A Study on Scientometric analysis of Post Graduate Theses of Veterinary College and Research Institute, Namakkal, Tamilnadu, India.

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Abstract: The present study thoroughly explored the research output of the Tamil Nadu Veterinary college and Research Institute Namakkal during 1995-2015. since its origin; the research design is based on secondary data using a range of bibliometric and scientometric tools, techniques and formula along with statistical techniques. The major objectives are framed with the exclusive notion of the present study such as (i) Analysis of Doctoral theses available at Library, Veterinary College and Research Institute, Namakkal.

***Index Terms* - : Scientometric analysis, Post Graduate, Theses,Veterinary College and Research Institute**

1. INTRODUCTION

Scientometric is the branch of science that describes the output traits in terms of organizational research structure, resource inputs and outputs, develops benchmarks to evaluate the quality of information output. Scientometric studies characterize the disciplines using the growth pattern and other attributes such as publications, field recommendations, research recommendations, further research etc.

Science and scientific research have been growing at a faster rate during recent years. In India, at present around 75,000 students are enrolled in research and nearly 11,000 are awarded Ph.D.s every year, of which 50 per cent are from science and technology disciplines. The number of Ph.D.s produced might be useful as an indicator of the growth of the science and technology sector. It is surprising to find that a large fraction of doctoral theses do not result in any significant research publication, in journals that create impact. Indeed even as the number of doctoral degrees awarded in science has increased, the number of papers from India in SCI indexed journals has remained stagnant (Sudhier and Kumar, 2010).

Research being the foundation for growth of any field, universities and research institutes contribute mainly to these areas. The research enriches the academics and dovetail the teaching programme. The post graduate research work started at Veterinary College and Research Institute, Namakkal from 1993. For the past 24 years, this research institute had contributed a lot to the farming and scientific community through its research outcomes. Thesis reflects the scholarly communication of the research and aspiration of the student. The physical appearance and layout should confirm to a set pattern. It is necessary to study the auxiliary format, text, bibliography, publications etc. to find out the uniformity in thesis writing and research output of the institute.

Thus, the present study is formulated with the following objectives.

i. To study the time trend analysis of theses
ii. To assess the outcome of the theses
iii. To study the physical appearance and layout of the theses

2. REVIEW OF RELEVANT LITERATURE

Dalia El Khaled et al., (2018) have anatomized this work describes the global operations of dielectric and bio-impedance measures ways in colourful fields. Dielectric and bio-impedance spectroscopy are major non-damaging dimension systems with high-quality eventuality inside the era discipline. All outcomes produced by the Scopus database were used because the core of the take a look at in hand, with exceptional particulars from journals, papers and convention lawsuits being taken into consideration. The results of this evaluation show that the hobby in electrical parcels has risen inside the final times due to the advanced technological measures supplied on the clinical role. Results display that bioimpedance studies are hugely greater latest compared to dielectric studies, and are more directed toward clinical purposes whilst dielectric spectroscopy specializes in bodily elements, and is used substantially in engineering and cloth information. It may be stated that bio-impedance and dielectric spectroscopy are being decreasingly applied and that they have the ability to consolidate and decorate exploration disquisition.

Tripathi and Garg (2016) made the paper analyses publication output of India on cereal plants as contemplated by means of its coverage in Scopus worldwide database at some stage in 1965-2010 in gaps of five years. Analysis shows that highest wide variety of papers (40%) become posted on rice, observed through wheat (29%). Agricultural universities and establishments under the aegis of Indian Council of Agricultural Research (ICAR) had been maximum effective. A large range of papers had been published in journals originating from the advanced countries with low effect thing. The maximum quantity of papers

was published in Indian Journal of Agricultural Sciences, followed by way of Indian Journal of Agronomy. Indian Agricultural Research Institute, New Delhi crowned the list the various prolific establishments observed through Punjab Agricultural University, Ludhiana. The primary research changed into targeted on 'genetics and plant breeding' accompanied by using 'agronomic factors'. The authorship sample well-known shows that co-authored papers accounted for 94% of total output. Most of the prolific authors had been affiliated to Indian Agricultural Research Institute, New Delhi.

Zoltan Krajcsak (2021) clarified the reason of this observe is to give a new scientometric model for measuring character clinical performance in Scopus article publications inside the subject of Business, Management, and Accounting (BMA). With the assist of this model, the examiner also compares the book overall performance of the pinnacle 50 researchers consistent with SciVal within the area of BMA, in every of the Central European V4 countries (Czech Republic; Hungary;

3. METHODOLOGY

Descriptive research design was used in this study. The theses submitted at Veterinary College and Research Institute, Namakkal for the award of M.V.Sc. and Ph.D. degree from 1993 to 2015 constituted the sample for the study. Purposive sampling was adopted. The theses were collected from Veterinary College and Research Institute, Namakkal library. The theses were categorized under Basic Sciences (Anatomy, Physiology and Economics), Production (Nutrition, Genetics, Livestock Production Management, Dairy Science, Meat Science, Extension and Poultry Science), Health (Parasitology, Pathology, Microbiology, Preventive Medicine and Pharmacology) and Clinics (Obstetrics and Gyneacology, Clinical Medicine and Surgery) subjects. A total of 420 theses, of which 308 theses were M.V.Sc. and 112 were Ph.D. The theses were examined from title page to appendix page for collection of data. Data extracted included year-wise distribution (in time trend – five years), gender-wise distribution, species-wise distribution, articles published per thesis, total number of pages, chapter-wise pages, review of literature, reference style, further research recommended, field recommendation, auxiliary pages, text and annexures.

4. FINDINGS

The collected data were tabulated, analyzed and the results are presented below.

4.1 Year-Wise Distribution of Theses

Table 1 shows the year-wise distribution of M.V.Sc. theses for the period 1993 to 2015. Maximum research works were carried out during the period 1995 to 2000 and minimum contribution was noticed during 2001 to 2005. Even though the maximum research work was conducted during 1995 to 2000, the contribution of basic science and clinical subjects were nil. Drastic reduction was noticed during 2001 to 2005, but an increasing trend was noticed in total number of theses since 2006 onwards. The post graduate courses were not offered in many departments during 2001 to 2005 due to lack of staff members and this might be the reason for drastic reduction during 2001 to 2005.

Table 1. Year-wise distribution of M.V.Sc. Theses

S.No	Category	1995-2000 (n=114)	2001-2005 (n=45)	2006-2010 (n=70)	2011-2015 (n=79)
1	Basic sciences	-	5 (11%)	5 (7%)	7 (9%)
2	Production	56 (49%)	21 (47%)	34 (53%)	41 (52%)
3	Health	58 (51%)	17 (38%)	22 (32%)	15 (19%)
4	Clinics	-	2 (4 %)	9 (13%)	16 (20%)

In category wise distribution, there was no uniform trend in basic science and production subjects, but decreasing trend was noticed in health subjects and increasing trends was noticed in clinical subjects (Table 1).

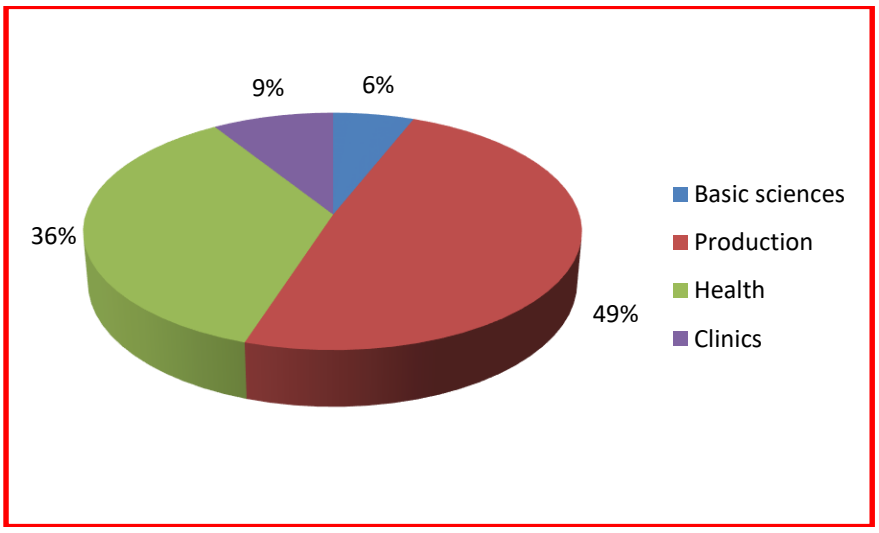

Figure 1. Category-wise distribution of M.V.Sc. theses

Figure 1 shows that almost half (49%) of the contribution was made by production subjects followed by health (36%), clinics (9%) and basic sciences (6%).

4.2 Gender-wise distribution of researchers

The research work carried out by male and female researchers in M.V.Sc. and Ph.D. were categorized and given below.

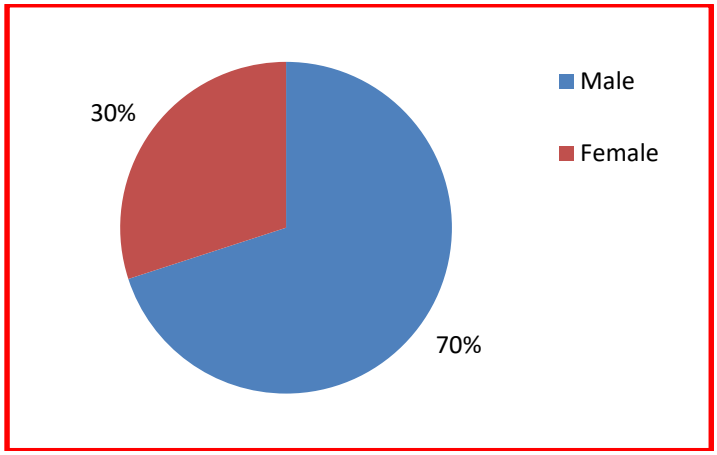

Figure 2. Gender-wise distribution of M.V.Sc. researchers

In gender-wise analysis, 70% of the M.V.Sc. research was carried out by male, whereas 30% of the research was carried out by female (Figure 3).

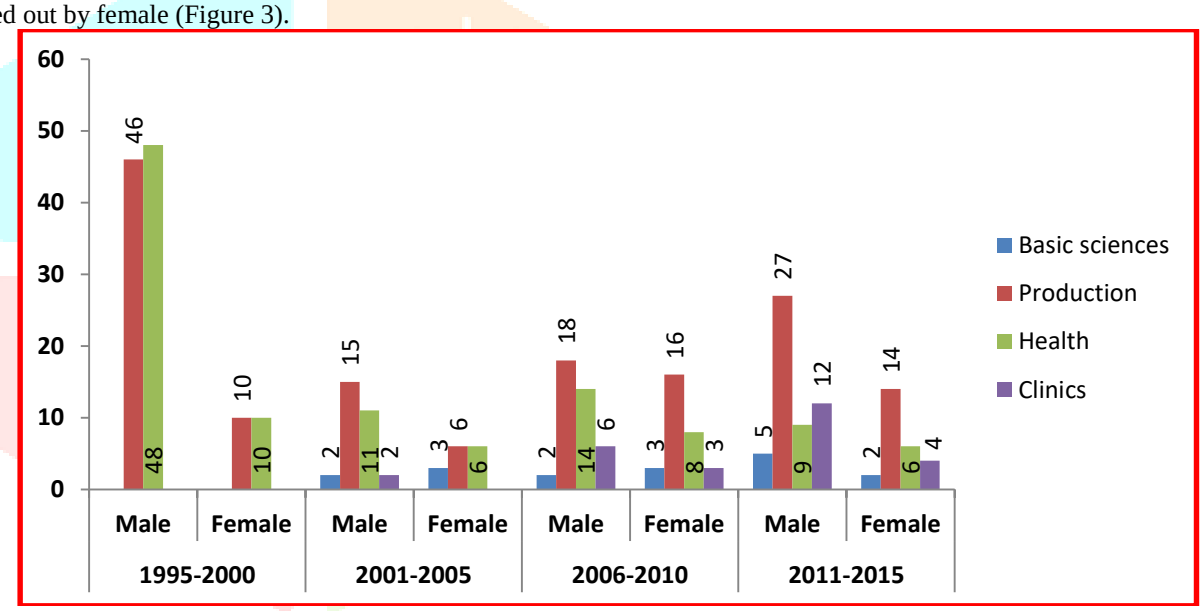

Figure 3. Time trend analysis of category-wise gender distribution of M.V.Sc. researchers

Figure 3 also shows that the male researchers were more when compared to female researchers in year-wise and category-wise distribution. But male and female were almost equal in production subjects during the period 2006–2010. The number of female researchers were increased from 2006 onwards.

4.3 Species-wise distribution of research

Species–wise study of M.V.Sc. theses in all the faculties was calculated and presented below.

Table 3. Species-wise distribution of M.V.Sc. research

(n=320)

Species	1995-2000	2001-2005	2006-2010	2011-2015	Total
Poultry general	49	12	15	11	87 (28%)
Layer	18	2	3	9	32 (10%)
Broiler	29	18	22	19	86 (28%)
Japanese Quail	1	1	5	1	8 (3%)
Emu	0	0	0	2	2 (0.65%)
Guinea fowl	0	0	0	1	1 (0.32%)
Duck	0	0	1	0	1 (0.32%)
Turkey	0	0	2	0	2 (0.65%)
Pet birds	0	0	0	1	1(0.32%)
Livestock general	1	0	0	1	2 (0.65%)
Dairy	6	2	8	22	38 (12%)
Sheep & Goat	6	7	2	6	21 (7%)
Swine	0	0	0	2	2 (0.65%)
Rabbit	0	1	2	0	3(0.97%)
Dog	0	0	3	5	8 (3%)
Cat	0	0	0	1	1(0.32%)
Donkey	0	1	0	0	1(0.32%)
Others (veterinary students, leptospirosis, rat)	0	3	5	4	12 (4%)

Maximum research conducted in the study period was in poultry general and broiler (each 28%) followed by dairy - including value addition (12%), layer (10%) and sheep & goat (7%). The studies on other species were meager. Initially all the departments of Veterinary College and Research Institute, Namakkal were instructed to take up the research work only in poultry, since the college was started exclusively for the development of poultry enterprise. This might be the reason for maximum research conducted in poultry (Table 3).

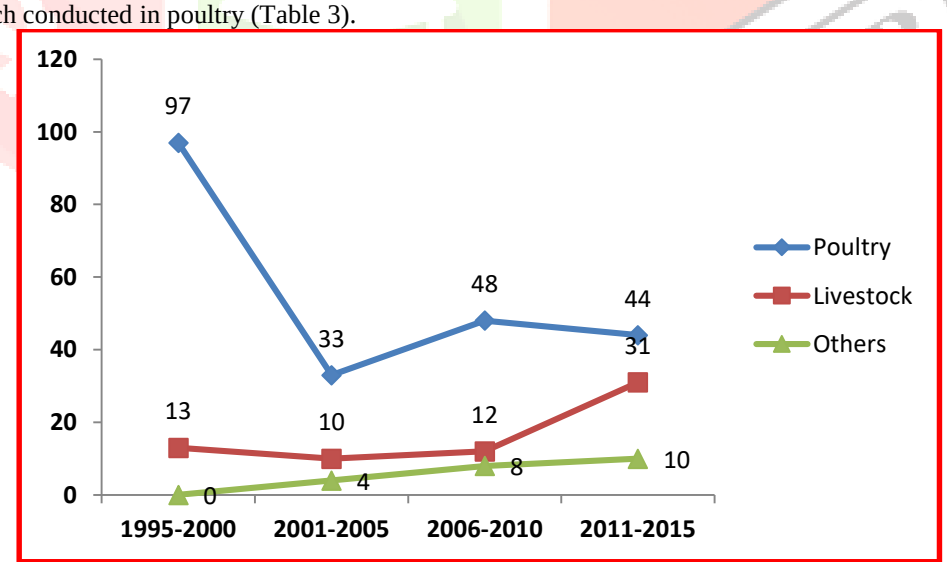

Figure 4. Time trend analysis of species-wise distribution of M.V.Sc. research

The species-wise study of M.V.Sc. research was classified under three categories such as poultry, livestock and other species (Figure 4). In poultry, maximum research was conducted during 1995 to 2000, after that a drastic decline was noticed up to 2005. There was varying trend noticed in using poultry for research over years. In livestock research, from 1995 to 2005 a decreasing trend was noticed, but after 2005 use of livestock for research had been increased. Increasing trend was noticed from 1995 to 2015 in using other species for research.

4.4 Species–wise study for different category

Species–wise study for different category was studied and presented under Basic Science, Production, Health and Clinics.

Table 4. Species-wise distribution of M.V.Sc. research in Basic Science

(n=17)

Species	1995-2000	2001-2005	2006-2010	2011-2015	Total
Broiler	0	4	1	1	6 (35%)
Turkey	0	0	2	0	2 (12%)
Emu	0	0	0	2	2(12%)
Guinea fowl	0	0	0	1	1 (6%)
Dairy	0	0	1	2	3 (17%)
Sheep & Goat	0	1	1	0	2 (12%)
Swine	0	0	0	1	1 (6%)

Table 4 reveals the distribution of species-wise research carried out over the years in basic science. Broiler chicken was the species subjected to research by more than one-third of the researcher (35%) and dairy was subjected to research by 17% of the researcher. Sheep & goat, turkey and emu were subjected to research by each 12% of the researcher. Only 6% of the researcher used swine and guinea fowl for their research work.

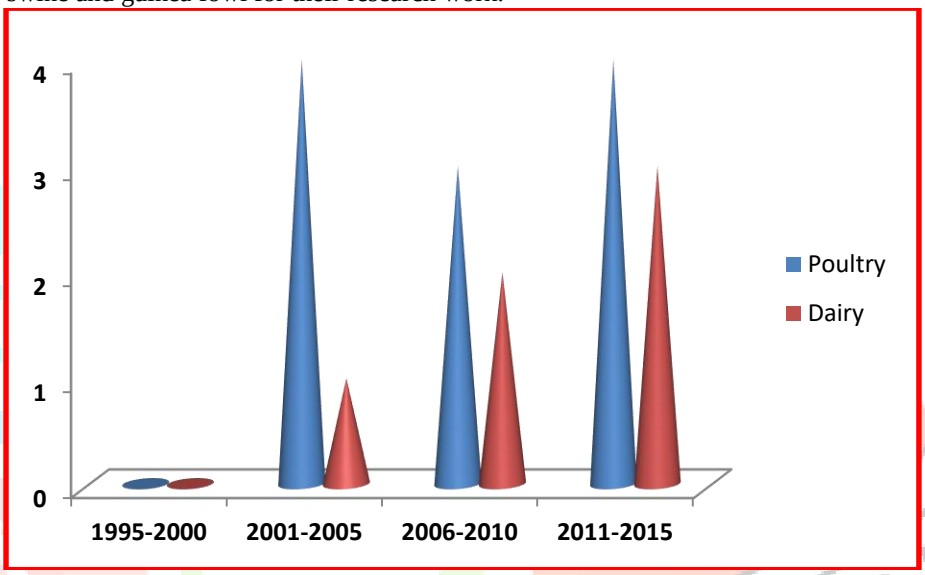

Figure 5. Time trend analysis of species-wise distribution of M.V.Sc. research in basic science

It could be inferred from Figure 8 that there was no M.V.Sc research carried out in basic science subjects during the period 1995-2000. Poultry had a mixed trend and livestock had an increasing trend over years.

Table 5. Species-wise distribution of M.V.Sc. research in production

(n=152)

Species	1995-2000	2001-2005	2006-2010	2011-2015	Total
Poultry general	6	0	5	8	19 (13%)
Broiler	20	14	16	17	65 (43%)
Layer	17	2	1	5	25 (16%)
Duck	0	0	1	0	1 (0.5%)
Pet birds	0	0	0	1	1 (0.5%)
Japanese Quail	1	1	4	1	7 (5%)
Dairy	5	0	2	10	17 (11%)
Sheep & Goat	3	4	0	3	10 (7%)
Swine	0	0	0	1	1 (0.5%)
Rabbit	0	1	2	0	3 (2%)
Donkey	0	1	0	0	1 (0.5%)
Veterinary students	0	0	1	1	2 (1%)

From Table 5 it could be inferred that 43% of the research was conducted in broiler followed by layer (16%), poultry general (13%), dairy (11%) and sheep & goat (7%). The other species subjected to research were very meager.

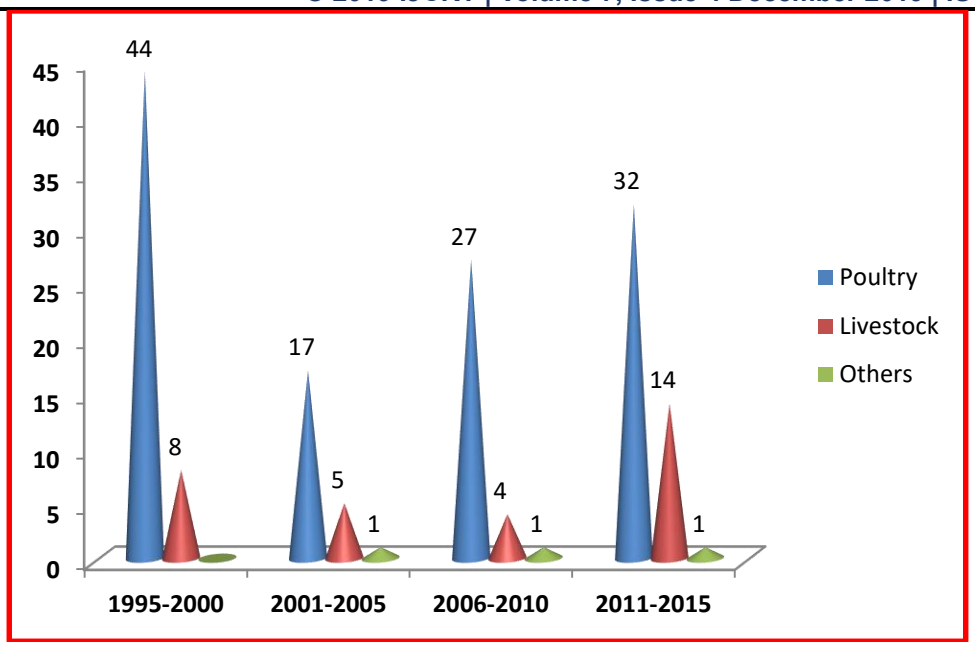

Figure 6. Time trend analysis of species-wise distribution of M.V.Sc. research in production

Figure 6 indicates that varying trend was noticed in using both poultry and livestock species for research. Use of poultry species for research had decreased from the period 1995-2000 to 2001-2005, whereas an increasing trend was noticed after 2005. The other species subjected to research was stable.

Table 6. Species-wise distribution of M.V.Sc. research in health

(n=112)

Species	1995-2000	2001-2005	2006-2010	2011-2015	Total
Poultry general	43	12	10	3	68 (61%)
Broiler	9	0	5	1	15(13%)
Layer	1	0	2	4	7 (6%)
Japanese Quail	0	0	1	0	1 (1%)
Livestock general	1	0	0	1	2 (2%)
Dairy	1	0	0	1	2 (2%)
Sheep & Goat	3	2	0	1	6 (5%)
Dog	0	0	0	1	1 (1%)
Others (Leptospirosis, Rat)	0	3	4	3	10 (9%)

Table 6 indicates that majority of the research in health subjects were conducted in poultry general (61%) followed by broiler (13%); others (9%); layer (6%); sheep & goat (5%); livestock general and dairy (each 2%); Japanese quail and dog (each 1%). There was no study in livestock during the period 2006-2010.

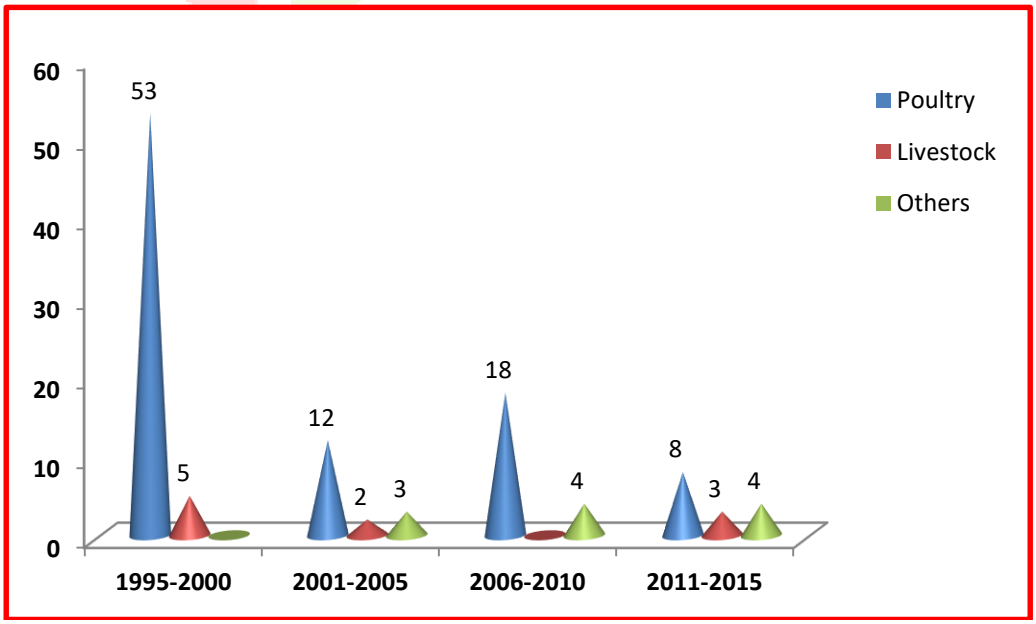

Figure 7. Time trend analysis of species-wise distribution of M.V.Sc. research in health

Poultry was the major species subjected to research in health subjects, but no uniform trend was noticed over years. Livestock also had no uniform trend, whereas other species subjected to research had an increasing trend.

4.5 Diseases studied

The diseases studied in M.V.Sc. work were analysed and presented below.

Table 7. Diseases studied in M.V.Sc. research

S.No.	Diseases	Microbiology	Pathology	Preventive medicine	Parasitology	Total
1	Ranikhet Disease	7	4	2	-	13
2	IBD	7	5	2	-	14
3	IBD & RD	-	-	3	-	3
4	IB	5	1	1	-	7
5	Coccidiosis	-	3	-	2	5
6	Marek's disease	-	1	1	-	2
7	Hydro pericardium syndrome	-	1	1	-	2
8	Leptospirosis	-	-	5	-	5
9	ILT	-	1	-	-	1
10	CIA	1	-	-	-	1
11	Fowl cholera	1	-	-	-	1
12	Infectious coryza	2	-	-	-	2
13	Necrotic enteritis	1	-	-	-	1
14	Enteric pathogens	-	-	1	-	1
15	Fowl pox	-	-	1	-	1
16	FMD	1	-	-	-	1
17	Theileriosis	-	-	1	-	1
18	Mastitis	1	-	-	-	1
19	PPR	-	-	1	-	1
20	Canine parvo virus	-	-	1	-	1
21	Disease caused by *Mycoplasma gallinareium, Ornithobacterium rhinotracheale, Haemophyllus paragallinarum, Campphylobacter jejuni & Salmonella*, E.Coli	8	1	1	-	10

In M.V.Sc. the maximum research was conducted on IBD followed by Ranikhet disease, IB, Coccidiosis and leptospirosis. The other diseases studied were meager. In addition to this, diseases caused by *Mycoplasma gallinareium, Ornithobacterium rhinotracheale, Haemophyllus paragallinarum, Campphylobacter jejuni, Salmonella & E.Coli* were also studied. Apart from the studies on diseases, fly control measures, drug resistance and in vitro evaluation of vaccines were also carried out (Table 7).

Table 8. Species-wise distribution of M.V.Sc. research in clinics

(n=27)

Species	1995-2000	2001-2005	2006-2010	2011-2015	Total
Dairy	0	2	5	9	16 (59%)
Sheep & Goat	0	0	1	2	3 (11%)
Dog	0	0	3	4	7 (26%)
Cat	0	0	0	1	1 (4%)

Most of the clinical studies were conducted in dairy (59%) followed by 26% in dog, 11% in sheep & goat and 4% in cat (Table 8). No M.V.Sc. research was carried out during the period 1995-2000. Increasing trend was noticed in using all the species for research over the years (Figure 11).

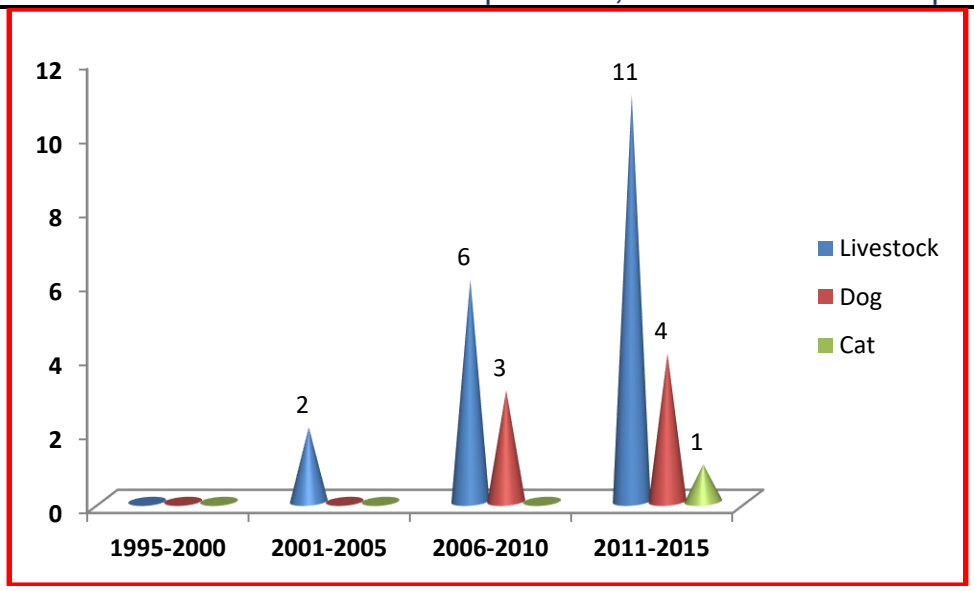

Figure 8. Time trend analysis of species-wise distribution of M.V.Sc. research in clinics

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5. Conclusion

A study on Scientometric analysis of Post Graduate Theses of Veterinary College and Research Institute, Namakkal was talented and exhibited a growing trend in recent years, according to the results in the discipline of Veterinary. The concepts of research areas have been strong and number of strength theses submitted. There are also some interesting areas to be studied as the impact of particular Theses on Veterinary disciplines.

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