

Knowledge Management Database on Agricultural information in selective institutions of the Indian Council of Agricultural Research: A Comprehensive Study

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ABSTRACT

The main aim of this study is to know about the Knowledge Management database of Agricultural Information in the two selective institutions of the Indian Council of Agricultural Research, one is the National Institute of Agricultural Economics and Policy Research and another is Indian Agricultural Research Institute. The study investigates the various collection and services of the select institutional libraries. The researcher covers both print and non-print media in both physical and virtual spaces. The study found availability of various data repositories, applications and quality initiatives for the knowledge management in the agricultural sector. These resources have a great impact on the extension, education and research in the field of agriculture and has also found the growth and updation of resources in regular frequency. The researcher also observed that the e-form of the resources, collection and services has become a significant part of the library in fulfilling the needs of the students, researchers and teachers, especially in these hard pandemic times when no one can access the institutions' collection physically. This study provides a collection of the various knowledge management databases of agricultural information of the select institutions to those who need and also give information in order to enrich their access and content and to make the knowledge management system more effective.

Keywords: *Knowledge management, Agricultural database, ICAR, Agricultural sciences, Agricultural information.*

1. Introduction

The process of creating, managing, sharing and using the knowledge and information of an organization is called Knowledge Management (KM). (Husain and Nazim, 2013).

The knowledge management process helps the organization to achieve organizational objectives through its multidisciplinary approach by using the knowledge in best way for the organization.

Knowledge management in libraries should be focused on development of knowledge, creation of knowledge bases, effective research, exchange and sharing of knowledge between library staffs and users, speeding up explicit processing of the implicit knowledge and training of staffs. (Knowledge Management Portal, ICAR, n.d.)

Along with the development of knowledge economy the role of knowledge management in

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libraries will become more and more important. Knowledge management plays important role in ensuring all round development and improvement of library staff quality, promoting knowledge innovation, promoting relationships between library users and staffs, speed-up knowledge flows, strengthen knowledge inter-networking etc. (Husain and Nazim, 2013)

The database acquired by Agricultural educational institutions are not same database acquired by all libraries. Also, they are not same as all libraries are familiar with. Managing the knowledge repository in agriculture databases is new for library and information centres as compared to other databases' management as agriculture sector is still developing.

The research investigation has done with possible correlations between Libraries and Agriculture database management and also how ICAR is managing and developing the knowledge resources for capacity building for their users and professionals within the institutions and libraries. A comprehensive study research has done.

The objectives of the study are: 1) To study the importance of knowledge management in agriculture. 2) To study the knowledge management databases provided by the Libraries of Agricultural Institutions under ICAR. 3) To find out the adequacy of various and different types of print and electronic collection in the library of the select institutions. 4) To identify the purpose and use of various categories of library collections and resources for knowledge management.

The study mainly includes the two most important institutions of ICAR i.e., Indian Council of Agricultural Research named the ICAR-NIAP i.e., the ICAR-National Institute of Agricultural Economics and Policy 30 Research and ICAR-IARI i.e., the ICAR-Indian Agricultural Research Institute. Both the institutions are situated in New Delhi, India. These institutes play the major role in the development of Agricultural sector in India. This study is on the Knowledge Management Database of these Agricultural Institutions. The database is large reservoir, but focus will be given on the most important resources contained.

The study has the following limitations also: a) The study is only restricted to the knowledge management database and libraries of Agricultural institutions thus only benefitting the students, faculty and researcher of Agricultural sector. b) Due to the effect of Covid-19 pandemic, collection of primary data will not be possible. Henceforth the data analysis will be carried out on the basis of Secondary data collection and through telephonic communication only.

2. Motivation of the study

The motivation for this study is the belief that this study will help the Agricultural scientists and research students a lot in their work. Agriculture is backbone of our country and agricultural science is as important as medical science as a subject area also. So, through this study, an effort has been made by providing the analytical database about the two of the major institutions of ICAR, to benefit even a little to the students, researchers and scientists of agricultural sector.

3. Methodology

The study intake some techniques, tools and methods which are used in different ways to search the information, retrieve the information, collection of the data and sharing of the data. This study would help to provide effective database and information collection to the users of agricultural libraries of India. The collection of data for the proposed research is carried out from secondary resources. The descriptive study is also used to complete this study successfully and to know about the status, condition, collection, services and improvement required for the agricultural libraries in India.

An effort is made to give a suitable methodology for conducting the research, keeping the objective of the study in view. The following ways are used to complete the study successfully, 1) Various secondary resources such as Institution library's website, directories, reference books, guidelines given by university libraries, booklets etc. are used. 2) Telephonic interviews are conducted with the professionals, some known student users and researchers of each institution's

library for data collection. 3) The data collected out of secondary sources and telephonic interview are analyzed and presented in the form of table, charts etc.

4. Data Study and Analysis

The Library of Indian Council of Agricultural Research has an approximate collection of 85,000 including books for Animal Science, Crop Science, Forestry, Horticulture, Fisheries, Natural Resource Management and Beekeeping. The collection also includes, bound volumes of journals, commission or committee reports, Annual reports of ICAR and its institutes, CGIAR (Consultancy Group of International Agricultural Research), FAO (Food and Agriculture Organization) reports, ISNAR (International Service for National Agricultural Research) reports, News clipping service and other general interest books like Novels, Stories, Economics, Ethics, Biographies and Politics. The two select institutions of the study are also a part of this reservoir. (Indian Council of Agricultural Research, n.d.)

The study is on the knowledge management database of two select institutions under the Indian Council of Agriculture Research (ICAR), named National Institute of Agricultural Economics and Policy Research (NIAP) and Indian Agricultural Research Institute (IARI). There exist common databases for two or more institutions of ICAR, so the study will cover the common databases and individual databases also, if there exist any.

ICAR-NIAP Library: Currently, the library has a collection of 3227 reference books, 6518 publications, 118 CD ROMs, 781 reports, 97 SAARC publications, 2295 database publications and other reference materials. Library provides a computerized reference service with quick search facility using library software package. The library has a subscription of 16 International Journals, named Food and Nutrition Bulletin, Agricultural Economics, Applied Economics Perspectives and Policy, American Journal of Agricultural Economics, Agriculture and Human Values, Economic Development and Cultural

Change, Food Security, Food Policy, World Development, Science and Public Policy, Journal of Development Economics and Journal of Agricultural Economics, etc. There's subscription of 13 National Journals also, named Indian Journal of Fertilizers, Economic and Political Weekly, Agricultural Economics Research Review, Leading National Newspapers and Magazines, Indian Journal of Agricultural Economics and Agricultural Situation in India etc. and also online subscription to Economic and Political Weekly (EPW) archives, Economic and Political 54 Weekly Research Foundation (India Time Series) and Centre for Monitoring Indian Economy Pvt. Ltd. (CMIE) database (Commodities and States of India). The library also has a depository of CGIAR (Consultative Group on International Agricultural Research), CGPRT (Coarse Grains, Pulses Roots and Tuber crops) and FAO (Food and Agriculture Organization) reports. There's a separate section for Hindi books in the library. The researchers of NIAP have access to many journals through CeRA (Consortium for e-resources in Agriculture), a website hosted by the IARI. The NIAP Library is playing a very active role in the timely dissemination of technical and scientific information for research via Newspaper Clipping Service and Current Awareness Service. (National Institute of Agricultural Economics and Policy Research, n.d.)

Table1: ICAR-NIAP Library Collection

ICAR-NIAP Library Collection	
Reference Books	3227
Publications	6518
CD ROMs	118
Reports	781
SAARC Publications	97
Database Publications	2295
International Journals	16
National Journals	13

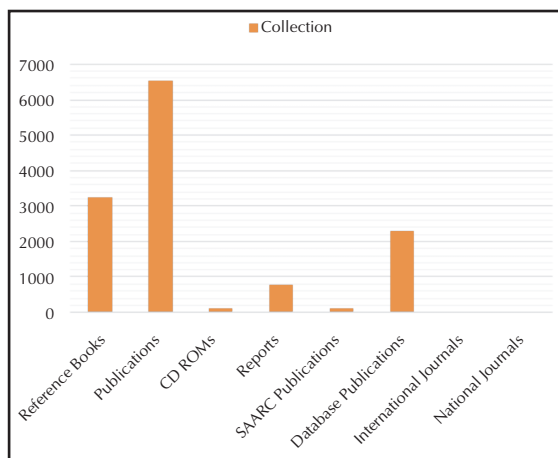


Figure1: ICAR-NIAP Library Collection

ICAR-IARI Library: The ICAR-IARI Library is named as Prof. M. S. Swaminathan Library giving an honor to the most eminent scientist Prof. M. S. Swaminathan. This is one of the finest and largest agro-biological libraries in South East Asia with a total collection of more than 3.75 lakh publications. The publications include 2,21,600 reports/journals, 1.32 lakh monographs/bulletins/books, 7,683 Hindi books, 15,160 post graduate theses, 28,500 newsletters etc. There is also access of 24 online journals available on the local area network. The library has around 2000 members including students, technical staffs and scientists. 8,000 visitors come every year to the library. The IARI library functions as the depository of IDRC (International Development Research Centre), AVRDC (Asian Vegetable

Table-2: ICAR-IARI Library Collection

ICAR-IARI Library Collection	
Reports/Journals	2,21,600
Monographs/Bulletins/Books	1,32,000
Hindi Books.....	7,683
Postgraduate Theses.....	15,160
Newsletters	28,500
Online Journals.....	24
Total Collection.....	>3.75 Lakhs

Research and Development Centre) and FAO publications and also functions as the National Depository for CGIAR institutes' publications. The library also provides the facility of reading halls having personal computers, Wi-Fi connection, internet and email. (Indian Agricultural Research Institute, n.d.)

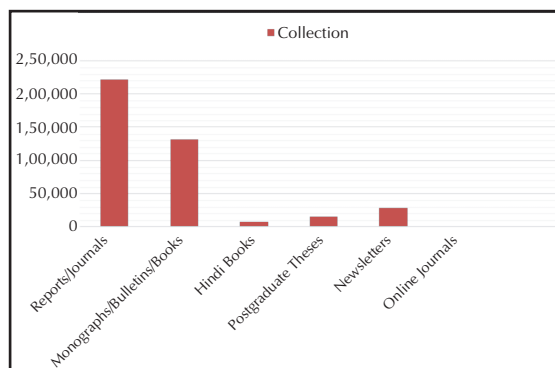


Figure2: ICAR-IARI Library Collection

Table-3: ICAR-IARI Library Serials Collection

ICAR-IARI Library Serials Collection	
Indian Journals.....	185
Online mode journals	30
Foreign periodicals	116
Newsletters	650
Advances and Annual reviews.....	47
Annual reports.....	152

The Library of IARI has several documentation activities including:

AGRIS Project - The IARI Library was declared as an input centre for National Agricultural Research Database (NARD) under the AGRIS (International System for Agricultural Science and Technology) Project. The job of the M.S. Swaminathan Library was to scan the articles from 10 most important Indian journals. The input was done in the format of ISO (International Organization for Standardization) using AGRIN methodology. (Kumaran et al., 2014)

The IARI Library is serving approximately 150-200 users everyday coming from different ICAR institutions and different agricultural universities, apart from its 2000 registered members. The Document Delivery Service is also provided through email within 3 days. The library has taken the membership of INFLIBNET (Information and Library Network) and DELNET (Developing Library Network) for better Networking and Document Delivery Service. Library's resource management activities contain: Reference, Circulation and Stack maintenance, CD-ROM Workstation, e-Language lab, C-DAC (Centre for Development of Advanced Computing) project, CeRA (Consortium for e-resources in agriculture), e-Granth project. (Indian Agricultural Research Institute, n.d.)

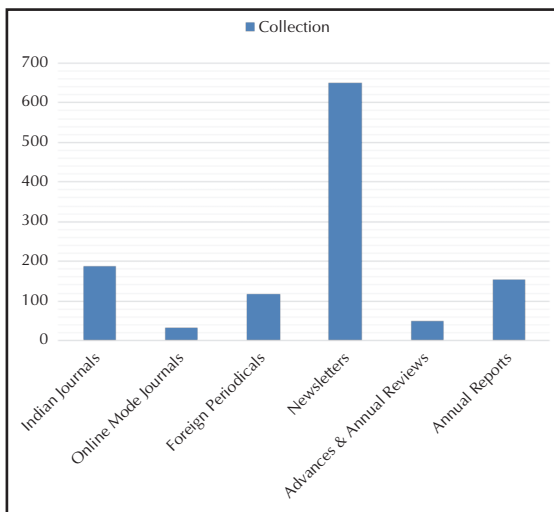


Figure3: ICAR-IARI Library Serials Collection

The NIAP and IARI Library Agricultural Knowledge Management Unit are trying to integrate information system and databases through an electronic network linking National Agricultural Research System (NARS) institutions to support the management and planning of agricultural research. (Sajna and Mohamed, 2018)

Currently the Agricultural Knowledge Management unit is well equipped with

necessary hardware and software. AKMU work with the goal to strengthen information management culture using the modern tools within the National Agricultural Research System so that the agricultural research becomes more effective and efficient. The mandates of the IARI Agricultural Knowledge Management Unit include: maintenance of dynamic website, provide internet connectivity, farmer's advisory service, e-main and teleconferencing services to IARI and to generate and collate data and information to construct and validate reliable computer models on crop growth, pest dynamics, input management and yield prediction. (Sajna and Mohamed, 2018)

5. Agricultural Information Data Depository for Knowledge Management in the select institutions

ICAR and its institutions NIAP and IARI are having these resources for agricultural information data depository and knowledge management.

1) KRISHI - Knowledge based Resources Information System Hub for Innovations in Agriculture: Agricultural Knowledge Resources and Information System Hub for Innovations is an initiative to bring its Knowledge Resources to all stakeholders at one place by the Indian Council of Agricultural Research (ICAR). The portal is a centralized data repository system of Indian Council of Agricultural Research consisting of Technology, Geo-spatial data, Publications, Data generated through Surveys/Experiments/Observational studies and Learning Resources etc. (Runge, 2006)

2) KrishiKosh: This is the institutional repository under the National Agricultural Research System. This repository of knowledge is spread all over India in different libraries of State Agricultural Universities and Research Institutions and is having knowledge in agriculture and allied sciences, having collection of many old and valuable books, records and various more documents. KrishiKosh has a housing of about 65,200 records of journals, books, articles,

reports, institutional publications, conference proceedings, theses and dissertations etc. (KrishiKosh, n.d.)

70 participating libraries are uploading documents on the repository on daily basis that is why the present number of collections is increasing steadily. 64 The top ten libraries have contributed about 76.99% of the total collection that is 50,198 in numbers. The top ten libraries include 5 State Agricultural Universities that have contributed 41.95% of the total collection and 5 institutions of ICAR with contribution of 35.04%. (Kumaran et al., 2014)

The Indian Agricultural Research Institute, New Delhi is the top contributor of the collections with 20.95% of the total collection that is 13,658 records in numbers. (WorldCat, n.d.)

The second top contributor is the Professor Jayashankar Telangana State Agricultural University with 8,478 records that is 13% of the total collection. Then the third topmost contributor is the University of Agricultural Sciences, Bangalore with 8,428 records that is 12.92%, followed by Tamil Nadu Veterinary and Animal Sciences University, Chennai with 9.82% contribution of 6,402 records and Indian Veterinary Research Institute, Izatnagar with 3,725 records that is 5.71% of the total collection. The remaining collection of 15,002 documents that is 23.01% of the total collection are contributed by the 52 partner libraries of Indian National Agricultural Research and Education System (NARES) in which 29 are State Agricultural Universities and 23 are ICAR institutions' libraries. (Jain and Gorla, 2001)

Journals are in the top five position with 25% i.e. 16,943 of the total types of document uploaded followed by Dissertations and Theses with 14,604 that is 22.40%, Books with 19.29% (12,578), Articles with 3,934 i.e. 6.03% and Reports with 2,413 (3.70%). Top five types of documents are constituted with 50,472 that is 77.41%. (KrishiKosh, n.d.)

The remaining are consisting of newsletters, seminar proceedings, book chapters, bulletins,

historical records, manuals, leaflets, photographs, pamphlets etc. contributing 22.59% of the collection with 14,728 documents. 8 libraries out of the 70 participating libraries have not contributed any document yet in which 4 are ICAR institutes and 4 are SAUs. (Runge, 2006)

Table-4: Documents in KrishiKosh

Documents in KrishiKosh		
Rank in Contribution	Type of Documents	Documents Contributed
1	Journals	16,943
2	Dissertations & Theses	14,604
3	Books	12,578
4	Articles	3,934
5	Reports	2,413
6	Proceedings	168
7	Remaining Documents	14,728

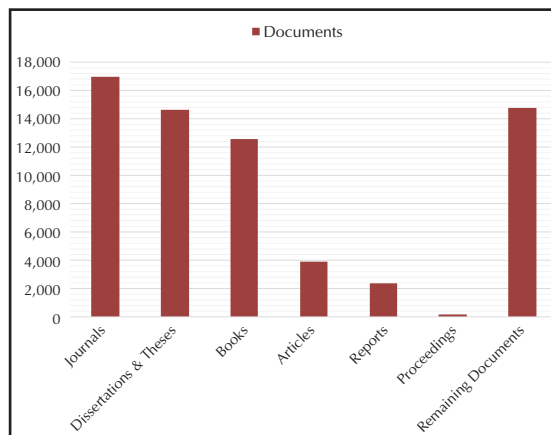


Figure-4: Documents in KrishiKosh

3) KrishiPrabha: This is an electronic repository for the Doctoral Dissertations in the field of Agricultural Sciences in India. It is a systematic effort to develop and maintain a national repository of doctoral dissertations and digitize and make them accessible online. This repository has facilitated the potential use of Indian Agricultural doctoral dissertations and for extracting max. value from them. (Pateria, 2018)

Table-5: Discipline-wise doctoral dissertations in KrishiPrabha

Discipline-wise Doctoral Dissertations in KrishiPrabha	
Disciplines	Full-text theses
Agricultural Engineering and Technology	139
Agriculture	3905
Basic Sciences	1025
Dairy Sciences	159
Home Sciences	250
Veterinary & Animal Sciences.....	820

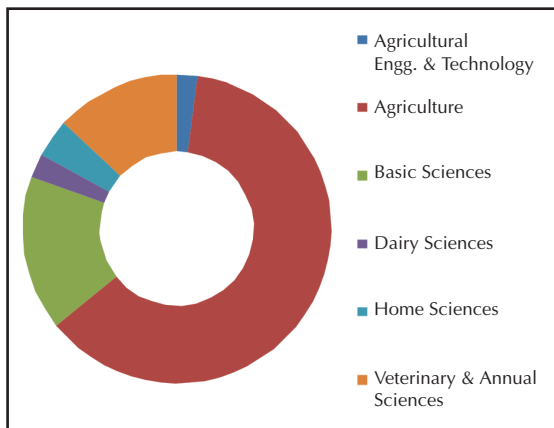


Figure 5: Discipline-wise doctoral dissertations in KrishiPrabha

4) Consortium for e-resources in Agriculture (CeRA): CeRA or Consortium for e-Resources in Agriculture is an e-Consortium of agricultural libraries under the Indian Council of Agricultural Research for NARES i.e., National Agricultural Research and Education System libraries. CeRA was established in November 2007, and it is the first of its kind for facilitating 24x7 online access of some selected journals in agriculture and allied sciences to all the researchers, students and teachers, policy planners, administrators and extension specialists through IP authentication in NARS. (CeRA, Indian Council of Agricultural Research, n.d.)

With 152 members consisted of ICAR institutes, Directorates, NRCs, project Directorates and National Bureau and State Agricultural universities etc., CeRA is now the most in-demand online platform by teachers/scientists in NARS for their professional chasing for literature search. (Kumaran et al., 2014)

M/s Informatics Publishing Ltd. (J-Gate), Elsevier, Oxford University Press, Springer Nature (Formerly Springer), Taylor & Francis, Wiley, IndiaagriStat.com are some of the publishers of CeRA. Some of the main advantages of CeRA are Remote access is allowed Supports different searching capabilities Helps member libraries to save physical storage space Access to unsubscribed materials Availability and monitoring of usage statistics Reduced storage costs All consortium members can simultaneously use Provide timely and uninterrupted access all the time. (CeRA, Indian Council of Agricultural Research, n.d.)

5) AgriCat: This is a union catalogue with holdings of 12 main libraries of the State Agricultural Universities and Indian Council of Agricultural Research combined together. The headquarter of AgriCat is in IARI, New Delhi. It is the part of the e-Granth consortium project under the National Agricultural Innovation Project. AgriCat is the major activity of the e-Granth and is responsible for the union catalogue of the partner libraries. (Hasan, 2011)

It makes the resources accessible to each other with the help of OCLC, USA. AgriCat libraries are totally dedicated to offering access to as much of the widest range as possible of resources. People associated with AgriCat libraries are able to search each other's collections and many other libraries' collections as well using WorldCat that is the worlds' largest network of the library related services and content. (WorldCat, n.d.)

6. Conclusion

The major results got by the research showed that there exist various sources of knowledge and information for the agricultural information, education and research in the institutions on

which study has done. There are various data repositories, mobile applications, different portals, print/non-print resources, e-resources, etc. in existence for those who need information about agriculture. The study showed that the resources such as Books, Periodicals, National Journals or International Journals, Theses, Dissertations, Monographs, Reports, Newsletters, CD-ROMs, Publications, Commission or Committee Reports, Reference books, Bulletins, Advances and Annual Reviews, Annual Reports, Seminar/Conference/Workshop proceedings were heavily used among the majority of research scholars, postgraduate students and faculty members also. Apart from these, the libraries of the select institutions are running various project for the innovation in agricultural technology development and customization and have several documentation activities. The institutions' libraries have thousands of collections including specialized collection of electronic and print databases like Economic Survey, Statistical Abstracts, Input Surveys, Agricultural Census, NSSO (National Sample Survey Office) Surveys, Livestock Census etc. The collection has a wide range of data from areas of Animal Science, Crop Science, Forestry, Horticulture, Fisheries, Natural Resource Management and Beekeeping etc. Various resource management activities like reference, stack maintenance, circulation etc. are being holding by the institutions' libraries. The study revealed that the agricultural information data depository for knowledge management in the select institutions have various data depositories for various categories of users of the different ICAR institutions or State/Deemed Agricultural Universities.

The study talked about the depositories named KRISHI Knowledge based resources information system hub for innovations in agriculture, KrishiKosh, KrishiPrabha, CeRA or the consortium for e-resources in agriculture and AgriCat elaborating their data content, community users, access policy, sustainability, usage, innovations, purpose and the various collections under these depositories etc.

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