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Status, Adequacy and Use of Library Collection: a study of Govind Ballabh Pant University of Agriculture & Technology and Indian Agricultural Research Institute

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ABSTRACT

The study aimed to explore the status, adequacy, and use of library collection at the G.B. Pant University of Agriculture & Technology and Indian Agricultural Research Institute. A well-designed questionnaire was randomly administered to both the universities students in order to collect the relevant data. The five-point Likert scale and summated mean score have also been applied in questionnaire design and data analysis. The results presented substantial differences in the status, adequateness, use, purpose, and satisfaction in terms of library collections at both universities. Electronic resources and databases have turn out to be a major component of collection in meeting students' information demands. To boost the usage of collection, libraries must review their policies and procedures along with their collection.

Keywords: Library collection, Electronic resources and databases, Agricultural University, GBPUAT, IARI
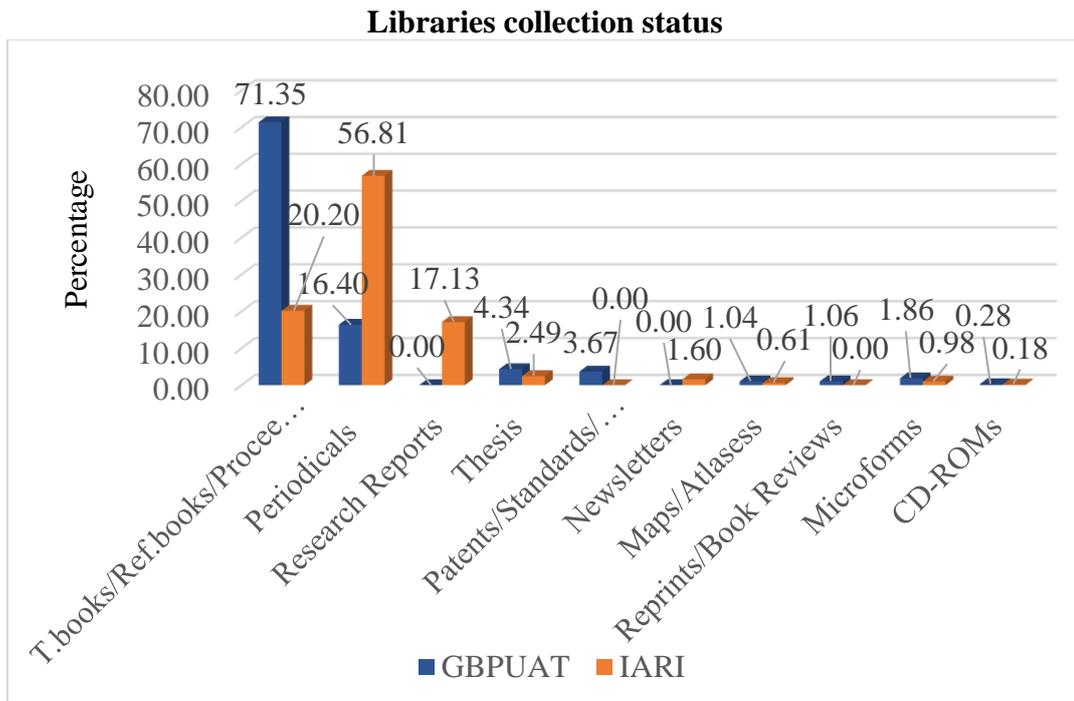
1. INTRODUCTION AND BACKGROUND

As an agricultural country, India's agricultural commodities growth is reflected in exceptional yields of various harvests, influenced by natural and man-made factors. Agricultural science, which is the bedrock of the country's agricultural development, necessitates the timely dissemination of information produced and updated around the world.

In April 1951, the First Five-Year Plan launched to improve agricultural production, benefiting India's economy. However, between 1947 and 1960, the slow growth of agricultural universities was noted. The G.B. Pant University of Agriculture and Technology (GBPUAT) in Pantnagar began the history of agriculture university libraries in India in 1960. The orange, black, white, golden, and technological revolutions followed the establishment of the science council, research programs, and R&D networks. India, the world's second-most populous country, has 74 agricultural universities and 98 research institutes/centres/directorates/bureaus run by the central or state governments to produce skilled and trained human resources to ensure food security for nearly 18% (1.394 billion people in India) of the world's population[1, 2, 3, 4].

The libraries of Indian agricultural universities have instrumental in bolstering their abilities to reorganize and re-orient themselves to meet the demands of this advanced era. As a result, the libraries at these institutions invested heavily in developing their research-oriented collections, high-quality services, cutting-edge technology, and solid infrastructure. They support their institution's teaching, science, expansion, and outreach programs, which lead to agricultural development. So, it is essential to assess their strength and weaknesses regarding the adequacy and use of collections. As a result, two agricultural university libraries, the GBPUAT Library in Pantnagar, Uttarakhand, and the IARI (Deemed University) Library in New Delhi, were chosen for the assessment, both of which have extensive information resource collections. Thus, this study aimed to explore the libraries collections status, adequacy, and use at GBPUAT and IARI. Apart from electronic resources, the GBPUAT library consisted of resources collection of 368119 documents[5,6], whereas the IARI library housed more than 6,24,004 publications[7,8] in agricultural sciences and related subjects as stated in Figure 1.

Fig. 1

Libraries collection status

Bar chart titled "Libraries collection status" showing Percentage (y-axis, 0.00 to 80.00) for GBPUAT (blue) and IARI (orange) across categories:

- T.books/Ref.books/Procee…: GBPUAT 71.35, IARI 20.20
- Periodicals: GBPUAT 16.40, IARI 56.81
- Research Reports: GBPUAT 0.00, IARI 17.13
- Thesis: GBPUAT 4.34, IARI 2.49
- Patents/Standards/…: GBPUAT 3.67, IARI 0.00
- Newsletters: GBPUAT 0.00, IARI 1.60
- Maps/Atlasess: GBPUAT 1.04, IARI 0.61
- Reprints/Book Reviews: GBPUAT 1.06, IARI 0.00
- Microforms: GBPUAT 1.86, IARI 0.98
- CD-ROMs: GBPUAT 0.28, IARI 0.18

2. LITERATURE REVIEW

The majority of information resources available in agricultural libraries are collection-based. The adequacy and relevance of a library's collections is a critical factor in determining how well it is used and its effectiveness. Khan and Zaidi[9] found that the AMU library's collection is satisfactory and that overall satisfaction with the library is good. Ikhizama and Oduwole[10] looked at whether the library collection was adequate and fair, whereas Majid and Kassim[11] found that the resources collections, and facilities were adequate to satisfy the respondents' research demands. Naqvi[12, 13] in his studies depicted as print and electronic collections at IARI and GBPAUT libraries are sufficient. Users' satisfaction with the adequacy of the collection and overall facilities in Allahabad University's central library was ranked average in another survey[14].

Majid and Tan[15] observed that printed format such as books was the most preferred information resource when compared to electronic formats such as databases and electronic journals, while periodicals was the utmost consulted information resources in other studies by Ikhizama and Oduwole[10] and Shokeen and Kaushik[16]. In another study, Majid, Anwar, and Eisenschitz[17] discovered that agricultural scientists preferred journal and review papers as key information sources. The e-resources databases such as AGRIS, AGRICOLA, CAB abstract,

agriculture & natural resources, and e-journals were also commonly accessed for getting the required information[18, 19].

The studies of Uzezi[20] and Salaam[21] showed that the resource collections were used for assignments and exam's purpose, while Kannappanavar and Swamy[22] found that the study's reference material was appropriate. Books, reference books, research bulletins, CD-ROMs, newsletters, periodicals, thesis, reviews, and conference proceedings for research, project, study, and personal purposes were highly used information resources [12, 13].

Furthermore, Kiran[23] discovered that the library positively impacts academic staff teaching, studying, and research in her study. Overall, patron satisfaction with library facilities was rated as satisfactory. Majid, Anwar, and Eisenschitz[17] focused on customer retention and the effectiveness of library collections and facilities. On the other hand, user evaluation aids in determining what is going well and what is not and identifying existing strengths and shortcomings. It also provides helpful insight for re-orienting both the libraries' resources, services, and activities to quench the users thirst better.

3. OBJECTIVES AND LIMITATION

This study aimed to look into the status, adequacy, and usage of collections at GBPUAT and IARI and evaluate students' satisfaction levels. In order to accomplish the main aim and address the study results, the following objectives were created:

  i. To know the status of library collections at GBPUAT and IARI.
 ii. To determine the adequacy of the various print and electronic collections.
iii. To know the use, purpose, and satisfaction level regarding various library collections.
 iv. To identify the most used e-resources collections.
  v. To find out the barriers and assistance in accessing the collections.

Under the present study, users as students belonging to GBPUAT and IARI were questioned to know the use of collections. Undergraduate students, personal traits like gender and age were excluded.

4. RESEARCH METHODOLOGY AND DESIGN

In the study, a mixed approach comprises qualitative and quantitative methods to collect the secondary and primary data. For secondary data collection, the content analysis of published literature such as annual reports, websites, pamphlets, brochures, etc., and observation method through the visit to the libraries have been applied. In contrast, a survey approach was used to collect primary data. So, a questionnaire consisted of open-ended, close-ended, multiple-choice, and likert scale questions was designed to get users' view concerning the adequacy and use of resource collections from GBPUAT and IARI. The five points Likert's scale was also applied in the course of designing the questions. The questionnaire was divided into three sections as demographic information, collection adequacy and collection use. In the end, space also provided for getting the students comments and suggestions. The stratified random sampling was used in selecting the sample size from the students' population of GBPUAT and IARI, India. The pre-tested questionnaire was distributed randomly among 250 students at each university, and 262 (52.4%) questionnaires as 137 (54.8%) from GBPUAT and 125 (50%) from IARI, were returned and used as stated in Table 1.

Table 1
University-wise response rate

University	Distributed Questionnaire	Useable Questionnaire		CF	Percentage
GBPUAT students	250	137			
PG			90	90	65.69
PhD			47	137	34.31
IARI students	250	125			
PG			80	217	64
PhD			45	262	36
Total	**500**	**262**	**262**		**52.4**
		Mean=65.5, Standard Deviation=22.90			

5. ANALYSIS OF THE DATA AND FINDINGS

The following tools and techniques were used in data analysis and interpretation: frequency distribution, percentages, mean, standard deviation, summated mean score & ranking, as well as MS-Word and MS-Excel Package.

5.1 Visit the library

It is crucial to know how many PG and PhD students at both universities visit the library during their studies. As a result, the frequency of visits has been divided into five classes, as shown in Figure 2.
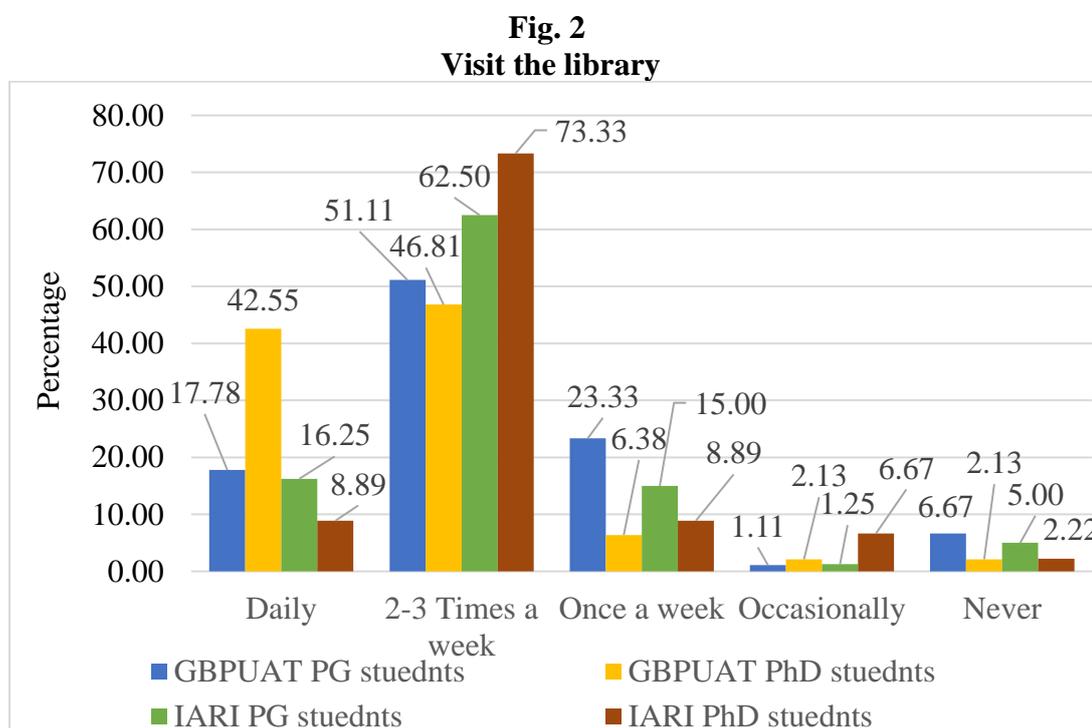
Fig. 2
Visit the library

Figure 2 depicted that most GBPUAT PG students (51.11 percent) visited the library 2-3 times a week, followed by 46.81 percent and 42.55 percent of PhD students visited the library 2-3 times a week and daily, respectively. In addition, only a small number of PG and PhD students visited once a month and occasionally.

In IARI, 62.50 percent of PG students and 73.33 percent of PhD students often accessed the library 2-3 times a week. Apart from that, only a small percentage of PG and PhD students went to the library daily, monthly, and occasionally.

As a result, the measured summated mean score revealed that GBPUAT students went to the library more often than IARI students.

5.2 Adequacy of different collections

Table 2
Collections adequacy

Category	GBPUAT students		IARI students	
	PG	PhD	PG	PhD
Print	1.50 (1)	1.43 (1)	1.23 (2)	1.22 (1)
Electronic	1.28 (2)	1.34 (2)	1.36 (1)	1.11 (2)

(Figures without and within parenthesis are mean and rank, respectively)

Table 2 mean score and rating illustrate that GBPUAT PG and PhD students were more satisfied with the available print collection than electronic collection. On the other hand, IARI PG and PhD students had different viewpoints as PhD students and PG students were more gratified with the present print collection and electronic collection.

Furthermore, according to PG and PhD students from GBPUAT and IARI, the print resources collection was more satisfactory than the e-format collection in meeting the demands.

5.3 Usage of various collections

The calculated mean and rank in Table 3 showed that textbooks, reference books, research reports, CDs/DVDs, newsletters, periodicals, thesis, reprints/reviews and proceedings were the commonly accessed resources collections among the majority of GBPUAT PG and PhD students. On the other hand, most IARI PG and PhD students relied heavily on CDs/DVDs, textbooks, reference books, periodicals, research reports, newsletters, proceedings. Apart from these, reprints/reviews and thesis were also the most consulted sources by P.G. students than PhD students. Furthermore, microforms (microfiches, films, records, and tapes), maps/atlases, and patents/standards/specifications were the least consulted resources among PG and PhD students of GBPUAT and IARI.

5.4 Purpose of collection's usage

In Table 3, most GBPUAT PG and PhD students used the respective information collection as textbooks, newsletters, proceedings, reprints/reviews, and periodicals to fulfil the various purpose as research work, project work, study, and personal work. Furthermore, patents/standards/specifications, maps/atlases, microforms, and CDs/DVDs were among the most frequently used sources by PhD students for various purposes. Similarly, proceedings, research bulletins, reference books, thesis, CDs/DVDs, periodicals, and newsletters were used by the majority of IARI PG and PhD students. In comparison to PhD students, IARI PG students used maps/atlases and reprints/book reviews more to achieve their goals. When comparing PhD students to PG students, patents/standards/specifications, microforms, and textbooks were the most frequently used sources of knowledge to meet their requirements. As a result, research bulletins and thesis were the least used sources by PG and PhD students from GBPUAT and IARI for different purposes.

5.5 Satisfaction level with the collection's usage

Table 3 shows that reference books, textbooks, reports, newsletters, thesis, periodicals, CDs/DVDs, proceedings, and reprints/reviews were all highly rated by GBPUAT PG and PhD students. In addition, as compared to PG students, PhD students at GBPUAT were pleased with the use of patents, standards, requirements, and maps/atlases. On the other hand, the majority of IARI PG and PhD students were extremely pleased with the use of CDs/DVDs, thesis, reference books, textbooks, and periodicals. Moreover, PG students were more pleased with using research reports, reprints/reviews, newsletters, proceedings, and patents/standards/specifications than PhD students. In both universities, PG and PhD students were dissatisfied with the use of microforms.

Table 3
Usage, purpose and satisfaction with collections

Collection	Use				Purpose				Satisfaction			
	GBPUAT students		IARI students		GBPUAT students		IARI students		GBPUAT students		IARI students	
	PG	PhD	PG	PhD	PG	PhD	PG	PhD	PG	PhD	PG	PhD
Textbooks	3.27 (1)	3.65 (1)	3.13 (1-2)	2.62 (4)	3.41 (1)	3.26 (1)	1.81 (10)	2.04 (10)	3.09 (2)	3.28 (3)	3.13 (4)	2.38 (4)
Reference books	3.08 (2)	3.36 (2)	2.94 (4)	2.84 (3)	1.91 (7)	2.02 (10)	2.61 (3)	3.36 (3-4)	3.17 (1)	3.02 (6)	3.19 (3)	2.42 (2-3)
Periodicals	2.48 (6)	3.00 (4-5)	2.53 (6)	3.18 (2)	2.06 (5)	2.40 (5-6)	2.45 (7)	3.22 (5)	2.84 (6-7)	2.62 (9)	3.05 (6)	2.42 (2-3)
Research Reports	2.68 (3)	2.91 (6)	2.69 (5)	2.31 (5)	1.68 (9)	1.89 (11-12)	2.79 (2)	3.36 (3-4)	2.98 (3-4)	2.85 (7)	3.2 (5)	1.93 (6)
Thesis	2.42 (7)	2.64 (8)	1.99 (9)	1.51 (9)	1.66 (10)	1.89 (11-12)	2.56 (5)	3.49 (1-2)	2.92 (5)	3.32 (2)	3.44 (2)	2.04 (5)
Proceedings	2.11 (9)	2.43 (9)	2.14 (8)	2.04 (7)	2.49 (3)	2.45 (4)	2.94 (1)	2.89 (6)	2.66 (8)	2.68 (8)	2.47 (9)	1.62 (8)
Patents/Standards/ Specifications	1.78 10)	1.87 (10)	1.23 (11)	0.69 (11)	1.58 (11)	2.40 (5-6)	1.21 (11)	2.24 (7-8)	1.94 (11)	2.34 (10)	2.15 (10)	1.02 (11)
Newsletters	2.62 (5)	3.00 (4-5)	2.99 (3)	2.16 (6)	2.69 (2)	2.96 (2)	2.28 (8)	2.24 (7-8)	2.98 (3-4)	3.26 (4)	2.56 (8)	1.69 (7)
Maps/Atlases	1.76 (11)	1.55 (11)	1.30 (10)	0.91 (10)	1.98 (6)	2.15 (7)	2.58 (4)	1.84 (11)	1.96 (10)	2.04 (11)	1.81 (11)	1.22 (10)
Reprints/Book Reviews	2.32 (8)	2.66 (7)	2.26 (7)	1.73 (8)	2.26 (4)	2.62 (3)	2.03 (9)	1.56 (12)	2.63 (9)	3.06 (5)	2.83 (7)	1.51 (9)
Microforms	0.68 (12)	1.23 (12)	0.86 (12)	0.53 (12)	0.78 (12)	2.11 (8)	1.01 (12)	2.13 (9)	1.64 (12)	1.83 (12)	1.74 (12)	0.89 (12)
CDs/DVDs	2.64 (4)	3.06 (3)	3.13 (1-2)	3.20 (1)	1.78 (8)	2.06 (9)	2.46 (6)	3.49 (1-2)	2.84 (6-7)	3.34 (1)	3.5 (1)	3.04 (1)

(Figures without and within parenthesis are mean and rank, respectively)

5.6 Use electronic collection

Table 4
Electronic collections use

Category	GBPUAT students		IARI students	
	PG	PhD	PG	PhD
E-Books	0.73 (5)	1.40 (4)	1.79 (4)	0.64 (4)
E-Journals	1.84 (2)	3.09 (1)	2.70 (2)	2.73 (2)
E-Databases	2.20 (1)	3.00 (2)	3.23 (1)	3.11 (1)
Online Databases	1.00 (3)	1.98 (3)	2.41 (3)	2.16 (3)
E-Dictionaries	0.51 (6)	1.21 (6)	1.30 (5)	0.47 (5)
E-Encyclopedias	0.78 (4)	1.23 (5)	1.05 (6)	0.40 (6)

(Figures without and within parenthesis are mean and rank, respectively)

The electronic collections of agricultural university libraries were created for various purposes, and their use is relatively high. As shown in Table 4, the commonly used e-resources collections among PG and PhD students at IARI and GBPUAT were e-databases, e-journals, and online databases. In contrast, e-dictionaries, e-encyclopedias, and e-books were the least collected resources by PG and PhD students at both universities.

5.7 Use of electronic and online databases

Table 5
Use of databases

Databases	GBPUAT students		IARI students	
	PG	PhD	PG	PhD
AGRIS	1.94 (1)	3.21 (2)	3.30 (1)	3.16 (2)
AGRICOLA	1.76 (2)	2.91 (3)	3.21 (3)	2.80 (3)
Agriculture & Natural Resources	1.64 (4)	2.17 (4)	2.05 (4)	1.78 (4)
BIOSIS	0.82 (7)	1.87 (5)	1.64 (6)	0.31 (9)
Biotechnology	1.02 (5-6)	1.83 (6)	2.04 (5)	1.47 (5)
CAB Abstract	1.67 (3)	3.34 (1)	3.23 (2)	3.60 (1)
FSTA	1.02 (5-6)	1.51 (7)	1.54 (7)	0.64 (8)
Water Resource Abstract	0.64 (9)	1.23 (9)	1.49 (8)	0.89 (6)
Zoological Records	0.80 (8)	1.34 (8)	1.48 (9)	0.84 (7)

(Figures without and within parenthesis are mean and rank, respectively)

The use mean score and rank of electronic and online databases in Table 5 showed that AGRIS, CAB abstract, AGRICOLA, Agriculture & Natural Resources and Biotechnology were the highly used databases among the PG and PhD students GBPUAT. However, BIOSIS and FSTA were also used by the PhD students of GBPUAT. Similarly, AGRIS, CAB abstract, AGRICOLA,

Agriculture & Natural Resources and Biotechnology were the highly used databases among the PG and PhD students of IARI.

It is also observed that electronic and online databases have become a crucial part of both the agricultural university libraries in fulfilling the demands of users for required information.

5.8 Barriers in accessing the collections

Table 6
Problems in using e-collections

Category	GBPUAT students		IARI students	
	PG	PhD	PG	PhD
Technical	7	3	9	7
	(7.78)	(6.38)	(11.25)	(15.56)
Connectivity	15	14	27	14
	(16.67)	(29.79)	(33.75)	(31.11)
Downloading	16	11	22	13
	(17.78)	(23.40)	(27.50)	(28.89)
Interrupted power supply	5	1	18	8
	(5.56)	(2.13)	(22.50)	(17.78)
Pay for searching	30	13		
	(33.33)	(27.66)	-	-
Lack of skills	14		1	
	(15.56)	-	(1.25)	-
Lack of time	9	1		1
	(10.00)	(2.13)	-	(2.22)
Poor facility	4	1	1	1
	(4.44)	(2.13)	(1.25)	(2.22)
Lack of guidance	34	34	16	8
	(37.78)	(72.34)	(20.00)	(17.78)

(Figures within parenthesis are %age) (Multiple answers were permitted)

Table 6 lists the following reasons for not using collections based on the research. The vast majority of people lack of guidance caused 37.78 percent of GBPUAT PG students problems when using resources, followed by pay for searching (33.33 percent), downloading (17.78 percent), connectivity (16.67 percent), lack of skills (15.56 percent), and lack of time (10.00 percent), respectively. 72.34 percent of GBPUAT PhD students had the same problem, followed by connectivity (16.67 percent), lack of skills (15.56 percent), and lack of time (10.00 percent).

In IARI, the most common issue for PG students was connectivity (35.75 percent), followed by uploading (27.50 percent), power supply (22.50 percent), instruction (20 percent), and technical (11.25 percent). Similarly, connectivity was cited as a concern by 31.11 percent of IARI

PhD students, followed by slow uploading (28.89 percent), power supply (17.78 percent), instruction (17.78 percent), and technical (15.56 percent).

As a result, the majority of GBPUAT PG students cited a lack of guidance and the cost of searching, while PhD students cited a lack of guidance and connectivity as issues. Similarly, IARI PG and PhD students had difficulty accessing library services due to a lack of connectivity.

5.9 Assistance in accessing the collections

Both university libraries have been active participants in educational programs to familiarise users with library literature, literature searching, library resources, and information retrieval technologies and techniques. Users are given different types of guidance in using the library's resource collections via this application.

Table 7
Assistance in using collections

Category	GBPUAT students		IARI students	
	PG	PhD	PG	PhD
Training by the library	17	12	57	15
	(18.89)	(25.53)	(71.25)	(33.33)
Online instructions/ guides	10	8	15	9
	(11.11)	(17.02)	(18.75)	(20.00)
Individual instruction by library staff	15	12	34	15
	(16.67)	(25.53)	(42.50)	(33.33)
Help by your colleagues	6	8	28	12
	(6.67)	(17.02)	(35.00)	(26.67)

(Figures within parenthesis are %age) (Multiple answers were permitted)

Table 7 shows that 18.89 percent of GBPUAT PG students received training from the library in using resources collections, followed by individual instruction from library staff (16.67 percent) and online instructions/guides on using resources (11.11 percent), respectively. On the other hand, GBPUAT PhD students (25.53 percent) and (25.53 percent) indicated that they received library training and individual guidance in accessing resources from library staff, respectively, followed by online instructions/guides (17.02 percent) and support from colleagues (17.02 percent). Similarly, the library has trained the most IARI PG students in accessing services (71.25 percent), followed by individual instruction from library staff (42.50 percent), support from colleagues (35.00 percent), and online instructions/guides (18.75 percent). While 33.33 percent and 33.33 percent of IARI PhD students received library training and individual guidance from library

staff, respectively, they were accompanied by support from colleagues (26.67 percent) and online instructions/guides (20.00 percent) on how to use library services.

6. CONCLUSION

It has been evident that the journey of growth of agricultural universities and their libraries from GBPUAT, a state agricultural university, to IARI, a deemed agricultural university or a national agricultural university, contributed significantly to India's development after the independence and implementation of the five-year plan. However, the assessment of available resources and assets is vital for further progress. Thus, the conducted study findings showed substantial variances in university library collections status, adequacy, usage, and satisfaction.

The print resources collections compared to e-format collection were more adequate and satisfactory in meeting the demands. However, the following print resources collections such as textbooks, reference books, research bulletins, CDs/DVDs, newsletters, periodicals, thesis, reprints/reviews and proceedings were the most popularly accessed for research work, project work, study, and personal work among the PG and PhD students of GBPUAT and IARI as compared to microforms, maps/atlases, and patents/standards/specifications. In the case of e-resources collections as e-databases, e-journals, and online databases compared to e-books, e-encyclopedias, and e-dictionaries were the most commonly used among PG and PhD students at both the university libraries. It was also observed that e-resources databases such as AGRIS, CAB abstract, AGRICOLA, Agriculture & Natural Resources and Biotechnology, have been rooted in both the agricultural university libraries. As a result, the electronic/digital format collections become a crucial part in quenching the thirst of users for required information.

Thus, the role of agricultural university libraries has been enormous in building print and electronic/digital collection and transferring the scientific information to the right users at the right time. However, there is also a need to maximize library use by switching over to contemporary and welcoming environments like building user or research-oriented collections, implementing innovative services, replacing user education by information research skills program, advancing infrastructure facilities, etc. Finally, to boost the usage of the library's collection, libraries must review their policies and procedures along with their collection.

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