Chapter – 3
Research Methodology

3.1 Introduction

Research methodology implies the methods used by the researcher to study a particular problem and the logic behind the methods in the context of the particular research study.

3.2 Aim of the study

The purpose of the research work was to examine the various attributes and behavioural pattern of agriculture scientists in getting the required information in their respective area. The researcher has analyzed various psychological attributes, behavioural pattern, attitude and the topic in which agricultural scientists are interested. Information seeking behaviour has become a vital part not only in designing and molding the information system but also to make necessary changes to the existing system. Agricultural science is a broad multidisciplinary field, hence Librarians and Information Specialists should not only make the literature available to the community but also need to know the psychological attributes of their customers to know exactly what information they require. User studies are conducted primarily to know the behavioural pattern of the users and how they seek information.
This chapter outlines the methodology of the research work and describes the research question, hypotheses, population, sample and research design. Apart from this, the chapter also describes the data collection process and research techniques used in the analysis of the research work.

3.3 Need for the Study

Kerala is known for its lush green landscape, its dense forest cover, abundant water bodies, long coastline and its environment friendly culture. As per the report of the Department of Economics and Statistics, Government of Kerala, Agriculture sector contributed 7.20 percent to Kerala’s Gross State Domestic Product (GSDP) in the year 2011-12 and 7.03 in the year 2012-13. There has been negative growth in this sector in all the years of the XI five year plan (i.e. from 2007-2012) except in 2008-09 (10.16 percent). However, this sector is very significant from the point of view of rural livelihood options, food security, raw material for the food processing industries and for exports. This sector which gives character to the state and various initiatives has been taken to promote crop development, animal husbandry and fisheries in Kerala. The inherently vulnerable, predominantly commodity trade dependent economy of Kerala’s agriculture has been characterized by a high degree of volatility. Kerala economy had developed strong linkages with international markets and has historically been tied to trade and export. The export orientation of
crops like spices, cashew, coffee, tea and marine products and indirect
implication of palm oil import on coconut prices are subjected to global
vulnerability. The state government is taking serious steps to increase
the agricultural production and reduce the dependence on other states
for agricultural products. As a result, the state and the central
government is developing research and development centers in the field
of Agriculture to strengthen the agricultural research in the state.
Today there are more than thirty eight agricultural research and
development centers doing active research in the field of Agriculture in
Kerala.

3.4 Statement of the Problem

Information seeking is a human process. It is a dynamic and
changeable process despite of its formal problem solving attributes. It
depends on the situation and on the individual performing it. In order
to meet the information needs of the users a knowledge about the
information seeking behaviour of the user community is essential. In
the case of Scientists it is highly necessary. Scientists are working for
social and national development and they must get their information on
time without any delay. Study of the information seeking behaviour of
scientists and development of information storage and retrieval system
that meets their behaviour easily is required. There is no exception to
any field of science including Agricultural Science. Agricultural
Scientists are doing research to make the country food sufficient with
high yield farming. Agricultural research centres should be equipped with good information systems efficient to meet the information needs of the agricultural research community.

3.5 Scope of the Study

Information seeking behaviour is an essential component in designing and developing a need based information centres for meeting the information requirements of users. This study deals only with the information seeking behaviour of agricultural scientists working in the research and development centres of Kerala.

3.6 Objectives of the Study

The basic objective of the study is to examine the information seeking behaviour of agricultural scientists in Kerala. The other major objectives of the study are:

1. To find out the intermediary person to locate the required information for research.

2. To examine the purpose and amount of time spent on information gathering activities.

3. To identify the level of usage of formal and informal sources to seek information.

4. To ascertain users’ opinion regarding library infrastructure, resources and services for information seeking.
5. To know the preference level between printed and electronic resources for seeking information.

6. To identify the challenges and environment affecting in gathering information.

3.7 Research Hypotheses

1. There is a significant difference between respondents’ gender and intermediary to locate required information for research among agricultural scientists in the research and development centres.

2. There is a significant variance among the respondents’ designation with regard to various dimensions of formal and informal sources.

3. There is a significant association between respondents’ age and various dimensions of infrastructure, resources and services.

4. There is no significant variance among the respondents’ academic qualification with regard to various dimensions of preference level on printed and electronic resources.

5. There is no significant difference between respondents’ domicile and various dimensions of challenges and environment affecting information gathering.
3.8 Methodology

Descriptive research is used to conduct this study. The data for this study was collected from primary sources through questionnaire along with interview and observation method. Primary research data required for the study was collected from the scientists working in the R & D institutions in Kerala in the field of Agriculture. The Secondary information was collected from books, journals, academicians and websites for identifying the population. The total population is 532 which were identified by individual institution web sites and brochures. The researcher distributed the questionnaire personally to individual scientists, hence census method was adopted and 434 filled in questionnaires were received. The data collected, as per the guidelines provided under research methodology is further analyzed and interpreted with the help of statistical tools like Percentage calculation, Chi-square'-test, z’ test, ANOVA test and Graphical tools like Bar Chart & Pie chart.

3.9 Research Design

3.9.1 The sample population and technique

The population of the study consists of 38 Research and development centres in Kerala. There are 532 numbers of scientists working in these 38 centres spread over 14 districts of Kerala. Census survey method was adopted for the study. The researcher went to each centre and met the scientists personally
and explained the purpose of research. The questionnaires were distributed to all scientists working in these centres. Out of 532 questionnaires distributed 434 filled questionnaires were returned and the response rate is 81.58%. The entire 434 questionnaires were fully filled hence all these questionnaires were considered as the sample size of the research.

3.9.2 Development of a measurement instrument

The aim of the research was to develop a reliable and valid measurement instrument for information seeking behaviour. The instrument is a questionnaire of various scales of information seeking behaviour. The researcher considers eight different methods for the development of questionnaires.

In this research both primary and secondary data were used. The primary data were collected with the help of a questionnaire and this consists of two parts. The first part consists of a personal profile of the scientists. The second part consists of 6 various dimensions such as (i) Sources required for initial stages of research (ii) Purpose and time spent on information gathering (iii) Usage of formal and informal sources (iv) Opinion on infrastructure, resources and services (v) Preference level on printed and electronic resources (vi) Challenges and environment affecting information gathering.
3.9.3 Sources of data collection

The study is descriptive and quantitative in nature. Both primary and secondary data were used for the study. The primary data were collected from a structured questionnaire. The secondary data were obtained from journals, magazines books and electronic resources. The primary data were collected during the period October 2016 to February 2017.

3.9.4 Quality Criteria

To attain reliability and convergent validity the study should have CR $> 0.7$ (reliability) CR $> \text{(AVE)}$ and AVE $> 0.5$ (convergent validity). The composite reliability in the study is above 0.7 and all the CR values were higher than the average variance explained, the average variance explained were higher than 0.5. Thus the above analysis indicated that all dimensions were valid and reliable measures for their respective constructions. The convergent validity is also achieved.

3.9.5 Reliability Statistics

Table 3.1 : Reliability Statistics

<table>
<thead>
<tr>
<th>S. No</th>
<th>Scale Variables</th>
<th>Cronbach's Alpha</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Formal and Informal sources</td>
<td>0.890</td>
<td>33</td>
</tr>
<tr>
<td>2.</td>
<td>Infrastructure, resources and services</td>
<td>0.945</td>
<td>28</td>
</tr>
<tr>
<td>3.</td>
<td>Preference level on printed and electronic resources</td>
<td>0.651</td>
<td>16</td>
</tr>
<tr>
<td>4.</td>
<td>Challenges and Environment affecting information gathering</td>
<td>0.898</td>
<td>20</td>
</tr>
</tbody>
</table>
3.10 Tools used for the Study

The following tools were used for data collection to the present study.

1. Questionnaire
2. Interview
3. Observation

3.11 Limitations of the Study

Though the research had been properly planned and well executed, there are certain limitations. The present investigation has certain limitations which are indicated below.

1. Agriculture scientists are spread across the country. Due to limitations of resources, the investigation limited the study to the geographical area of Kerala state. In conducting the research it was assumed that the result on profiling Kerala Agriculture scientists would be profiling the scientists all over the country. A larger representation from all the states in the country would have given more authenticity for generalization of the findings. Nevertheless some of these findings would most definitely indicate tendencies that could be applicable to scientists in other states also.

2. Out of the 38 centres, 3 centres didn’t participate in the survey. Hence only 35 centres were participated in the survey.