

## RESEARCH PRODUCTIVITY IN AGRONOMY LITERATURE: A BIBLIOMETRIC STUDY

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**Abstract** - This paper attempts to highlight the growth and development of Agronomy literature particularly in India. Data from Tamilnadu Agriculture University, Library Coimbatore is collected for 3 years (i.e., 2006-2015). The chronological distribution of articles indicates that the number of articles is highest in 2014. It is clear that out of the total 916 articles, 870 are journal articles where as 20 are conference articles followed by 26 are book chapters in the field of Agronomy. This paper also studied the productive author in the field of agronomy. It's clear that out of 916 articles are in English language.

**Key Word:** Agronomy, Bibliometric, Literature study, Agricultural University

### 1. INTRODUCTION

Bibliometrics is the science of measuring and analyzing science research. In practice, Bibliometrics is often done using bibliometric which is a measurement of the impact of (scientific) publications. Modern Bibliometrics is mostly based on the work of Derek J. de Solla Price and Eugene Garfield. During the early 20th century, the application of quantitative methods to library science was known as "statistical bibliography". Dr. S.R. Ranganathan introduced the concept "librametry" on the lines of biometry, econometry and psychometry at the ASLIB conference in 1948. In 1969 Pritchard used the term "bibliometrics" to describe all studies to quantify the progress of return communication. In the same year, Fairthorne also defined "bibliometric" as "the quantitative treatment of the properties of the recorded discourse and behavior pertaining to it".

Bibliometrics may be treated as synonym to informetrics having scope to analyze quantitative characteristics of information. While Bibliometrics mostly deals with analysis of science data, informetrics is mostly concerned with modeling. Bibliometrics techniques have been gaining importance and recognition in their application to real situation in library and information resource management.

A vast amount of literature has been produced on Bibliometrics investigations during the last two decades. Citation technique is one of the most popular techniques among the Bibliometrics techniques. Understanding the characteristics of information and information sources, particularly, of the subject literature, is necessary if effective

and efficient information systems are to be designed and developed. There are two approaches viz. Quantitative and Qualitative to the study of characteristics of subject literature. The former generally known as Bibliometrics. In recent years, a newly and fast emerging branch in the field of information science, has gained much importance and wider applications in the study of characteristics of subject literature.

### 2. REVIEW OF LITERATURE

Hazarika and others state in their paper on Bibliometric analysis of Indian Forester: 1991-2000, the multiple authorship is predominant in forestry and team research has always been favoured by scientists. These observations clearly state that research work is collaborative in nature. Kalyane and Sen in their work on the Journal of Oilseeds Research observed that the authorship pattern in various fields as agriculture, anthropology, business and economics, medicine, etc show consistently increase in the number of two or more authored papers.

Dhiman evaluated "Ethnobotany Journal" for authorship pattern, year-wise distribution of articles, institution and country-wise distribution and range of references cited. Shokeen and Kaushik in their study of Indian Journal of Plant Physiology, revealed that journal articles are predominant with more than two thirds of total citations. Jena made an exhaustive bibliometric study of Fibre and Textile Research and unfolded the publication trend of this Indian journal from 1996 to 2004.

Bharvi et al. analyzed 1,317 papers published in the first fifty volumes from 1978 to 2001 of the international journal Scientometrics and found that the US share of the papers is constantly on the decline while that of the Netherlands, India, France and Japan is on the rise and that the scientometric output is dominated by the single-authored papers. Zainab et al. in their bibliometric study of Malaysian Journal of Computer Science, reported their findings regarding the article productivity, authorship collaboration, and journal impact factor of MJCS.

Serenko et al conducted a bibliometric analysis of a body of literature contained in major knowledge management and intellectual capital peer-reviewed journals and revealed the institutional and individual productivity, co-operation patterns, publication frequency, and other related parameters. Hussain and Fatima evaluated the characteristics of the Chinese Librarianship: an International Electronic Journal from 2006 to 2010 through a bibliometric analysis.

### 3.METHODOLOGY

A total number of 36 issues of the journal 'Journal of Documentation' (from 2005 to 2010) have been taken for this study. The details regarding each published article such as title of the article, number of authors, their institutional affiliations and addresses, number of references with list, page number, number of tables and figures etc., were recorded and analyzed for making observations. Tables are filled by tally mark system counting one by one reference and other data. The data has been calculated and represented in tables. The citation analysis conducted by using various statistical tools and techniques.

### 4.OBJECTIVES

The objectives of the present study are as follows:

1. To identify the growth of Agronomy literature.
2. To know the type of documents in which the literature is published more.
3. To know the productive authors in the field of agronomy.

### 5.DATA ANALYSIS AND INTERPRETATION

Table 1 reveals that out of 916 articles are under the source title of Agronomy literature, 155 are under the source title Indian Journal of Agronomy, followed by 154 articles are under the source title of Agronomy- Open access Journal. American Society of Agronomy has 145 articles, followed by 112 articles under the source title of Journal of Plant Biochemistry & Physiology. Only 2 articles published in the Journal of Biosciences.

**Table No 1. Distribution of Articles**

S.No	Journal Name	No. of Articles	%	Cumulative %
1.	Journal of Plant Biochemistry & Physiology	112	12.23	12.23
2.	American Society of Agronomy	145	15.83	28.06
3.	International Journal of Agronomy	105	11.46	39.52
4.	Agronomy- Open Access Journal	154	16.81	56.33
5.	Indian Journal of Agronomy	155	16.92	73.26
6.	European Journal of Agronomy	66	7.21	80.46
7.	Journal of Agronomy and Crop Science	95	10.37	90.83
8.	Journal of Integrative Plant Biology	5	0.55	91.38
9.	Journal of Cereal Science	6	0.66	92.03
10.	Journal of Integrative Plant Biology	4	0.44	92.47
11.	Journal of Biosciences	2	0.22	92.69
12.	Research on Crops	9	0.98	93.67
13.	International Journal of Agricultural and Statistical Sciences	12	1.31	94.98
14.	Conference Articles	20	2.18	97.16
15.	Books Chapters	26	2.84	100
<b>Total</b>		<b>916</b>	<b>100</b>	<b>-</b>

Number of articles published in different type of document will be listed. The purpose of this table is to show the number of articles published under each category of document types like journal articles, conference articles, etc. From the Table 2 it is clear that out of the total 916 articles, 870 are journal articles where as 20 are conference articles followed by 26 book chapters were collect from the Agriculture University.

**Table 2 Distribution of literature in different type of documents**

S.No	Sources	No.ofArticles	%	Cumulative %
1.	Journal Articles	870	94.98	94.98
2.	Conference Articles	20	2.18	97.16
3.	Books Chapters	26	2.84	100
<b>Total</b>		<b>916</b>	<b>100</b>	<b>-</b>

The table 3 represents the year-wise distribution of articles published in related to agronomy literature journals. It shows that details regarding the distribution of 916 articles published from 2006-2015. Maximum 125 (13.65 %) articles was published in 2012 and minimum number of contributions i.e., 55 (6%) in the year 2006.

Table 4 The findings of authorship pattern in Agronomy literature reveal the following facts. The Single author's paper first in order (46.07%) where as three author's paper obtains the second order of priority (25.22%) the two to three author's paper records the third order of priority (23.80%) and finally above three authors paper only 45 obtains in fourth place. The present study analyses the research papers contributed by above three authors. It is noticed that the number of contributions from above 3 authors has been reduced.

**Table 3 Year wise Distribution of Articles**

S.No	Year	No. of Articles	%	Cumulative %
1.	2006	55	6	6
2.	2007	92	10.04	16.04
3.	2008	85	9.28	25.32
4.	2009	112	12.23	37.55
5.	2010	99	10.81	48.36
6.	2011	75	8.19	56.55
7.	2012	125	13.65	70.2
8.	2013	72	7.86	78.06
9.	2014	95	10.37	88.43
10.	2015	106	11.57	100

**Table 4 Authorship wise distribution of papers**

S.No	Authorship	No. of Articles	%	Cumulative %
1.	Single Author	422	46.07	46.07
2.	Double Author	231	25.22	71.29
3.	Above Two – Three Authors	218	23.80	95.09
4.	Above Three Authors	45	4.91	100
	<b>Total</b>	<b>916</b>	<b>100</b>	-

Out of 916 contributions of the study period during 2006 - 2015, it was observed that there were 16 states had contributed towards the subject field. Among them, Gujarat was the highest contributor during the study period i.e., 115 (12.55%) and according to the study minimum contributor Bihar is only 16 (1.75%)

**Table 5 Geographical Distribution of Agronomy literature**

State	Distribution of Paper	%	Cumulative %
Andhra	76	8.3	8.3
Arunachal Pradesh	25	2.73	11.03
Assam	42	4.59	15.61
Bihar	16	1.75	17.36
Chandigarh	22	2.4	19.76
Gujarat	115	12.55	32.32
Haryana	41	4.48	36.79
Karnataka	82	8.95	45.75
Kerala	49	5.35	51.09
Madhya Pradesh	74	8.08	59.17
Maharashtra	25	2.73	61.9
Punjab	86	9.39	71.29
Rajasthan	92	10.04	81.33
Tamilnadu	62	6.77	88.1
Uttar Pradesh	47	5.13	93.23
West Bengal	62	6.77	100
<b>Total</b>	<b>916</b>	<b>100</b>	-

The table 6 shows institution wise distribution of contributions of this agronomy literature. Out of 916 contributions, the highest number, i.e., 645 (70.41%) has been contributed by Academic Institution and lowest number, i.e., 120 (13.10%) has been contributed by research Institution and 151 (16.48%) other sources.

**Table 6. Distribution of Institution wise**

Institution	No of Papers	%
Academic Institutions	645	70.41
Research Institutions	120	13.10
Others	151	16.48
Total	916	100

## 6. CONCLUSIONS

The present study is related to Bibliometrics analysis of articles published in agronomy literature from 2006-2015. The study has analysed various aspects such as authorship Pattern among the authors and geographical distribution of papers. The year-wise distribution of articles in agronomy literature journal shows that the highest number 125 (13.65%) total output 916 have appeared in the year 2012. Maximum number of articles is 422 (46.07%) have been contributed by single authors. This shows that above three author research work were low among the contribution made to the agronomy literature. The analysis of published literature on various aspects of Agronomy indicates that in this field research being carried out Library Science professionals is concerned with how different information resources are generated, organized, distributed and utilized by different users in different context. For this, the study will help to know the latest information in the today's world. This study will be useful to any kind of users.

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