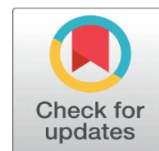# CAB DIRECT IS THE FOCUS OF A SCIENTOMETRIC ANALYSIS FROM 2011 TO 2013: BEANS SCIENTIFIC RESEARCH ARTICLES

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ABSTRACT

Bean researches from 2011 to 2013 were collected from the CAB Direct Online database using scientometric analysis. Between 2011 and 2013, 36 papers were written, according to the report, with 21 papers being highly published in 2011. The most common topic among scientists interested in beans research was Biology and breeding of food legumes, with 13 papers (36.1%), followed by Nutrient deficiencies of field crops: guide to diagnosis and management, with 5 papers (13.8%). Combating micronutrient deficiencies: food-based approaches; Crop plant anatomy; Natural products in plant pest management; and African vegetable production and marketing: socioeconomic research papers published in the same journal (5.55%). Indian scholars have written more papers on bean studies than authors from other countries. Gujarat, Jharkhand, Tamil Nadu, Karnataka, Uttar Pradesh, Andhra Pradesh, West Bengal, Bihar, Madhya Pradesh, and Chattisgarh are the major bean-growing states in India. Bean trade outnumbers all other crops combined in India, and global demand for Indian beans is increasing.

Keywords: Scientometric, Beans, Cab Direct, Relative Growth Rate, Doubling Time

1. INTRODUCTION

Beans are the seeds of a variety of flowering plants in the Fabaceae family that are eaten as vegetables by both humans and animals. They can be prepared in a number of ways, including boiling, frying, and baking, and are used in many common dishes around the world. Beans are one of the world's oldest crops. Broad beans, also known as fava beans, were collected in their natural state, when they were the size of a small fingernail, in Afghanistan and the Himalayan foothills. They were grown in Thailand in a shape improved from naturally occurring forms from the early seventh millennium BCE, predating ceramics. They were buried with the dead in ancient Egypt. Until the second millennium BCE, cultivated, large-seeded broad beans did not appear in the Aegean, Iberia, or transalpine Europe. The Iliad discusses beans and chickpeas cast on the threshing floor in passing (8th century BCE). Beans have been an important source of protein in both the Old and New Worlds for centuries, and they remain so today. The earliest known domesticated beans in the Americas were discovered in the second millennium BCE in Peru's Guitarrero Cave. Genetic studies of the common bean Phaseolus, on the other hand, show that it originated in Mesoamerica and spread south with companion crops like maize and squash.

The majority of the widely eaten fresh or dried forms, those of the genus Phaseolus, originated in the Americas and were first seen by a European when Christopher Columbus found them emerging in fields while exploring what may have been the Bahamas. Five varieties of Phaseolus beans were domesticated by pre-Columbian cultures: common beans (P. vulgaris) grown from Chile to the northern part of what is now the United States, lima and sieva beans (P. lunatus), as well as the less widely distributed teparies (P. acutifolius), scarlet runner beans (P. coccineus), and polyanthus beans (P. polyanthus). One of the most well-known pre-Columbian uses of beans is the "Three Sisters" method of companion plant processing, which was used by pre-Columbian people as far north as the Atlantic coast. Beans were grown alongside maize (corn) and squash by many tribes in the New World. Instead of being planted in rows as in European agriculture, corn will be planted in a checkerboard/hex pattern around a field, in separate patches of one to six stalks each. Beans would be planted around the base of the rising stalks and would vine their way up as the stalks rose.

At the time, all American beans were vine plants, and "bush beans" had only recently been created. The cornstalks would serve as a trellis for the beans, which would provide much-needed nitrogen to the corn. Squash will be planted in the gaps between the corn patches in the field. Since their coarse, hairy vines and wide, stiff leaves are difficult for animals like deer and raccoons to walk through, crows to land on, and so on, the corn and beans can provide some sun protection, shade the soil and reduce evaporation, and deter many animals from attacking the corn and beans. Both Old World (fava beans) and New World (kidney, black, cranberry, pinto, navy/haricot) large bean varieties are used to make dry beans. Beans are heliotropic species, which means that during the day, their leaves tilt to face the sun. At night, they transform into a "sleep" position.

2. OBJECTIVES OF THE STUDY

The primary goal of this study is to examine the results of bean research as expressed in the CAB Direct Online database's publications from 2011 to 2013. The study focuses in great detail on the following goals:

1) CAB Direct Online database supported for the period 2011-2013 in order to examine the overall range of publications output on beans cereals research analysis.

2) Identify publications forms.

3) Studying the top 10 journals publishing more research papers on analysis of beans.

4) Identify the top 10 authors in the beans analysis field.

5) To identify the highest rank-wise countries in the analysis of beans.

6) Identify the language distribution of an analysis of beans.

3. METHODOLOGY

The data for the three years (2011-2013) was retrieved from the CAB Direct Online database by searching for the keyword "beans" in the title area. The CAB Direct Online database comprises 36 records in total.

4. RESULTS AND ANALYSIS

The data on beans research from the CAB Direct Online database was analyzed and presented using a variety of statistical methods, including tables.

4.1. GROWTH RATE AND DOUBLING TIME IN BEANS RESEARCH OUTPUT

A study of the growth rate of beans research production is important in the analysis of field research and development. As shown in Table 1, there are no publications on the relative growth rate of beans or study production over these years (2011 - 2013). The quotes from the Relative Growth Rate and Doubling Time are extracted and described in Table 1. For the years mentioned, the relative publishing growth rate decreased and increased, but the doubling time [Dt(c)] increased from 2.31 to 2.77, and the mean doubling time for the three years was 2.49.

Table 1 Relative Growth Rate [R(c)] and Doubling Time [Dt(C)] of Overall Research Output									
Sl.No.	Year	No. of Publications[x]	Cumulative No. of Output [y]	$\text{Log}_e 1$ y-x	$\text{Log}_e 2$ y-x	[R(c)]	Mean [R(c)]	[Dt(C)]	Mean [Dt(C)]
1.	2011	21	21	0	3.04	3.04			
2.	2012	7	28	3.04	3.33	0.29	1.19		
3.	2013	8	36	3.33	3.58	0.25			
	Total	36							

4.2. PREFERRED KINDS OF PUBLICATIONS

According to the findings, the most common form of publication covered by the CAB Direct Online database for bean research is a book chapter, which has 34 papers (94.4%), followed by a book post, which has one document (2.77 percent). Table 2 displays the top two categories of publications.

Table 2 Top 2 Kinds of Publications		
Sl.No.	Kinds of Document	No. Of Papers	Percentage
1	Book Chapter	34	94.4
2	Conference	1	2.77
3	Book	1	2.77

4.3. MOST POPULAR JOURNALS

The most common topic among scientists interested in beans research was Biology and breeding of food legumes, with 13 papers (36.1%), followed by Nutrient deficiencies of field crops:guide to diagnosis and management, with 5 papers

(13.8%). Combating micronutrient deficiencies: food-based approaches; Crop plant anatomy; Natural products in plant pest management; and African vegetable production and marketing: socioeconomic research papers published in the same journal (5.55%). Agrobiodiversity conservation: securing the diversity of crop wild relatives and landraces was published in the top five most prestigious bean researcher papers. In tropical Asia, arthropod pets of horticultural crops; Banana systems in Sub-Saharan Africa's humid highlands: increasing resilience and productivity; Production, physiology, and genetics of biofuel crops (2.77%). The top ten most influential journals, as well as the number of papers published in each, are listed in Table 3.

Table 3 Popular Journals

Sl.No.	Journal Name	No. Of Papers	Percentage
1	Biology and breeding of food legumes	13	36.1
2	Nutrient deficiencies of field crops:guide to diagnosis and management	5	13.8
3	Combating micronutrient deficiencies: food-based approaches	2	5.55
4	Crop plant anatomy	2	5.55
5	Natural products in plant pest management	2	5.55
6	Vegetable production and marketing in Africa: socio-economic research	2	5.55
7	Agrobiodiversity conservation: securing the diversity of crop wild relatives and landraces	1	2.77
8	Arthropod pets of horticultural crops in tropical Asia	1	2.77
9	Banana systems in the humid highlands of sub-saharan Africa: enchancing resilience and productivity	1	2.77
10	Biofuel crops: production, physiology and genetics	1	2.77

4.4. PROLIFIC / RANKING AUTHORS

With 15 papers (41.6%), Pratap, A is the most prolific / Ranking author of beans studies, followed by Kumar, J and Kumar, P. with 14 papers (38.8%). (27.2%). Sharma, M.K., Maiti, R., Rajkumar, D., Ramaswamy, A., and Satya, P. contributed a paper level of 15 to 2 with 4 papers (11.1%), followed by 5.55 percent; The top ten prolific/ranking writers in the field of beans science are mentioned in Table 4.

Table 4 Top 10 Prolific / Ranking Authors

Sl.No.	Name of Author	No. Of Papers	Percentage
1	Pratap, A	15	41.6
2	Kumar, J	14	38.8
3	Kumar, P	10	27.7
4	Sharma, M. K	10	27.2
5	Maiti, R	4	11.1
6	Rajkumar, D	4	11.1
7	Ramaswamy, A	4	11.1
8	Satya, P	4	11.1
9	Amoroso, L	2	5.55
10	Blomme, G	2	5.55

4.5. RANK-WISE COUNTRIES DISTRIBUTION OF PUBLICATIONS

South Africa is the leading country in bean research, according to the report, with three papers accounting for nearly (13.88%) of global bean research output, followed by Developing Countries, Kenya, Asia, Australia, Brazil, Canada, Congo Democratic Republic, Nicaragua, and Pernambuco (out of ten countries). Table 5 summarizes the top ten countries based on a range of sources.

Table 5 Rank-wise Countries				
Sl.No.	Location	No of Articles (%)	Cumulative Publications	Cumulative Percentage of Articles (%)
1	South Africa	5	5	13.88
		-13.88		
2	Kenya	21	26	72.21
		-58.33		
3	Asia	1	27	74.98
		-2.77		
4	Australia	1	28	77.75
		-2.77		
5	Brazil	1	29	80.52
		-2.77		
6	Cananda	1	30	83.29
		-2.77		
7	Cono democratic Republic	1	31	86.06
		-2.77		
8	Developed Countries	1	32	88.83
		-2.77		
9	Nicaragua	1	33	91.6
		-2.77		
10	Pemambauco	1	34	94.37
		-2.77		

4.6. PREDOMINANT LANGUAGES

As shown in Table 6, all of the bean research papers were written in the common language of English, with 36 papers (100%) written in English.

Table 6 Types of Language			
Sl.No.	Language	No. of Papers	Percentage
1	English	36	100

5. CONCLUSION

South Africa is the leading source of scientific research and growth, according to a scientometric analysis based on beans analysis from the CAB Direct Online database, with three publications accounting for around (13.88%) of the total production from the ten countries. Another intriguing feature is that Pratap, A. is the most prolific / Ranking authors of beans studies, with 15 papers (41.6%), followed by Kumar, J. and Kumar, P. with 14 papers (38.8%), and Kumar, J. and Kumar, P. with 13 papers (38.8%), respectively (27.2%). Sharma, M.K., Maiti, R., Rajkumar, D., Ramaswamy, A., and Satya, P. contributed a paper level of 15 to 2, with 4 papers (11.1%), followed by (5.55%), respectively. The most common topic among scientists interested in beans research was Biology and breeding of food legumes, with 13 papers (36.1%), followed by Nutrient deficiencies of field crops: guide to diagnosis and management, with 5 papers (13.8%). Combating micronutrient deficiencies: food-based approaches; Crop plant anatomy; Natural products in plant pest management; and African vegetable production and marketing: socioeconomic research papers published in the same journal (5.55%). Agrobiodiversity conservation: securing the diversity of crop wild relatives and landraces was published in the top five most prestigious bean researcher journals. In tropical Asia, arthropod pets of horticultural crops; Banana systems in Sub-Saharan Africa's humid highlands: increasing resilience and productivity; Production, physiology, and genetics of biofuel crops (2.77%).

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