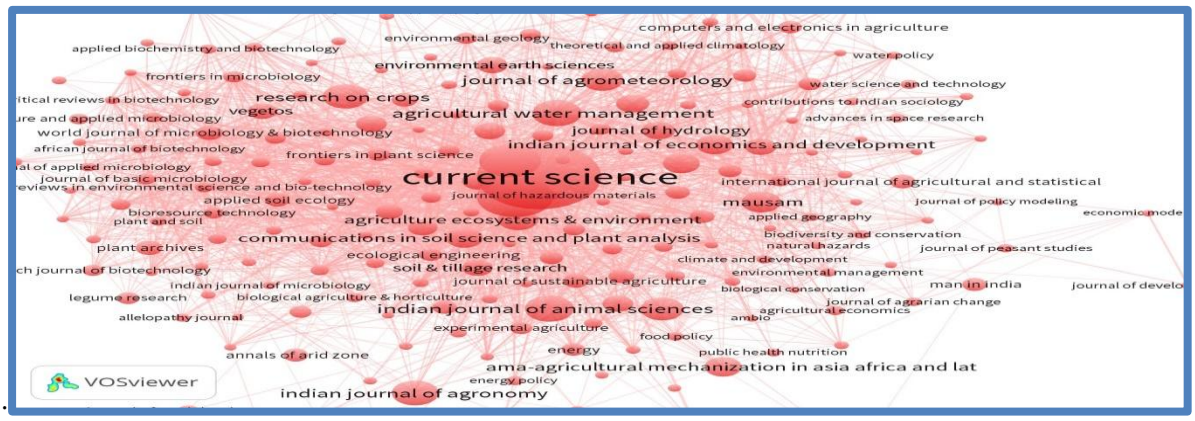
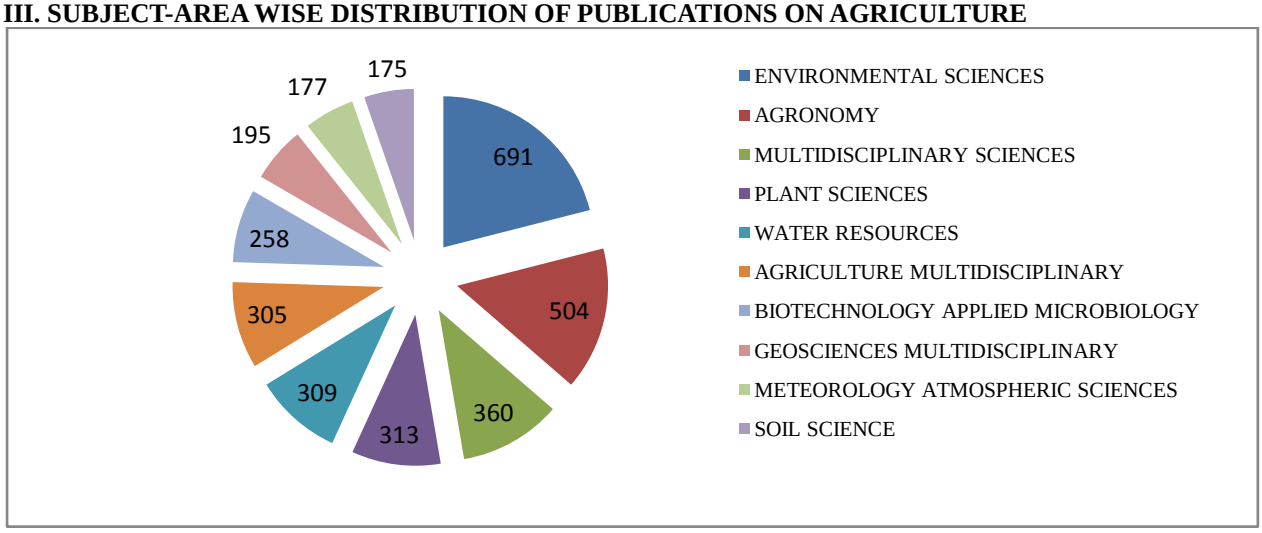


FIGURE-II: MAPPING OF JOURNAL PRODUCTIVITY

III. SUBJECT-AREA WISE DISTRIBUTION OF PUBLICATIONS ON AGRICULTURE



Agriculture publications were found in more than 100 subject areas. Among them 'Environmental Sciences' had the highest number of output of 691, followed by 'Agronomy (504) and so on.

FINDINGS

- Most publications in Agriculture was reported in the year 2016 (606 documents).
- Among the institutes, Indian Institute of Technology (210) topped the list followed by Indian Agricultural Research Institute (198).
- English language reported the most 4102 literature (4102) and stood first among the all source languages.
- The analysis reveals that 'article' has constituted 3384 of total documents of source, followed by 'Review'.
- Among the authors "Kumar A" has published 111 items in Agriculture literature and the top contributor in Agriculture.
- 'Current Science' journal published the maximum (224) in Agriculture.
- Environmental Science article was found the highest number of output of 691, followed by 'Agronomy (504).

CONCLUSION

There are several printed journals and other electronic resources which could not be included in this study, due to various reasons. The study shown the published work on 'Agriculture' was comparatively lesser than many other countries through out the world, hence it was concluded that more publications on Agriculture should be encouraged throughout the country. Literature in Agriculture should be in electronic form, to preserve the information and enhance academic excellence globally.

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