
USE OF ELECTRONIC RESOURCES: A STUDY OF INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI

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ABSTRACT

States that scientists, students, concerned persons of agricultural sciences will be using the electronic resources for research and other purpose, because they can access these resources quickly and from any place. IARI is backbone of research management of agriculture and the leading institution for agricultural research, education & extension in the country. National Agricultural Research Library, IARI should enrich its electronic resources and services for scientific community of agricultural research in India. Discusses the use of electronic resources by the scientists of IARI. The purpose of study is to identify how the scientists use the electronic resources more or less, the purpose for using them and the place they prefer to access including the kinds of problems they face during accessing the electronic resources.

KEYWORDS: Use, Electronic Resources, E-journals, E-books, ETDs, CD-ROMs, Internet, Web-Based Resources, Agriculture, IARI.

Introduction

In the fast emerging information explosion, it is very difficult to access particular information without wasting time. The electronic resources give the solution and the users are attracted towards electronic resources because of its great potential in facilitating the search of required information quickly. Vast e-resources are available in agriculture, which we can access in library, information centers and provide the information to library users. In the agricultural research some of the important electronic resources like electronic journals, online databases, abstracts, e-books, ETDs, online catalogues, directories, home pages of the institutes, organizations etc. are available, which

are very useful and frequently used by agricultural scientists.

The Indian Agricultural Research Institute (IARI) is multi-discipline, multi-commodity and India's premier national institute for agricultural research, education and extension. It is financed and administered by the ICAR and also serves the cause of science and society with distinction through its first rate research and development of appropriate technologies and human resources. The journey of IARI, popularly known as Pusa Institute, began in 1905 at Pusa (Bihar). The institute which was initially known as Agricultural Research Institute (ARI) was renamed as Imperial Institute of Agricultural Research in 1911 and as Imperial Agricultural Research Institute in 1919. The Pusa (Samastipur, Bihar) campus was relocated after the Bihar earthquake of 1936 to New Delhi. Post independence, the name of the institute was again changed as Indian Agricultural Research Institute (IARI). The institute was recognized as a 'Deemed University' in 1958 by an act of parliament and since then it has been awarding M.Sc. and Ph.D. degrees. The Institute has all along been adjusting and improving its policies, plans and programmes to effectively respond to the needs and opportunities of the nation. During the fifties, the advancement in scientific disciplines constituted the core programme and provided the base for its fast expansion in the 1960s and 1970s in all its three interactive areas, namely, research, education and extension.

Use Studies of Electronic Resources

User studies, use studies, information-need studies, information transfer studies, communication behavior studies, information flow studies, information dissemination and utilization studies, user research, etc. are all closely related and often not precisely differentiated. All these studies come under the umbrella of 'user study'. The user study is mainly concerned with studying information processing activities of users. Everyone is familiar with 'use studies' in recent time. Studies which are conducted to find out the use of any communication medium such as primary, secondary and other resources are called use studies. Use studies needs to be carried out as long as library and information systems, services are required and existing. In the last several years, many research studies have focused on how people use electronic resources or on their feelings about electronic and print resources in the library. The use studies of electronic resources appeared in the 1990s, when a large number of electronic journals, CD - ROM databases, e- books, had become widely available. These studies were mostly carried out on the library users, who were the most frequent users of electronic resources. These usage studies lead to many conclusions about the behavior and preferences of library users, although sometimes the conclusions are contradictory or unclear. Libraries, in competition with the internet, have recently been forced to adopt what they have on offer to sustain their role as a provider of specialized information. Libraries have also showed a willingness to improve their services in the light of changed user behavior. Libraries of all sizes and types are

embracing digital collections. New purchases of journals, magazines, abstracting and indexing services are heavily weighted towards digital, while digital books (e-books), E-Journals, E - databases are only beginning to show their a presence in library collections. Digital collections in libraries are preferred for many reasons like easy access at any place, time saving and digital collections save space and are relatively easy to maintain. Such a dramatic switch from print collections to digital collections has an impact on library users and user's perceptions of the library. The user wants to have easier access to electronic resources and to able to access theses resources any places as quickly as possible.

Review of Literature

Large numbers of studies have been carried out on the use of electronic resources by students, scientists, faculty & staff of institutions of higher learning. Studies on usage of electronic resources such as e-journals, OPACs, e-books, internet have revealed differences in use. Most of the behavioral studies of e-resources use have been conducted at research-intensive institutions and either focused on primary research use or the ways scholars use e-resources for teaching & research. Brief findings of some of the studies (International & National) in agricultural related are presented below in their chronological emergence.

Mathew, S. & Sornam, S.A. (2007) studied the use of electronic resources of P.G. students of Kerala Agricultural University. The study was carried out to identify the different types of electronic resources used by the students of Kerala Agricultural University, its time spent problems and prospects faced by the users.

Monohar, R. (2007) studied investigation in to the use of the electronic resources by agricultural scientists in the college of agriculture. The study found out the internet accessibility of agriculture scientists in the college of agriculture and analyzed impact of internet, e-resources, print or electronic media on academic efficiency.

Sujatha, H.R. & Mudhol, Mahesh V. (2008) study examined use of electronic information sources at the college of fisheries, Mangalore, India. Study elaborated the various aspects of EIS use such as purpose and frequency of EIS use, benefits of EIS use, methods of learning to use EIS, frequently used EIS, constraints faced in the use of EIS and the satisfaction level of users in the use of EIS.

Agboola, Idayat Odunola (2009) studied use of print and electronic resources by Agricultural Science students in Nigerian universities. The results revealed that agricultural science students mostly prefer to use textbooks (42.1%) among print materials, while *The Essential Electronic Agricultural Library (TEEAL)* is the most preferred among electronic resources available in their libraries (52.2%). Major problems faced by the agricultural science students include inadequate access to full internet connectivity and lack of skills on their part to use available electronic databases

properly.

Agarwal, U.K. & Dave, R.K. (2009) has studied the use of internet by the scientists and research fellows of Central Arid Zone Research Institute, Jodhpur (Rajasthan). The revealed that the respondents accessed Google search frequently (100%) followed by Yahoo (85.29%). It is also observed that equally (97.06%) respondents use the internet for education & research.

Sabouri, Mohammad Sadeq et al. (2010) studied use of electronic resources by users in the Faculty of Agriculture, Islamic Azad University. The finding indicated that 84.1% of all users came to use information center and the digital library services. In sum 62.5% of the subjects knew about Rose-Net in university for sciences and research and 51.8% of them used Rose-Net.

Devi, Maya & Prasad, H.N. (2010) survey carried out the information seeking behavior of agricultural scientists in electronic environment with reference to Indian Institute of Vegetable Research, Varanasi. The survey result showed there was great impact of electronic information sources on the searching habits of agricultural scientists. 60% of the agricultural scientists spent 1 to 2 hours of their time searching electronic sources and 60% used it daily for their work.

Devi, Maya & Prasad, H.N. (2010) compared the use of electronic resources in Central Institute of for Sub-Tropical Horticulture & Indian Institute of Sugarcane Research, Lucknow. The result revealed that scientists working in CISH are more dependent on electronic resources for their work in comparison with scientists of IISR. The number of agricultural scientists who visited library daily was found to be more in IISR institution.

Kumar, Davendra (2010) carried out library faculty use of internet services at the University of Agriculture and Technology, Meerut, Uttar Pradesh, India. Faculty gave information on internet usage, favorite search engines, and sources of information about websites, problems faced by users, satisfaction and facilities infrastructure available in the libraries.

Kumar, Sanjeev & Sharma, Yogita (2010) surveyed use of electronic resources at Punjab Agricultural University library. In the study internet was found to be most extensively used e-resources. Majority of users use CAB-CD abstracting database.

Sujatha, H.R. & Murthy, H. Shivananda (2010) investigated the use of electronic information sources (EIS) and the need for end-user training in the fisheries sciences institutions of south India. It was observed that the respondent's perceived ability to use the computer was quite high and that there was significant use of EIS mainly for research purposes. Majority of respondents felt that their level of computer literacy was average or above average, and they expressed that a need for training in the use of the EIS.

Thanuskodi, S. (2010) studied use of internet and electronic resources for Agricultural Science

information. Results of the present study showed that majority of the students does not have own personal computer or laptop. Study revealed that the majority of the respondents (57.28%) felt that the internet and electronic resources cannot replace the print resources.

Mohanty, Sisir Kumar (2011) studied use and impact of e-resources by agricultural scientists at CRRRI & CIFA. The study shows that most of them use the e-resources for interpretation of their research work.

Shinde, P.A., Ingale, R.A. & Mohsin, Syed Fayyaz (2011) studied use of CeRA (consortium for e-resources) by PG students of Mahatma Phule Krishi Viyapeeth, Rahuri (M.S.). The study found out the problems faced by them as end users for availing CeRA facility effectively.

Tripathi, Harish & Raj, Hans (2011) studied usage of electronic resources in ICAR library. The study discussed use of e-resources, frequency of their visit in library and tools used for searching the information.

Francis, A.T. (2012) carried out evaluation of use of Consortium of e-Resources in Agriculture in context of Kerala Agricultural University. Results showed that maximum of the students were familiar with the use of digital information resources available online and 87.14 % of them used CeRA.

Kumar, G.H. Hemantha & Subramanyam, N. (2012) studied use and awareness of internet at University of Agricultural Sciences, Bangalore. This study demonstrated the different factors such as of internet usage, awareness about internet usage, awareness about internet services, favorite search engines, constraints faced by the users in surfing the internet, various purpose for using internet, and satisfaction of adequate infrastructure facilities provided to use the internet.

Maraddi, Krishna S. et al. (2012) carried out survey on use of CeRA by the post graduate students at University of Agricultural Sciences, Raichur. The study reveals that most of the PG students are aware about the CeRA and use the CeRA.

Nayak, Manoj Kumar (2012) surveyed the use and impact of e-resources at Central Rice Research Institute. The study indicated that CRRRI scientists and research scholars are using more e-journals. The result indicated that scientist and research scholars are using e-resources frequently.

Parmar, Seema (2012) studied use of e-journals and CD-ROM databases by fraternity of CCSHAU, Hisar, India. Findings of study indicated that faculty members are access e-journals through CeRA.

Agber, Tsokura & Agwu, Agwu Ekwe (2013) studied assessment of online resources usage by Agricultural Science lecturers of tertiary institutions in Benue State, Nigeria. The study revealed the many type of electronic resources frequently used by respondents included electronic journals, electronic books, abstracts, search engines, video/pictures and encyclopedia. The study shows that

socio-economic and institutional factors significantly influenced the use of electronic resources.

Salaam, M. O., Ajiboye, B.A. & Bankole, O.M. (2013) studied the use of library electronic information resources (EIR) by academic staff at Federal University of Agriculture, Abeokuta, Ogun State, Nigeria. The study shows that most used e-resources in decreasing order were the CAB Abstract, TEEAL, AGORA, e-granary and HINARI. The scientists used EIR for various purposes; the major ones being for research.

Dhingra, Navjyoti (2013) study assessed the attitudes towards e-journals available through CeRA and examines the current level of use of these electronic publications by faculty members of the Punjab Agriculture University, Ludhiana. This study explores that usage of e-journals has increased as compared to the printed journals as majority of users have started accepting the e-journals. Faculty is accessing these e-journals at their concerned departments more as compared to the library.

Mittal, Arvind & Sharma, B.K. (2013) studied attempt to analyses the user's familiarity and used the digital resources in Agricultural Universities of Himachal Pradesh. This study reveals that 96% of users know about the digital resources. 31% users use the libraries' digital resources 48% users have the problems of searching skills and 24% users don't know how to use it.

Several studies have been conducted in the past on the information needs, seeking behavior and use in electronic environment in world and India. Very few studies have been conducted in India pertaining to ICAR Institutes.

Objectives of the Study

The study aims to focus on the following objectives:-

1. To examine the use of electronic resources by the scientists of IARI.
2. To examine the problems faced by scientists for accessing electronic resources.
3. To examine the ways to improve the use of electronic resources by the scientists.

Methodology

This study is based on survey method. Keeping in mind the basic objectives of the study, questionnaire was structured for collection of data. The questions were framed in such a manner that it could be easily understood by the respondents. The questionnaire – I was prepared for collecting the data of IARI library. This questionnaire was filled by IARI library. The questionnaire - II was prepared for scientists of IARI. The questionnaire - II was distributed among 404 scientists but in spite of repeated requests, the investigator could get back only 263 duly filled in questionnaire through email and collecting through personal visit to IARI, New Delhi by the researcher. The data thus collected through the questionnaire was scrutinized and processed through Microsoft Office

Excel and SPSS for tabulation and analysis. Analysis & interpretation was carried out on the basis of objectives of research topic. However, in many cases the respondents were asked the questions where they could choose more than one option. In such cases the responses exceeded the total number of respondents.

Use of Electronic Resources by the Scientists of IARI

With rapid development of information communication technology, a large number of electronic resources are being published in the field of agricultural sciences. The various types of electronic resources are available in IARI. The uses of electronic resources by the scientists of IARI are presented in following tables.

Use of Electronic Resources by Scientists through Institute/Library

The scientists of IARI were asked if they use electronic resources available through institute/libraries. The views of respondents to this query are presented in Table 1. It indicates that all the scientists (100%) are using the electronic resources.

Table 1: Use of Electronic Resources Available through Institute / Library

Use of Electronic Resources	No. of Respondents	Percentage of Respondents
Use	263	100%
Not Use	0	0%
Total	263	

Use of Various Types of Electronic Resources

The IARI has rich collection of resources. Following different type of electronic resources are available in IARI. The study tried to find out the type of electronic resources preferred more by respondents for research assignments. On the basis of collected data, the use of various types of electronic resources by the respondents, are presented in Table 2.

**Table 2: Use of Various Types of Electronic Resources Preferred More for
Research Assignments, Study & Teaching Works.**

Types of Electronic Resources	No. of Responses	Percentage of Responses
CD-ROMs/Online Databases	242	92.02%
Online Journals	254	96.58%
E – Books	133	50.57%
E – Thesis	111	42.21%
Library Catalogue (OPACs)	144	54.75%
Internet/Web -based Resources	246	93.54%

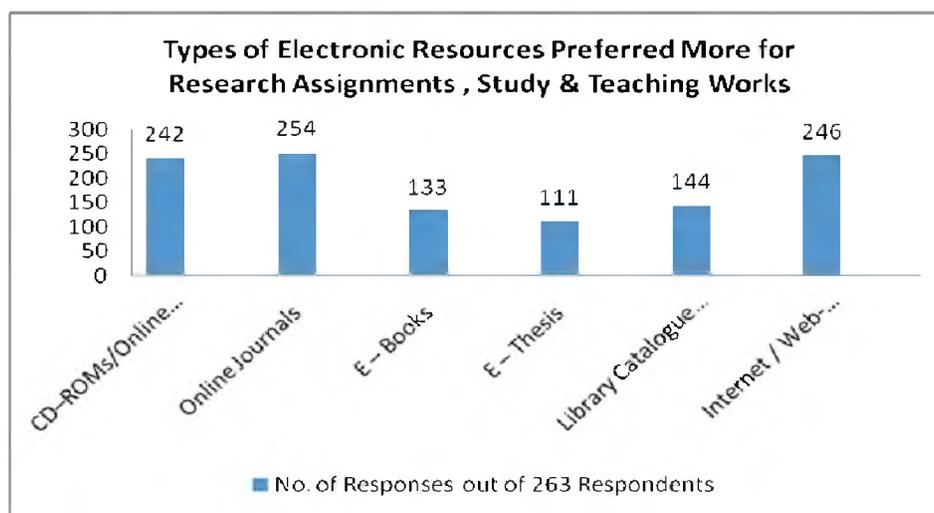


Figure 1

The study shows that 254 (96.58%) respondents use online journals followed by 246 (93.54%) respondents using Internet / Web-based resources, 242 (92.02%) respondents using CD-ROMs / Online Databases, 144 (54.75%) respondents using Library Catalogue (OPACs), 133 (50.57%) respondents using E-books and 111 (42.21%) respondents using E-thesis.

Use of Agricultural CD -ROM/Online Databases

Various types of agricultural CD-ROM/ Online Databases are available in the agricultural research libraries. IARI library is a national library in the field of agriculture research and education. The study tried to find out which agriculture CD-ROM/Online databases is preferred more for research assignment works by the scientists of IARI. The study collected data on use of agricultural CD -ROM/Online databases preferred more for research assignment works, are presented in Table 3.

Table 3: Use of Agricultural CD -ROM/Online Databases Preferred More for Research Assignment Works

Agriculture CD -ROM/Online Databases	No. of Responses	Percentage of Responses
CAB Abstracts	241	91.63%
AGRIS	181	68.82%
AGRICOLA	178	67.68%
FSTA	78	29.66%
Other Databases: 1. Derwent Biotechnology Abstract 2. Zoological Records	69	26.24%

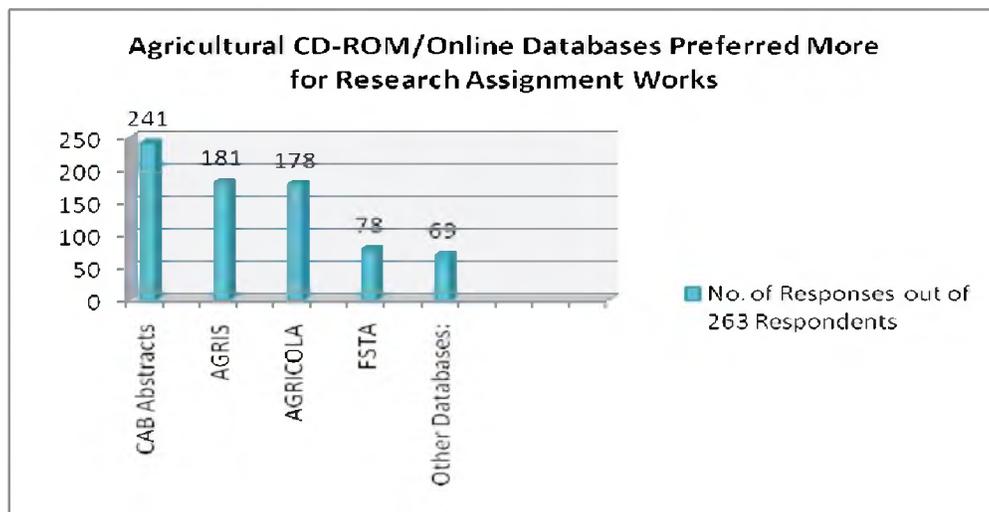


Figure 2

The responses of the respondents which have been analyzed in Table 3 shows that among the CD-ROM/Online Databases, CAB Abstracts is most preferred one for use in the research assignments, 241 responses (91.63%). This was followed by AGRIS 181 responses (68.82%), AGRICOLA 178 responses (67.68%), FSTA 78 responses (29.66%). Only 69 responses (26.24%) came for using Other Databases: 1. Derwent Biotechnology Abstract 2. Zoological Records.

Purpose of Using Electronic Resources

Purpose of using electronic resources differs from user to user. Keeping in view the importance of this aspect the study attempted to collect data on this which has been presented in Table 4.

Table 4: Purpose of Using Electronic Resources

Types of Electronic Resources	No. of Responses	Percentage of Responses
Research Purpose	254	96.58%
Study and Teaching	189	71.86%
Update Subject Knowledge	155	58.94%
Writing Papers /Article /Books /Projects	201	76.43%

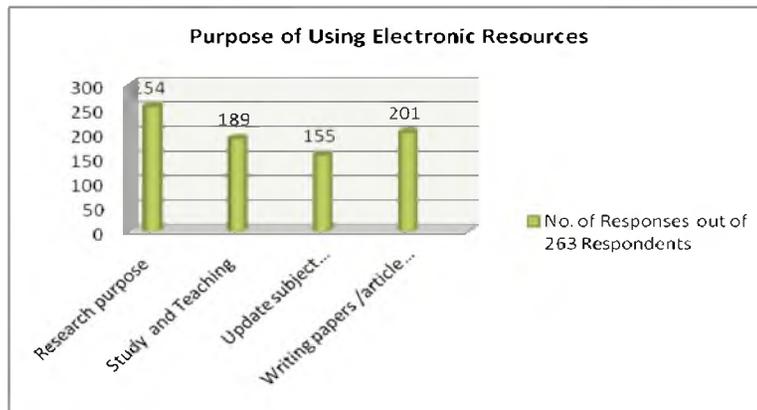


Figure 3

The Table 4 shows the responses of scientists on the purpose of using electronic resources. It is evident from the table that majority of the responses that is 254 (96.58%) said that they were using it for research purpose, 189 (71.86%) said that they used it for study and teaching, while 155 (58.94%) used it for updating their subject knowledge, and 201 (76.43%) used for writing papers/articles/books/projects.

Frequency of Use of Electronic Resources

It is essential to know how much time on an average the user is spending in using the electronic resources. For knowing the frequency of the use of electronic resources by the scientists of IARI the responses of respondents are tabulated in Table 5.

Table 5: Frequency of Use of Electronic Resources

Frequency	No. of Respondents	Percentage of Respondents
Daily	115	43.73%
Weekly	77	29.28%
Monthly	57	21.67%
Occasionally	14	5.32%
Total	263	100%

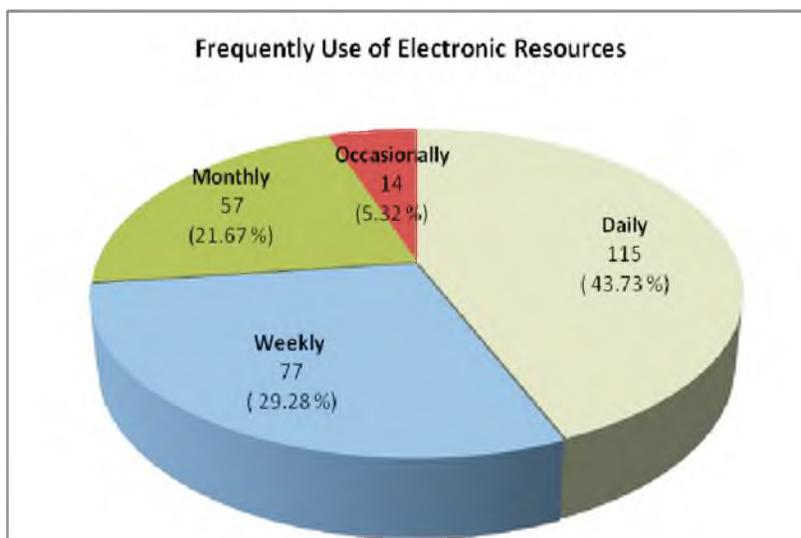


Figure 4

Study of Table 5 shows how frequently the scientists of IARI used electronic resources. The scientists (43.73%) revealed that they used daily. The scientists (29.28%) used it weekly, (21.67%) used it monthly and (5.32%) used occasionally.

Location/Place of Using Electronic Resources

The study tried to examine as to in which location/place scientists of IARI are using electronic resources. In this regard scientists were asked as to place where they access the electronic resources. The collected data is presented on the basis of no. of responses out of the 263 respondents in Table 6.

Table 6: Location / Place of Using Electronic Resources

Location/ Place of Using E-Resources	No. of Responses	Percentage of Responses
Library	73	27.76%
Own Chamber	223	84.79%
Department Computer Section	62	23.57%

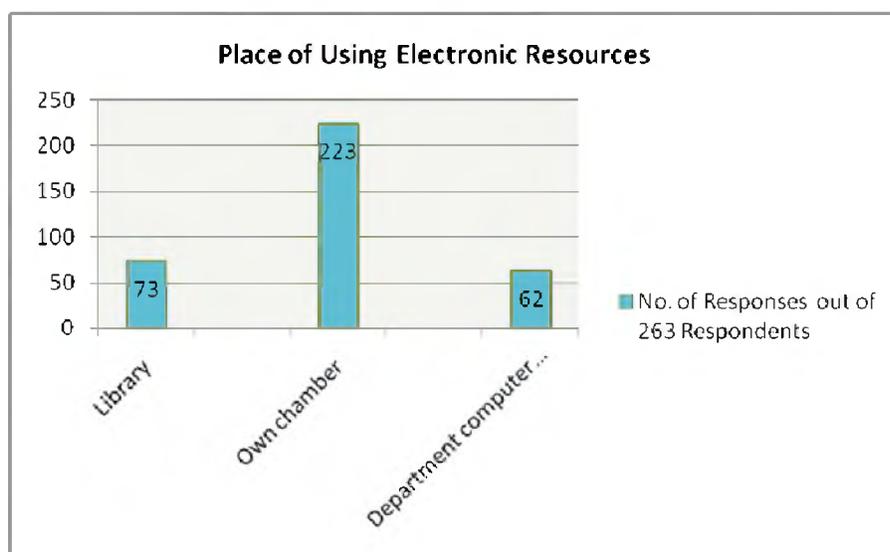


Figure 5

Table 6 presents the location from where the scientists access the electronic resources. Majority of them (84.79%) have been using it from their own chamber, 27.76% from the library and 23.57% from the departmental computer section.

Locate (Search) and Access to Electronic Resources

The data provided in Table 7 shows how the scientists of IARI, are linking and access electronic resources.

Table 7: Locate (Search) and Access to Electronic Resources

Search and Access Electronic Resources	No. of Responses	Percentage of Responses
Links through Institute Website	169	64.26%
Links through Publishers' Website	121	46.00%
Links through Search Engines	129	49.05%

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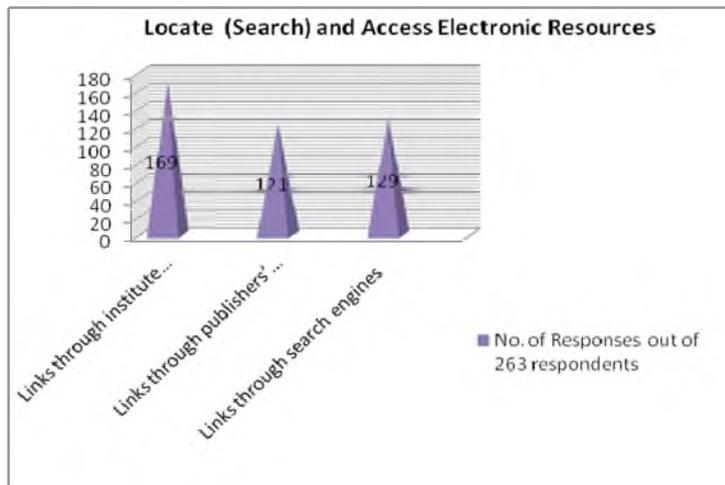


Figure 6

Table 7 shows the links through which the scientists access the electronic resources. The study indicates that 64.26% of scientists accessed through institutes website, 46% through publisher's website and 49.05% through search engines.

Interest for Accessing Electronic Resources

The observation related to the interest, which drives the scientists to access the electronic resources is shown in Table 8.

Table 8: Search Interest for Accessing Electronic Resources

Search Interest for Accessing Electronic Resources	No. of Responses	Percentage of Responses
Search for Specific Article	176	66.92%
Search for Contents	104	39.54%
Search for Abstracts	159	60.46%

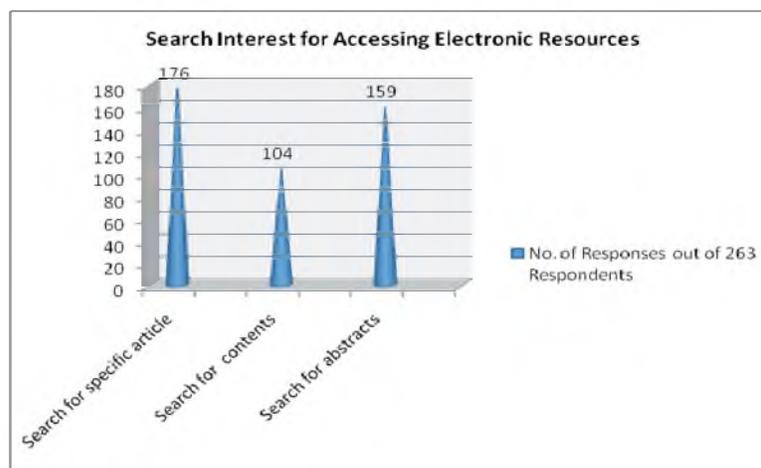


Figure 7

Table 8 shows that 66.92% scientists access the electronic resources for search of a specific article, 39.54% for search of contents and 60.46% for search of abstracts.

Use Pattern of Electronic Resources

Respondents were asked to indicate how they use content of electronic resources and their use pattern is provided in the Table 9.

Table 9: Use Pattern of Electronic Resources

Use Pattern of Electronic Resources	No. of Responses	Percentage of Responses
Read the Material on the Computer Screen	124	47.15%
Take Printout	153	58.17%
Download the Material on a Suitable Storage Device	168	63.88%

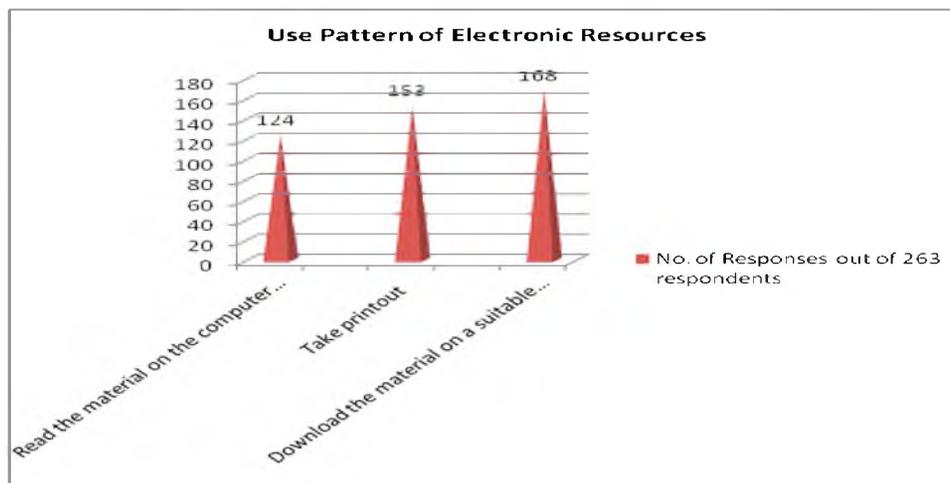


Figure 8

The research scientists were inquired to know about the pattern of use of electronic resources by them. Out of the 263 respondents 124 (47.15%) said that they read the material on the computer screen, 153 (58.17%) said they took printout, while 168 (63.88%) said they download the material on suitable storage device for read them later on.

Format of Electronic Resources Used by Scientists

Electronic resources are available in two major formats PDF and HTML. The results on which format of electronic resources is generally accessed by the scientists are shown in Table 10.

Table 10: Format of Electronic Resources Used by Scientists

Format of Electronic Resources	No. of Responses	Percentage of Responses
PDF	174	66.16%
HTML	69	26.24%
Others	62	23.57%

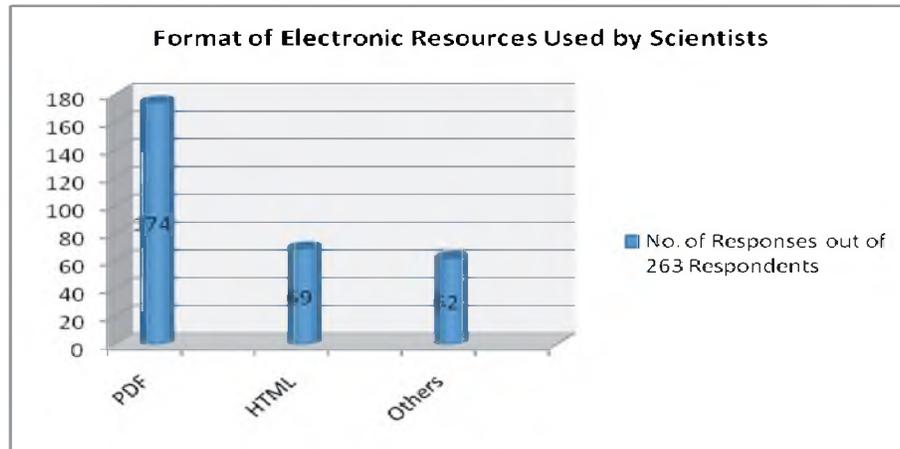


Figure 9

Table 10 represents the distribution of the formats of electronic resources used by the scientists. It was found that PDF was the most preferred format used by the scientists (66.16%), whereas (26.24%) use HTML format and (23.57%) use other formats.

Opinion about the Availability of Electronic Resources in the Institute / Library

The opinion about availability of electronic resources in the institute/library is important. Scientists were asked about their opinion on the availability of electronic resources in the institute/library and the respondent's (scientists of IARI) opinions are shown in the Table 11.

Table 11: Opinion about the Availability of Electronic Resources in the Institute / Library

Opinion about the Availability of Electronic Resources in the Institute/Library	No. of Respondents	Percentage of Respondents
Excellent	163	61.98%
Good	96	36.50%
Average	4	1.52%
Poor	0	0%
Total	263	100%

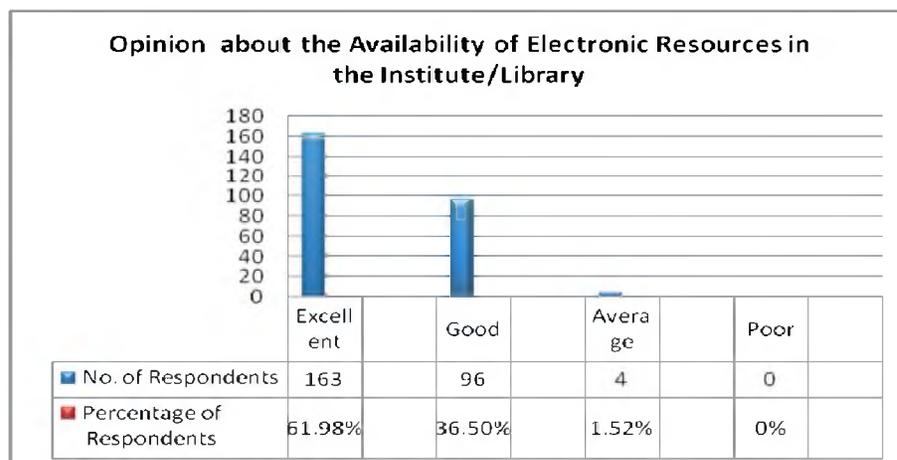


Figure 10

Table 11 shows the response distribution of scientists when asked about the availability of electronic resources in the institute/ library. The opinion of 61.98% respondents found it excellent, 36.50% good and 1.52% average. While no one rated it as poor.

Reasons for Using the Electronic Resources

The reason for using the electronic resources can never be ignored. The study attempted to know the reasons for using electronic resources. The respondents were asked to indicate reasons for using the electronic resources. The data is given in Table 12.

Table 12: Reasons for Using the Electronic Resources

Reasons for Using Electronic Resources	No. of Responses	Percentage of Responses
Quick in Searching	225	85.55%
Easy Accessibility	222	84.41%
Easy Downloading	221	84.03%
Accessibility from Anywhere	221	84.03%
Simultaneous Access by Many at a Time	219	83.27%
Others	202	76.81%

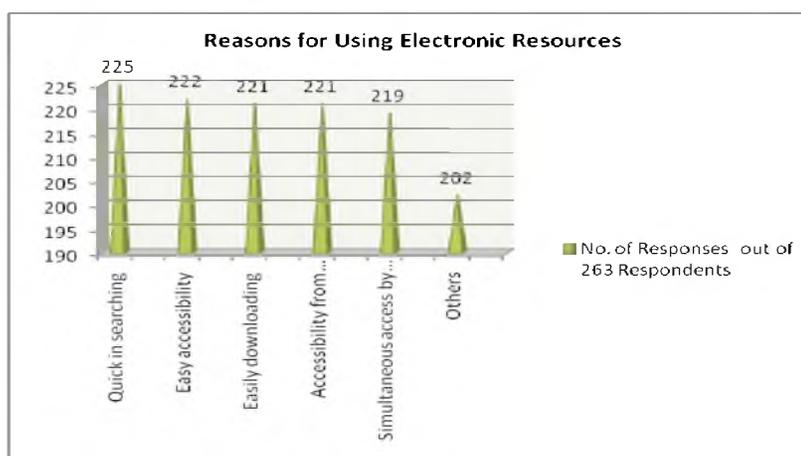


Figure 11

Table 12 shows the responses of scientist's about reasons for using electronic resources. Scientists were asked about reasons for using the electronic resources and 85.55% attributed it to quick in searching, 84.41% to easy accessibility, 84.03% to easy downloading and 84.03% to its accessibility from anywhere, 83.27% to simultaneous access by many at a time and 76.81% to other reasons.

Preferred Form of Resources (Electronic Resources /Print Resources) for Use in Research & Other works

Now a –days, both the electronic resources & print resources are available in every institutions. But in matter of research the scientists were asked about which form of resources they mostly prefer to use between the electronic resources and print resources. The responses are indicated in Table 13 for 263 respondents.

Table 13: Preferred Form of Resources (Electronic Resources / Print Resources) for Use in Research & Other Works

Preferred Form of Resources	No. of Respondents	Percentage of Respondents
Electronic Resources	188	71.48%
Print Resources	75	28.52%
Total	263	100%

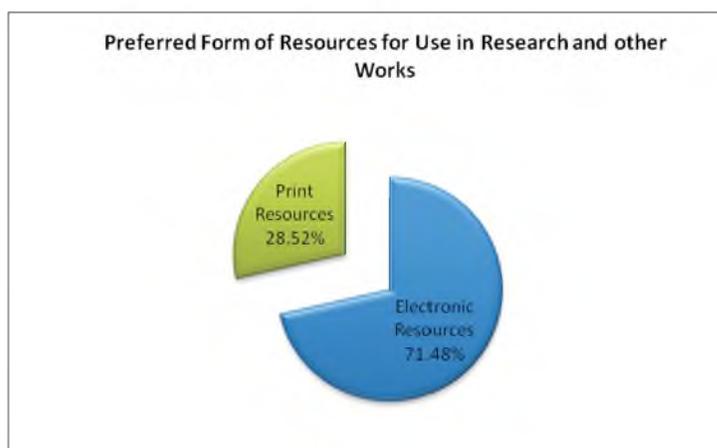


Figure 12

Table 13 clearly indicates that majority of respondents 188 (71.48%) prefer to use electronic resources and 75 (28.52%) respondents prefer to use print resources in research and other works.

Problems in Accessing Electronic Resources

Electronic resources have become common sources among the research institutes. Majority of users stated that they have problems to access the electronic resources. The scientists of IARI were asked about the specific problems they faced in accessing the electronic resources. In this regard, data have been presented in Table 14.

Table 14: Problems in Accessing Electronic Resources

Problems in Accessing Electronic Resources	No. of Responses	Percentage of Responses
Lack of Infrastructure	83	31.56%
Slow Downloading	96	36.50%
Insufficient E-Resources in Their Subject Area	91	34.60%
Lack of Knowledge & Training	148	56.27%
Any Others	74	28.14%

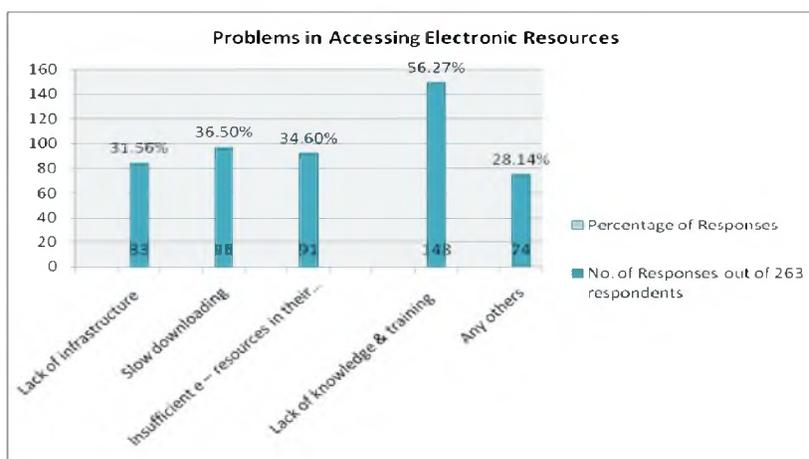


Figure 13

The table 14 shows the distribution of scientists according to the problems faced by them in accessing the electronic resources. Out of 263 respondents, 83 (31.56%) respondents said it was lack of infrastructure, 96 (36.50%) respondents attributed it to slow downloading, 91 (34.60%) respondents attributed it to insufficient e-resources in their subject area, 148 (56.27%) respondents said to lack of knowledge and training and 74 (28.10%) respondents said to other problem.

Satisfaction with Infrastructure to Support Accessing Electronic Resources in the Institute/Library

Without adequate infrastructure facility scientists cannot use electronic resources. The views of the respondents for level of satisfaction with infrastructural support in accessing electronic resources have been presented in Table 15.

Table 15: Satisfaction with the Infrastructure to Support Accessing Electronic Resources in the Institute/Library

Level of Satisfaction	No. of Respondents	Percentage of Respondents
Highly Satisfied	159	60.46%
Satisfied	95	36.12%
Average	9	3.42%
Total	263	100%

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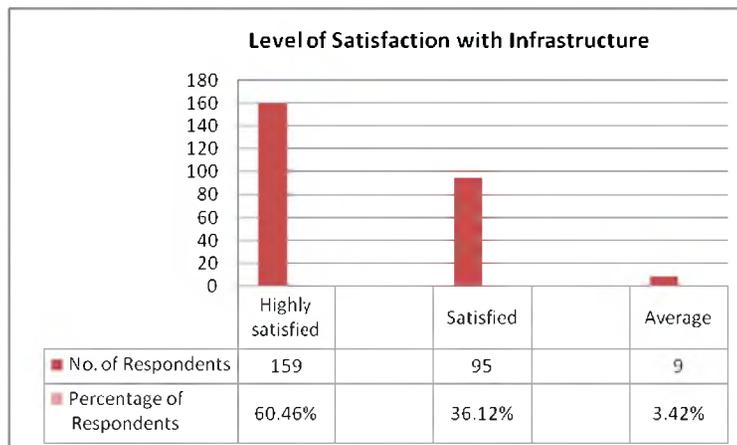


Figure 14

Table 15 shows the satisfaction level of the scientists (263 respondents), with the infrastructural support in accessing the electronic resources in institute/library. The study reveals that 60.46% scientists were highly satisfied with it, while 36.12% were satisfied and 3.42% termed it to be average.

Interested in Attending any Computer Training Programme to Improve the Use of Electronic Resources

Users have found the use of electronic resources more convenient to obtain desired information. However, without any training programme it is not possible to obtain the information quickly. Scientists can improve the use of electronic resources if they are provided suitable computer training programme. The data shown in Table 6.16 represent the distribution of scientists of IARI interested in attending any computer training programme to improve the use of electronic resources.

Table 16: Interested in Attending any Computer Training Programme to Improve the Use of Electronic Resources

Interested in Attending Training Programme	No. of Respondents	Percentage of Respondents
Yes	251	95.44%
No	12	4.56%

**Figure.15**

The above Table 16 shows the distribution of scientists according to whether they are willing to attend any computer training programme for use of electronic resources. 251 (95.44%) respondents were willing to attend one such programme while 12 (4.56%) were not willing.

16 (a) Useful Training for Accessing Electronic Resources

Those who showed their willingness to attend a training programme for improvement in the use of electronic resources were further questioned as to which type of training would be more useful for them in accessing electronic resources and their response is shown in Table 16 (a).

Table 16 (a): Type of Training Considered More Useful for Accessing the Electronic Resources

Type of Training	No. of Responses	Percentage of Responses
Computer /ICT Training	173	68.92%
CD-ROMs & Internet Search	175	69.72%
Electronic Resources Access	186	74.10%

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Note: Table 16 (a) is a supporting of Table 16. Hence data has been shown for only 251 respondents, who expressed their willingness to attend a training programme for improvement in accessing the electronic resources as shown in Table 16

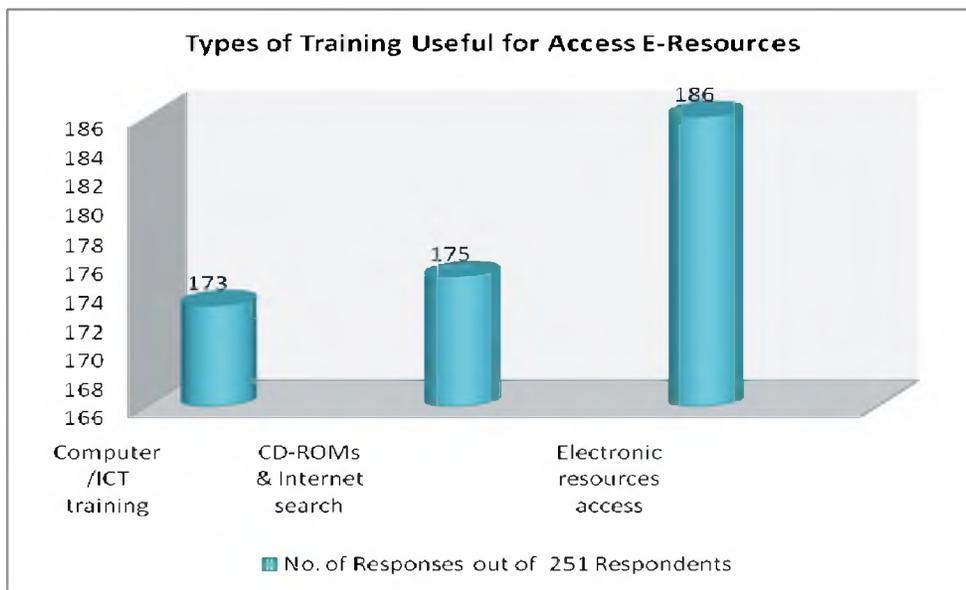


Figure 16

The above Table 16 (a) shows, which type of training is more useful in accessing electronic resources for the scientists. (68.92%) scientists found computer/ ICT training to be useful, 69.72% found CD-ROMs & Internet search to be useful while 74.10% found electronic resources access to be useful.

Findings of the Study

The findings of the study are summarized as follow:

- The study revealed that all the scientists (100%) use electronic resources.
- The study showed that “online journals” (96.58%) are most preferred for research assignments, study & teaching work by the scientists of IARI.
- The study clearly indicated that (91.63%) scientists prefer “CAB Abstracts” agricultural databases for research assignments, which is maximum in comparison to other agricultural databases.
- The study showed that majority of scientists (96.58%) is using the electronic resources for “research purpose”, which is highest.

- The study indicated that out of 263 respondents, 115 (43.73%) respondents use electronic resources on “daily” basis, which is highest.
- This study showed that the majority of scientists (84.79%) are able to access electronic resources from their “own chamber”.
- The study clearly indicated that maximum scientists are “linking through institute's website” for accessing electronic resources.
- The study showed that majority of the scientists is interested in searching of a “specific article” or “Abstracts”.
- The study showed that majority of scientists either “download the material on suitable storage device (63.88%)” or “take printout (58.17%)” of the materials to read them later on.
- The study showed that “PDF” was the most preferred format used by the scientists.
- The majority of scientists are of the opinion that availability of electronic resources in the institute/library is “excellent” (61.98%).
- The study indicated that majority (around 84%) scientists attributed “quick in searching”, “easy accessibility”, “easy downloading”, “its accessibility from anywhere” and “simultaneous access by many at a time” as reasons for using the electronic resources.
- The study indicated that majority of scientists prefer to use the “electronic resources (71.48%)” over “print resources (28.52%)” in research and other works.
- The study indicated that majority of the scientists (56.27%) have faced the problem in accessing the electronic resources due to “lack of knowledge and training”
- The study showed that majority of scientists (60.46%) are “highly satisfied” with the infrastructural support in accessing the electronic resources in institute/library.
- The study revealed that majority of scientists (95.44%) was willing to attend “computer training programme” to improve their skills in the use of electronic resources.
- Among the scientists who were interested in attending any computer training programme for improvement in accessing the electronic resources, the study indicates that maximum scientists (74.10%) were interested in attending “electronic resources access” training programme.

Conclusion

Electronic resources are the very important for the research community and are used extensively for research purposes. The scientists require information very quickly, easily and they also need the information in readily usable format for research work. Now the scientists have started making maximum use of e-resources. However, lack of training among the scientists and proper infrastructure in the research institutions are major de-motivating factors in the use of electronic resources. The role of agricultural research libraries will be crucial in providing training to library users for optimum use of electronic resources. From the above study, it is found that use of electronic resources has been increasing and majority of scientists of IARI using the electronic resources for research, study & teaching work.

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