

QUANTITATIVE EVALUATION OF ASSAM AGRICULTURAL UNIVERSITY: A SCIENTOMETRIC STUDY

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ABSTRACT

Metrics studies have an important role in understanding the growth of a discipline and assist in designing national policies for implementation and improving. This study is a scientometric study to examining the research contribution of Assam Agricultural University, the one and only agricultural university of North-East India. The study period has been chosen from 2000 to 2015 and total of 677 records were retrieved from Web of Science. The average output of the organization is 42 publications per year; the maximum is 66 items in 2003 and the minimum is 21 items in the year 2010.

KEYWORDS: *Bibliometrics, Scientometrics, Collaboration Pattern, Web of Science (WoS)*

INTRODUCTION

Assam Agricultural University (AAU) is the first agricultural university in the entire North-East region. This university was established in 1969 under the Assam Agricultural University Act, 1968. AAU is serving with the mission and vision of imparting farm education, conducting research and providing generated technologies.

AAU Has the Following Faculties Under It:

- Faculty of Agriculture
- Faculty of Veterinary Science
- Faculty of Home Science
- Faculty of Fisheries Science
- Faculty of Horticulture &
- Faculty of Sericulture

AAU has Board of Management as its administrative authority. Vice-Chancellor is the prime authority. The current Vice-Chancellor is Dr. Kamal Malla Bujarbaruah. The main goal of AAU is to produce such human resources who can compete in Agricultural studies globally.

Metrics studies are the important studies as such studies help to know research growth of any institution or any individual. Scientometrics can be defined as the analysis and evaluation of science research using different metrics. This study is based on scientometrics analysis which will show light on the research performance of AAU.

LITERATURE REVIEW

A number of quantitative studies based on bibliometrics and scientometrics were consulted to know the research productivity of individuals, organization, countries etc. To access development of science these studies are very helpful along with to resource management of libraries.

- Bibliometric assessment of the global scientific production of nitazoxanide by **Rodriguez-Morales, Martinez-Pulgarin, Marcela Muñoz-Urbano Gómez-Suta, Sánchez-Duque Machado-Alba** in the year **2017** studied on Nitazoxanide, which is a member of a new class of drug, thiazolides with antimicrobial activity effect against anaerobic bacteria, Hepatitis virus, protozoa, and Helminths. There were 512 articles in Medline – the higher scientific production is from the USA (19.71%), Switzerland (7.51%) and Mexico (7.27%).
- **Elango (2017)** in his paper Bibliometric Characteristics and Citation Impact of Funded Research: A Case Study of Tribology studied that more than 55% of tribology research publications were funded and the number of funded publications has increased dramatically. It focuses on the differentiation of the bibliometric characteristics between funded and non-funded publications funded research publications have a higher number of cited references and international collaborative papers than non-funded ones. However, the share of single-authored publications is lower than non-funded ones.
- **Dutta and Nikam (2013)** examine solar cell research in India as revealed by the publications indexed in Web of Science (WoS) for a period of 20 years from 1991 to 2010 in the paper Solar cell research in India: A scientometric profile. This paper helps to get the idea of application of different metrics.
- **Barooh and Sharma (1999)** in their paper Bibliometric Study of Doctoral Dissertations in Organic Chemistry submitted by S & T Workers of RRL, Jorhat to Evaluate the Utility Factor of the Library discussed about the research contributions of S&T workers in the field of Organic Chemistry and total of 4253 citations were found for the dissertations.

Apart from the above-mentioned documents, more documents were consulted which has been mentioned in the Bibliography.

OBJECTIVES OF THE STUDY

The following are the main objectives of this study:

- Examining the research output of Assam Agricultural University.
- Year wise distribution of authorship pattern.
- To find out the most productive journal.
- To study the top subject of productivity.

- Examining country wise contributions.

METHODOLOGY

The publication data has been retrieved from WoS. All the bibliographic records are collected from WoS. Search expression used for the purpose is "Adress=(Assam Agri Univ) AND Year Published=(2000-2015.)"

A total of 677 records were found and exported to MS-Excel Worksheet. Quantitative analysis using Bibliometrics and Scientometrics indicators, methods and techniques are used here.

ANALYSIS

The quantitative performances of AAU through different metrics are as follows.

Year- Wise Distribution of Publications

Assam Agricultural University is showing a mixing publication trend for the distribution of 677 items. From 2000 to 2008 the publications were in average rate but from 2009 to 2011 it showed a very poor contribution. Again from 2012 onwards, the publications are in rising trend.(Table-1). The average output of the organization is 42 publications per year; the maximum is 66 items in 2003 and the minimum is 21 items in the year 2010.

Table 1: Year Wise Contribution of Publications

YEAR	CONTRI	CUM NO.	% SHARE	CUM %
2000	45	45	6.65	6.65
2001	37	82	5.47	12.12
2002	52	134	7.68	19.8
2003	66	200	9.75	29.55
2004	49	249	7.24	36.79
2005	41	290	6.06	42.85
2006	36	326	5.32	48.17
2007	40	366	5.91	54.08
2008	42	408	6.20	60.28
2009	27	435	3.99	64.27
2010	21	456	3.10	67.37
2011	29	485	4.28	71.65
2012	46	531	6.79	78.44
2013	36	567	5.32	83.76
2014	47	614	6.94	90.7
2015	63	677	9.31	100
	677			

Distribution of Authorship among Publications

The study of AAU shows that there is a high collaborative pattern of authorship in the institution. Here, single authorship accounts only for 3.69 i.e. 4%. Double authorship shows contributions of 135 papers which accounts 20% while triple authorship results 23%. The maximum number of contributions i.e. 291 (43%) are from multi-authors (where, 4 to 6 authored contributions are listed).

Table 2: Distribution of Authorship

Type of Authorship	Number of Contributions	%	Cumulative %
Solo (1)	25	3.69	3.69
Double (2)	135	19.94	23.63
Triple (3)	159	23.49	47.12
multi (4-6)	291	42.98	90.1
mega (>=7)	67	9.90	100
Total	677	100.00	

Distribution by Document Types

The total contributions of 677 publications were examined and found that in this count, Journal articles account for 97% share, followed by Proceedings Paper (0.59%), correction (0.15%) and the remaining had appeared in many other publication types viz. Letter, Meeting Abstract, book Review etc. (Table-3)

Table 3: Types of Documents

Type of Publication	Freq	% of Total	Cum %
Article	658	97.19	97.19
Proceedings Paper	4	0.59	97.78
Correction	1	0.15	97.93
Letter	1	0.15	98.08
Meeting Abstract	4	0.59	98.67
Review	8	1.18	99.85
Review; Book Chapter	1	0.15	100
Total	677	100.00	

Preferred Journals for Research Communications

Total of 139 journal titles is found for the research output of AAU. Among these, top 10 titles accounted 43% share.

Table 4: List of Top Journals

Sl. No.	Name of Journal	Frequency	%	Cumulative %
1	INDIAN VETERINARY JOURNAL	182	26.88	26.88
2	INDIAN JOURNAL OF ANIMAL SCIENCES	170	25.11	51.99
3	INDIAN JOURNAL OF ANIMAL RESEARCH	30	4.43	56.42
4	INDIAN JOURNAL OF AGRICULTURAL SCIENCES	29	4.28	60.7
5	JOURNAL OF FOOD SCIENCE AND TECHNOLOGY-MYSORE	23	3.40	64.1
6	INDIAN JOURNAL OF HORTICULTURE	13	1.92	66.02
7	INDIAN JOURNAL OF AGRONOMY	9	1.33	67.35
8	INDIAN JOURNAL OF GENETICS AND PLANT BREEDING	8	1.18	68.53
9	INDIAN JOURNAL OF TRADITIONAL KNOWLEDGE	8	1.18	69.71
10	INDIAN JOURNAL OF VIROLOGY	7	1.03	70.74
11	JOURNAL OF AGROMETEOROLOGY	7	1.03	71.77
12	CURRENT SCIENCE	5	0.74	72.51
13	INDIAN JOURNAL OF EXPERIMENTAL BIOLOGY	5	0.74	73.25

Table 4: Contd.,

14	INDIAN JOURNAL OF MEDICAL RESEARCH	5	0.74	73.99
15	REVUE SCIENTIFIQUE ET TECHNIQUE- OFFICE INTERNATIONAL DES EPIZOOTIES	5	0.74	74.73
16	WORLDS POULTRY SCIENCE JOURNAL	5	0.74	75.47
17	INDIAN JOURNAL OF BIOTECHNOLOGY	4	0.59	76.06
18	WORK-A JOURNAL OF PREVENTION ASSESSMENT & REHABILITATION	4	0.59	76.65
19	GENE	3	0.44	77.09
20	INDIAN JOURNAL OF PHARMACOLOGY	3	0.44	77.53
21	JOURNAL OF PURE AND APPLIED MICROBIOLOGY	3	0.44	77.97
22	LEGUME RESEARCH	3	0.44	78.41
23	MOLECULAR BIOLOGY REPORTS	3	0.44	78.85
24	OMICS-A JOURNAL OF INTEGRATIVE BIOLOGY	3	0.44	79.29
25	PLOS ONE	3	0.44	79.73
26	RESEARCH ON CROPS	3	0.44	80.17
27	TROPICAL ANIMAL HEALTH AND PRODUCTION	3	0.44	80.61

Distribution of Publication by Domain

AAU is showing activity in the field of Agriculture with 316 items which covers 43% followed by Veterinary Science 199 items with almost 29%. Other major contributing areas are : Food Science (6 %), Plant Science (5%), Biochemistry (3%) etc.

Table 5: Subject Areas of Research

Subject Area	Frequency	%
Agriculture	316	46.67
Veterinary Sciences	199	29.39
Food Science	42	6.20
Plant Science	36	5.32
Biochemistry	18	2.66
Science & Technology - Other Topics	11	1.62
Virology	10	1.48
Genetics	6	0.89
Immunology	6	0.89
Life Science & Biomedicine	6	0.89
Pharmacology & Pharmacy	6	0.89
Public, Environmental & Occupational Health	6	0.89
Toxicology	3	0.44
Behavioural Science	2	0.30
Infectious Disease	2	0.30
Meteorology & Atmospheric Sciences	2	0.30
Material Science	1	0.15
Neuroscience	1	0.15
Parasitology; Zoology	1	0.15
Polymer Science	1	0.15
Reproductive Biology; Veterinary Sciences	1	0.15
Social Work	1	0.15
TOTAL	677	100.00

International Collaboration

The study shows that AAU is having international collaboration with 25 different countries. But India is in the topmost position with 544 articles which accounts for 80%. Among the other collaborating countries, USA is providing 49 articles with 7% share followed by the Netherlands with 5% and Newzealand with 2% share.

Table 6: Country Wise Contributions

Country	Publication	%	Cumulative %
INDIA	544	80.35	80.35
USA	49	7.24	87.59
NETHERLANDS	31	4.58	92.17
NEW ZEALAND	16	2.36	94.53
IRELAND	8	1.18	95.71
FRANCE	3	0.44	96.15
THAILAND	3	0.44	96.59
ENGLAND	2	0.30	96.89
AUSTRIA	2	0.30	97.19
IRELAND	2	0.30	97.49
ITALY	2	0.30	97.79
POLAND	2	0.30	98.09
BRAZIL	1	0.15	98.24
GERMANY	1	0.15	98.39
ISRAEL	1	0.15	98.54
BRAZIL	1	0.15	98.69
IRAN	1	0.15	98.84
JAPAN	1	0.15	98.99
NIGERIA	1	0.15	99.14
PHILIPPINES	1	0.15	99.29
SLOVAKIA	1	0.15	99.44
SOUTH AFRICA	1	0.15	99.59
SOUTH KOREA	1	0.15	99.74
SWITZERLAND	1	0.15	99.89
TURKEY	1	0.15	100
Total	677	100.00	

CONCLUSIONS

In this study, a total of 677 research papers from 2000 to 2015, were found from Assam Agricultural University. A regular increasing trend is noticed from the study. Though the research is confined to some limited metrics but it is seen that AAU is giving a very good output towards the field of science. A strong scholarly outcome has been shown by the university.

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