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6.1 Preface:-

Researcher should describe his/her results clearly, and in a way that other researchers can compare them with their own results. They should also analyze the results, using appropriate statistical methods to try to determine the probability that they may have been chance findings, and may not be replicable in larger studies. But this is not enough. Results need to be interpreted in an objective and critical way, before assessing their implications and before drawing conclusions. Interpretation of research results is not just a concern for researchers. Policymakers should also be aware of the possible pitfalls in interpreting research results and should be cautious in drawing conclusions for policy decisions. At the end of the analysis and interpretation a researcher put his /her outcome of research. Here investigator has analyzed the collected data in chapter no 5 so he has put findings and suggestions in this chapter.

As the investigator has used to collect two types of primary data one for library information and second for users data, and analyze it in a two parts he has to put the findings of the study in two separate parts. In this chapter investigator has also presented the findings in two parts as under.

6.2 Findings of Library study:-

Investigator has collected the primary data from four agricultural university libraries in Gujarat regarding personnel, collection, infrastructure, services provided by them. He analyzed the data using SPSS software and statistical methods and interpreted using some standards and specification. He further drawn some findings from the interpretation which is mention herewith

1. All the agricultural universities in Gujarat run under the state government and started during 1960s.

2. All agricultural universities in Gujarat have their constituent colleges and research station. The constituent colleges vary from 8 to 14 whereas research stations vary from 21 to 29.

3. All the 4 universities are engaged in agricultural education, research and extension education.
4. Agriculture Science, Veterinary & AH Science, Agri-Business Management, Agri-Engineering, and Horticultural Science education offered in all four agricultural universities whereas education of agricultural Information Technology, Fisheries Science, Co-operative & Banking are offer in AAU, JAU and SDAU respectively. Home Science & Nutrition education is available in 3 agricultural universities except NAU.

5. Forestry Science, Dairy Technology and Food Science education is available in one and two agricultural university respectively.

6. No agricultural university have university librarian, 3 university libraries run under the direction of non professional i.e. teachers.

7. All agricultural universities library have assistant librarian and technical assistant either permanent or ad-hoc, ranging 2 to 3.

8. All agricultural libraries have a separate computer center in the library with subject expert.

9. All agricultural university libraries have library clerk and library assistant.

10. Average information resources are available at university library as under.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of resource</th>
<th>Number of collection (Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Books</td>
<td>47750</td>
</tr>
<tr>
<td>2</td>
<td>Research Report</td>
<td>4629</td>
</tr>
<tr>
<td>3</td>
<td>Thesis</td>
<td>2326</td>
</tr>
<tr>
<td>4</td>
<td>National Journal</td>
<td>116</td>
</tr>
<tr>
<td>5</td>
<td>International Journal</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>Bound Volume of Journal</td>
<td>9211</td>
</tr>
</tbody>
</table>

11. All agricultural university libraries subscribe AGRIS database resource like Agrovoc, AGRIS online database, Agricola, AGRIS databank and AGRIS CD-ROM.

12. Several e-books of different publisher and e-journal consortia like Science Direct, EBSCO, CAB abstracts are also subscribe by different library.

13. The users are provided all AGRIS services by all agricultural university libraries.
14. Library Web. Web OPAC and RFID is not available in any agricultural university library, but LAN, Library automation, Internet, digital collection, barcode, CCTV found in all libraries.

15. Average 19.75 computers, 18.5 computers with internet and 1.5 printers are available at university library but fax machine is not available in any agricultural university library. Photocopier and scanner are also available in all university libraries.

16. 75% libraries have completed partially automation whereas 50% library are marching towards the fully automation.

17. Only 25% libraries have started digitization of the document whereas 75% libraries have not started it.

18. 50% libraries have started institutional repository whereas 50% libraries have not started it.

19. Social networking media is an important activity which is not started by a signal library.

20. Average users of agricultural university libraries are as under.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of Users</th>
<th>Average Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PG Student</td>
<td>497</td>
</tr>
<tr>
<td>2</td>
<td>Research Scholar</td>
<td>77.75</td>
</tr>
<tr>
<td>3</td>
<td>Academic Staff</td>
<td>107</td>
</tr>
<tr>
<td>4</td>
<td>Technical Staff</td>
<td>12.75</td>
</tr>
</tbody>
</table>

21. All agricultural university libraries provide traditional as well as and modern library and information services but some services like Consolidation of Information, Document Printing, Multimedia Service, Tele-tax and Video Conference service and Web based Instant Messaging Service (IMs) are not provided by any library i.e. there is uniformity in the library services.

22. All agricultural university libraries have not a separate Web-site. Only Web page for library is available in university Web.
6.3 Findings of Researchers Study:-

The main objective of this research study is to investigate about library and information services to the researcher community in agricultural universities in Gujarat. Investigator has collected the primary data from 276 researchers working in either pursuing Ph. D. or engaged in any kind of research project. He analyzed the data using SPSS software and interpreted it and drawn the findings from the study. The findings of the study are given herewith as under in different distinctive sections.

➢ 6.3.1 Findings from Primary Information:-
1. 38.8% researcher’s age group is 21-25 and 23.9% researcher’s age group is 26-30. The Young researchers are more engaged in agricultural research. As the age increase, the numbers of researchers decrease.
2. 15.9% Female research respondents are engaged in agricultural research. Male female ratio is 5.28 which are very low in agricultural research than general education and engineering education field. SDAU has highest female researchers.
3. Among the agricultural researcher, major research community is registered Ph. D students. The professor, associated professor and researcher officer are engaged in applied and experimental agricultural research.
4. The agricultural researchers have average 4.58 year teaching experience. 75% respondents have maximum 8 year experience but 50% respondents have maximum 1 year teaching experience.
5. The agricultural researchers have average 3.12 researcher experience. Of course more than 11 year research experience is found in among 4.3% respondents but 50% respondents have maximum 1 year research experience.
6. Among the agricultural researcher 68.8% are pursuing Ph. D whereas 31.2% have completed Ph. D degree.
7. Maximum young researchers have computer literacy. The investigator found that up on 46-50 year users have less computer literacy and it percentage is increase.
8. The major research community gives opinion from Agricultural science, Veterinary science, Horticultural science, Agri-Business Management and
Agricultural Engineering. It is also found that maximum respondent give response from NAU, Navsari.

9. Average 1.60 research papers published by individual author whereas jointly research papers published are 0.86. Average 0.09 book individually published by author whereas 0.11 books published jointly. Thus agricultural researchers prefer to publish research papers individually whereas in the case of books they prefer joint publication.

10. 26.1% researchers have not published any research papers whereas 70.3% have published maximum 5 research papers. Only 3.6% researchers have published more than 5 papers.

11. 93.1% respondents have not published any books. It is also found that 0.4% respondents have published 2 books in collaboration.

12. Among the researcher average 0.81 research project are in progress whereas they have complete average 0.78 research projects. Most of the researcher has completed at least 1 research project whereas 80.1% researchers are engaged in their 1 research project.

13. Most of researchers have attended only 1 international seminar. It is also found that average 3.51 national seminars attended by researcher.

14. Average 1.29 research papers presented by researcher at national seminar whereas jointly 0.62 papers presented. Average 0.12 research papers presented by researcher at international seminar whereas jointly 0.13 papers presented.

6.3.2 Library Time:-
1. There is remarkable variation in satisfaction about library timing, but 44.2% users are satisfied if their library remains open 10 hours per day. It is also found that 81.9% researchers are satisfied with present time.

2. 60.1% respondents visit library at least once in a week and 23.6% visit once in fortnight

6.3.3 Usage of Library:-
1. 70.29% users never use research library, the college library is frequently use by 36.23% users and 58.69% users use sometime, university library is frequently use by 67.03% users, other library is not remarkably use by researcher. Thus college and university library is widely use by respondents.
2. The agricultural researcher use their institutional library average last 6.7065 years back i.e. they have average library usage experience is 6.7065 years. It is also found that 66.7% users are using library since last 1-5 year.

3. Researcher average spend 2.1884 hours per day and 96.7% respondents use 1 to 4 hours library per day.

4. The mean value of the various purpose of library usage in Likert 5 point rating scale (i.e. 4= Most frequently, 3= Often, 2= Sometime, 1= Rarely and 0 =Never) is found as under.
   - Borrowing Books = 2.61(i.e. between often and sometime)
   - Reading Journal = 2.55(i.e. between often and sometime).
   - Solve Reference Query = 1.42(i.e. between rarely and sometime).
   - Search Latest Article = 1.66 (i.e. between rarely and sometime).
   - Research Related Information = 0.57(i.e. between rarely and never).
   - Preparation for Lecturer = 2.17(i.e. between often and sometime).
   - Newspaper Reading =1.31(i.e. between rarely and sometime).
   - Time Pass = 1.52(i.e. between rarely and sometime).

   Thus the purpose of research related use by researcher is very less.

5. The mean value of the various problems in library usage in Likert 5 point rating scale (i.e. 4= Most Effective, 3= effective, 2= neutral, 1= moderate effective and 0 =not effective at all) is found as under.
   - Sufficient Infrastructure =2.68(i.e. between Neutral and Effective).
   - Sufficient Collection of Print Document = 2.56(i.e. between Neutral and Effective).
   - E-journal and e-Books = 2.14(i.e. between Neutral and Effective).
   - Sufficient Database = 2.19(i.e. between Neutral and Effective).
   - Sufficient latest resource =2.76(i.e. between Neutral and Effective).
   - Guide to use Resource = 2.14(i.e. between Neutral and Effective).
   - Computer and Network Literacy = 2.15(i.e. between Neutral and Effective).
   - Retrieval of Information = 2.05(i.e. between Neutral and Effective).
   - Internet Connectivity = 2.75(i.e. between Neutral and Effective).
   - Insufficient Manpower = 2.16(i.e. between Neutral and Effective).
   - Aptitude of Library Personnel = 2.05(i.e. between Neutral and Effective).
The mean value of all mean value is 2.33 i.e. the researchers face the problems effectively.

6. Among the various library resources reference book, textbook and printed journal are widely used with mean value of 2.96, 2.75 and 2.68 Likert 5 point rating scale. Respectively whereas other resources like back-volume of printed journal, thesis, research report and e-journal are comparatively less used by the agricultural researcher.

7. Among the various library services most frequently and often used by researcher community are circulation services, internet surfing, reference services, photocopy are widely used with mean value of 2.87, 2.67, 2.50 and 2.04 Likert 5 point rating scale. Respectively whereas sometime and rarely used services are personalize services, CAS, SDI and News clipping.

8. Very less respondents are getting library alert services through Web, SMS and E-mail channels.

9. 6.3.4 Use of AGRIS Services

1. Among the various AGRIS resource like AGRIS e-book, AGRIS online database and Agnet database are widely used with mean value of 2.60, 1.81, and 1.65 Likert 5 point rating scale. Respectively whereas other resources like Agrovoc, Agricola and AGRIS CDROM are comparatively less used by the agricultural researchers.

2. Among various AGRIS services like subject bibliography, Agrindex, and National bibliography are widely used with mean value of 1, 0.91 and 0.77 Likert 5 point rating scale. Respectively whereas other AGRIS service like AGRIS working methodologies, Agrovoc thesaurus services, AGRIS software services and AGRIS reference service are comparatively less used by agricultural researchers.

3. The Digital network like AGNET, HORTNET and SEEDNET are widely used with mean value of 1.20, 1.28 and 1.15 Likert 5 point rating scale. Respectively whereas other digital network like AGMARKNET, DACNET, VISTARNET, APHNET, FISHNET, FORTNET, AGRISNET, AFPINET, ARINET, NDMNET and COOPNET are comparatively less used by agricultural researchers.

4. Various AGRIS resource data institutional data, forestry data and water resource data are widely used with mean value of 0.58, 0.83 and 0.58 Likert
5 point rating scale. Respectively whereas other AGRIS resource data like Fisheries data, Land owner data, Plant resource data, Socio-economic data, Soil resource data and Spice resource data are comparatively less used by agricultural researchers.

5. It is found that 24.6% users rated of excellent library services and 38.8% rated of very good library service. It is also found that 32.4% respondents rated excellent library service from NAU compare to other agricultural university libraries.

➢ 6.3.5 Use of Journal:-

1. Printed journals are more used (209/276 75.7%) than the e-journal 67/276 i.e. 24.3%. The printed journal is almost equally used in four agriculture universities library but e-journal is more used in NAU than other libraries.

2. It is found that 54.35% users used both type of journals. It is also found that majority of users used both type of journals in NAU.

3. 86.6% respondents agreed with sufficient literature available in journals.

4. 84% respondents give ‘NO’ opinion for plagiarism of literature, i.e. They are not agreed with plagiarism of literature.

5. 89% respondents are agreed with authentic information provide in journal.

6.4 Suggestions:-

The investigator analysis the collected data received from users and gives findings for researcher and library study. Study of the findings the researcher gives few suggestions as under.

➢ 6.4.1 Suggestion for ICAR:-

1. ICAR should force the State Government for the appointment of university librarian in the state agricultural university library.

2. The researcher should be motivated to use AGRIS service, the feedback survey should be conducted and result of the survey should be sent to nodal agency.

➢ 6.4.2 Suggestion for State Government:-

1. The state government and Ministry of Agricultural should appointed agricultural university librarian and deputy librarian.

2. The number of post for assistant librarian and technical assistant should be increase.
3. The library professional staff should be given UGC Pay scale and academic status.

4. State government should start a specialize university like Veterinary & AH, Forestry, Dairy technology etc.

**6.4.3 Suggestion for Agricultural University:-**

1. All agricultural university library have ad-hoc library professional, this should be stop immediately.

2. New course like Nano Agricultural technology, Plant Genetic, Agricultural IT should be introduced. Fisheries Science recommended to start NAU.

3. The university authority should improve the infrastructure, printed resources, latest resources, manpower and internet connectivity to remove the dissatisfaction of users.

4. All university should implement RFID technology for its library security and provide the funding.

5. University should provide fund for library digitization and Institutional repository.

6. All the agricultural university should started the social Networking on their Web.

**6.4.4 Suggestion for Agricultural University Library:-**

1. The university library should develop co-operation and resource sharing through the networking with NAL (USA) and FAO library like chaina.

2. The university library should remain open 12 hours per day for the satisfaction of library users.

3. All agricultural university libraries should start a content delivery services for to its client particular research community.

4. To alert the users instant messaging, e-mail etc should be used Wots App is a great help for this.

5. The authority should develop a library Web using Web 2.0 technology.

6. OPAC should be made available on institute Website, so the users can access the library collection at any time and their desired place.
7. The library should frequently contact their respective researchers/users to understand their requirement.
8. All agricultural university libraries should have latest print resources
9. All university should implement RFID technology for its library security.

➢ 6.4.5 Suggestion for Agricultural University Library Personnel:-

1. Library professional should develop their skill and competence in Information Technology.
2. The library professional should be aware about ICT application use into the library and to make their library globally competent.
3. Library personnel should adopt fully automation policy and fully automation should be completed as early as possible.
4. Library personnel should start the digitization and institutional repository with the aims of ICAR.
5. All agricultural university library personnel should adopt uniformity in providing library and information services.
6. The university library personnel should arrange the book exhibition, book review and reading competition, quiz competition, book talk and debate on book etc for increase the usage of library collection.
7. Major library user community is not familiar about online e-resource. It is suggest that library personnel should arrange the lectures for use of e-resources.
8. Library personnel should take initiative to develop users group, discuss group in various subject.

➢ 6.4.6 Suggestion for Agricultural Information Users:-

1. The present era is ICT dominant and more and more users more use mobile, tablets, so e-resources should be made available.
2. It is suggested that to provide the motivation by financial support, reservation in admission by changing the policy and change the mind set in among the female student, job opportunity for female researcher to joint research study.
3. The rate of computer literacy decrease as the age increase. The university should start learn and relearn programme in computer application for young and senior researcher.

4. The quantity of research paper presented by researcher at national and international seminar, research articles/papers published in national and international journals is very less. They should be motivated by providing opportunity, seeds money as a financial help and forced them to disseminate and diffuse their research results at national and international level.

5. It is suggested that researcher should use library resources of other research libraries using internet, consortia and Web technology to enhance this speed and prosperous of the research.

6. The researcher should maximum use library resources like books, reference books, journals, e-resource, reports, thesis, latest articles etc during their research study.

➤ 6.4.7 Further Study:-

Due to the revolution of industrial and service sector and agricultural land is reducing. So major peoples were shift to urban town from villages. After 1990 the share of agricultural in GDP and workforce in agricultural was reduced. When India is progressing towards information and knowledge based society and tries to occupy supreme power in modern world information plays a vital role. So it is necessary to develop an agricultural information and extension system in India for increase the agricultural production and development of agricultural education and research study. The investigator tries to fill the gap between agricultural information system and agricultural university library service. The investigator gives suggestions on the following topic for further study.

(1) “A Role of Institutes of Agricultural Education, Research and Extension System for Development of National Agricultural Information System in India,”

(2) “A Role of Agricultural University Libraries for Development an Agricultural Information System in India.”
(3) “A study on Growth and development of Agricultural University Libraries and Contribution of ICAR in India.”

(4) Information Need of Rural People Engaged in Agricultural and Allied Activities in Gujarat.

(5) “Analytical study of Growth and Development of Agricultural University Libraries in Gujarat State.”

(6) “A Contribution of Agricultural University Libraries for Development of Agricultural, Agricultural education and Research in India.”

**Conclusion:-**

India is an agrarian country and its major population engaged in agricultural production, process, preservation and marketing. In 5000Bc, Sumerian started an organized agriculture in India and 2300Bc Harappan - Chalcolithic culture, Cultivation of wheat, barley, grams and peas in Indus Valley. Aryans came in North India. They bring wheeled Rathas drawn by horses and cultivated pulses at Navdatoli, Madhya Pradesh. According to the times, new inventions and developments were found in field of agricultural. Due to the awareness of agricultural development, the peoples await the development of agricultural education in the world. Here give few bench-marks for agricultural development.

- 1872 started the “Department of Agriculture and Agricultural Research Station in USA” 1924 established “Institute of Agricultural Engineering, University of Oxford in the U.K”.
- 1870, Lord Moyo started the started “Department of Agriculture and Commerce”.
- 1871 renamed “Department of Revenue, Agriculture and commerce”.
- 1881 started the Imperial Department of Agriculture. 1882 first veterinary college started in Lahore now in Pakistan.
- 1929 Imperial Council of Agricultural Research was started under the flagship of T. Vijaya Raghavacharya.

In the 1947 Indian becomes independent. At time India face a lot of problems like food and gain security, population and poverty etc. The Govt. of India gave first priority to develop the agricultural and agricultural education and research. In the 1947, Govt. of India has change the name of council was changed from Imperial Council of Agricultural Research to Indian Council of Agricultural
Research, it call ICAR. The ICAR has prepared a planning for agricultural education and research and started some research institute in India. In 1966, ICAR drafted a Model Agricultural University Act for established new agricultural universities and as the part of result 56 SAUs, 1 CAU, 4 CAUs with agricultural faculty, 05 Deemed-to-be-Universities, 17 National Research Centers (NRC), 51 ICAR Institutes, 06 National Bureaux (NB), 22 Project Directorates (PD), 60 All India Coordinate Research Projects (AICRP) was started in last 50 year in India.

Due to the development of agricultural education and research, agriculture concept was change. The farmers used latest research information and technology and hybrid seeds in his farms. As the part of result agriculture production was increased after 1960s. This time call green revolution in India. The rise of agricultural production, the share of agricultural in GDP was 51.9% in 1950-51. Due to the industrial revolution and urban development the agricultural land was reduced. So the share of agricultural in GDP was decrease 13.7% and increase the share of industry in GDP was 26.7% in 2012-13. In the 1950, the more than 50% labor force engaged in agricultural but labor force ration was reduced 41% in 2012-13.

So the crisis of food and gain security, agricultural production must be increase and its one solution to use information resource for agricultural research and provide the experiment to the farmers on his farms.

In the chapter-1 Introduction, the investigator gives the details of agricultural development and background of topic selection in the preface and mentions the objective of research and scope and limitation. The investigator gives the description of research design like hypothesis, use research method, data collection tools, population etc.

Review of literature is most useful chapter in the research study because selection of research topic the investigator should study the available literature regarding their research topic. Here the investigator used the books, research article, thesis, reports and Website etc in his research study.

In the chapter-3, the investigator mentions the invention of agricultural, agricultural education and research development in India and the world. The researchers describe the contribution of agricultural in Indian economy and agricultural revolution in India. The ICAR plays role for development of
agricultural education and research. The investigator has also mention the development of agricultural education and research in Gujarat.

The chapter-4 Library and Information services for agricultural education and research cover the type of library services and need of library and information services for development of agricultural education and research. The chapter is also cover the topic on growth of agricultural university libraries in India and development of agricultural information system in the world like AGRIS, IFLA agricultural library, FAO Library and National Agricultural Library USA etc. The investigator mention the role of ICAR for development of agricultural information system and available the e-resources through consortium of e-resource for agricultural (CeRA), e-Grantha and Krishiprabha etc in India. The researchers also mention the development of agricultural information system in Gujarat State and Govt. of Gujarat has established four agricultural universities. The chapter-5 data analysis and interpretation is most useful and valuable chapter in the research study because the investigator analysis the collected data using statistical software like SPSS, Statistical solution, Science Plus, Exeter Software etc. Here the investigator used the survey research method and used the questionnaire for data collection tools. The questionnaires prepare using Likert 5 and 3 point rating scale. The investigators send a 502 questionnaire to the respondent and 276 received back with feedback. The researchers use the SPSS 16.0 version analysis software package and create the 143 variable. The investigator prepares a tabulation and figures data analysis and interpretation.

In the chapter-6, the findings, suggestion and conclusion are depends on data analysis and interpretation. The systematic data analysis and interpretation is helpful for systematic findings and provides right suggestions. Here the researchers divide two parts for findings one for library study and other is researchers study and give some valuable suggestion for ICAR, State government, Agricultural University, Agricultural university libraries, Library personnel and library users etc.

In the recent time, agricultural information system is require for increase the agricultural production and remove the crisis of food and gain security. In the Israel, due to the land problems, the people grew the wheat on his terrace for his family and it is possible when right agricultural information provide to the peoples.