

LITERATURE REVIEW OF INFORMATION SEEKING BEHAVIOR OF FARMERS IN INDIA

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ABSTRACT

Agriculture is the backbone of Indian Economy. Farmers maintain their livelihood by selling crops, marketing these items in local market. Information Seeking Behaviour of farmers are considered for proper planning and policy making. Paper proposes to define information seeking behavior, various aspects, and factors affecting information seeking process. It also describes Information seeking behavior models by Wilson, Dervin, Elliss and others. Information demand, information needs are explained with the help of literature. Information Seeking behavior of farmers are described on the basis of literature from 2010-2016 from Indian Perspective.

KEYWORDS: Agricultural Scientists, Farmers, Information Demand, Information Need, Information Seeking Behavior

INTRODUCTION

Agriculture played significant role in Indian economy. We achieved self sufficiency in food production through the spontaneous and rigorous efforts of farmers. Information seeking behavior of farmers is considered to be essential for proper planning and policy making of sustainable agricultural and rural development. On the other hand Literature review serves multiple purposes and is essential to a well designed research study. It generally comes early in the research process and capable of contributing value added information to any part of the research study. According to Neeraja (Neeraja, 2015) "Time Consuming and Frustrating but it is also rewarding". Its functions are bringing clarity and focus to the individual's research problem, essential for development of research methods, broadening researcher's knowledge and contextualizing researcher's findings. It is conducted to get a clear understanding about the specific field of researcher's interest. It helps the researcher to have an insight into the tested methods, procedures and interpretations of similar studies conducted elsewhere. It also enables to avoid the duplication of research work and broadens the understanding of the research problem. Various research studies related to the present research problem has been conducted in different parts around the globe. An attempt has been made in this paper to present a survey of the available literature to put the research problem under study into appropriate context of scientific perspective. It is quite obvious that research that has been done on the information needs and information-seeking behavior of indigenous people in developing countries in many ways and in many direction.

OBJECTIVE

In our paper Scanning of literature review categorized as Library survey, Information need, Information Demand, Information Seeking Behaviour, Information Seeking Behaviour Models, Agricultural Information and its user and

characteristics, Information seeking behavior of agricultural researchers, scientists and farmers. Information is collected from India and major emphasis given on the time period between 2010-2015.

Library Surveys

Splitting the field into user studies and system Studies, we find that there has been a continuing interest in the use made of information services, which can be subsumed under the general heading of library surveys. Ruthven (Ruthven, 2010) identified a model from a study completed in 2008 of the characteristics, preferences and needs of adult Internet users from two NSW (New South Wales) public libraries and based on empirical evidence of how library users formulate and employ strategies to meet their informational needs. Study suggested that online information, media use and search strategies were the key factors, related to respondents' preferences and needs concerning Internet use and resultant information-seeking behaviour. At a conceptual level, this model provides an integrated approach to understanding the way library clients behave in selecting information appropriate to their needs. The model not only describes the flow of information seeking activities but acknowledges the influence a clients cognitive/affective state has in moderating this flow with the context and time. In India study conducted at University of Kerala and Kannada University library, Hampi and VLB group of Institutes(Ray, 2011; Lohar, 2013; Prakash, S.J, 2013) to determine the major sources of information, identify awareness level of teachers, Researchers, analyze the impact of ICT on Information seeking behavior and suggested measures to improve the existing facilities and services. In Kerala (Ray, 2011) most of the users satisfied with the library services and preferred both printed and electronic sources side by side. Study strongly recommended periodic user study and collection development policy on the basis of demand of the user. In contrast Kannada (Lohar, 2013) library was lacking good ICT facilities, had poor collection of audio, visual and audio visual aids, and Computer and other facilities. Users strongly agreed the importance of web resources and demanded proper preservation and digitization of old documents. Prakash (Prakash, 2013)in his study surveyed (out of 110 respondents) lecturers 48(43.63), 35(31.81) Asst professors and 27(24.54) professors. Finding of this study indicates that information seeking behavior was motivated by a wide variety of needs, including personal, professional, entertainment, etc

In India Comparative study of awareness level, use of resources and tools of the web resources and use of libraries among research scholars of two premier universities of Jammu & Kashmir viz. University of Kashmir and University of Jammu conducted (S.M Shafi and Tabasum, 2012).Study revealed that 'SciCentral' and 'AHDS' stand popular subject gateways of the Scholars at both the universities. The health sciences gateway 'BIOME' is used only by scholars of University of Kashmir. BIZ/ED and NBS are the two other gateways which are specializing in subject fields of Business & Economics and Architecture & Engineering respectively and as such it was expected that a small number of scholars may be using these Meta-resources. 'Google' was considered the most popular search engine among the scholars (81.66%-86.66%). 'Yahoo' ranked the second followed by the 'MSN Live' (20% - 23.33%). Search engines, like, AltaVista, Gig blast and Lycos were not much used by scholars ranging between 8.33% - 20%. Most of the scholars from both the Universities (40% approx.) used search engines for identifying new URLs. 'Dog pile' meta search engines were used by majority of scholars in both the institutions. Study recommended that Libraries need to organize awareness programme for scholars and students to acquaint them with various web resources and their benefits to the community especially for fast emerging web resources like ETDs, Wikis, and Blogs.

Mishra (Mishra, 2015) and others in their study was to find out the study habit of health science students by using library of SIKSHA 'O' ANUSANDHAN University, Bhubaneswar. Study revealed that the use of e-resources for

information retrieval by the students regularly or daily through internet /e-library was higher than other retrieval process. Text, reference books and e-journals were also cited frequently by the students the large variance of the collected data suggested that refining seeking behavior by discipline, peer groups, or journal information may provide a more precise assessment.

Thanuskodi (Thanuskodi, 2012) conducted a study for use of e-resources by the post graduate students and research scholars of Faculty of Arts in the Annamalai University through questionnaire among 180 samples. Result revealed that 47.78 % of respondents wanted to access only electronic version whereas only 32.78% users wanted to read the printed journals but 19.44% respondents wanted to use both electronic and printed version. Majority of the respondents 76.66% use e-resources for writing papers. The analysis revealed that many of the respondents search e-resources through linking.

Information Needs

The concept of information needs has been coined by American information scientist Robert Taylor in 1962 (Taylor, 1962) and is beautifully discussed in his work entitled 'The process of asking questions' published in the Journal of American Society of Information Science (JASIS).

Menzel (Menzel, 1968) interprets the results of several recent studies of the total information seeking activity of scientists and technologists in terms of complementary relationship between Interpersonal communication system and a formal communication system.

Wilson (Wilson, 2006) suggested that Other than the area of Information Retrieval most of the research conducted in the field of information science is nothing but "User Studies". In the domain of user studies serious investigative study conducted mostly on Information Need throughout the globe. The term Information is really confusing and has many multifaceted dimensions. The word "information" is used, in the context of user-studies research, denoting physical entity or phenomenon (for example: the number of books read in a specific period of time, the number of journals subscribed to a particular library in specific period of time, etc.), the channel of communication through which messages are transferred (Oral and written communication), or the factual data, facts, empirically determined and presented in a document or embodiment of thought or transmitted orally.

The path breaking event in the area of information need was Royal Society of Great Britain held a Scientific Information Conference from June 21 to July2, 1948 in London. (McIninch) Theme of the conference was dedicated to considering information services from the scientific users view point in four sections and focused all scientific disciplines like Engineering, Medical science and Agriculture excluding Social Sciences.

Maurice B. Line initiated some research into social science information needs and services. The first study was called INFROSS - Information Requirements of the Social Sciences - and aimed to discover how social scientists, practitioners as well as researchers, used information. (Line, 1999). INFROSS (INformation Requirements Of the Social Sciences), an investigation based at the University of Bath under the direction of (Line, 1999) Maurice Line. The investigation began in 1967 and was reported in 1971. second research project, called DISISS - Design of Information Systems in the Social Sciences

Kurrupe (Kurrupe, 1999) expanded the paradigm shift in information need and use research in three direction the user values approach, which focuses on perceptions of utility and value of information systems, sense-making approach,

which examines the way people make sense of their worlds and how information is used in this process Anomalous Status of Knowledge (ASK) approach which examines how people seek information concerning situations about which their knowledge is incomplete

In India Study by Baladhandayutham, A. & Murugapandi, V. was designed to know the current status of the District Central Library, Sivagangai (Baladhandayutham, 2015) with regards to the information use pattern of its users by using questionnaire method among 85 users.

In India Akhtar Parvez (AkhtarParvez, 2012) in an online survey and interview among 352 managers working in Financial Institutions in India tried to identify their need, choice and ranked the information sources they used. He suggested that Information providers must ensure by way of providing customizes solution so that issues relating to format, types of sources must be addressed in best possible manner. Government and private agencies provide timely and credible information reused for further research and analysis.

Margam Madhusudan in his study identified needs of students of Department of Libary and Information Science, University of Delhi, and how the online citation tools satisfy their academic and research need.. The survey results show that most of the respondents learned the online citation tools through department's website and main objective of using online citation tools for their academic/research work and most of them accessed it from Delhi University computer centre (Madhusudan, 2016)

Mohammad Aslam Ansari and Shweta Sunetha (Mohammad Aslam Ansari and Sunetha, 2014) conducted a study on Agriculture information needs of farm women in North India. The study adopted a descriptive research design with sample of 120 farm women selected from eight randomly selected villages of Uttarakhand of North India. The findings indicated that farm women expressed the need for information regarding disease control/management, weed control/management, high yielding variety crops, fertilizer requirement, use of improved farm implements, and information related to marketing. An appropriate Information Communication strategy can be developed on the basis of their information seeking and information sharing behaviour. Study revealed that weed, pest control ranked 1st seed treatment and rate was ranked second followed by fertilizer requirement and application (third rank), land area and allocation (fourth rank), decision about crops to be grown (fifth rank), processing (sixth rank), method of harvesting (seventh rank), time of harvesting (eighth rank), land preparation methods (ninth rank), irrigation/water requirement (tenth rank), storing (eleventh rank), right time of sowing (twelfth rank). Sowing method and spacing occupy the last rank with weighted mean score 2.55.

Information Demand

Information is crucial for any research and development work. Presently faculty members, and other users want state of the art information for meeting their needs in order to provide suggestion, to make lecturers, to do their research etc. Generally speaking it has two aspects temporal aspects where specific demands are relevant at specific interval or points of time and Spatial Aspects where demand changes with the location or movement of entity. (Lundqvist, 2007).

In India the National Sample Survey Organization (NSSO) Situation Assessment Survey of farmers in India (NSSO, 2005) showed that only 40 % of farmers have access to one or more sources of information. This raises concern for the remaining 60%, who are ignorant of the basic knowledge and changing dynamics of the agricultural sector. The survey also revealed the type of information that farmers request for. This includes information on seed, fertilizers and

plant protection that are most prominent. For this information, the farmers usually inquire from other farmers and input dealers.

A study by (Mittal S. a., 2013) along with the public extension services, farmers access information from a variety of other sources. These sources can be divided into formal and informal information networks. The informal networks constitute face-to-face interactions with friends, relatives, other farmers, and extension agents among others. On the other hand, formal sources refers to information that is created specifically for farmers through media such as radio and television based agricultural programs, tele-centers and mobile based information services. Farmers use a combination of these formal and informal modes of accessing information simultaneously, for different Information. A CIMMYT scoping study (Mittal, 2012) highlighted limitations to these formal and informal networks and criticized their lack of knowledge or understanding of the farmer's perspective and need or perceived demand for information. It is important to understand the demand for information relating to the agricultural activity of the farmers. This need or demand will vary across regions, Studies (Mittal S. , 2012) have shown that most farmers have access to a variety of traditional information sources (television, radio, newspapers, other farmers, government agricultural extension services, traders, input dealers, seed companies and relatives), which they regularly access for agricultural information.

Information Seeking Behaviour

The term Information Seeking Behaviour has been widely used in the research literature since 1950's (Dave, 2012). After words its various aspects, newer concepts have been evolved. A model is a framework for thinking about a problem and may evolve into a statement of the relationships among theoretical propositions or put simply diagrammatically that indicate Information seeking activity, causal effect relationships among stages in information seeking behavior. Models have been developed in order to explain the information seeking process. Some of the important Information seeking behavior models include Wilsons problem solving model, Ellis Behavioural model and Kuhlthau's Information search process. Wilson (Wilson, Models of Information Behaviour Research, 1999) defined information behavior as the "totality of human behavior in relation to sources and channels of information, including both active and passive information seeking and information use." It is the "micro Level" of behavior employed by the searcher in interacting with information systems of all kinds. According to Wilson (Wilson, Models of Information Behaviour Research, 1999) information seeking behaviour is purposive seeking of information as a consequence of a need to satisfy some goal. Regarding ISB Models As a result of his work on the INISS Project Wilson (Dave, 2012) presented a series of interrelated models in his 1981 paper, which has become one of the most cited publications in the field. Wilson's model is a very general model and is not only hospitable to theory that might help to explain the more fundamental aspects of human behaviour, but also to various approaches to information seeking behaviour and information searching. In one iteration of the model, Wilson incorporated Ellis's 'behavioural characteristics' of information seeking which describes the activities of the information seeker engaged in the 'active search' mode of information seeking.

ISP was proposed and developed by Carol Kuhlthau. Kuhlthau, (Kuhlthau, 1993)'s findings revealed both a common information access process and common emotional patterns. She divides the process of information seeking into six stages

Ellis (Ellis, 1993) investigated the behaviour of researchers in the physical and social sciences and engineers and research scientists through semi-structured interviews using a grounded theory approach, with a focus on describing the activities rather than a process. A cognitive account of the standard model can be derived from Norman's influential model

of general task performance (Hearst), which presents a broad perspective on how people operate in the world. According to this model, a person must first have a basic idea of what they want -- the goal to be achieved. Then they use their mental model of the situation to decide on some kind of action in the world that affects themselves, other people, or objects, with the aim of achieving their goal.

In Dervin et al.'s (2003) (Dervin, 1986) sense-making approach, ending an information-seeking episode involves the act of making sense of the situation or resolving the problem with information gathered for that purpose. Dervin uses the term "outcome" to denote the information-seeking objective. Nicholas Belkin (Dave, 2012) is the proponent of the Anomalous States of Knowledge (ASK) concept for explaining how information needs arise. An information need arises when a human individual encounters an ASK; an ASK is a situation where user realizes that there is an anomaly in [their] state of knowledge with respect to the problem faced. George Zipf developed the principle of least effort in 1949. According to this principle information seekers prioritize the most convenient path to get acceptable information.

Information Foraging Model developed by Stuart Card, Ed. H Chi and Peter Pirolli. The model (Dave, 2012; Wilson, 1999) originated from Anthropological Theories and comparable to foraging for food. Information seekers use clues such as links, summaries, and images to estimate how close they are to target information. Saracevic's own model is described as a stratified interaction model and posits a (simplified) three level structure: surface, cognitive, and situational. Again, this model shows a strong resemblance to that of Ingwersen.

Spink proposes a model of the search process, derived from empirical research, which identifies user judgments, search tactics or moves, interactive feedback loops, and cycles as constituting the search process of a person in interaction with an IR system.

In the true sense information seeking behavior is considered as the complex patterns of actions and interactions which people engage in, while seeking information of whatever the kind and for whatever the purpose. Users behavior is influenced by number of factors such as his/her knowledge about the role of information unit, use of information products, services offered by various information units, Accessibility of Information units and products, his/her status in organization, socio professional position, relation with people, competition in gaining access to information etc.

Gender played a significant role in Information Seeking Behaviour. Gender as a variable has been identified in some studies as a possible influencing variable in information seeking research. Some social psychology depicts physical, mental and social differences between men and women in society. Gender as a variable may be useful for better understanding the cognitive and social background of human information processing and may have important implications for information Dissemination services and systems. In an interesting study in 2010 Halder, Ray and Chakrabarty (Halder, 2010) tried to determine whether gender as a variable is related to the information seeking behavior of university students. Data were collected from 600 university students studying different disciplines (arts, science and commerce) from three state-aided universities in West Bengal, India. They observed significant differences in most of the domains of information seeking behavior with respect to gender (male and female). Females scored high on all the domains of information search except in diversity in search where the males were found to be high. The findings may have implications for research and practice in psychology, especially in the subfields of educational institutions, library science, cognitive development, and training and performance appraisal. Information seeking behaviour is the human activities with respect to searching various sources, channels including use of that information. The terms, information seeking behaviour, information searching behaviour and information using behaviour are synonymous terms. A survey was taken among Information seeking

behaviour of women's educational institutions library in Vellore district Tamilnadu. Study revealed that most of the respondent use college library educational source followed by teachers note, almost 80.56% used textbooks and 41.67% used reference books. 59.09% respondent visit library for updating knowledge followed by class note preparation. (Kumar, 2013)

Singh and Sharma (Singh G. a., 2013) conducted their study to determine the information seeking behavior of newspaper journalists working in Delhi. Study showed that journalists used newspaper clipping files mainly for the purpose of background information (54.31%), followed by back issues of newspapers (52.87%) and books (28.05%). Clipping files or press clipping is considered an important source for all categories of journalists. Study concluded that political activities, government affairs and social activities were the important areas of their information needs for all the categories of journalists. Randhawa (Randhawa, 2015) in his study among social scientists in Centre for Research in Rural and Industrial Development (CRRID) found that social scientists preferred discussion with colleagues followed by indexing/abstracting periodicals (80%),

Priyanka Nagar & Shamim Aktar Munshi (Nagar, 2014) examine the Information Seeking Behaviour of 120 female research scholars of Faculties of Social Science and Arts in Aligarh Muslim University. Study revealed that Most of the research scholars are satisfied with the sources and collection, webservices, and behaviour of Library staff of the University Library.

From social scientists to Basic science and pure science subjected to rapid advancement in scientists' world are: globalization, exponential growth of S&T literature, increasing tendency of team research (multidisciplinary & interdisciplinary), collaboration at local, national and international level, and rapid disseminations of research results through sophisticated ICT technologies. The direct access to scholarly communication made scientists practices more productive and collaborative.

Several study on Information seeking behavior of scientists conducted in India. In recent years (Rajendiran, 2012; Abdul Mannan Khan and Shukla, 2014; Minidevi, 2014) Literature use pattern of Laser Science and Technology by using SCOPUS online and citation data base, attitude towards use of e journals in Indian Institute of Toxicological Research (IITR) and Information seeking behavior of scientists of National Institute of Interdisciplinary Science and Technology at Thiruvananthapuram were most significant. Study conducted by Minidevi suggested that Majority of the scientists obtain information from reading electronic journals.

Chopkar (Chopkar, 2011) made an interesting study to determine information seeking behavior of Research Scholars of Biological Science Department of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The subject coverage of the study is limited to Botany, Zoology, Environment Science and Bio Chemistry. Study conducted through survey and revealed that 120(89%) research scholars visit the library. Most of the research scholars visit the library twice in a week. The first preferred sources of the information are books following by news paper and journals. Biological research scholars Preferred to scan the information through books (98.33%), news paper (94.16%), journals (89.16%) and Theses and Dissertation (80.83%) to fulfill their information needs. Study revealed that 80% research scholars fail to access information due to lack of time and lack of knowledge in use of library services. While only 16.67% research scholars fail to access information due to lack of knowledge in use of library services and unfriendly library staff. An interesting study regarding students attitude and view towards library in ICT environment conducted in Lala Lajpatrai College, Mumbai (Kadli, 2013). A 'Google online survey' and hard copies of questionnaire were used for this study and conducted between

March and April 2013. The online survey was sent randomly to 400 students of all courses and 385 students were responded (96.25%). Study revealed that majority of the respondents visit the library to borrow/refer books, i.e., 255(66.23%), followed with a purpose to access internet 175(45.45%), photocopy 150(38.96%). and proved that in this changing ICT environment students still prefer printed books then followed by internet.

Major study about Information seeking behavior in Engineering students(Muruganandham, 2015; Sudharani, 2014) trying to find out kinds of information sources used by students of Engineering among students of Kanchipuram District, Tamilnadu and Acharya Nagarjuna College of Engineering & Technology, Acharya Nagarjuna University, Guntur. Studies concentrated about the effective use and place of accessing e-resources, problems faced in accessing and using e-resources. Both study suggested the essence of student orientation program me's incorporated in the regular activity of the library and attitude of the students seems very positive towards e resources for their education and research. Studies also suggested the development of Infrastructural facilities and cooperation of Library staffs was essential for effective dissemination.

Puttaswamy and Chaurasia(Puttaswamy, 2014; Chaurasia, 2012) made an insight in to Information Seeking Behaviour of Students and Scholars in Electronic Environment in faculty members of various engineering colleges in Bangalore region under Visvesavraya Technological University (VTU), Karnataka and IIT, Delhi respectively. Study in Bangalore revealed several aspects of dependency level on e-Resources by faculty were apparent and more attention was required to popularize the facility. The first critical aspect was more efforts should be made to decrease the trial and error method of access to e-resources. The study showed that majority of faculty take guidance from friends and colleagues instead of library staff to access e-resources. The second critical aspect was need for the involvement of library staff to guide the users voluntarily to the save the time of the users. In Contrast Chaurasia in their study revealed that electronic journals were most preferred E Resources by over 70% Research Scholars; electronic databases by 60% Research Scholars; but use of electronic books were less preferred (only 27%) by Research Scholars. According to study, electronic books were most preferred e-resource by over 65% P.G. Students.

Medical and allied education which can be considered as higher education or professional education has an important role in the transformation of an individual and also in the growth and development of the health care society as well as the economic development of the nation as a whole. Study of Information seeking Behaviour among Doctors, Medical Students, Nursing staffs etc. conducted in India. In the study of web searching behavior among Ayurvedic medical students of Atreya Ayurvedic Medical College and Research Centre, Doddaballapur, Karnataka, (Nagaraju, 2014) tried to find out the different aspects of web searching behavior of Ayurvedic medical students in terms of experience with web, frequency of use, purpose of use, search technique, favorite search engine, problems encounter in using web and the level of satisfaction. Study Revealed that majority of the respondents searching web through their mobile phone, and the favorite search engine is Google. Doraswamy (Doraswamy, 2014) conducted a study to know the information seeking behavior of Pharmacy Faculty in Andhra Pradesh. Most of the faculty members Preferred Reprographic services than other services and Current Awareness service and selective dissemination of information service were found to be less used compared to other facilities. Study compared the usage pattern among faculties of Acharya Nagarjuna University, Andhra University and Kakatiya University and found no signifant differences in internet searching and Use of interlibrary loan.

Anandhalli and Mahapatra (Anandhalli, 2014; Mahapatra, 2014) conducted Information seeking behavior and e resources utilization pattern among medical students and physicians. Anandhalli in his study among e resources utilization

pattern and users attitude in Medical College Libraries of Davangere, Karnataka revealed that 72.84% students visited library once in a week and spend more than 2 hours during their each visit, 83% of students visited library for normal book issue/return, for reading reference books and other reading materials. More than 53% medical students indicated their satisfaction for existing library e resources includes e journals, online medical bibliographical database and CD ROM database. Mahapatra (Mahapatra R. K., 2014) in his study found that physicians at the level of Junior Residents and Senior Residents are more using libraries compared to their senior counterparts and inferred that physicians under survey are not in good habit of using several information services cultivating current approach to information except borrowing books and photocopying materials of their interest for home-reading. Madan Mohan and Aravinthan (Madan Mohan, 2013) in their study determined Information Seeking Behaviour of the User of Vinayaka Mission's Medical College and hospital. Study revealed that 61.5% collect large amount of information from experts, 58% of them collect some information from periodicals and 41.5% of them collect less amount of information from librarian.

Information Demand: With the rapid development of agricultural information and development of ICT, the demand of agricultural information has been a focus in the international agriculture and information fields.

In India Meera, Jhamtani, and Rao (Meera, 2004) conducted that examined the performance of three ICT projects in India and reviewed that state government project, users mostly preferred access to market information, land records and information on rural development programmes. In the cooperative project, question-and-answer services, accounting, and farm management information were ranked top with most priority. In the private company experiment, participating farmers preferred various types of information on practices, management of pests and diseases, as well as rural development.

Agricultural Information and its User & Their Characteristics

Agriculture, crop science and science of farm animals, began some 10,000 years ago in the Middle East when animals were first raised in captivity. Most agricultural information from that time until the recent era passed from one farmer to another by word of mouth. Even during the early days of the Agricultural Revolution, when advances in crop rotation, animal breeding, and mechanical inventions, Plant protection control, Integrated pest management, Introduction of ICT in agriculture led to paradigm shift towards increased productivity and the need for fewer agricultural workers, most individuals learned of these developments from other cultivators. (Paskof, 1990)

The use of agricultural information is different from that of other disciplines in science and technology. There is a significant volume of scholarly publication based on agricultural research conducted in universities, Research Station and government agencies, NGO's, but, unlike the applied disciplines of medicine and engineering, the practitioner of agriculture-the Specially the farmers-may not able to use the information of the relevant research or unaware of its existence.

Blanchard identified three categories of agricultural literature. The most important was the research literature that is available in scholarly journals, experiment station bulletins, and books. (Blanchard, 1977).

Chatterjee and Dasgupta (Chatterjee, 2016) considered salient features of Agricultural Information includes Area specificity, poor bibliographical control, Lack of formal training, Managements lack of appreciation and confidentiality factor

French (French, 1990) also grouped the users of Agricultural Information into 3 categories Researchers and

scientists whose Information needs considered to be met through the well- established scientific journal system and secondary bibliographic services, Extension specialists who used the scientific literature and advised and assist farmers in time of necessity and thirdly Farmers and producers are the ultimate end users of agricultural information.

Chatterjee and Dasgupta (Chatterjee, 2016) in their study considered agricultural information user varies greatly with their diversified need, educational, social, economic, physical and mental makeup which includes teachers, students(both PG and UG), scientists, research scholars, in one hand as well as progressive, small and marginal farmers, extension personnel, local shopkeeper(dealers of fertilizer, pesticides etc), vegetable sellers in local market, persons engaged in nursery, bee keeping,cattle & poultry farming etc on other hand. Agricultural stake holders include multinational companies, corporate sector, banking, community groups& NGOs, agricultural universities, technology companies and Government.

Information Seeking Behaviour of Farmers

Research on information use, information seeking had been undertaken since a long time particularly in the developed countries. The Indian National Agricultural Research System is one of the largest Agricultural Systems of the world. It consists of 53 State Agricultural Universities (including Veterinary Sciences Universities), 4 Deemed Universities, 45 Institutions of National Importance, 17 Research Centers, 6 National Bureaux and 25 Directorates/ Project Directorates contributing to the growth and development of agricultural research and education (Indian Council of Agricultural Research). But in India not much research regarding information seeking behaviour is reported particularly in the sector of agricultural sciences.

Understanding farmer behaviour is needed for local agricultural systems to produce food sustainably while facing multiple pressures. In this situation determining information needs and identifying their information seeking behavior is an imminent task for the information intermediary.

In West Bengal, Basak (Basak, 2010) in her study in 2010 investigated the information requirements of the research workers and fish farmers of north and south 24 pargana district of West Bengal, to know their information seeking behavior tried to identify the problems during information handling and identified gap in coordination between research workers and fish farmers finally to design a better information system to fill up the coordination gap for quick dissemination of information among the research workers and fish farmers. Study revealed that Research workers collect information from conferences, seminars, workshops and meetings and Fish farmers need information for enhancement of production of fish for better quality and quantity. Journals are the most preferred primary sources for the research workers. 29.70% of research workers preferred Indian journals, followed by foreign journals (22.90% of research workers). The least preferred primary sources for the research workers are newspapers, newsletters, annual reports etc. Among secondary sources, abstracts on CDs/online databases and bibliographical tools were mostly preferred by Research workers. 90.10% of research workers collected information from the fish farmers. Among them approximately 72% need information relating to availability of fish seed, production of fish per specific area and demand for specific species. Study recommended free Field based and frequent practical training programmes for fish farmers, Distribution of extension leaflets / pamphlets to fish farmers through village Panchayats.

(Mahapatra, 2016) study in this regard held in India. Study identified three areas of knowledge for understanding farmer behavior which was used to guide the interdisciplinary design and interpretation of studies in the future. Three areas

need to be addressed simultaneously in order to understand farmer behavior and to identify three methodological challenges hindering that understanding the suitability of theoretical frameworks, the trade-offs among methods and the limited timeframe of typical research projects. Study proposed that a triangulation research strategy that makes use of mixed methods, or collaborations between researchers across mixed disciplines, can be used to successfully address all three areas simultaneously. In Odisha (Mahapatra R. K., 2016) of India a study among farmers in four villages designed to reflect the current knowledge of the farmers on agriculture, their information needs, seeking behavior, communication channels, the priority of information, and ways and means of better information related situation. Study recommended that Farmers have taken interest to know the modern techniques of farming to improve agricultural productivity and understood latest information and technological know-how on modern agriculture. Verma (Verma, 2012) and others conducted a study among the livestock owners of two district namely Bareilly and Lakhimpur district in Uttar Pradesh to assess the Information seeking and sharing behavior of farmers. Majority of the respondents (46.7%) were contacting frequently to neighbours followed by 23.3 percent to progressive farmers as localite sources for livestock related information. In case of cosmopolite channel majority of the respondents (13.3%) were contacting frequently to V.O followed by 12.5 percent to PVSP, 7.5 percent to BAIF personals and 5.8 percent to paravets respectively for livestock related information whereas mass media channels 15 percent respondents were frequently used radio followed by 11.7 and 10.8 percent respondent's mobile phone and newspaper as the source of information related to livestock farming while 15.0, 5.0 and 4.2 percent of the selected farmers were rarely getting information from radio, TV and internet respectively. Findings of information shearing revealed that 30 percent farmers were always share livestock related information with family members followed by 21.7 percent with neighbors, equal numbers (9.2%) with friends and fellow farmers and 2.5 percent with Gram Pradhan. Information seeking behavior of dairy farmers conducted globally(Hill,2009;Kavithaa,2014).Hill (Hill, 2009)in his study Dairy farmers in the Central Goulburn Irrigation District used information seeking behaviour to collect a range of information from a number of sources when they were considering adopting centre pivot irrigation (CPI). General information on CPI function, price, and performance and site requirements was collected from a range of sources early in the decision-making process. The final stage of the information search was very specific and related to price, features, technical specifications, finance and permission. The findings of this small, preliminary study suggest there was a common pattern to the farmers' information seeking behaviour in regard to the type of information sought and the sources of information used. This knowledge can be used to design extension that will enable the farmers to obtain the information they need from fewer sources. This will save the farmers time and effort, and potentially hasten the adoption process. Kavithaa and others in their study (Kavithaa, 2014)on information seeking behavior of the dairy farmers was undertaken in Erode District of Tamilnadu with the objectives to study socio economic profile and relationship of socio-economic variables with information seeking behavior of dairy farmers. A random sample of 70 farmers selected for study. Various socio economic variables such as age, education, land holding, number of dairy cattle and dairy farm experience were considered for gathering the information and then these variables were used to relate with information seeking behavior. The results of the study revealed that socio economic variables had influenced the information seeking behavior of dairy farmers. Study revealed that Medium to high level of information seeking behaviour noticed in dairy farmers those who possess more than 4 dairy animals and possess more than two years of dairy farm experience belonging to age group 31 to 40 years and those whom undergone minimum high school to college level of education. Study revealed that 4.29 percent of dairy farmers indicated Extension agent as their source of information, 21.43 percent indicated Veterinary Assistant Surgeon followed by Mass media (Television, Radio and Newspaper) was indicated by 14.29 percent of dairy farmers. Hill

suggested that some farmers had also searched for information on the web which was missing in kavitha's study. Manoj Kumar conducted a study on Information Seeking Behaviour of the Farmers in Unchahar Raebareli, Uttar Pradesh. Study (Kumar, 2014) revealed that that friends, relatives and role models were major sources of information in the agricultural community of the Unchahar-Raebareli Radio and TV were most preferred among the farmers. Newspapers were common among farmers. 51.33% farmers used telephone in information seeking. Male farmers were dominating in the agriculture sector of Unchahar. A large number of populations are either illiterate or low educated. Unavailability of information centers is the major problem before the farmers of Unchahar- Raebareli (99% respondents) followed by unwillingness of agriculture officials (94.67%), unawareness (68.67%), and poverty (31.33%).

CONCLUSIONS

Indian economy is agro based economy. Farmers need information on agricultural resources, inputs, marketing and practices in planning and managing their agricultural production activities to increase productivity, profitability and to sustain their livelihood. Government and other stakeholders associated with agriculture equally needs the information for planning and improving delivery of their services to farmers. State and Central Government through their Department of Agriculture and Cooperation (DAC) formulates policy at national level for sustainable development of agriculture. To fulfill the same, the Department plans, implements and monitors central sector and centrally sponsored schemes/projects. Information Need and Information seeking behavior will be assessed for proper planning and policy making of agricultural libraries for rendering qualitative services to its most vital user groups i.e. Researchers and Scientists Community. It is essential to conduct comprehensive need assessment study to develop an understanding of the agricultural related ICT needs and problems faced in using ICT by the farmer's in various agro and socio-economic situations. Proper planning and policy making for emphasizing farmers need is crucial for development of library systems comprising of documents available in local language understandable to farmers is the need of the hour.

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