

Research Publications of G B Pant University of Agriculture and Technology: A Scientometrics Study

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Abstract

In any modern society, information and knowledge are taken as the social wealth. India is an agriculture based country. Under such conditions, effective dissemination of agricultural information is of paramount importance. It is the fact that agricultural practices and research have opened new avenues for all those associated with the field of agriculture science viz. researchers, scientists, farmers, entrepreneurs, policy makers, etc. The present paper reports the results of a Scientometrics study conducted on the research publications of researchers, scientists and faculty of G B Pant University of Agriculture and Technology, Pant Nagar. It is found that on an average about 210 publications are contributed every year. The average number of authors per publication is 3.68. The contributions include 85% share in the form of research articles. The degree of collaboration is 0.98.

Introduction

India is an agriculture dependant country. "After independence, development of the rural sector was considered the primary concern of the Government of India. In 1949, with the appointment of the Radhakrishnan University Education Commission, imparting of agricultural education through the setting up of rural universities became the focal point. Later, in 1954 an Indo-American team led by Dr. K.R. Damle, the Vice-President of ICAR, was constituted that arrived at the idea of establishing a 'Rural University' on the land-grant pattern of USA. As a consequence a contract between the Government of India, the Technical Cooperation Mission and some land-grant universities of USA, was signed to promote agricultural education in the country. The US universities included the universities of Tennessee, the Ohio State University, the Kansas State University, The University of Illinois, the Pennsylvania State University and the University of Missouri. The task of assisting Uttar Pradesh in establishing an agricultural university was assigned

to the University of Illinois which signed a contract in 1959 to establish an agricultural University in the State. Dean, H.W. Hannah, of the University of Illinois prepared a blueprint for a Rural University to be set up at the Tarai State Farm in the district Nainital, UP. In the initial stage the University of Illinois also offered the services of its scientists and teachers. Thus, in 1960, the first agricultural university of India, UP Agricultural University, came into being by an Act of legislation, UP Act XI-V of 1958. The Act was later amended under UP Universities Re-enactment and Amendment Act 1972 and the University was rechristened as Govind Ballabh Pant University of Agriculture and Technology keeping in view the contributions of Pt. Govind Ballabh Pant, the then Chief Minister of UP. The University was dedicated to the Nation by the first Prime Minister of India Pt Jawaharlal Nehru on 17 November 1960.

The G.B. Pant University is a symbol of successful partnership between India and the United States. The establishment of this university brought about a revolution in agricultural education, research and extension. "It paved the way for setting up of 31 other agricultural universities in the country" [1].

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Objectives

The present study is an attempt to identify the various bibliometric aspects of the research

publications of the researchers and faculty of G B Pant University of Agriculture and Technology, Pantnagar, Uttarakhand. The objectives of the study are:

- ❖ To know the authorship pattern in Agriculture Science
- ❖ To identify the proportion of single versus multi authored articles
- ❖ To study the degree of collaboration in the field of Agriculture Science
- ❖ To analyze the trend in the average number of authors per paper
- ❖ To analyze year wise research productivity and growth pattern
- ❖ To know the most preferred journals in the field of Agriculture Science

Methodologies Adopted

The study is conducted by attempting an advanced search with the help of Boolean operators on the Scopus database. The search is restricted to G B Pant University of Agriculture and Technology, Pantnagar and time period of 2010 to 2014. After retrieving the data, the data was saved in MS-Excel and refined to avoid the noise, and codified. To get the results in tabular form SPSS has also been used. On some aspects, the analysis facility available within Scopus has also been utilized.

Results

The results obtained on the basis of different parameters are presented in the form of tables along with description under the different subheadings.

Year wise distribution and growth trend

A total of 1047 research publications have been contributed by the researchers, scientists and faculty members of G B Pant University of Agriculture and Technology, Pantnagar (GBPUAT) during the period of study. The year 2012 attracted the highest number of contributions amounting to 234. On the other hand year 2014 have least number of contributions i.e. 160. The average number of contributions per year is 209.4. The growth pattern indicates a downward low.

Table 1: Showing the year wise contributions

YEAR	Number of contributions
2014	160
2013	223
2012	234
2011	231
2010	199

Authorship Pattern

No solo authorship trend is indicated from the results as mere 2.5% of the total contributions are single authored, which is almost equal to that of CCSHAU, Hisar [2]. Almost half of the total contributions are double and triple authored contributions. About 1% of the contributions have more than 10 contributors. The average number of authors per contribution is 3.68.

Table 2: Showing the Authorship wise contributions

No. of Authors	Frequency	Per cent
1	26	2.5
2	269	25.7
3	258	24.6
4	229	21.9
5	126	12.0
6	77	7.4
7	28	2.7
8	16	1.5
9	8	.8
10	3	.3
11	1	.1
12	4	.4
14	1	.1
15	1	.1
Total	1047	100.0

Degree of collaboration

To measure the collaboration in research a formula designed by K Subramanyam [3] is used. The formula is as under:

$$C = NM / (NM + NS)$$

Where C is Degree of Collaboration, NM is number of multi-authored contributions and NS is number of single authored contributions. In other words it is the ratio of the number of multi-authored contributions to total contributions.

The degree of collaboration in the contribution of GBPUAT is 0.98, almost equal to that of CCSHAU [4] is 0.99. The study also supports the results of Raja Ramanna Centre for Advanced Technology contributions [5]. The researchers and scientists at GBPUAT had foreign research collaboration with twenty eight other countries. The highest foreign research collaboration is with United States followed by UK. While comparing the foreign collaboration of GBPUAT and CCSHAU, the foreign collaboration of CCSHAU is higher than that of GBPUAT.

Table 3: Showing Top Ten Foreign Collaborations

COUNTRY/TERRITORY	No. of contributors
United States	16
United Kingdom	7
France	6
Germany	6
Japan	6
Philippines	6
Australia	4
Ethiopia	3
Switzerland	3
Canada, Italy, Namibia, Taiwan	2 each

Subject-wise distribution of contributions

More than half of the (535) contributions belong to the field of Agriculture and Biological Sciences. Biochemistry, Genetics and Molecular Biology have 165 contributions and an equal number of contributions belong to Veterinary. There are

Table 4: Showing major subject-wise contributions

Subject Area	No. of contributions
Agricultural and Biological Sciences	535
Biochemistry, Genetics and Molecular Biology	165
Veterinary	165
Engineering	142
Environmental Science	110
Materials Science	88
Physics and Astronomy	67
Chemistry	61
Immunology and Microbiology	59
Medicine	49
Business, Management and Accounting	39
Chemical Engineering	34
Computer Science	33
Pharmacology, Toxicology and Pharmaceutics	29
Earth and Planetary Sciences	26
Energy	24
Social Sciences	19
Multidisciplinary	17
Mathematics	13
Nursing	5
Health Professions	3
Arts and Humanities	1
Decision Sciences	1
Economics, Econometrics and Finance	1

contributions even in the subject of Arts and Humanities and social Sciences. This shows that GBPUAT has a blend of inter disciplinary faculty.

Table 5: Showing Type of contributions

Document Type	No. of contributions
Article	929
Conference Paper	55
Review	32
Article in Press	14
Letter	6
Book Chapter	5
Note	3
Short Survey	3

Table 6: Showing Top Ten Journals

Source Title	No. of Contributions
Indian Journal of Animal Sciences	54
Indian Veterinary Journal	39
Indian Journal of Agricultural Sciences	37
Indian Journal of Horticulture	33
Veterinary Practitioner	23
Journal of Food Science and Technology	18
Molecular Biology Reports	16
Vegetos	14
Indian Journal of Agronomy	12
Annals of Biology	10
Indian Journal of Agricultural Research	10
Veterinary World	10
Man Made Textiles in India	10
Veterinarski Arhiv	9
Annals of Agri Bio Research	9
Pestology	9
Indian Journal of Genetics and Plant Breeding	9
Applied Biochemistry and Biotechnology	8
AMA Agricultural Mechanization in Asia Africa and Latin America	8
Journal of Environmental Biology	8
Plant Signaling and Behavior	8
Journal of Materials and Environmental Science	8

published in it. Indian Veterinary Journal, Indian Journal of Agricultural Sciences, and Indian Journal of Horticulture stand at number two, three and four position respectively.

Document type wise Distribution of contributions

The results indicate that 89% of the contributions are in the form of research article, whereas conference Paper (55) and Review (32) are the other significant forms of document.

Preferred journals

The contributions of GBPUAT are scattered over one hundred fifty three journals of national and international repute. Indian Journals of Animal Sciences is on top position with 54 contributions

Top Performers

As far as the total number of contributions during the period of study is concerned, Agrawal, Hari M. is on the top with 37 contributions. Ramesh Chandra Srivastava occupies the second position and Alok K Shukla stands at third position.

Table 7: Showing the Top Performers

Contributor	No. Of contributions
Agrawal, Hari M.	37
Srivastava, Ramesh Chandra	29
Shukla, Alok K.	22
Srivastava, Prakash Chandra	20
Goel, Reeta	19
Singh, Vinay Kumar	18
Rai, Jai Prakash Narayan	18
Zaidi, Mohd Ghulan Haider	17
Dixit, Gagan	17
Goel, Alka	15
Bhatt, Prakash	15
Kumar, Jatinder Dinesh	15

Table 8: Showing the Top Ten Collaborating Institutes

Affiliation	No. of Contributions
Indian Veterinary Research Institute	48
Indian Agricultural Research Institute	36
College of Veterinary and Animal Science, Palampur	27
CCS Haryana Agricultural University	20
Inter University Accelerator Centre India	18
Kumaun University India	16
Banaras Hindu University	14
Hemwati Nandan Bahuguna Garhwal University	12
Punjab Agricultural University India	11
Indian Institute of Technology Delhi	11
Indian Council of Agricultural Research	10
International Centre for Genetic Engineering and Biotechnology	10

Top Ten Collaborating Institutes

The researchers of GBPUAT have collaboration with other institutions. Among these, Indian Veterinary Research Institute is ranked as first, Indian Agricultural Research Institute as second and College of veterinary and Animal Science as third.

Conclusion

Research is really a matter of team work. The results of this study also support the previous findings and indicate that there is a collaborative and team research trend in the field of agriculture science. The growth rate of publications shows a downward trend, which is point of concern for agriculture scientists. The researchers, scientists and faculty of GBPUAT are having a vast degree of collaboration not only

within India but outside as well. Most of their contributions are published in the form of research articles; it means the output of their research is reaching first hand to the agriculture science community in the Primary sources of information. This is a great sign for the growth and development in the field of agriculture science and technology. In a nutshell we can say that GBPUAT is contributing significantly towards the research and development of agriculture science.

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