



Research Paper

Managing e-resources in higher education by agricultural scientists, veterinarians: A survey of Jammu & Kashmir (India)

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ABSTRACT:- The aim of this paper is to examine the impact and use of e-resources of Jammu & Kashmir because a huge amount is invested for the subscription, growth, and management of e-resources. The main aim is to determine the purpose of use of e-resources; and to find out their level of use, level of satisfaction, problems, and instructions/help in accessing of e-resources. To collect research data, questionnaire was administered randomly among 150 agricultural scientists and veterinarians of Jammu & Kashmir available in two agricultural universities i.e SKUAST of Jammu, SKUAST of Kashmir and 103 filled in questionnaires were returned. Finally, the researcher selected 100 useable questionnaires for the analysis using statistical technique to derive the result. The study reveals that e-resources such as CABI, AGRIS, AGRICOLA and Vet -CDs were highly used among the agricultural scientists and veterinarians. The study identifies the importance of management of e-resources and the role of user initiation program or information literacy to enhance the usage of available databases at agricultural universities particularly in the schools of agricultural business management.

Keywords:- State Agricultural University (SAU), ICAR, J & K, Online-resources, Farm Universities.

I. INTRODUCTION

In higher education, two major shifts have been identified. First shift shows that the higher education is moving away from a teaching to a learning culture whereas the second shift reveals that the revolution in information technology is changing delivery of education. Academic libraries have taken these two shifts into account while planning their services (Toner 2008, & Bennett 2003). Due to the very slow growth of agricultural universities during the period of 1947-60, the history of agricultural university libraries in India starts with the green revolution, immediately after achieving independence in 1947, the Government of India gave top priority to the development of Agriculture infrastructure for research, education and extension activities in agriculture. Before independence, there were hardly two institutes under Indian Council of Agricultural Research (ICAR), 1929 namely Imperial Agricultural Institute (1905), *New Delhi* and Imperial Veterinary Research Institute(1889), *Izatnagar* and six Government Agricultural Colleges at *Coimbatore, Kanpur, Lyallpur, Nagpur, Sabhor Poona and Naini* (1910). In the first phase of agricultural Development 31 ICAR institutes were created uptill 1957 (*Chotey Lal, 1997*). During next phase from 1957 to 2013 the number of ICAR institutes went up to 80. State Agricultural Universities (SAU) were also opened from 1960s onward with the first agricultural university was set up at *Pant Nagar* (1960) and today there are 54 Agricultural Universities across India.

Accordingly the number of teachers, and scientists (including Subject Matter Specialists) in the Agricultural University as well as the ICAR institutes increased along with agricultural students. Today there are 50000 scientists and teachers working in the Agricultural Research sector in India with 24800 seats for undergraduate and postgraduate students in SAUs. Under ICAR only four institutes namely: IARI (New Delhi), IVRI (Izatnagar), NDRI (*Karnal*) CIFE (*Mumbai*) are undertaking post-graduate teaching and enroll 1200 students every year. SAUs work under the control of state administration. They are funded up to 90 percent by the ICAR and rest of their budget is met by state government. Since agricultural research, education and extension is the primary responsibility of states, the growth of SAUs has been faster.

The oldest institutes of IARI and IVRI were having libraries for providing information with good

collection of Journals, monographs, reports, bulletins and theses. The agricultural colleges were having small libraries with a collection of 10,000 to 20,000 books. With the growth of ICAR Institutes, more libraries were opened and the State Agricultural University Libraries are today playing a vital role in the research and education programme of the agriculture.

In Jammu and Kashmir department of Agriculture came into existence during the pre-independence era. Till the year 1981 there was a single directorate of Agriculture for the whole state. In the year 1981-1982 separate directorates of Agriculture were established for both Jammu as well as Kashmir divisions due to diverse agro-climatic conditions prevailing in these divisions with moderate libraries for providing information. This facilitated formulation of policies and programmes aimed at optimization and rational utilization of land and water resources for sustained agricultural production. During April 1982, the department got bifurcated into two directorates one each at provincial level of Jammu and Kashmir state followed by another bifurcation in the form that all the research schemes of department were transferred to a new organization known as Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST), J & K in the month of August 1982. With the SKUAST Act in force, (passed by the State Legislature) the agricultural education, research and extension units were transferred to SKUAST from various development departments viz; Agriculture, Animal Husbandry, Floriculture, Sheep Husbandry and Sericulture of Jammu and Kashmir State. During 1982-83, university has set up its own Library and Information directorate for providing information pertaining agriculture and allied subjects to the agricultural scientists. In the year 1998-99, the territorial jurisdiction of the university was redefined by amending the SKUAST Act under which separate Agricultural University was established for Jammu division and named as SKUAST of Jammu with its territorial jurisdiction extended to the entire Jammu division. Agricultural information system set up has improved considerably since independence in the state of Jammu and Kashmir.

The SKUAST is a symbol of successful partnership between J & K and the rest of India and has now become a leading institution for producing quality human resources, technology and its direct utilization for the agricultural development of the state.

The SKUAST has a highly specialized collection of over 50000 documents (Annual Reports, 2012-13) in the field of agriculture, veterinary sciences, animal husbandry, home science, fisheries, basic sciences, agribusiness management, technology & other allied subjects. The library collection as textbooks, monographs, advanced treatises, research publications, reference works, popular works, pictorial works, theses, periodicals, standards, reprints, globes, records, films, microfilms, tapes, cards, maps, other graphic works, CD-ROM, full-text e-resources (CDROM/online databases) of e-resources, is primarily enhanced to the curricular needs of the universities faculties, and to the research and extension activities. All levels of reading material required to serve the user needs are acquired.

E-Database

A large, regularly updated file of digitized information (bibliographic records, abstracts, full-text documents, directory entries, images, statistics, etc.) related to a specific subject or field, consisting of records of uniform format organized for ease and speed of search and retrieval and managed with the aid of database management system software. Content is created by the database producer (i.e. Thomson Reuters), which usually publishes a print version (Biological Abstracts) and leases the content to one or more database vendors (EBSCO, OVID, etc.) that provide electronic access to the data after it has been converted to machine-readable form (BIOSIS), usually on CD-ROM or online via the Internet, using proprietary search software.

An electronic database in which the content is revised and/or augmented, usually on a regular basis, to provide current information or to add recently published sources and also designs to provide information about a very specific topic, as opposed to a range of topics, usually for limited users.

Most journal databases are updated on a regular basis as new issues are published and indexed. Most databases used in libraries are catalogs, periodical indexes, abstracting services, and full-text reference resources leased annually under licensing agreements that limit access to registered borrowers and library staff. There are many, many different types of electronic databases in the world today, including statistical databases, image databases, and others. These databases are becoming very important these days as they are more up-to-date, and can be accessed anywhere, crossing all geographical boundaries. Such electronic databases are very valuable and useful for time-saving while conducting R&D activities.

II. OBJECTIVES, SCOPE AND LIMITATIONS

E-resources in agricultural universities are making a significant growth as a part of collection. A huge amount is invested in the development of e-resources in the universities. The study offers to identify the acceptance of e-resources in the universities under study along with its advantages, performances, user's satisfaction and barriers faced during the use of e-resources. This study was conducted to seek user's opinion concerning the impact and use of e-resources in SKUAST libraries.

The objectives of the study were:

To determine the purpose for which e-resources are managed & used by the agricultural scientists and Veterinarians;

To ascertain the awareness and use of available e-resources by the agricultural scientists and Veterinarians;

To identify the frequently used e-resources by the agricultural scientists and Veterinarians;

To find out the problems faced and the types of instruction/help got by the agricultural scientists and Veterinarians while accessing and using e-resources;

The scope and limitation of the study is confined to the users (agricultural scientists and Veterinarians) of Jammu & Kashmir regarding the effective use of e-resources.

III. LITERATURE REVIEW

Most of the universities provide e-resources to their users to support teaching, research and development. The literature shows that e-resources with their retrieval from network capabilities have been gradually replacing some of their printed counterparts. In order to utilize the growing range of e- databases, agricultural scientists and Veterinarians must acquire and practice the skills necessary to exploit them. "For students using a variety of on-line databases, it is as though they were parking lot attendants, where every vehicle is not only a different make and model but has a different configuration" (Blandy and Libutti, 1995). The study results showed that the students and faculty are aware of e-sources and also the internet. Even though a majority of the academic community uses electronic information sources for their academic-related work (Kumar and Kumar, 2010). A large number of social scientists are aware of the e-resources (such as e-books, e-journals, e- encyclopedias, e-theses, CD-ROM databases, e-mail, internet and the OPAC) and they use these e-resources for their research work. Many faculty members strongly agreed with the necessity for computer and internet literacy to access information and a majority of social scientists were satisfied with the e-resources available at the NASSDOC library (Haridasan and Khan, 2009) and Kwok (1992) sampled a group of scientists and examined the use of materials such as CD-ROM databases, online databases, journals, monographs etc. to do research. Singh and Gautam (2004) focused on access to information through online or CD-ROM media that has remained a challenging effort for both the user and the intermediary. It further reveals that many of the e-resources are being created and made available today in India for use both within the country and outside. Swain, (2010) in his study reveals that the majority of students are aware of EBSCO, and Emerald Management Xtra.

Calvert (2000) has evaluated the impact of electronic journals and aggregate databases on interlibrary loan activities. His findings reveal that results are not significant enough to justify searching, borrowing requests in aggregate databases and changing current inter-library loan procedure for searching request before ordering. Mercado (1999) has suggests in his study that the library users know how to search and learn critical thinking skills for databases and keyword selection. Bates (1996) study found that most humanities scholars made little use of online databases. Scholars appreciated that the databases covered many topics, but complained about the difficulty of their search language and the lack of availability of desired resources. It is interesting to note that scholars regarded themselves as experts in their subjects and did not expect to learn anything new from the databases. *Oladele* (2006) conducted a study on Information seeking and utilization among agricultural researchers in Nigeria. The study demonstrates the level of awareness and the use of agricultural information sources among researchers in Nigeria. The empirical findings have described the researchers' scenario as that of being informational deprived, when researchers do not have enough information to take a wise decision as against the researcher's being as information overloaded, which implies a situation where researcher have too much information and are unable to pick out the right bits. The policy implications of the findings have such that to improve the performance of agricultural researchers, the provision of information sources as well as facilities to enhance their use is very important in the research institutes. Specific training needs of the researchers to seek for appropriate information from different sources should also be identified as a skill-gap. *Singh and Satija* (2007) in their survey on Information seeking behaviour of agricultural scientists with particular reference to their information seeking strategies indicates that agricultural scientists seek diverse information from varied sources for different purposes thus, making it difficult to maintain support for the idea of a single mode of formal information channel. Scientific journals have been ranked first for obtaining specific information and keeping up-to-date. Study describes that the working culture of the individual needing information. The importance placed on getting it, the facilities available for seeking it, the knowledge about these facilities, the judgment of their value, the probability of getting what is wanted, are the prime factors that may affect information seeking behaviour.

Singh and Satija (2008) studied the information seeking behaviour of agricultural scientists working in the ICAR institutes of Delhi and PAU, Ludhiana. Results show that agricultural scientists have expressed great dependence in meeting their information requirement on their institutional library / information centre. Seventy

two percent of the respondents for all categories of scientists preferred their library / information centre as the most preferred source. For accessing information agricultural scientists highly depend on the library collection, followed by the personal collection, collection of their supervisors and of colleagues in order of decreasing priority. Study revealed that the preferences agricultural scientists have for information sources varied with characteristics of individual agricultural scientists, nature of information needed, personal knowledge of sources and their accessibility. The most frequently used sources were those with good physical, functional and intellectual accessibility.

Naiy and Kaur (2011) in Information seeking behaviour of research workers in agricultural fields of West Bengal and Kalbende and Shinde in Information seeking behaviour of students at university library of Mahatma Phule Krishi Vidyapeeth, Rahuri, Ahmednagar (M.S.) conclude that it is difficult to remove all the barriers perceived by researcher / student / scientist / faculty member for seeking information from different sources be it print, digital or electronic.

Due to the growing number of databases of e-resources, the agricultural universities are interested in subscribing them considering their advantages. The transition from print to electronic has a great impact on the usage of library and research. So far, few studies have already been conducted to identify the impact and use of e-resources at the universities. The J & K has now developed a number of e-resources to meet the ever growing expectations of agricultural scientists and Veterinarians community working in two State Agricultural Universities (SAUs). It is very imperative to know how far agricultural scientists and Veterinarians are making use of existing databases and impact of e-resources on their teaching, extension and research work.

IV. RESEARCH METHODOLOGY

Due to a large number of agricultural universities in India, SKUAST of Kashmir and SKUAST of Jammu were selected for conducting in-depth study. The questionnaire survey was the research method used in the collection of data for the study. Validated questionnaire was tested and administered randomly among 150 agricultural scientists and Veterinarians of SKUASTs and 103 were returned the filled in questionnaires. Further, the researcher selected 100 useable questionnaires for the analysis and interpretation using statistical techniques to draw the qualitative and quantitative results.

Data Analysis and Interpretation

To determine the impact and usage of e-resources in J & K, the analysis and description of the study showed that 55 (55%) useable questionnaires were from agricultural scientists while remaining 45 (45%) from Veterinarians. The collected data reveals that highest percentage of respondent's questionnaires i.e. 55 (55%) questionnaires received were from agricultural scientists.

Frequency of visit to the SAU library

Table 01. Frequency of visit to the SAU library

Frequency	Respondents	
	Agricultural scientists N=55	Veterinarians N=45
Daily	14 (25.45)	19 (42.22)
2-3 Times in a week	19 (34.55)	16 (35.56)
Once in a Month	16 (29.09)	08 (17.78)
Occasionally	02 (3.64)	01 (02.22)
Never	04 (7.27)	01 (02.22)

(Figures in parentheses are percentage)

For the convenience of the study, the frequency of visit for using e-resources has been classified into five categories as shown in table 01. It is observed that majority 34.55 % of the agricultural scientists visited the SAU library 2-3 times in a week, whereas 35.56% and 42.22% of the Veterinarians visited the SAU library 2-3 times in a week and daily. Frequency of visit is less because many e-resources are either accessible via IP authentication or username password and both scientists and veterinarians are using these resources from their respective divisions / desktops /laptops.

Purpose of usage of e-resources

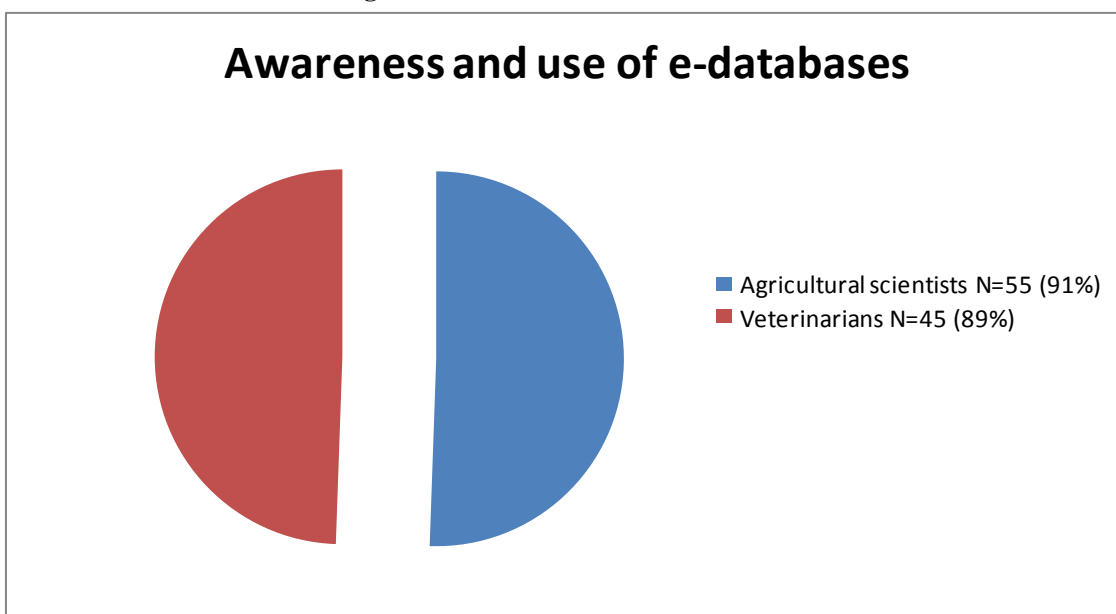
Table 02. Purpose of usage of e-resources

Purpose	Respondents	
	Agricultural scientists N=55	Veterinarians N=45
To update knowledge	22 (40.00)	04 (08.89)
To consult databases for research/teaching/extension	06 (10.91)	28 (62.22)
To download articles	24 (43.64)	09 (20.00)
All the purposes	03 (05.45)	04 (08.89)

(Figures in parentheses are percentage)

The purpose is crucial for understanding the usage of e-resources. The above data in table 02 shows that 43.64% and 40% of the agricultural scientists used e-resources to download articles and to update knowledge respectively, whereas 62.22% and 08.89% of the Veterinarians consulted the available e-resources for their research/teaching/extension and to update their knowledge respectively. Awareness and use of e-resources

Fig. I. Awareness and use of e-resources



Now, e-resources are mushrooming in agricultural university libraries as fig. I reveals that the majority 91% of the agricultural scientists and 89% of the Veterinarians were well aware about the available databases and they also used these for their different purposes.

Databases which are being managed & used by agricultural scientists & veterinarians of Jammu & Kashmir		
S. No	Name of Database	R
(a)	Agricola	03
(b)	AGRIS	02
(c)	ASABE Technical Library	08
(d)	Biological & Agricultural Index Plus (BAI+)	07
(e)	BIOSIS (Biological Absts)	05
(f)	BIOSIS Preview	14
(g)	CABI	01
(h)	CGIAR Virtual Library	15
(i)	Chemical Abstracts	09
(j)	CSA (Cambridge Scientific Abstracts)	11
(k)	Current Contents	10

(l)	Derwent Biotechnology	12
(m)	DIALOG	22
(n)	ERIC	13
(o)	FSTA	06
(p)	ISO Stands on Agricultural Products	20
(q)	ISO Stands on Milk & Milk Products	21
(r)	MEDLINE	19
(s)	OCLC	23
(t)	SOIL CD	17
(u)	WoS (Web of Science)	18
(v)	Vet CD	04
(w)	IPR CD/DVD	16

R=Rank after computation of mean

The SAUs of Jammu & Kashmir are subscribing some internationally prominent e-resources for searching the latest research literature on agriculture and these e-resources have become an important part of agricultural universities. The data regarding the usage of e-resources presented that CABI was the most frequently used e-database followed by AGRIS, AGRICOLA and Vet-CDs respectively.

Reasons for unawareness about e-resources

Table 03. Reasons for unawareness

Reasons	Respondents	
	Agricultural scientists N=05	Veterinarians N=05
Lack of updated skills	01 (20.00)	02 (40.00)
Exorbitant Cost	01 (20.00)	01 (20.00)
Paucity of time	02 (40.00)	01 (20.00)
Poor Infrastructure / Facility not up to mark	01 (20.00)	01 (20.00)

(Figures in parentheses are percentage)

Table 03 attempts to reveal the reasons that 40% of the agricultural scientists were not using e-resources due to paucity of time, whereas 40% of the Veterinarians were not using e-resources due to lack of skills.

Summary of Findings

The findings of the study conducted on the usage of e-resources among the Agricultural scientists and Veterinarians of Jammu & Kashmir can be summarized as follows:

Majority of the agricultural scientists visited the SAU library 2-3 times in a week and once a month for using the available e-resources whereas veterinarians visited 2-3 times in a week and daily respectively.

A large number of agricultural scientists and Veterinarians were using e-resources to download articles and for their research/teaching/extension respectively..

The majority of the agricultural scientists and Veterinarians were well aware about the available e-resources and they also used these for fulfilling their purposes.

The ranking of e-resources indicated that, CABI, AGRIS, AGRICOLA and Vet CDs were highly used databases.

Agricultural Scientists were not using e-resources due to paucity of time, whereas Veterinarians were not using due to lack of updated skill.

V. CONCLUSION AND RECOMMENDATIONS

Due to the advancement in technologies, agricultural university libraries moved from traditional to digital environment. To meet the ever-increasing demands of users, agricultural libraries are now subscribing a large number of e-resources. The adequate computer literacy in using the existing databases has become the need of the hour. The study reveals the effective use of available e-resources with a few constraints. This study, therefore, recommends the following:

Due to the paradigm shift in services offered throughout the world, Jammu & Kashmir should subscribe more number of databases of e-resources. More number of networked computers should also be

purchased and installed in the varied locations with appropriate packages or software for searching and browsing the needed information.

Jammu & Kashmir should intensify their awareness campaigns concerning the availability of databases of e-resources in the field of agriculture and veterinary science. The use of e-mail alert system, text messages and prizes for those who use a lot of databases of e-resources should be considered as methods of promotion. SAU services are changing to user-centered.

For maximum utilization of databases of e-resources, library should provide orientation assistance to the users through Non-credit course entitled "Library & Information Services".

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