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2.1 Introduction:-
Review of literature is an early step for conducting research. It enables for researchers to avoid the duplication of research work and broadens the understanding of the research problem. Various research studies related to the present research problem “A Study of Library and Information Services for Agriculture Universities Researcher at Gujarat State” has been conducted in Gujarat. These studies relate to the different aspects of library services particularly agriculture universities research scholars and their teachers (Professor, Assistant Professor, Associated Professor and Research Officer) their information seeking behavior, user’s pattern and satisfaction with the resources and services of libraries, etc. In this chapter, a review of the selective and useful studies related to the research problem has been attempted.

2.2 What is Review of Literature:-
Review of literature is a collective body of works done by earlier scientists and published in the form of books or in the form of books or in the form of articles in journals or published as monograph et. Every scientific investigation starts with a review of literature. In fact working with the literature is an essential part of research process which helps, generates ideas in developing significant question and is regarded as instrumental in the process of research design. A literature review is a part of the report. It provides considerable information on the topic being research and the various works that had gone on in the field over the year. These materials are gathered by the researcher from many sources such as journals, books, document etc. The review of such a literature could be matter of fact presentation of the information or it could be a synthesis of a large number of information and put together subject wise for the purpose of understanding. It can be just a simple summary of the sources but it usually has an organizational pattern and combines both summary and synthesis. Review of literature generally begins with a research problem in mind. Occasionally literature review will help to select the topic, previous research studies will decide to examine another aspect of problems. The review of literature is necessary so that to narrow the problem to be studies. The
researcher may be able to capitalize on success as well as the other investigators.

2.3 Aims & Objective of Literature Review:-

(1) Recognize the need to be familiar with library service
(2) Distinguish between primary and secondary sources.
(3) Discuss library resources that may be used in locating literature reference.
(4) The research studies have recommendation for future research, which can be taken for new research.
(5) To help locate theoretical and conceptual framework and related data, this is useful in the present study.
(6) To find the comparative data that could be used for supporting present findings and drawing conclusion.
(7) It helps to plan the research methodology, design, and selection of tool, sample and plan the statistical analysis.
(8) To minimize the possibility of unintentional duplication about the problem for study and increasing the possibility of new study which makes distinctive contribution to knowledge.

2.4 Review of Literature:-

2.4.1 Books
2.4.2 Article
2.4.3 Thesis
2.4.4 Conference and Other.
2.4.5 Website

2.4.1 Books:-

(1) Carrie de Silva (2012). The author provides information about agricultural education and Research development at global in the book “A Short History of Agricultural education and Research”. In the book, the author discusses the agricultural education development in European countries, when it was started and describe its development in the previous year at global.

(2) Mukerji,Nitya Gopal(1901). The author was provided the information on the ancient agriculture development in the book “Handbook of Indian Agriculture” Recommendations of the Famine Commission, agricultural
education and its utility, needs of masses of first consideration, though no agricultural depression in India, how far gentlemen-farmers can be successful in India; agricultural education for Government service in certain special departments, organization of agricultural education for sons of cultivators. In the part-1 provide information about the soil and part-2 is provide information and implement and part-3 provide information on crops and part-4 describe the information about manures, part-5 provide information on cattle, part-6 mention about insect and fungus pests, part-7 provide the information about method of analysis and part-8 provide information on famines. This handbook is very useful for history of agriculture development.

(3) **Kumar, P.S.G (2008)**. Dr. P.S.G. Kumar is a prolific author in library and information science. He wrote about 70 books and 142 papers on library and information field. In the book “Agricultural Librarianship”, the author describes that the needs of users of different groups started becoming specific services were re-organized, reoriented and sharpened further. The author describes the valuable information in nine parts and cover the information about agriculture development and agriculture research, agricultural libraries, information source in agriculture, information services, information system, committee on agricultural libraries etc.

(4) **Pace, Andrew K (2009)**. The author provides information about digital library and digital resources in his book “The Ultimate Digital library” provide the information about digital library service. The author to describe the information in eight parts in the book and provides information about commercial digital library services.

(5) **Randhawa, M.S (1983)**. The author concluded the information in “A History of Agriculture in India Vol-1 to 4”. The author provide information related development agriculture in ancient India and middle age and started a fundamental agricultural education in India. In the “A History of Agriculture in India Vol-1”, the author provides information about the crops and agriculture when and where it was started in the world. In the volume-2, the author mention information on development agriculture during the Moghal Empire and British Empire, in the volume-3, the deal with the history of agriculture in India during the colonial period from 1757 when the foundation of British Empire was laid in this country by Robert Clive to 1947, when the colonial rule ended and India
became independent. During this time called for agriculture revolution in India and started an agriculture education and research institute. In the volume-4, India’s most impressive achievement since independence is in the field of agriculture. Since independence, the great emphasis has been laid on multipurpose dams. The dams provide the irrigation as well as power for tube-wells which tapped ground water resources. Indian government started a agriculture universities and research institute in India. The author mentions about the green revolution in India in this volume.

(6) Prasher R. G. (1983). The author describes the user education programs should be essential parts of college educational programs as followed in some of the agricultural universities of the land grant pattern. Perusal of course content of 4 agricultural universities, i.e., the Punjab Agricultural University, Haryana Agricultural University, G. B. Pant University of Agriculture and Technology and the Indian Agriculture Research Institute (IARI), shows that the course content focused on both library orientation and user education and gives considerable emphasis on technical writing. There is less emphasis on search strategy and interest profiling. The author has suggested that the course should be more realistic and need based. The study further states that at no place in India has the course been designed according to the latest developments in either the user education field or in terms of guidelines.

(7) Punit, Ralhan (2009). A book “Advancement in Library and Information Science” has been designed as a manual which seeks to explore the technological changes which have invaded the field of library science most notably that of information system management. Bringing within purview both concrete and digital libraries the book delineates the processes principles and practices which have defined information handling and access in recent years and discusses what they portent for the future of library and information science. Here the author shares the information in eleven parts like (1) Automation of Library Services (2) Digitization of Library Services (3) ICT application in library (4) Future of Digital Library (5) Digital information Resources (6) Multimedia in Library etc. In addition to updating the reader on the latest trends and developments in the field the text attempts to enhance the readers understanding of the field of library science itself.
(8) Singh, Pramod Kumar (2004). The author provided information on the digital library services in this book “Digitized Methods of Library Services”. The author mention that the modern library is considered to be the 'Heart' of the academic activities in an academic organization, the effectiveness of a library depends upon the quality, degree of the services and suitable staff members and also to what extent it satisfied the users. With the advent of the electronic information era, the old concept of a library being only a stone house of books has now changed. Consequently, in an academic organization, a library is not only considered as a centre for the creation and recreation of information product and services, but also a dynamic catalyst of research and development activities having a strong role to contribute significantly for achieving academic excellence in an organization. Digital libraries have the capability of supporting these roles through emerging information services, data systems and communication networks. In a digital world there are numerous new or expanded roles for departments. Access to high quality and peer-reviewed instructional resources via digital libraries will help to create.

(9) Naik, K.C. (1961). Dr. Naik joined the ICAR as a chief of agricultural education in 1960. Naik was enthusiasm in compiling information on agricultural education in India. The author divided this book in twelve chapters. This book provides the information on under graduate and post graduate agricultural education development in India after the Independence. The author discuss the about extension training centre and vocational agricultural school in this book. This book is very useful for the study of agricultural education in India.

(10) Tamboli, Prabhaka and Y.L. Nene (2011). In this book, the author highlights the information about the higher agricultural education challenges in India is timely for several reasons in his book. First, India’s experience of the green revolution is based on the human capital investments it made in the early stages of its development after independence. This book contained the information about agricultural education and research development in India.

2.4.2 Articles:-

(1) Jadhav, U.S. (2011). In the research paper “Automation of Veterinary College Libraries in India: Problem and Prospectus”. The author discusses the
concept of library automation, automation status of Veterinary College Libraries in India. The study has also discussed about the veterinary colleges, its objectives, and status of automation, automation services, problems and prospectus. Attempt has been made to analyze the various factors that directly or indirectly affect the progress of library automation such as management issues, ICT infrastructure, skills of staff. Concludes that in this competitive environment and to meet the various needs of users, there is a need for adoption of library automation and extend ICT based library services to the users in Veterinary College Libraries.

(2) Suresh Jange, Mallikarjun Angdi, Lalitha K Sami and Shyamala Subramaniam (2006). The author provides the information in “Web content of library portals in Karnataka: Role of Librarians in the Internet World ” The Library and Information Centers are expected to reveal the world to serve the users with information regarding their services and special collections using the World Wide Web and as such the Library managers acting as Content Managers in the Internet world have to design the library web page to facilitate and supplement access to current information resources and services. An attempt has been made in this paper to analyze the library web portals of academic institutions in Karnataka in order to enhance the effective use of library web sites to become more user friendly for information access. Academic Library web sites in Karnataka are analyzed and the results show that, majority of library portals are very concise and lack the current awareness services and updating policy.

(3) Singh, K.P and Gulati, Dipti(2012). In their article “Agricultural Associations in India” the author describe agriculture as a vital component of Indian economy and it is necessary to all our daily needs. The role of professional associations is committed to accelerate the growth and development of the subject. Agricultural association is not exceptional which accelerates the education, research and extension in the country. The authors of the paper explore the quantitative and qualitative growth of the agricultural associations in India with their nomenclature in the agricultural history. The study highlights how the various activities are undertaken by the agricultural associations to promote agricultural literature, information and knowledge, organization of conferences/seminars, fellowships /scholarships/awards. An
exhaustive list of agricultural associations in the country is also provided in their paper.

(4) Singh, K.P.(2012). The author describes that agricultural is the most crucial sector for ensuring food and nutritional security, sustainable development and for the alleviation of poverty in India. It is the key sector in India for generating employment opportunities for the vast majority of the population particularly in rural areas. The research paper is very useful for valuable information in present research study. The paper aims to explore the many facets related to agricultural education, research, training, and libraries in India in order to provide a historical account on these aspects. In the researcher paper, the author discusses in detail the various committees and commissions and their salient recommendations leading to the expansive growth and development of agricultural education, research, and libraries in India. Further, the paper also highlights the critical role of the Indian Council of Agricultural Research in the growth and development of agricultural education, research, extension, and libraries.

(5) Kannappanavar, B.U and H.M. Chidananda Swamy(2010). In the article, the authors have mentioned that India is an agricultural base country and it development depends on the education of farmers and their information level. The peoples need information to become enlightened and rational and to make quick and correct decisions to improve rural life. The nature of information services provided by the agricultural university libraries provided one to another, owing to the range of interest of the user community. With the emergence of the computer and revolutionary changes in communication technology, it has become possible for an agricultural university library to provide a variety of technology based information services to users with a wide range of interests. The libraries under study are in the initial stage of development. Modern technologies in the libraries are now being used to satisfy the information need of users. The people working in these libraries need training and exposure to new technologies. There is a need to develop the culture of interlibrary loan services and electronic transmission of documents. Databases of theses, journal articles, and library catalogues must be made available to users.
(6) Sangwan, Satpal (1996). This article evaluates the various aspects of the agricultural techniques and technologies in India during the East-India company rule. This period represents a confrontation between tradition and modernity, as also intellectual intercourse between the West and India. This contact exerted much influence on Indian science and technology. In the agricultural field the pressure of external forces was more visible and effective. Agriculture in India had developed in remote antiquity and down the eighteenth century India ranked among a few developed countries of the globe. During the eighteenth and nineteenth centuries agriculture was really a vital industry of the people and it were most closely linked all other local industries.

(7) Anna Kaushik and Jagdish Arora (2012). In the article “Blogs on Marketing Library Services”, the author identifies blogs in the area of marketing of library and information services and assesses their Features and contents during January to June 2009. It is found that six blogs on marketing of library services are active and cover variety of features, frequency, file formats, web resource categories and subjects including marketing.

(8) Vishaki, P (2009). The author provides information on “Consortium for e-Resources in Agriculture” is an e-Consortium of Agricultural Libraries under the Indian Council of Agricultural Research for National Agricultural Research System libraries. This paper provides the information on agricultural related e-resources. The National Agricultural Research System of India comprises Indian Council of Agricultural Research and Central/State Agricultural Universities under Department of Agricultural Research and Education, Ministry of Agriculture, Government of India. The paper discusses the background, main features, and advantages of the consortium for e-resources in agriculture.

(9) Francis, A.T (2012). The author has mentioned that the digital information resources available online are increasing at an exponential rate, several practices have evolved for the economic and effective delivery of such information to the end users. In this context, consortia-based information services have gathered momentum world over during the last few years. Though, there are several library consortia in India, UGC Infonet is mainly meant for universities controlled by UGC and CeRA is meant for agricultural universities. This paper discusses utilization of consortia-based digital information resources by the post
graduate and doctoral students of the Kerala Agricultural University, Thrissur. Results show that sent percent of the students were familiar with the use of digital information resources available online and 87.14 per cent of them used CeRA. Eighty two percent students were acquainted with CeRA and learned the required skills for the access and use of digital information resources through curriculum-based courses like ‘library and information services’, ‘research methodology’, etc. The students in general would like to strengthen the CeRA services by adding more resources and facilities.

(10) Mahapatra, Rabindra.K.(2012). The authors presents that many Indian libraries have taken up the challenge of modernization to develop the machine readable catalogues, and machine readable full-text databases to provide greater accessibility to full text documents of different nature in order to provide seamless information to their users. This research paper examines the status of the digitization of agricultural libraries in India and the role of the Indian Council of Agricultural Research in developing new digital initiatives in content creation and agricultural digital library management. It elaborates upon the tools and technologies required for agricultural digital libraries management.

(11) Srivastava, Rochana(2004).In their article “Digitization of Special Collections: National and Academic Libraries Examples”, the author describes a few major national and academic libraries of the world that have undertaken projects to exploit the potential of digital technology for displaying unique and fragile materials. The paper also highlights major goals of these digital projects. Selection criteria of special collections for digitization, by these libraries, have also been discussed in the paper.

(12)DevendraKumar, AkhtarHussain, M.M.A.Ansari and Nishat Fatimma(2010). This study examines the expectations of faculty members and research scholars towards library resources and services at Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, Uttar Pradesh, India. It analyzes the various aspects of library collection usage, frequency and purposes of library visits, and user satisfaction of library services. It also relates major problems that hinder faculty members and research scholars from using the library.

(13) Anwesha Borthakar and Y.L.Nene(2013). The article provide the information on “Agricultural Research in India: An exploratory study”, the
author mention that India as a predominantly agricultural country attributes a major share of its overall development to the agriculture sector. India has one of the largest and institutionally most complex agricultural research systems in the world. However, such a complex research system was not a sudden development. Instead, historically, it involved a process that started in the second half of the 19th century during the colonial period and eventually led to the establishment of the Imperial Council of Agricultural Research (ICAR). In the present research system, the role of ICAR at the national level in aiding, promoting and coordinating research and education activities across the country is of significant importance. In this article we trace the development of agricultural research system in India, since the colonial era till today.

(14) Hans Raj and V.S.Kaushik(2012). This paper briefly describes the history and development of international information system for agriculture science and technology, its networks, documentation tool, products/services, HRD and capacity building programme. An attempt has been made to showcase the contribution of India in AGRIS development. The limitations and problems faced during AGRIS inputs preparation have been discussed in details and an action plan is suggested for further progress and success of AGRIS programme in India.

(15) Leth.M.M (2006). This research paper briefly describes on the modern digital information environment, a well-defined mechanism is needed to organize, store, and access information. A library portal is highly beneficial for this as well as for web-enabled information services. The most of the libraries are adding e-resources in their collection. The utility of these e-resources will be limited in the absence of a functional website that facilitates the users to exploit these to the maximum extent. The web portals are the tools that enhance access to the e-resources by providing visibility to these. This paper highlights the role of a library portal for various user Services.

(16) Anwesha Borthakar and Singh, Pradeep(2012). In their article on “History Agricultural Research in India”, the author discuss that agriculture is the backbone of the Indian economy which plays the most decisive role in the socioeconomic development of the country. Indian agriculture is a miscellaneous and extensive sector involving a large number of actors. India has one of the largest and institutionally most complex agricultural research
systems in the world. This paper is provides the valuable information for present research study. The author provides the information about agricultural education and research after freedom in India.

(17) Beverlee.A.Franch(1990). This article on “User Needs and Library Services in Agricultural Sciences”, the author discuss the users of agricultural information and describes their information needs and behavior. It reviews the trends in agriculture and information delivery and the implications of these trends for users and for the relationship between information professional and user. It suggests roles which librarians and information professionals can assume in order to meet agriculturists’ information needs.

(18) Vayyavuru Sreenivasulu and H.B. Nandwana(2001). The author provides an overview on the networking of the Agricultural Information Systems and Services in India. Covers a range of issues related to Agricultural Research Information System (ARIS) of ICAR in India. It discusses in detail the Agricultural Research Information System Network (ARISNET) for India and its modules consists of Agricultural Research Personnel Information System (ARPIS), Agricultural Research Financial Information System (ARFIS), Agricultural Research Library Information System (ARLIS), and Agricultural Research Management Information System (ARMIS) and ARISNET management. It reviews the strength and development of Agricultural Libraries in India including institutional system of ICAR, State Agricultural Universities, and ICAR Institute Libraries. It also covers information technology applications in agricultural libraries and information technology infrastructure in the Agricultural Libraries in India.

(19) Hemantha Kumar G.H, Srinivasa V, Bhaskara Reddy M and Chandra B.T(2012). The authors mention that the present study attempts to evaluate the initiatives taken by India to make this intellectual output accessible for all by publishing them in open access resources like open access journals and repositories. The results revealed that India is continuously contributing in open access literature as some of the premier institutions, particularly in the agriculture sciences. The position of India in terms of number of journals in the Directory of Open Access Journals (DOAJ) is 5th and in Directory of Open Access Repositories (Open DOAR) India has 11th place in the world repository.
(20) Patel, Harshad and Patel, M.G. (2014). In their article “Library and information Services in Agricultural University Libraries of Gujarat: A Study”, The author provides the information for present study is analyzing of the Agricultural University library and information services and its facilities of Gujarat state. The purpose of this study is affecting the usage of library and library Services, Infrastructures facilities, problems of using library etc.

(21) Nabi, Hasan (2012). The paper provides the brief the background of the National Agricultural Research System (NARS) and the Indian Council of Agricultural Research (ICAR). It elaborates the National Agricultural Technology Project (NATP) and the components of the National Agricultural Innovation Project (NAIP) with special reference to the Component-I under which all the important and most innovative web-based projects, i.e., Krishi-Prabha, CeRA, and e-Granth falls. The overview of these projects including objectives and deliverables has been highlighted especially keeping in view of the current scenario of the NARS institutions. It further elaborates the rationale, mission and objectives of the projects, the methodologies, and work programs. It also shows the directions and outcomes of the projects. The long term positive deliverables of the projects have also been projected.

(22) Wenfei Zhuo, Shuchun Pan and Zongfang Xie (2011). In the research paper, the author describes the National Agricultural Digital Library Information Integrated Service. The user-oriented information service platform serving China’s agricultural science and technology sector that seamlessly integrates a large volume of distributed content and information resources and techniques with a mechanism to enhance the cooperation of participating organizations. The integrated platform, which is part of the development of the digital library, synthesizes the library function for library services and gives the users the opportunity to access information at any where they want.

(23) Ramesha, Kumar B D and Kanamadi Satish (2004). In their research paper, the authors evaluated IT based services on the basis of user requirements and satisfaction. The author conducted this study for University Libraries in the Karnataka state. In this study the researcher used the survey method and used the questionnaire for data collection tools. The author used two different sets of questionnaires one for users and another for the providers (facilitators) of service- for the Librarians. After the data interpretation, the researcher gave
some findings and his suggestion. In the present, this study is very useful for online library service.

(24) Srivastva, Mehandra and Kanauja, Laleta (2004). The author conducted a survey for investigating the present situation of library automation, CD-ROM database services, internet and on-line facilities, reprographic services in Agricultural University libraries in India. The survey also highlighted the conventional documentation and information services namely bibliographic service, current awareness service, abstracting and indexing and newspaper clipping services in agricultural Universities in India. The study used questionnaire technique for data collection and data collected from 30 agricultural University Libraries in India. Findings showed that 100% libraries are providing Current Awareness Service and bibliographic services. 40% libraries providing indexing and abstracting services. Only one library (3.3%) is providing newspaper clippings service. 73.33% libraries had software operating systems and 33.33% other working software package. Majority of them had Dos/Windows based system. Working software used in these libraries were CDS/ISIS, Ms-Word, Excel and PowerPoint. All the libraries (100%) were providing manual services, 30% giving computer based services, 30% giving SDI and 70% providing CD-ROM database search facility. 13.33% of libraries were giving on-line database search, 46.66% providing e-mail and 56.66% internet search, 20% for multimedia search. All the libraries give reprographic services and 73.33% provides microfilm reading facility. Researchers suggested that all the libraries should provide agricultural newspaper clippings service. Further suggestion given for implementing OPAC in the library for better access to information and CD-ROM database service should be provided by all the respondent libraries and automate their library functions and services. The researchers concluded that in the new millennium, each library in India must go on electronic internet for better information services for meeting the future challenges.

(25) Balu Maharana, Supreeti Das and Sabitri Majhi (2011). The author discuss in the research paper on “Research Productivity of Agricultural Scientists of Central Rice Research 60 Institute (CRRI), Cuttack: A Study”, the author describes results of research productivity study of agricultural scientists
at Central Rice Research Institute (CRRI), Cuttack. The purpose of the study is to evaluate the research performance of CRRI Scientists.

(26) Shilpa, S.U, Rajashekha, Mahadevagouda and Satish, Uplonkar (2013). This paper discusses the present status of agriculture libraries in India and suggests measure for their uplift by sharing library resources through networking and consortia. It also aims at evaluating parameters such as coordination and implementation of standards for computerization, networking and sharing through adoption of advanced technology among Indian Agricultural Libraries and role of Agriculture Library association in development of agriculture libraries. Agriculture sector has been the backbone of the India as it is the main source of economy for a large number of people residing in rural areas. It contributes to nearly 25% of gross domestic product and about 70% of population is dependent on agriculture for their livelihood. Indian Council of Agricultural Research (ICAR) is an apex body established in 1929 which plans, conducts and promotes research, education, training and transfer of technology for advancement of agriculture in India. Research setup of ICAR includes 45 central institutes, 6 National Bureaux, 17 National research centers, 6 Deemed universities and 27 state Agriculture universities (SAU’s) and 25 directorates/project directorates and one Central Agriculture University in India, providing education, research and extension facilities for development of agriculture in India. When library consortia are formed the existing environment about users preference and difficulties need to be studied, such studies would enable to incorporate the findings as the major input in consortium.

(27) Nair, Raman, R. (2006). The author provides information on farmers oriented information resources available in agricultural sector and outside as well as awareness about them among the farmers and public, their accessibility, relevance and services. This study was conducted survey based on particular community. The author was found within the limitations that existed village libraries contained substantial quantity of agricultural information materials in local language and produced for the use of farmers and non specialist.

(28) Kannappanavar and Praveen Kumar (2005). In this paper, the author evaluates the training programmes pertaining to Library and Information science and their effectiveness as stated by library professionals in selected
Agricultural Science Libraries in India. The most of the library professionals in agricultural university libraries have attended these training programmes and they stress the need for more specialized training programmes based on skills and competencies. All the agricultural science libraries have been partially computerized and the information stored in digital format. It is found that the workshops organized are generally designed to provide practical training on IT applications, but they are not assessing the training needs of library professionals.

(29) Singh, N. (2001). In their research article “Internet: Importance and Usage for Library and Information Professionals”. The author emphasizes the challenging role of librarians and information professionals in the present internet era and describes the impact of internet on various library processes. Internet has changed the traditional library services like document acquisition, technical processing circulation, reference service resource sharing, document delivery etc. The role of internet to provide different user friendly services in a library is described in detail. Integration of library activities through Email, list serves, search of remote databases, participating in interlibrary loan etc.

(30) R. Jayaraman, S. Srinivasaragavan, and M.R. Duraisamy (2011). In their article, the author provides the information on “Information Seeking Behavior Pattern among the Students and Faculty in Tamil Nadu Agricultural University Libraries, the author provides the details on information seeking behavior among students and faculty of Tamilnadu agricultural university library. Agricultural University Libraries play an important role in providing information to the users. In the present study, the authors have made an attempt to know the information seeking patterns of the Under Graduate Students, Post Graduate Students and Ph.D. Scholars in Agriculture and Faculty Members of various Agricultural College Libraries of Tamil Nadu Agricultural University (TNAU) in Tamil Nadu. The author adopted questionnaire method to collect data. About 80% responses have been received. The study identified various modes of literature search, purpose of visit, type of information gathered, frequency of library visit and time spent in the library. This paper is very useful to understand users’ information requirement.

(31) Singh, S.N and Garg, B.S (2002). In this article, the author provides an overview of reprography as an inseparable part of information centers and
libraries (ICLs). Here provides a brief account of the historical development of reprography and its impact on document delivery services. A questionnaire method using a field stratified sample survey was selected as the main instrument for the data collection. The study shows that there is increase in availability and use of the photocopying facilities in biomedical ICLs in India. The survey mentions that most of the biomedical ICLs have photocopying facilities and these are inseparable part of the ICL service.

(32) Sinha, Manoj Kumar(2004). The author mentions that “Scenario of Automation and Networking of Library and Information Centers (LICs) of North Eastern Region of India: An Evaluative Study.” The author has evaluated the 60 automation and networking services in 12 libraries that had financial assistance under INFLIBNET program. The researcher used survey research method including the questionnaire technique. The survey findings mainly cover various aspects of library automation and networking, multimedia application and use of CDROM databases, OPAC and internet services like in-house operations such as acquisition, circulation, retro-conversion, serial control, information retrieval and dissemination, bibliographical services, online search of databases, OPAC, web OPAC etc.

(33) Akobundu Dike Ugah(2008). The purpose of this study is to examine the relationship of availability and accessibility of information sources with the use of library services in the university library. The author has used survey research method and take respondent as a staff and students in agriculture university in Nigeria. The findings confirmed that the information sources were not readily available and that there is a relationship between the availability of information sources and the use of library services. The use of library services has an approximately 80 percent dependence on each variable.

(34) Biradar,B.S,P.Dharani Kumar and Y.Mahesh(2009). In this study, the author provides information on “Use of Information Sources and Services in Library of Agriculture Science College”. The author took a survey of 100 students belongs to agriculture science college for purpose of visit to the library and usefulness of agriculture science periodicals reveals that 77.22% respondent visit the library everday.88% students visit the library to reading the journals and magazine. The users opined that Indian Journal of agriculture science (62.92%) and Karnataka journal of agriculture science are most useful journals.
(35) Solomon Uganneya, Rebecca Ape and Nancy Ugbagir (2012). In the study, the author provides the information on “Information services provision and user satisfaction in agricultural research libraries in Nigeria”. The authors examined the extent to which users are satisfied with reference and circulation services provision by agricultural research libraries in Nigeria. Descriptive survey method was used for the study. Through purposive sampling six agricultural research libraries: (three university of agricultural libraries and three agricultural research institute libraries) were selected from three out of six agricultural zones of Nigeria. A total of 701 respondents’, 241 from agricultural research institute libraries and four hundred and sixty (460) users from university of agricultural libraries were obtained in this study. The study finds out that reference and circulation services were highly provided by the agricultural research libraries in Nigeria. Majority of the users were satisfied with both the reference and circulation services provision by the agricultural research libraries. However, referral service and shelf management of books were rated dissatisfied. Irregular internet services, expensive, internet services, outdated material and staff unresponsiveness were some of the constraints to user satisfaction. The study is useful for present research study.

(36) Salaam, M.O and Aderibigbe, N.A (2005). The study of “Awareness and Utilization of the Essential Electronic Agricultural Library by Academic Staff: A Case Study of University of Agriculture, Abeokuta, Nigeria”, the author examines the awareness and utilization of The Essential Electronic Agricultural Library database resources by the academic staff at the University of Agriculture, Abeokuta, Nigeria. A questionnaire was distributed to two-hundred academic staff members that were randomly selected for the study. The findings show that 57.8% of the respondents were aware of Electronics Agriculture Library and that 33% used it when necessary. In the study, the author finds out that electricity problem and poor internet connectivity as hindrances to their utilization of this electronic resource.

(37) Rokade, S.M and Rajyalakshmi, D (2006). In this paper, the author mentions that Electronic information services are the keys to the development of agriculture, agriculture education, research and agricultural extension education in India. One of the main objectives of agricultural university libraries in India is to process, organize and disseminate the much-needed agricultural
information to the users. The agricultural information services are rendered by the four agricultural university libraries in Maharashtra to the agricultural scientists, academic staff, students and other agricultural users. This article is useful for online library services in the present study.

» 2.4.3 Thesis:

(1) Kulkarni, Manoj (2008). In the title of thesis “Survey of state administrative training institutes (ATI) libraries in India with special reference to library service quality expectations” the researcher describes the importance of library services for maximum usage of library resources. The main purpose of this study was to improved the library services and satisfy library users. The libraries are the service oriented institutions. Therefore the quality of library service delivery is the most important factor among all library operations. The foremost belief of the quality management is that the customer decides the quality of product or service. Therefore it is necessary to understand the expectations of library users. In this study, the library users are main respondents. The researcher used a surveying method and used questionnaire as a part of data collection tools.

(2) Veer Bela (2008). In the study of ”Impact of outsourcing of library activities and services in science and technology libraries of northern India: a critical study” The researcher used term ‘Outsourcing’ is a combination of the terms “outside”, “resource” and “using”, it means going outside of organization to used the other resources. Asking someone else to do something for you is as old as mankind. Outsourcing is a phenomenon that is sweeping industry and affecting all sectors of economy: Private, Public and Academic. Libraries are not immune to this trend. The term “Outsourcing” may be somewhat new to the vocabulary of librarianship but its practice in libraries is not. Outsourcing of library services has been practiced as far back as in 1901 when Library of Congress began mass-producing catalog cards and providing them to other libraries, in this process perhaps it became first vendor. Outsourcing became such a prevalent topic in 1990’s that many entire library science conferences were devoted to this area. Outsourcing has become a hot topic in the library community and a lot of literature has been generated in the form of books, articles, research works and discussions. The intention of this work is to find out
what outsourcing is all about, how it is affecting and would affect library activities in specific areas and also evaluate its overall impact on the activities and quality of services in libraries.

➢ **2.4.4 Conference and Other:-**

(1) **Pandey, M.M (2009).** Studied the “Indian Agriculture in India: An Introduction” Fourth Session of the Technical Committee of APCAEM, the report present by Central institute of Agriculture Engineering, Bhopal instead of Indian Government. The report mentioned the country has made significant progress in the adoption of modern methods of cultivation and creating infrastructure for effectively and sustainably utilizing the national resources available at its command. Indian agriculture has evolved into a mature and modern enterprise over the last five decades. Farm mechanization has reached a level of maturity pushing the net sales of machinery to over Rs 50,000 crore, almost entirely through indigenous efforts. Farm mechanization programmes pursued in the country after attaining independence were directed towards optimal utilization of available farm power sources. The impact of tractorization as against oxidization is evident from the fact that India is the largest producer of tractors in the world. Increase in cropping intensity, timeliness of operations and reduction in drudgery have been shown to be the needed incentives for farmers and farm workers to adopt modern methods of cultivation. An increase of 15 percent in productivity and a reduction of 20 percent in the cost of cultivation can be achieved by engineering interventions. These interventions have been limited to a few field crops, farm operations and post harvest activities. There is an urgent need to extend it to the entire gamut of production agriculture in the country. The Country has an extensive research and development system for farm machinery design and development for production agriculture, post harvest, and utilization of renewable sources of energy covering various zones and agro-climatic regions. Extensive facilities for the testing of farm equipment and machinery including different kinds of prime movers is also a part of the agricultural equipment development network in the country which meets not only the national requirements but is also available for neighboring countries.
(2) Madaswamy, Moni (2004). The author has presented that Good Governance and institutions are indispensable for sound agricultural and rural development in developing countries. Models of e-Government are continuously evolving and improvising to harness the potential offered by the Information and Communication Technologies (ICTs) and deal with new realities in the area of governance, throughout the World. Generic Models of e-Government viz., Broadcasting / Wider-Dissemination Model, Critical Flow Model, Comparative Analysis Model, E-Advocacy/ Lobbying and Pressure Group Model, are relevant while discussing “design of an e-Government for Poor”. Studying and influencing the “Geometry of Information Flows” facilitates direct benefits rather than trickle-down benefits for the disadvantaged community.

(3) ICAR Education Division (2012). As part of agriculture education, ICAR has draft detailed project report of the “National Agricultural Education Project (NAEP)” Improving quality of agricultural education holds the key to propelling not only agricultural growth but also developing technologies for sustainable agriculture leading to livelihood and nutritional security. The attempts made by the ICAR over last two decades through its various schemes, have led to considerable improvement in the quality of higher agricultural education and skills of students but there have been several factors, beyond the control of ICAR, that have adversely affected the improvements in quality of education in some of the areas. Some major factors have been lack of attraction of talented rural and urban youth towards higher agricultural education, shortage of faculty and lack of motivation to them, and inadequate funding support to educational institutions. In the present project proposal, innovative ways have been articulated to address key concerns that fall within the domains of ICAR regulatory power given as per Cabinet decision of 1973. The agricultural education continues to be a State subject and therefore, major effort will also be required by the States. In order to get cooperation and involvement of States, innovations have been built in design for attracting investments at the State level. The key initiatives include ASPIRE programme for attracting young talent to agricultural education, major reforms in governance for bringing efficiency in the system, embedding new system for attracting and retaining talented faculty, continued emphasis on capacity building through quality
Improvement programmes nationally and internationally, developing public-private partnership for curriculum delivery and educational research, partnership with foreign universities for sandwich programme, development of joint projects with the scheme of post-doctoral fellowships and, inviting international faculty for capacity building, performance linked support, development of priority setting and monitoring and evaluation cells in the institutions and acceptance to implementing reforms for enhancing efficiency in governance as a precondition for partnership. Another thrust area of the project is the development of Centers of Excellence in competitive mode to bring quality improvements across different regions and promote new ways to technology development.

(4) Joshi, P.K and Trivedi, T.P(2011). ICAR draft a project “VISION-2030” for knowledge management in agriculture for future and present era. The first systematic effort to envision the challenges and opportunities, and formulate its own strategy was undertaken in the last year of the 20th century by preparing ‘Vision 2020’. The next attempt was after five years by Preparing ‘Perspective Plan 2025’ by all the institutes, to address the changes that had taken place. The present document, ICAR Vision 2030 articulates the strategies to overcome the challenges and tap the opportunities by harnessing the power of science and undertaking boundary less partnership with different stakeholders in food supply chain at national and international level. Concerted efforts would be made to transform the Indian Council of Agricultural Research to be more sensitive to the needs of the farming community, especially of the smallholders and of the poor living in the backward, fragile and marginal areas. The Council will focus more on the commodities and the areas where private sector would be reluctant to venture. It will also develop mechanisms to regularly monitor changes occurring at the national and international level, and will develop strategies to respond to the change for the benefit of the stakeholders. It will be done in a participatory mode by becoming more vigilant and introducing institutional processes that develop a culture of responsibility, accountability and integrity in science.

(5) Nair, R.Raman(2000). The editor prepared a document “Library and Information Services Vision-2020” on Kerala agriculture universities. Information plays a key role in agriculture education, research, extension and
development. ICAR model act on SAU’s provide for unit for library and information services of equal status to other major units like directorate of research, directorate of physical plant, etc in an agriculture universities. All state agriculture university acts and statutes provides for this unit as per ICAR recommendation. The library and information services established in 1995 at KAU as per provisions of the KAU Act 1971 is responsible for managing library and information services in the university and also promoting and conducting research and education/training in library and information technology, computer application to library and information services as well on areas like accessing, storing, processing and disseminating information in print and electronic formats. Thus the ICAR provide a model act of Library and Information services for all agriculture universities in India.

2.4.5 Websites:-

(1) [www.icar.org.in](http://www.icar.org.in)

Full name of ICAR is “Indian Council of Agriculture Research. ICAR provide a financial grant for agriculture research project, education programme and extension activity in Indian. The website provides valuable information regarding agricultural development and activities in India. In this study, this website provides information regarding agriculture development and research activity in India. ICAR publish a journals and books and also give the information on agriculture research centre in India.

(2) [www.pusavarsity.org.in](http://www.pusavarsity.org.in)

Pusa was famous for agriculture development in ancient Lord Mayo, The Viceroy and Governor General, had been repeatedly trying to get through his proposal for setting up a directorate general of Agriculture that would take care of the so and its productivity, formulate newer techniques of cultivation, improve the quality of seeds and livestock and also arrange for imparting agricultural education. The government of India had invited a British expert. Dr.J.A. Voelcker submitted a report on the development of Indian agriculture. As a follow-up action, three experts in different fields were appointed for the first time during 1885 to 1895 namely, agricultural chemist (Dr. J.W.Leafer), cryptogamic botanist (Dr. R.A.Butler) and entomologist (Dr. H.Maxwell Lefroy) with headquarters at Dehradun (U.P.) in the Forest Research Institute
complex. India. Mr. Henry Phipps gave $300000 donate. The foundation stone of the Agricultural Research Institute and college was laid by Lord Curzon on the 1st of April, 1905. In his speech, the viceroy had expressed his vision that the seed he was planting would soon blossom out, making Pusa the nucleus of agricultural activities, research and education which would not only benefit Bihar and Bengal but the whole of the country and would attract the best of talents from India and abroad. In separate meeting with the Bihar Planters Association, he fervently hoped that the institute would-be of immense service to them in their grave hour of crisis caused by the German Indigo scientist. Lord Curzon left by the end of 1905 and Lord Minto was his successor. Till the last minute he had seen through each and every detail of the Pusa project which virtually was his brainchild. Incidentally one major issue on which he had not agreed was the architecture of the main building, its wings, vaults and arches but finally he gave his consent of course with a stint. These website provide the information about the agriculture education, research, and extension and publication activity.

(3) www.aau.in
Anand Agricultural University (AAU) was established this year at Anand with the support of the Government of Gujarat, Act No. (Guj 5 of 2004) dated April 29, 2004. Caved out of the erstwhile Gujarat Agricultural University (GAU), the dream institution of Sardar Vallabhbhai Patel and Dr. K.M. Munshi, the AAU was set up to provide support to the farming community in three facets namely education, research and extension activities in Agriculture, Horticulture Engineering, product Processing and Home Science. At Present there Seven Colleges, Seventeen Research Centers and Six Extension Education Institute working in six districts of Gujrat namely Ahmedabad, Anand, Dahod, Kheda, Panchmahal and Voadodra. The university run a “khedut Margdarsika” programme for aware with latest technology with agriculture development. Anand Agriculture University held AGRIS nodal centre for input data.

(4) www.jau.in
Junagadh the College of Agriculture, Junagadh started was established in the month of June, 1960. The college was affiliated to Gujarat University, Ahmedabad from its inception till the year 1967. Subsequently, on inception of Saurashtra University in 1968 at Rajkot, the affiliation was transferred to it. The
website provides information on education, research and extension activity in Saurashtra. There are seven multidisciplinary Main Research Stations, five Main Research Stations for various crops and eleven sub Research Stations/Testing Centres in the University for the Development of new varieties/hybrids of crops, vegetables and fruits. Junagadh Agriculture University is also nodal centre of AGRIS in Gujarat.

(5) www.nau.in

The state government of Gujarat was established a four agriculture university in Gujarat. Navasari Agriculture University is one of them. The Navsari campus gained the status of a separate agricultural university with effect from 1st May 2004. The university caters to the needs of the farmers of the plantation crops in the heartland of Gujarat; the Kanam zone of cotton, sorghum and pigeon pea and hill millets of tribal belt. Besides the above, this area is also well known for its forest tree species like teak, Khair, Kalam and bamboo. To provides technological backup for the agricultural development in its domain. The Navsari Agricultural University has four fully developed faculties of agriculture, horticulture, forestry and Veterinary, two Zonal Research Stations (Navsari and Bharuch), three main crop based research station (cotton, sorghum and mango), three regional research station (Waghai, Vyara and Gandevi) and 6 verification/testing centers. The extension component includes three Krushi Vigyan Kendras (Waghai, Vyara and Navsari), one Sardar Smruti Kendra (Navsari), and a T & V scheme. This university also offers vocational courses in horticulture at Navsari, home science at Vyara, agriculture at Waghai and Bharuch as well as Livestock Management, Bakery and Mali and extension education trainings at Navsari

(6) www.sdau.edu.in

This web site provides information on agricultural education and research at North Gujarat. The Gujarat Agricultural University started functioning in June 1972 at Dantiwada near Palanpur (Banaskantha). It was established with specific mandates of promoting productivity of agriculture by pursuing research in agriculture and allied sciences and it is one of state university in India. The unique feature of the Gujarat Agricultural University was a multi-campus set-up in Junagadh, Anand and Navsari. Gujarat Agricultural University runs the following agricultural education colleges for the purpose of agricultural development.
**Conclusion:**
The survey of literature has given an insight into the research carried out in the related fields of study. Further, it has helped to know the tools and methods relevant for the study. The review of literature reveals that most of the studies mentions above are based on survey and use the questionnaire survey and personal interview for primary data are collected from the libraries and users feedback. These studies are based on relatively large sets of data collected from libraries and users such as technical institute libraries, agricultural libraries and university libraries in a particular state/area. The main focus of these studies is to create the usage of library resources and directly or indirectly help to the researcher of Agriculture University through library and information services.

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