

**GLOBAL PUBLICATION PRODUCTIVITY ON GOAT RESEARCH:  
A SCIENTOMETRI ANALYSIS**

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**ABSTRACT**

*This paper evaluates the output of world literature on goat research based on the publications indexed in CAB Direct Online Database for the period from 1912 to 2013. The present study revealed that the total number of publications on goat research is 37,485. The average papers published per year is 367.5. India is the largest producer of publications on goat research with 2,381 papers which is 6.35% of the total publications followed by Brazil with 1000 papers 2.68%. As far as goat research is concerned, India has produced 359.12% more publications than China and 357.5% than USA. The top 20 countries have contributed 10,413 papers which is 27.78% percent of global research output. 'Small Ruminant Research' is the leading journal in publishing papers on goat research as it has published 1,389 papers 3.71% of global research output followed by Indian Journal of Animal Sciences which has published 1,162 papers which is accounting for 3.19% of global research output. Among the top 20 journals, three journals are published from India and they collectively published 2,464 papers which is 6.57% of global publication output on goat research. The most productive author on goat research is Morand-Fehr, P with 277 papers who is from France. The second and seventh authors among the leading 10 authors are from India and they have contributed 255 papers which is 0.68% of global research output on goat research. The most preferred type of publication is journal article which is 88.48% and English language is the most preferred language to publish by the researchers on goat as 24,348 papers were published in English which is 89.55% of total publications.*

*Keywords: Goat research, Scientometrics, CAB Direct, Research output, Publication analysis*

**Introduction**

The goat was the first animal to be domesticated by humankind. The global goat population currently stands at 921 million include 570 breeds, of which over 90% are found in developing countries. Asia is home to about 60% of the total world goat population and has the largest goat breed share of 26%. Goats play a vital socio-economic role in Asian agriculture, particularly for resource-poor people living in harsh environments. Non-cattle milk accounts for approximately 15% of the total milk consumption by humans worldwide. Asia contributes approximately 59% to world goat milk production and Asia's demand for animal products, fuelled by increasing populations and growing disposable incomes, is increasing at a high rate. The justification for improving dairy goats and increased milk production in Asia is driven by several important factors, e.g. the demand for higher priced goat milk, compared to dairy cow milk; specific benefits of goat milk in human nutrition and food security; the need for more animal protein and genetic diversity. The world goat population of approximately 921 million includes 570 breeds. In the developing countries, there exist over 30 potentially important indigenous "improver breeds", 15 of which are in Asia.

Currently worldwide, raising goats sector tends to become increasingly important for the national economies, being even a factor of economic development, particularly for rural areas. In all countries, due to accelerated increasing of human population number, resorts to more efficient exploitation of animal resources, applying more efficient technologies for breeding and exploitation of zootechnical interest animals. Research conducted is consistent with the trends of growing and exploitation goats, meaning increasing number of flocks and demand increasingly higher for products of this species, worldwide.

### Significance of the present Study

Scientometric studies are useful to understand the evolution of literature or trends in a particular field or within a geographical area. A search over the literature revealed that scientometric studies in the field of veterinary and animal sciences are in the primitive stage and not much published literature is available. So, this study was undertaken to examine the global productivity of goat research output.

### Review of Literature

Fish and aquaculture research in India has been mapped using data from six databases by Jayashree and Arunachalam (2000) and they have revealed that about 460 papers, roughly 5.5% of the world output, come from India every year, of which 82% are journal articles. Close to 70% of journal articles have appeared in 113 Indian journals.

A scientometric study on buffalo research in India and Pakistan was carried out by Rathinasabapthy and Rajendran (2010) based on the records indexed by CAB Direct Online database and they have recorded the growth of literature, highly productive countries and most preferred journals.

A scientometric study on growth and collaboration trends in livestock research in India was carried out by Malathi and Ravi (2012) as reflected in publication output covered by Science Citation Index (SCI) during 1999-2010. They have reported that the Indian scientists published a total of 600 papers in SCI covered journals during the period and analysed the broad features of Indian output in the field of livestock by focusing on its publication growth characteristics, language, format and media of communication, research quality, institutional productivity, patterns of research collaboration and broad and narrow subject areas of interest.

Rathinasabapthy (2012) analysed scientometrically the research publications on goat based on the total publication output retrieved from CAB Direct Online Database for 52 years (1960-2012) and reported the types of documents, language distribution, rank list of journals, most productive authors and ranking on countries based on their publication output.

The publication output in the field of camel research was studied by Rathinasabapthy and Rajendran (2013) as indexed in CAB Direct Online Database covering the period 1963-2012 and found that a total of 4,923 publications were published during the period.

A scientometric study carried out by Rathinasabapthy (2013) on duck research using the CAB Direct Online database and highlighted quantitatively the growth and development of world literature on duck research papers published during 1970 to 2012 and found that a total of 6,836 papers published and the average number of papers per year was 158 and China was the top producing country with 539 papers (7.88) followed by India with 231 papers (3.37%).

Kanakaraj and Mohamed Esmail (2014) analysed 13,679 publications published by scientists during the time span of 1999 to 2013 and indexed by Web of Science online Database and indicated that the publication output in the Aquaculture Research Publication.

### Objectives of the Study

The following are main objectives of the present study:

- To examine the overall year-wise production of goat research publications as indexed in CAB Direct Online database
- To examine the country-wise growth of literature on goat research
- To examine the source journals which have published more number of goat research publications
- To identify the prolific authors in goat research
- To identify the language-wise distribution of publications
- To analyse the bibliographic form/document type of the publications

### Research Methodology

CAB Direct Online Database ([www.cabdirect.org](http://www.cabdirect.org)) has been used for this study. The search strategy/keywords used to retrieve the data on goat research are as follows: title:(goat) NOT title:(sheep) AND yr:[TO 2013]

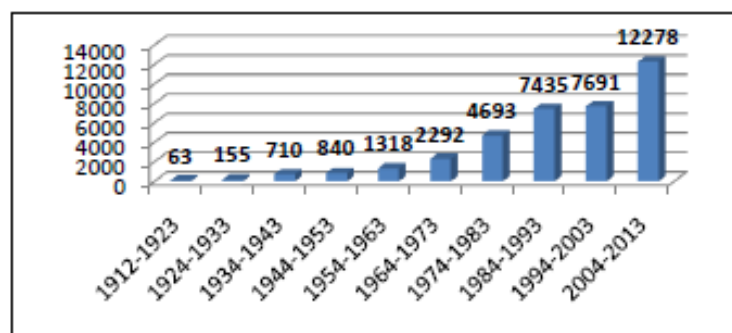
### Results and Discussions

#### Global trends in goat research

The present study revealed that the total number of publications on goat research as per records indexed by CAB Direct Online database for a period of 102 years i.e. from 1912 to 2013 is 37,485. The first record was indexed during the year 1912 while maximum number of papers i.e. 1,555 was published during 2012 and the least number of publication i.e. only one was indexed during 1920. The average papers published per year is 367.5.

The initial 12 years period i.e. 1912 to 1923, there were only 63 papers which is 0.17% of total contribution and there was 246% increase during the next decade i.e. 1924 – 1933 with 155 publications. The next decade recorded 458% increase with 710 papers. During the period 1944 – 1953, there was an increase of 118.30% with 840 papers. The period 1954 – 1963 saw again an increase of 156.90% with 1,318 papers. The next decade recorded 173.89% growth and the period 1974 – 1983 the publications were doubled with 4,693 which was 204.76% growth over the previous period. The largest production was recorded during the latest decade i.e. 2004 to 2014 where the total publications were 12,278 which is 32.75% of the total publications. The publication output on goat research from 1912 to 2013 is depicted in Figure-1.

Figure-1: Publication Output on Goat Research





### Leading Countries on Goat Research

It was observed that India is the largest producer of publications on goat research with 2,381 papers which is 6.35% of the total publications followed by Brazil with 1000 papers 2.68%. France is the third largest producer with 740 papers (1.97%) followed by USA with 666 papers 1.78%). China is the first largest with 663 papers which is 1.77% to the global publications. As far as goat research is concerned, India has produced 359.12% more publications than China and 357.5% than USA. The top 20 countries have contributed 10,413 papers which is 27.78% percent of global research output. The details are furnished in Table – 1.

**Table-1: Top 10 countries produced highest numbers of publications**

S. No.	Country	No. of Papers
1	India	2,381
2	Brazil	1,000
3	France	740
4	USA	666
5	China	663
6	Spain	594
7	Nigeria	490
8	Italy	486
9	Mexico	407
10	Turkey	390
11	Australia	349
12	UK	338
13	South Africa	286
14	Switzerland	265
15	Africa	263
16	Germany	250
17	Sudan	222
18	Egypt	215
19	Iran	212
20	USSR	196
	Total	10,413

### Leading Journals

The study revealed that 'Small Ruminant Research' is the leading journal in publishing papers on goat research as it has published 1,389 papers 3.71% of global research output followed by Indian Journal of Animal Sciences which has published 1,162 papers which is accounting for 3.19% of global research output. The third largest publisher of goat research papers is Indian Veterinary Journal with 1,035 papers which is 2.76% to global share. Among the top 20 journals, three journals are published from India and they collectively published 2,464 papers which is 6.57% of global publication output on goat research. The top 20 journals published 7,713 papers which is 20.58% of global publication output on goat research. The details are furnished in Table-2.

**Table-2: Leading Journals**

S. No.	Title	No. of papers
1	Small Ruminant Research	1,389
2	Indian Journal of Animal Sciences	1,162
3	Indian Veterinary Journal	1,035
4	Journal of Dairy Science	603

5	Veterinary Record	349
6	Indian Journal of Small Ruminants	267
7	Theriogenology	258
8	American Journal of Veterinary Research	248
9	Asian-Australian Journal of Animal Sciences	238
10	Tropical Animal Health and Production	238
11	Journal of Animal Sciences	229
12	Veterinary Parasitology	229
13	Goat Veterinary Society Journal	217
14	Research in Veterinary Science	200
15	Journal of Animal and Veterinary Advances	189
16	Livestock Research for Rural Development	183
17	Revista Brasileira de Zootecnia	174
18	Animal Production Science	171
19	Journal of Dairy Research	168
20	Indian Journal of Animal Health	166

### Most Productive Authors

As per records index by CAB Direct Online database, the most productive author on goat research is Morand-Fehr, P with 277 papers who is from France. The top 10 authors have contributed 1,228 papers which is 3.28% of global research output on goat research. The second and seventh authors among the leading 10 authors are from India and they have contributed 255 papers which is 0.68% to global research output on goat research.

**Table-3: Most Productive Authors on Goat Research**

S. No.	Author	No. of Papers
1	Morand-Fehr, P.	277
2	Kumar, A	162
3	Sauvant, D	127
4	Sahlu, T.	123
5	Chartier, C	100
6	Rubino, R	98
7	Kumar, S	93
8	Goetsch, A.L.	85
9	Chen, H	83
10	Miert, A.S.	80
	Total	1,228

### Publication Formats

The study revealed that the most preferred type of publication by goat researchers is journal article as out of 37,485 publications, 36,676 are journal article which is 88.48% of total publications followed by conference paper i.e. 2,178 which is 5.81%. Book chapters rank 3<sup>rd</sup> place with 422 followed by theses with 274 and book with 220. The top 10 publication formats are listed in Table-4.

Table-4 Top 10 Bibliographic Formats

S. No.	Type	World
1	Journal article	33,165
2	Conference paper	2,178
3	Book Chapters	422
4	Thesis	274
5	Book	220
6	Abstracts	216
7	Correspondence	98
8	Bulletin	61
9	Conference Proceedings	42
10	Miscellaneous	809
	Total	37,485

#### Leading Languages

Researchers on goat preferred English language to publish their findings as 24,348 papers were published in English which is 89.55% of total publications followed by French with 1,891 papers (5.04%), Portuguese with 1,504 papers (4.01%), Spanish with 1,370 papers (3.65%) and Chinese with 1,263 papers (3.37%). The top 10 leading languages in which more number of papers on goat research published are listed in Table-5.

Table-5: Preferred Languages

S. No.	Language	Publications
1	English	24,348
2	French	1,891
3	Portuguese	1,504
4	Spanish	1,370
5	Chinese	1,263
6	German	1,239
7	Italian	658
8	Russian	547
9	Japanese	406
10	Turkish	343
	Total	33,569

### Major subject areas

The study revealed that the major subject areas in which goat researchers are focussing their research. The CABI Code of the database has been taken to get the subject areas.

Table-7: Leading Subject areas of goat research

S. No.	Subject	CABI Code	Papers
1	Animal Physiology and Biochemistry	LL600	6,920
2	Milk and dairy produce	QQ010	6,118
3	Dairy Animals	LL110	5,492
4	Parasites, Vectors, Pathogens and Biogenic Diseases	LL820	5,162
5	Animal Breeding and Genetics	LL200	3,983
6	Animal Nutrition and Physiology	LL510	3,581
7	Animal Reproduction and Embryology	LL250	3,274
8	Food Composition and Quality	QQ500	3,198
9	Animal Nutrition (Production Responses)	LL520	3,192
10	Animal Nutrition (General)	LL500	3,146

### Key Findings

The key findings of this study are summarised below:

- The present study revealed that the total number of publications on goat research as per records indexed by CAB Direct Online database for a period of 102 years i.e. from 1912 to 2013 is 37,485.
- The first record was indexed during the year 1912 while maximum number of papers i.e. 1,555 was published during 2012 and the least number of publication i.e. only one was indexed during 1920.
- The average papers published per year is 367.5.
- India is the largest producer of publications on goat research with 2,381 papers which is 6.35% of the total publications followed by Brazil with 1000 papers 2.68%. France is the third largest producer with 740 papers (1.97%) followed by USA with 666 papers 1.78%).
- As far as goat research is concerned, India has produced 359.12% more publications than China and 357.5% than USA. The top 20 countries have contributed 10,413 papers which is 27.78% percent of global research output.
- 'Small Ruminant Research' is the leading journal in publishing papers on goat research as it has published 1,389 papers 3.71% of global research output followed by Indian Journal of Animal Sciences which has published 1,162 papers which is accounting for 3.19% of global research output.
- The third largest publisher of goat research papers is Indian Veterinary Journal with 1,035 papers which is 2.76% to global share.
- Among the top 20 journals, three journals are published from India and they collectively published 2,464 papers which is 6.57% of global publication output on goat research.



- The most productive author on goat research is Morand-Fehr, P with 277 papers who is from France. The top 10 authors have contributed 1,228 papers which is 3.28% of global research output on goat research.
- The second and seventh authors among the leading 10 authors are from India and they have contributed 255 papers which is 0.68% to global research output on goat research.
- The most preferred type of publication by goat researchers is journal article as out of 37,485 publications, 36,676 are journal article which is 88.48% of total publications followed by conference paper i.e. 2,178 which is 5.81%. Book chapters rank 3<sup>rd</sup> place with 422 followed by theses with 274 and book with 220.
- English language is the most preferred language to publish by the researchers on goat as 24,348 papers were published in English which is 89.55% of total publications followed by French with 1,891 papers (5.04%).

### Conclusion

The present study revealed that the research on goat is steadily increasing since 1912 as the number of papers published is increasing steadily. The initial 12 years period i.e. 1912 to 1923, there were only 63 papers which is 0.17% of total and the largest production was recorded during the latest decade i.e. 2004 to 2014 where the total publications were 12,278 which is 32.75% of the total publications. The author is hoped that the findings of this study would help the researchers, academicians, policy makers and other stakeholders to have a detailed account on the global goat research publications.

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