



## “AN ANALYTICAL STUDY OF THE CITATIONS OF PAPERS PUBLISHED IN THE JOURNALS OF HORTICULTURE”

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### ABSTRACT

**P**aper depicts the findings of the analytical study of the citations rendered in the research papers published in the journals belonging to the discipline of horticulture. The researcher has gathered the citations from the theses submitted by the research scholars of the Gandhi Krishi Vijnana Kendra, Bangalore for the award of doctoral degree. The citations are covered from the theses submitted to the university from 2001 to 2011. The study of the citations resulted in arriving at the ranking of journals belonging to the discipline of horticulture. In the present study, a total of 3927 journal citations were collected and analyzed to arrive at the valid findings as to the ranking of altogether 166 journals of horticulture. The Bradford's Law of Scattering has also been applied to furnish the scattering of the citations of papers published in the horticulture journals.

**KEYWORDS:** GKVK, Journal ranking, Horticulture, Bradford Law, Journal citations, Citation analysis.



### INTRODUCTION :

In Citation analysis, Citations are the key elements. Citation analysis acts as an important tool in finding the most important journals in a particular field. In every field of study there are some journals which are referred frequently by the researcher due to the close relation between the journal articles and the areas of research work. The citation analysis acts as the link in providing the picture of utility of journal articles and their relations that are useful in many ways.

### OBJECTIVES OF THE STUDY

The specific objectives of the present study are:

- To identify the rank list of journals.
- Application of Bradford Law of scattering.

### METHODOLOGY

The institutional repository and annual report of The University of Agricultural Science; Gandhi Krishi Vignyan Kendra (GKVK) was searched to prepare the list of all doctoral theses submitted for the award of Ph.D. degree between 2001 to 2011 at the departments of GKVK, Bangalore. It was found that 434 Ph.D. theses were submitted during the period. The 10-years period (from the latest) was selected in order to keep the sample at a size that was manageable but also substantial and current. The study includes of fourteen departments. The total number of citations is 56360. In Horticulture department a total of 3927 journal citations were collected and analyzed to arrive at the valid findings as to the

ranking of altogether 166 journals of the department.

### JOURNAL RANKING

The ranking of journals is broadly used in educational groups in the assessment of an academic journal's influence and excellence. Journal rankings are planned to reveal the place of a journal within its field, and the status related with it. They have been introduced as official research assessment tools in numerous countries. The ranking list is a useful tool helps in selecting the journals and to see the extreme usage covering an important and new literature or resources in a given particular subject field. This finally helps the librarian to study the interest, usefulness and appropriateness to particular group of users.

### RANKING OF HORTICULTURE DEPARTMENT JOURNALS:

The below table 1 clearly explains the ranking of journals in the department of Horticulture in detail.

Table-1: Ranking of Horticulture Department journals							
	Journals	Ranking	Citations	Cumulative	Percentage	Cumulative Percentage	Country
1	Indian Journal of Agricultural Sciences	1	117	117	2.97	2.97	India
2	Indian Horticulture Journal	2	98	215	2.5	5.47	India
3	Indian Journal of Horticulture	3	89	304	2.26	7.73	India
4	Journal of Maharashtra Agriculture University	4	84	388	2.13	9.86	India
5	Vegetable Science	5	82	470	2.08	11.94	India
6	Proceedings of the American Society of Horticultural Science	6	81	551	2.06	14	Geneva
7	The India Rose Annual	7	80	631	2.03	16.03	India
8	Punjab Horticulture Journal	8	79	710	2.01	18.04	India
9	Haryana Journal of Genetics and Plant Breeding	9	76	786	1.93	19.97	India
10	Hort Science	9	76	862	1.93	21.9	USA
11	Indian Journal of Genetics and Plant Breeding	10	69	931	1.76	23.66	India
12	Journal of Indian Potato Association	10	69	1000	1.76	25.42	India
13	Bioscience	11	66	1066	1.68	27.1	USA
14	Journal of American Pomological Society	12	64	1130	1.63	28.73	USA
15	Annals of Arid Zone	12	64	1194	1.63	30.36	India
16	Journal of Aquatic Plant Management	13	63	1257	1.61	31.97	USA
17	Journal of Central European Agriculture	14	62	1319	1.57	33.54	Croatia
18	Journal of Essential Oil Bearing Plant	14	62	1381	1.57	35.11	India
19	Journal of New Seeds	15	61	1442	1.55	36.66	USA
20	Journal of Plant Biotechnology	16	60	1502	1.52	38.18	South Korea
21	Journal of Plant Biochemistry and Biotechnology	16	60	1562	1.52	39.7	India
22	Journal of Food Quality	17	59	1621	1.51	41.21	UK
23	International Journal of Fruit Science	18	58	1679	1.47	42.68	USA
24	International Journal of Sustainable Development and World Ecology	19	57	1736	1.45	44.13	UK
25	British Food Journal	20	55	1791	1.4	45.53	UK
26	Brazilian Journal of Chemical Engineering	21	52	1843	1.32	46.85	Brazil
27	Journal of American Society of Horticultural Science	22	50	1893	1.27	48.12	USA
28	African Journal of Biotechnology	23	49	1942	1.24	49.36	Nigeria
29	Indian Journal Hill Farming	24	47	1989	1.19	50.55	India
30	European Journal of Marketing	25	46	2035	1.17	51.72	UK

31	Flavour and Fragrance Journal	26	45	2080	1.14	52.86	UK
32	Indian Journal of Experimental Biology	27	44	2124	1.12	53.98	India
33	Indian Journal of Floriculture	27	44	2168	1.12	55.1	India
34	International Journal of Retail And Distribution Management	28	43	2211	1.1	56.2	UK
35	Israel Journal of Plant Science	29	41	2252	1.04	57.24	Israel
36	Caribbean Journal of Science	29	41	2293	1.04	58.28	Puerto Rico
37	Canadian Journal of Botany	30	40	2333	1.01	59.29	Canada
38	Journal of International Des Sciences De La Vigne Et Du Vin	30	40	2373	1.01	60.3	France
39	Journal of Essential Oil Research	31	39	2412	0.99	61.29	USA
40	Journal of Heredity	31	39	2451	0.99	62.28	UK
41	Biological Journal of the Linnean Society	32	38	2489	0.96	63.24	London
42	Journal of Liquid Chromatography and Related Technologies	32	38	2527	0.96	64.2	USA
43	Economic Botany	33	37	2564	0.94	65.14	USA
44	American Journal of Enology and Viticulture	34	36	2600	0.91	66.05	USA
45	Australian Journal of Biological Science	34	36	2636	0.91	66.96	Australia
46	British Journal of Clinical Pharmacology	35	35	2671	0.89	67.85	UK
47	Journal of Contaminant Hydrology	35	35	2706	0.89	68.74	UK
48	Journal of Plant Growth Regulation	36	33	2739	0.84	69.58	USA
49	Pakistan Journal of Scientific and Industrial Research	37	32	2771	0.81	70.39	Pakistan
50	SABRAO journal	38	31	2802	0.78	71.17	Japan
51	South African Journal of Enology and Viticulture	38	31	2833	0.78	71.95	South Africa
52	Brazil Journal of Medicine Biological Research	39	30	2863	0.76	72.71	Brazil
53	Australian Journal of Grape and Wine Research	39	30	2893	0.76	73.47	Australia
54	International Journal of Systematic Bacteriology	40	29	2922	0.73	74.2	USA
55	Journal of Korean Flower Research	40	29	2951	0.73	74.93	Korea
56	Journal of Cyclic Nucleotide Research	41	28	2979	0.71	75.64	New York

57	Journal of Chromatography A	41	28	3007	0.71	76.35	Netherlands
58	Journal of Agricultural Federation Chemistry	42	27	3034	0.68	77.03	UK
59	Journal of Bacteriology	43	26	3060	0.66	77.69	USA
60	Journal of American Society of Agronomy	43	26	3086	0.66	78.35	USA
61	Journal of Environmental Sciences and Health	44	24	3110	0.61	78.96	UK
62	Journal of Association of Official Analytical Chemist	44	24	3134	0.61	79.57	USA
63	Journal of Applied Horticulture Navsari	44	24	3158	0.61	80.18	India
64	Journal of Cytol Genet	45	23	3181	0.6	80.78	USA
65	Journal of Economics and Taxonomic Botany	45	23	3204	0.6	81.38	India
66	Journal of Fructerlor	46	22	3226	0.56	81.94	India
67	Journal of Indian Botanical Society	46	22	3248	0.56	82.5	India
68	Journal of the Irrigation and Drainage Division.	47	21	3269	0.53	83.03	New York
69	Journal of PAU	47	21	3290	0.53	83.56	India
70	Uttar Pradesh Journal of Zoology	48	20	3310	0.51	84.07	India
71	Southwest-China Journal Agricultural Sciences	48	20	3330	0.51	84.58	China
72	RDA Journal of Agricultural Science Horticulture	49	19	3349	0.48	85.06	Suwon
73	Singapore Journal of Primary Industries	49	19	3368	0.48	85.54	Singapore
74	Taiwan journal of Forest Sciences	50	18	3386	0.45	85.99	Taiwan
75	The Orissa Journal of Horticulture	50	18	3404	0.45	86.44	India
76	West Pakistan Journal of Agricultural Research	50	18	3422	0.45	86.89	Pakistan
77	The Textile Industry and Trade Journal	50	18	3440	0.45	87.34	India
78	Queensland journal of Agriculture and Animal Science	50	18	3458	0.45	87.79	Brisbane
79	Thai Journal of Agricultural Sciences	51	17	3475	0.43	88.22	Chatuchak.
80	Quarterly Journal of Economics	51	17	3492	0.43	88.65	UK
81	Palestine Journal of Botany Rehovot Series	52	16	3508	0.41	89.06	Palestine
82	Ningxia Journal of Agricultural and Goresry Science and Technology	52	16	3524	0.41	89.47	China

83	PAFAI journal	53	15	3539	0.4	89.87	India
84	Peanut Science	53	15	3554	0.4	90.27	USA
85	Journal of Range Management	53	15	3569	0.38	90.65	USA
86	New Zealand journal of Forestry Sciences	54	14	3583	0.36	91.01	UK
87	Journal of Research Assam Agricultural University	54	14	3597	0.36	91.37	India
88	Mesopotamia Journal of Agriculture	55	13	3610	0.33	91.7	Iraq
89	Journal of Research Birsa Agricultural Universities	55	13	3623	0.33	92.03	India
90	Journal of Ornamental Horticulture	56	12	3635	0.31	92.34	India
91	Journal Of organic Chemistry	56	12	3647	0.31	92.65	USA
92	Journal of Medical Aroma Plant Science	56	12	3659	0.31	92.96	India
93	Journal of Research Ludhiana	57	11	3670	0.3	93.26	India
94	Journal of Nuclear Agriculture and Biology	58	10	3680	0.25	93.51	India
95	Journal of Molecular Biology.	58	10	3690	0.25	93.76	USA
96	Journal of Non-Timber Forest Products	59	9	3699	0.22	93.98	India
97	Journal of National Integrated Medicinal Association	59	9	3708	0.22	94.2	Mysore
98	Journal of General Microbiology	59	9	3717	0.22	94.42	USA
99	Journal of Horticultural Science	60	8	3725	0.21	94.63	UK
100	Plant Biochemical Journal	60	8	3733	0.21	94.84	London
101	Plant Variety Journal	60	8	3741	0.21	95.05	Canada
102	Libyan Journal of Agriculture	60	8	3749	0.21	95.26	Tripoli
103	Journal of Tropical and Subtropical Botany	60	8	3757	0.21	95.47	China
104	Journal Separation Science	61	7	3764	0.2	95.67	Germany
105	Lal bagh Journal of Mysore	61	7	3771	0.2	95.87	Mysore
106	Journal of Spices and Aromatic Crops	61	7	3778	0.2	96.07	India
107	Journal of Sustainable Agriculture	61	7	3785	0.2	96.27	UK
108	Journal of Horticultural Science and Biotechnology	62	6	3791	0.2	96.47	UK
109	Journal of Microbiological Methods	62	6	3797	0.2	96.67	UK

110	Journal of Applied Horticulture Luck Now	62	6	3803	0.2	96.87	Lucknow
111	Journal of American Statistical Association	62	6	3809	0.2	97.07	USA
112	Journal of Agriculture Science	63	5	3814	0.12	97.19	India
113	Journal of Agricultural and Food Chemistry	63	5	3819	0.12	97.31	USA
114	Jiangsu Journal of Agricultural Sciences	63	5	3824	0.12	97.43	China
115	Assiut Journal of Agricultural Science	63	5	3829	0.12	97.55	Egypt
116	Farm Science Journal	64	4	3833	0.1	97.65	India
117	Journal of Science and Technology of Agriculture and Resources	64	4	3837	0.1	97.75	Isfahan
118	Journal of the Andaman Science Association	64	4	3841	0.1	97.85	Andaman and Nicobar Islands
119	Journal of the Japanese Society for Horticultural Sciences	64	4	3845	0.1	97.95	Japan
120	Kaen Kaiet Khon Kaen Agriculture Journal	64	4	3849	0.1	98.05	Korea
121	Japanese Journal of Breeding	65	3	3852	0.07	98.12	Japan
122	Japanese Journal of Tropical Agriculture	65	3	3855	0.07	98.19	Japan
123	American Journal of Human Genetics	65	3	3858	0.07	98.26	USA
124	Australian Journal of Experimental Agriculture and Animal Husbandry	65	3	3861	0.07	98.33	Australia
125	Canadian Journal of Forest Research	65	3	3864	0.07	98.4	Canada
126	22 journals with 2 citations	66	44	3908	1.12	99.52	
127	19 journals with 1 citations	67	19	3927	0.48	100	
			3927		100		

The above table 1 exhibits the ranking of journals in the department of Horticulture by counting and citing of stated articles in this department theses. This department alone has the highest total citation compared with other fourteen departments that is 3927 out of 166 journals titles. The top five journals in this department are Indian Journal of Agricultural Sciences from India is having the citation 117 with 2.97% which is the top first rank. The second is followed by Indian Horticulture Journal from India have 98 citations with the percentage of 2.5. The top third rank is taken by the Indian Journal of Horticulture from India is having the citation of 89 with 2.26%. The fourth rank is then taken by the Journal of Maharashtra Agriculture University from India with the total citations of 84 with 2.13%. The top fifth and last rank among top five is taken by Vegetable Science again from India with the citation number 82 with the percentage of 2.08. From the table it is clear that the top five journals are from India. The ranking of other journals of this department can be clearly seen from the above table. The place of publication is recognized using online database resources like web of science and OCLC.

**Application of Bradford Law for the citations of the Department of Horticulture:**

Bradford’s Law states that “If scientific periodicals are arranged in order of decreasing productivity of articles on a given subject that may be divided into a nucleus of periodicals more particularly devoted to the subject and several groups of zones containing the same number of articles as the nucleus when the number of periodicals in the nucleus and succeeding zones will be as 1:n:n<sup>2</sup> where ‘n’ is a multiplier.”

**Table 2: Scattering of Journal Citations of the Department of Horticulture over Bradford’s Law**

Zones	Number of Journals	Percentage of Journals	Number of citations
1	17	10.24	1319
2	45	27.10	1317
3	104	62.65	1291
Total	166	100	3927

The three zones in the scattering of Bradford law of the department of Horticulture shows that in the first zone there are 17 journals with citation of 1319 with 10.24%. The second zone comprises of 1317 citations from 45 journals with 27.10% and last and third zone is having 1291 citations with 62.65% from 104 journals. As per the Bradford’s law of scattering the ratio is 17:45:104. Hence the application of Bradford’s law of scattering to the department of Horticulture shows that the three zones are identified on the basis of approximately geometric series in the form of 1:n:n<sup>2</sup>. The relationship of the each zone in the present table is 17:45:104. Expected calculated ratio was 1 : 2.64 : 6.96 and appeared result is 1 : 2.64 : 6.11. Therefore it fits well into the law.

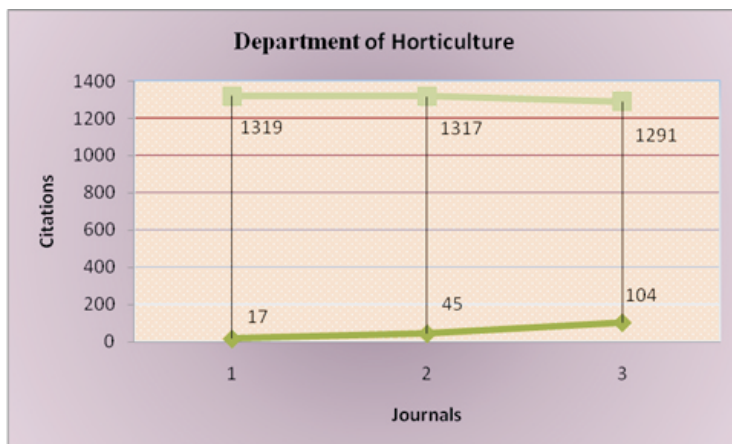
‘F’ stands for Finding, ‘R’ stands for Result and ‘E’ stands for excepted result.

$F = 1:n:n^2$

$R = 1 : 2.64 : 6.11$

$E = 1 : 2.64 : 6.96$

**Scattering of Journal Citations of the Department of Horticulture over Bradford Law**



**CONCLUSION**

Citation analysis and ranking of journals acts as useful tools in selecting the library resources with the limited budgets. It also helps in determining the information resources that are vital for research work in a given subject area. The ranking list of journals in the horticulture department helps the horticulture research scientists to select the journals of most important in their subject field.

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