Chapter – I

INTRODUCTION

1.1 Introduction

Agriculture has been the ancient occupation of mankind and it is the mainstay of India’s economy and development of farming community. It has been and will continue to be the nucleus of Indian economy supporting 55% of population and contributes nearly 19% of the GDP and has a share of about 13% in the national exports. The Indian farmers have demonstrated that given the right technology and guidance, they can deliver the goods. However, the rapid pace of change in information and technology generation certainly calls for augmentation of agriculture extension to build indigenous capacity to develop human resources. In this endeavor, course curricula will call for revision to enhance relevance and practical utility of education through diversified subjects to serve the cause of employment and country’s economic development. There are also international agencies providing information services for the benefit of agricultural scientists, entrepreneurs, farmers and agricultural students. For example, Food and Agriculture Organization (FAO), International Rice Research Institute (IRRI), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) etc., develop the agriculture production technology and disseminate the information through various networks for the benefit of users worldwide.

1.2 Role of ICAR in India

In the past agriculture was taught as one of the subjects in the conventional universities and the agriculture graduates thus produced, formed the core of the administrative set-up of agricultural departments. Organized instruction in agriculture
at the University level was introduced in the beginning of 20th century, when five agricultural colleges were established in the year 1907 in India.

The Royal Commission on Agriculture was appointed in 1926 headed by Lord Linlithgow to examine the conditions of agriculture and rural economy in India. The Commission proposed to establish Imperial Council of Agricultural Research with the primary function of agricultural research throughout India. The Government of India accepted the recommendation and set up the Imperial Council of Agricultural Research in May 1929. Later, this was renamed as Indian Council of Agricultural Research (ICAR).

**The Aims and Objectives of the ICAR are:**

- To undertake aid, promote and co-ordinate agricultural and animal husbandry education, research and its application, development and marketing, to increase scientific knowledge and to secure its adoption in everyday practice;
- To act as a clearinghouse of information not only with regard to research but also with regard to agricultural and veterinary matters generally;
- To establish a research and reference library with reading and writing rooms and furnish the same with books, reviews, magazines, newspapers and other publications; and
- To do all other things as the society may consider necessary, incidental and conducive to the attainment of the above objectives

The subject of agriculture is multidisciplinary and multidimensional, which includes a wide range of literature spread in various disciplines and forms research reports, monographs, and conference proceedings, journals of various subjects, and thesis / dissertations. It has always been a challenge for researchers to get complete
information on pin-pointed topic in agriculture. For this purpose many of the International and National Agricultural Information Systems and Networks have been established. The basic purpose of these systems and networks is to collect, retrieve, organize and disseminate the relevant information pertaining to the agricultural science and technology. Information systems in agriculture are designed to help public and/or private decision makers who make decisions to solve problems that arise at the farm, firm, industry or the economy level; (Parshad and Lal 1999)

Various information systems existing at the international level are: International Information System for Agricultural Science and Technology (AGRIS), Current Agricultural Research Information System (CARIS), Global Information and Early Warning System (GIEWS), World Network of Agricultural Libraries (AGLINET), Agricultural Online Access (AGRICOLA), Consultative Group of International Agricultural Research (CGIAR), International Service for National Agricultural Research (ISNAR), Agricultural Research Centre Network (AGRONET) and such others. National level information systems and networks in India include National Agricultural Research System (NARS), Indian National Agricultural Research Systems (ARIS), Biotechnology Information System Network (BTIS) and such others.

At present, ICAR is in collaboration with the International Service for National Agricultural Research (ISNAR), the Hague, is developing a computer network to link more than 25000 scientists and managers for improving management of information for National Agricultural Research System (NARS); (Kaur 1994-1995).

In 1958, Indian Agricultural Research Institute was established in New Delhi. The first Agricultural Science University was established in 1960 as Govind Ballabh Pant University of Agriculture and Technology in Pant Nagar of Uttar Pradesh. At
present in India there are total of 61 agricultural science universities related to agriculture science, Fisheries science, Veterinary Science, Horticulture and Forest Research, etc. The main aim of these institutions is to promote higher education in agricultural science. Further they strengthened research and developmental activities in agriculture and allied sciences, agricultural science universities serve the students and research scientists in agricultural science, extension education and Agri business specialized in agricultural products and farmers.

Indian Agricultural universities, colleges, research institutes, KVKs (Krishi Vigyan Kendra) have been playing an important role in diffusion of agricultural information to the farmers through their various programmes such as training programmes, demonstrations, campaigns, study tour and so on. During this process the scientists, extension officers, teachers and the students of agriculture are seeking information from various sources.

1.3 Agricultural Research

Today, it is practically impossible for any agricultural scientist or researcher to carry out their work without using the internet technologies. They greatly depend upon information resources tools for accessing information resources in the form of e-information resources relating to agricultural research. It is very evident that the use of electronic media to support scientific communication has been one of the paradigm shifts in the practice of science today. The way the scholarly information is disseminated throughout the world has changed, thanks to the transformation of print information resources to e-information resources, in fact, e-information resources have effectively changed the way the information is accessed and used.

The print journal has been serving as the primary medium of research
communication and has remained unchanged in form and functions since the first scholarly journal 'Journal des Scavans', later was published in 1665. Despite its benefits to the academic and research community for almost three centuries, the print journal has been subjected to criticism from many angles such as the long peer review process, delay in publication, escalating costs, lack of selectivity, stoppage of subscriptions by libraries and commercial publishers holding copyrights (Harter and Kim, 1996 b).

While number of journals are increasing, publishers demanding high costs, grabbing the copyrights for the information content. Libraries are unable to meet their user needs; the scholarly communication system is undergoing a 'technological' transformation. The academic and research community is facing a new challenge of communicating their research in the context of the Internet (Koteswara Rao, 2001).

With the emergence of the Internet, publishing has become very easy, quick and cheap in a medium that can be accessed easily by everyone from anywhere. The Internet has rapidly become a global publishing platform (Hawkins, 2001) and offers unlimited prospects for publication and distribution of information in digital form. In addition, the Internet is reshaping the way in which scholars communicate with one another. Print journals are rapidly moving on-line and e-journals have become an accepted component of an academic library's journal collection. Scholars have understood the power of e-journals and seem to have accepted the new medium for communicating research ideas and results among fellow professionals.

E-journals have also become an effective and efficient mechanism for the transfer of data, information and knowledge from an author to a user (Barker, 2006). They have rapidly established themselves as a viable publication media in many fields because scholarly e-journals contain periodical articles of new discoveries of
knowledge that are increasingly prolific. These are issued and published by researchers in various fields of interest. They can be accessed through online formats and can tremendously increase users' acquisition of knowledge (Ajegbomogun, 2007).

Today, the usage trend is more towards the use of electronic version of scientific publications vis-à-vis printed journals. It is very evident that internet has facilitated and propelled the emergence of these electronic resources. The electronic resources have become quick, easy access and convenience as very little effort is required to retrieve information from these e-resources. In a research interview by Tenopir and King (2001), many scientists have revealed that electronic journals are highly important to their work, more than any other information resources. Today, researchers are even willing to pay a high price in their time to spend many hours reading electronic literature. The study also revealed that the quality of information that a scientist gets from refereed journals has greatly resulted in their improved performance.

It is important to note that the researchers in agricultural institutes are currently working in projects, which are of primary importance to our country. These researchers mainly depend on the rapid collection of information from various electronic information services. Among these, library is a major source of information seeking to plan, execute and evaluate their ideas. Libraries have role in accessing the information through agencies and disseminate the same to its users. Many organizations have adapted to holding e-journals and it has become more popular than conventional paper-based journals, Barker (2006). Access to e-journals is also now becoming a part of examining how the libraries maintain and provide access as a center for information. Today's users have their information needs met via a number of options. They need not come physically to the library to use print formats but can
stay at home or the office and access online library resources and services via networks or authentication methods at any time (Renwick, 2005).

With the increasing popularity of web-based access to traditional library resources, libraries which are the main facilitators in the scholarly communication system are caught in between the producers and the end-users. Moreover, librarians are being challenged to balance user demands for the new technologies with their duty as custodians of information (Robbins, McCain and Scrivener, 2006). They must pay attention not only to what kinds of information their patrons want and need, but to the formats they prefer to use to access the information.

The primary function of any university library is to support teaching, research and extension activities by making information available to facilitate the university's mission and librarians try to determine collection development policies which will make optimum use of money and space available while meeting the current and anticipated needs of library patrons. Librarians have begun seeking ways to assess the use of e-journals in order to determine how well they meet users' needs and to provide data that document accountability and the effective use of financial resources. Multiple techniques can be used for the purpose of assessment. Among these techniques, user-based techniques are the most often used and the most easily applied. As noted by Voorbij and Ongering (2006), "only user studies can reveal the motives, opinions, wishes, and problems experienced by the users and allow library researchers to gather data on the gender, age, discipline, level of experience with electronic resources and other demographic data, and to investigate the differences in behavior and satisfaction between various user groups"
The efficient functioning of an institution is greatly dependent on the quality of personnel responsible for jobs and duties at different levels. Hence there is need for specialized training for library professionals working in Agricultural Science University Libraries. Of course, all the universities are conducting refresher courses, orientation programmes, seminars, and conferences to train the library professionals.

According to Tenopir and King (2000), until the late seventeenth century, communication between scholars depended heavily on personal contact and by attending meetings arranged by the early learned societies. As the membership to these societies increased gradually, more and more people could not attend these meetings and so the proceedings, usually a record of the last meeting became a place to publish papers that had not been at all presented at the meetings, these eventually evolved into scholarly journals. To briefly get into its history, the first peer reviewed journals were the Philosophical Transactions of the Royal Society and Journal de Scavans both first published in 1665. In the 19th century, there was an explosion in the number of journals produced, caused by the increased specialization and diversification of academic research and also the means of producing mass publishing. The massive increase in output means that societies found it more and more difficult to keep up with the demand for publishing. Although the first prototype e-journal was published in 1976, the boom time for electronic journals evolved during the last decade of 20th century, mainly dominated by non-profit making groups. Commercial publishers joined in around 1996 and are now a dominant force, mainly providing direct electronic copies of their print journals. Wills (1995), interalia quotes Harnard (1991), to underscore that the arrival of electronic communication is the fourth revolution in the means of production of knowledge after spoken language, written language and the printing press.
Kling and McKim (2000) found that the shift towards the use of electronic media in scholarly communication appears to be an inescapable path. The use of electronic media to support scientific communication has been one of the major shifts in the practice of science in this era. In addition several studies also indicated that the frequent use of internet for information retrieval and communication is associated with the increase in publication by scientists; Barjak (2006) and has improved scholarly communication; Brown, Found and McConnell (2007); Rowlands and Olivieri (2006).

Electronic information services have been an upcoming and endearing activity among all the researchers irrespective of their disciplines and work environment. The online access and the internet services have been the two most popular library services in electronic formats today. Several studies on the influence of the use of electronic information resources on scholarly work have indicated that the use of electronic literature has improved the quality of work considerably in several ways.

1.4 Information Use Pattern

Information use pattern is concerned with how and from where a user gets his required information. It is a human behavior with respect to searching various sources of information and informal and interpersonal sources. The process of searching and using information through various channels of communication is termed as information use pattern. Information seeking behavior, Information gathering habits, and Information seeking pattern are synonymous terms.

1.4.1 Information Seeking and Use of Information

At present information age, everyone needs information of increasing variety and diversity, frequency and volumes. Most of the information gathering is carried out
automatically and as such it is an integral part of the personalities that they all seek and use the information in different ways. The information needs of a particular group of users, information flow from a specific situation/organizations are difficult to determine and again the use of information are so complex and diverse that there cannot be simple and single system to cope up with the task of effective retrieval of needed information without assessing their specific information.

Hence this complex situation has given rise to the growing concept of information searching and the manner of determining the pattern of searching is said to be information seeking behavior results from the recognition of some need perceived by the user who as a consequence makes demand.

Wilson(1998) defines what he calls “Information Behaviour” as “those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information”. An individual acquires information seeking behavior arises as a consequence of a need perceived by information user, who in order to satisfy that need, makes demands upon formal or informal information sources or services, which results in success or failure to find relevant information. If successful, the individual then makes use of the information found may either fully or partially satisfy the perceived need; if he fails to satisfy the need, he will have to start searching again.

The information seeking behaviour may involve other people through information exchange and the information perceived as useful may be passed to other people as well as being used by himself or herself.

1.4.2 Information Seeking Behaviour

The original of human information seeking behavior are found in work on the users of libraries and is user studies in general. Modern modes of technology have
changed the information environment in which social science and humanities researchers work. The pursuit of knowledge has been revolutionized mainly through the vast expansion of data accessible via the Internet.

Information seeking is a directed purposeful activity. It is different from information retrieval, because implies that the information has previously been stored. Searching is the behavioural manifestation of information seeking. Strategies can be formal (analytical strategies that require planning) or informal (browse strategies that proceed as cues arise during the search process). Information seeking is the process engaged in by the humans to change their state knowledge. It is a high level cognitive process that is part of learning or problem solving. To seek information implies the need to change the state of one’s knowledge information retrieval is concerned with getting information from database. Searching is the behavioural manifestation of information seeking. The information seeking behavior refers to the series of activities that a user performs when seeking for information. It is dependent on the reasons for seeking information and the starting knowledge of the individual. Marchhionini puts it as “information seeking is a special case of problem solving. It includes recognizing and interpreting the information problem, establishing a plan of search conducting the search, evaluation the results, and if necessary, iterating through the process again.” (David 2002)

1.5 Need for the study

Today libraries are undergoing transformation on one side inspite of facing three major challenges i.e., shrinking budgets, shortage of space and increasing cost of publications. On the other hand, there are the challenges posed by advances in the field of information and communication technology. The remarkable growth of electronic information in the last few decades has changed the scenario and has solved
the problem of space. In this digital era digitized information is available on CDs, audio cassettes, video cassettes etc., as well as on the internet. This property, which Daniel Atkins calls digital coherence, allows all the objects in a digital library – sounds, images, texts, and everything else – to be treated in essentially the same way. Information technology has changed the complexion of the libraries in a big way. Electronic resources play a vital role in the field of basic and agricultural science.

Information explosion has been witnessed in the production of a wide variety of information resources comprising of paper media, film media, electronic media, magnetic media, optical media and web media. These resources are collected and stored in library and information centers, and individual scientists also build their own collection. The field of agriculture is not an exception to this phenomenon. Scientific information generated from various research institutions are being collected and stored in agricultural science libraries for reference and retrieval by the clients. The nature and complexity of information resources influences the information use pattern by the clients. Every field of knowledge has its own designated clients, the agricultural scientists, teachers, researchers, students, extension officers attached to the agricultural science colleges also involved in the information gathering to discharge their duties.

Hence, it is on the part of the library professionals to understand the user needs specifically and to identify the information by searching all the forms of documents. To disseminate the information, the agricultural science college library professionals are required to be competent to assess and analyze user needs; retrieve information from various forms of documents and provide suitable services, they also need information technology, computerization skills and subject knowledge about the agricultural sciences. Furthermore, the challenge of organizational change; that all the
agricultural science college libraries need to digitize their collection and disseminate online has made the agricultural science college library professionals to know about digital libraries, techniques of retrospective conversion of the materials, etc. The question left is that whether students and faculties of agricultural colleges are aware about this change and how they really adapt to this modern era of digital information.

From the review of literature it is learnt that there are quite a number of studies are conducted on information use pattern by the clients belonging to various disciplines and library professionals. But only a few studies have been carried out on the information use pattern by the teachers and students in agricultural science colleges in Karnataka. A study on the use and impact of information use pattern at these institutions is the need of the hour, and the results will facilitate and encourage other institutions to follow the same. The result will help in designing suitable policy and assess the technical intricacies faced by the library staff in providing effective electronic information services. Further it will also help in designing the efficient infrastructure requirements for managing information resources in both the formats.

Hence the present study proved to be important to assess the information use pattern by the users (teachers and students) working in agricultural science colleges across Karnataka.

1.6 Statement of the problem

The present study has been titled as “Information Use Pattern by Teachers and Students of Agricultural Science Colleges in Karnataka”

1.7 Definition of the Concepts

In order to provide the meaning of the terms in the title of the study the following definitions are given for the key terms, 'Information Use Pattern', ‘Teachers and Students’, ‘Agricultural College’ and ‘Karnataka’.
1.7.1 Information Use Pattern

The term ‘use’ is used here referred to accessing conventional and non conventional information resources like Journals, Books, e-Journals, e-books, e-databases, search engines, OPAC, digital archives, Institutional repositories, e-Portals etc.

According to 'Merriam-Webster Dictionary' (2008), 'pattern' is defined as a reliable sample of traits, acts, tendencies, or other observable characteristics of a person, group, or institution. Further, term 'use' refers to browse, search, download, print, as well as read e-journals. The term 'use pattern' refers to when, where, why, how and to what extent teachers and students of agricultural science colleges in Karnataka use the information resources.

1.7.2 Agricultural Teachers and Students

In this study the target respondents are teachers and students working in agricultural science colleges in Karnataka. There are 16 colleges established in different districts of Karnataka.

1.7.3 Agricultural Science Colleges

These are government and quasi government organizations (State Agricultural Universities) which are established and administered under the administrative control of Indian Council of Agricultural Research (ICAR). The Agriculture science colleges are mainly focusing on Agricultural education, technology generation and dissemination and above all they are mainly concentrating on the overall agricultural development in the state.

1.7.4 Karnataka

Karnataka state is one of the constituent states of Indian Republic and it is a part of southern India with 30 revenue districts. The agriculture science colleges are established in different places of Karnataka. The present study covers 16 agriculture science colleges.
1.8 Objectives of the Study

The main objective of the study is to reveal the information use pattern by teachers and students of agricultural science colleges in Karnataka. The specific objectives of the study are as follows:

1. To find out the nature of information resources and services available in the Agricultural Science colleges in Karnataka.
2. To examine the information needs of teachers and students of Agricultural Science colleges in Karnataka.
3. To examine the information use pattern by the teachers and students of Agricultural Science colleges in Karnataka.
4. To study how the teachers and students approach information through different types of information sources.
5. To suggest ways and means for maximizing the use of information resources by teachers and students of Agricultural Sciences in Karnataka.

1.9 Hypotheses

Regarding the objectives of the study the following hypotheses have been framed and tested:-

H1: There is a significant relationship between the frequency of library visit and the respondents:

H2: There is significant relationship between the use of printed information resources and the respondents.

H3: There is significant relationship between the extent of computer literacy and the respondents.
H4: There is significant relationship between the use of internet and the respondents,

H5: There is significant relationship between the extent of internet use and the respondents.

H6: There is significant relationship between awareness and level of satisfaction on various types of e-resources and the respondents.

1.10 Methodology

For carrying out the present survey the investigator conducted a thorough literature search by browsing the online databases of Library and Information abstract (LISA), Library and Information science and Technology Abstracts (LISTA), EBSCO host, Emerald and other e-dissertations and e-thesis resources. All the usable references were arranged in a classified order.

For the purpose of data collection, a structured questionnaire was designed for the users in order to get reliability of the users questionnaire, Cronbachs Alpha was done on the collected data via pilot study. The Cronbachs Alpha obtained as 0.7, the Cronbachs is a value between zero and one, values near zero indicate low reliability, value near one indicate high reliability.

Later, informal interview was conducted with the users and librarians to ensure clarity and authority of data. The stratified random sampling technique was used in administrating the questionnaire and interview the data obtained were tabulated and analyzed using the statistical package for the social sciences (SPSS) version -19. Hypotheses were tested and findings were drawn in the light of the objectives of the investigation. Finally the research was reported in the form of thesis, tables, charts and figures were used wherever necessary to make the presentation clear, simple and lucid. The statistical techniques like, frequency, percentage standard
deviation and chi-square were used.

1.11 Scope and Limitations of the Study

The present study is mainly focused on studying the information use patterns of various types of electronic information resources available in the 16 agricultural colleges across Karnataka by teachers and students.

The scope of the study also extends to the broad area of specialization of the teachers and students, categorized under six broad areas, namely (a) Agriculture, (b) Horticulture, (c), Forestry, (d) Sericulture, (e) Home science and (f) Agricultural engineering.

The colleges surveyed are;

(1) College of Agriculture GKVK, Bengaluru
(2) College of Agriculture V.C. Farm, Mandya
(3) College of Agriculture, Navile, Shimoga
(4) College of Agriculture, Hassan
(5) College of Horticulture, Mudigere
(6) College of Sericulture, Chintamani
(7) College of Forestry, Ponnampet
(8) College of Agriculture, Dharwad
(9) College of Rural Home Science, Dharwad
(10) College of Agriculture, Bijapur
(11) College of Agriculture, Raichur
(12) College of Agricultural Engineering, Raichur
(13) College of Agriculture, Bheemarayanagudi, Gulbarga
(14) Kittur Rani Channamma College of Horticulture, Arabhavi, Belgaum
(15) College of Forestry, Sirsi, Uttara Kannada
(16) College of Horticulture, Bidar

Though the present study deals with agricultural colleges situated only in Karnataka, they can be extended to other agricultural college libraries. Further
studies could identify barriers occur at various stages in the information using process and how to overcome these obstacles. There is a vast scope for further research to study different types of users’ behaviour and comparison of users’ behaviour and attitudes towards the information resources. Finally investigator believes that studies are needed to improve and encourage users to use maximum of information resources.

1.12 Chapter Scheme
The thesis consists of five chapters, overview of each chapter is as outlined below.

Chapter I: Introduction

The first chapter provides an overview of the topic of research and establishes the need and importance of the study undertaken, clearly defined and discussed. It states the research problem, definition of concepts, its objectives and hypotheses, delineates the scope and limitation of the study, methodology used for data collection, data collection instrument, sample selection and data analysis techniques used. It also explains the framework of the thesis briefly.

Chapter II: Review of Literature

This chapter discusses on literature review conducted, it gives a glimpse of information resource usage and user studies and other related areas both in India and other countries. In other words, here the various findings published which are relevant to the present study are stated in brief. These studies are presented to highlight the changes in use pattern of information resources from the early years of information resources when they come into vogue to the present.

Chapter III: Agricultural Science colleges in Karnataka

Third chapter brief us an overview of Karnataka and a brief description of the agricultural colleges to study with an emphasis on their set-up. To gather the information on colleges and its location, brief topography of the city and university,
date of establishment of the college, number of students, faculty members, research centers, Ph.D. programs, and library.

Chapter IV: Analysis and Interpretation of the Data

This chapter deals with the interpretation of primary data on use pattern of print and electronic information resources by using relevant statistical techniques in presenting the data with regard to extent of information resources accessibility at agriculture science college libraries, awareness, familiarity, access, use, reading pattern, advantages, disadvantages, importance, satisfaction, dependency, problems faced, necessity and format of information resources used.

Chapter V: Findings Suggestions and Conclusion

This final chapter provides the summary of findings drawn from the present study. Further, it gives suggestion to improve the use of information resources for further research and conclusion with respect to the agricultural college libraries in Karnataka.

Bibliography and the user questionnaire are included at the end.
References:


