RESEARCHES IN EXTENSION EDUCATION, B.H.U.

-A CONTENT ANALYSIS

THESIS
SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Master of Science (Agriculture)

in

Extension Education

Supervised by
Dr. Kalyan Ghadei

Submitted by
Nirupam Biswas

DEPARTMENT OF EXTENSION EDUCATION
INSTITUTE OF AGRICULTURAL SCIENCES
BANARAS HINDU UNIVERSITY
VARANASI-221005
INDIA

I. D. No. X-0748
2009

Enrolment No. 270923
To
The Registrar (Academic)
Banaras Hindu University,
Varanasi-221005, India.

Dear Sir,


I certify that the work carried out solely by Sri Nirupam Biswas under my supervision and guidance and his findings and data presented herein are to the best of my knowledge and belief, are genuine and original and no part of the work has been submitted for any other degree or distinction.

Yours faithfully

[Signature]
(Kalyan Ghadei)
SUPERVISOR
RESEARCHES IN EXTENSION EDUCATION, B.H.U.

-A CONTENT ANALYSIS

By

NIRUPAM BISWAS

Thesis submitted in the partial fulfilment of the requirements for the degree

Of

Master of Science (Agriculture)

In

Extension Education

DEPARTMENT OF EXTENSION EDUCATION
INSTITUTE OF AGRICULTURAL SCIENCES
BANARAS HINDU UNIVERSITY
VARANASI-221005

I. D. No. X-0748 2009 Enrolment No. 270923

APPROVED BY ADVISORY COMMITTEE

Chairman : Dr. Kalyan Ghadei
Lecturer
Deptt. of Extension Education

Members : Dr. Dipak De
Professor
Deptt. of Extension Education

Members : Dr. Rakesh Singh
Reader
Deptt. of Agricultural Economics

EXTERNAL EXAMINER:
ACKNOWLEDGEMENT

Acknowledgment for a few might be just a trifle thing written on a piece of paper. But in its true essence it gives us an opportunity to remember and express our feelings for those whom we love and revere. Here I get a chance to express my token of thanks to people who have touched me in one way or the other by their small things. Words are not enough to express my feelings for them yet these lines are not exaggeration but feelings, which come straight from my heart.

I bow my head with great reverence in the pious feet of late Mahamana Pandit Madan Mohan Malaviya, a man of great vision and founder of the Banaras Hindu University, Varanasi, India, whose everlasting euphoria and desire was to serve the mankind.

I have no word to express my gratitude to Dr. Kalyan Ghadei, Lecturer, Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi for his inspiring and ingenious guidance incisive and articulate criticism, cordial discussion, valuable suggestions, everlasting zeal and constant encouragement which assisted me to overcome every problem that come in my way during the period of this investigation and preparation of this manuscript. I shall always remain deeply indebted to him for his affectionate glances and generosity bestowed on me.

I feel immense gratefulness to express my heartfelt gratitude to the member of my advisory committee, Dr. Dipak De, Professor, Department of Extension Education and Dr. Rakesh Singh, Reader, Department of Agricultural Economics, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi for their judicious, soft spoken, impeccable,
benevolent guidance, valuable suggestions and special efforts during the course of this investigation.

I express my sincere and heartfelt tributes to Dr. A. K. Singh, Professor and Head, Department of Extension Education, Prof. D. K. Sujan, Dr. O. P. Mishra, Dr. B. Jirli and the staff members Shri Ramlakhan Ram, Mishra Ji, Rambriksh Ji, Anup Bhaiya, Bipram Bhaiya, and Mahendra Bhaiya of the department for extending their helping hands to me during every strenuous period.

This work would have been rather incomplete without the moral support and constant inspiration of Prof. Neelam Bharadwaj from G.B. Pant University of Ag, and my respected and beloved family members. I express my indebtedness and most heartily devotion to them who set the foundation and were always with me during my ups and downs.

Last but not the least; I convey my whole-hearted thanks to my well colleague friends Nishant, C.P., Ankit, Kerobim, Rajan, Nawaab, Ustaad, Raju ji, Pratush, Sandy, Sharad Da, Sunil, Ramesh, Amit, Ram Datt, Thakur, Shashi, Deoraj, Bhau, Punit, Bamil, Mittal, Nimbark and many juniors specially Subodh from B.Sc.(Ag.)-IVth year, A. Vishal Bhengra & Mantosh from F.Sc.&Tech. and Alok Rupauliha for their sustained co-operation directly or indirectly. Sincere appreciations are due to my senior & elder brother D. K. Bhaiya and to my friend & younger brother Pranav who gave me all possible help during completion of this assignment.

Every beginning has an end to it but still I believe friends can scatter, friendship cannot. So the time spend in B.H.U. will always remain engraved in my mind and soul.

Date: 26.6.2009

Place: Varanasi

(Nirupam Biswas)
## CONTENTS

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Titles</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>INTRODUCTION</td>
<td>1-7</td>
</tr>
<tr>
<td>2.</td>
<td>THEORETICAL ORIENTATION</td>
<td>8-23</td>
</tr>
<tr>
<td>3.</td>
<td>REVIEW OF LITERATURE</td>
<td>24-43</td>
</tr>
<tr>
<td>4.</td>
<td>DESCRIPTION OF THE RESEARCH TRACT</td>
<td>44-58</td>
</tr>
<tr>
<td>5.</td>
<td>RESEARCH METHODOLOGY</td>
<td>59-67</td>
</tr>
<tr>
<td>6.</td>
<td>RESULTS AND DISCUSSION</td>
<td>68-92</td>
</tr>
<tr>
<td>7.</td>
<td>SUMMARY AND CONCLUSION</td>
<td>93-102</td>
</tr>
<tr>
<td>8.</td>
<td>BIBLIOGRAPHY</td>
<td>i-vii</td>
</tr>
<tr>
<td>9.</td>
<td>APPENDICES</td>
<td>i-xvi</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1:</td>
<td>Distribution of theses according to the areas and sub-areas of research</td>
<td>69-70</td>
</tr>
<tr>
<td></td>
<td>(Multiple Analysis)</td>
<td></td>
</tr>
<tr>
<td>Table 2:</td>
<td>Frequency of M. Sc. theses submitted since 1977</td>
<td>73</td>
</tr>
<tr>
<td>Table 3:</td>
<td>Distribution of theses according to the research designs used</td>
<td>75</td>
</tr>
<tr>
<td>Table 4:</td>
<td>Distribution of theses according to the coverage of states under study</td>
<td>76</td>
</tr>
<tr>
<td>Table 5:</td>
<td>Distribution of theses according to the sampling methods used for selection of states</td>
<td>78</td>
</tr>
<tr>
<td>Table 6:</td>
<td>Distribution of theses according to the sampling methods used for selection of districts</td>
<td>80</td>
</tr>
<tr>
<td>Table 7:</td>
<td>Distribution of theses according to the sampling methods used for selection of respondents</td>
<td>81</td>
</tr>
<tr>
<td>Table 8:</td>
<td>Frequency of theses according to the distribution of the number of respondents taken</td>
<td>83</td>
</tr>
<tr>
<td>Table 9:</td>
<td>Distribution of theses according to the types of respondents</td>
<td>84-85</td>
</tr>
<tr>
<td>Table 10:</td>
<td>Distribution of theses according to the dependent variables used (Multiple Analysis)</td>
<td>87</td>
</tr>
<tr>
<td>Table 11:</td>
<td>Distribution of theses according to the tools and techniques used for data collection</td>
<td>89</td>
</tr>
<tr>
<td>Table 12:</td>
<td>Distribution of theses according to the methods of statistical analysis used (Multiple Analysis)</td>
<td>90-91</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>Fig. No.</th>
<th>Particulars</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 1:</td>
<td>Position of Uttar Pradesh in India</td>
<td>48</td>
</tr>
<tr>
<td>Fig. 2:</td>
<td>Position of Varanasi district in Uttar Pradesh</td>
<td>48</td>
</tr>
<tr>
<td>Fig. 3:</td>
<td>Layout of Varanasi district</td>
<td>49</td>
</tr>
<tr>
<td>Fig. 4:</td>
<td>Position of B.H.U. in Varanasi district</td>
<td>49</td>
</tr>
<tr>
<td>Fig. 5:</td>
<td>Position of Institute of Agricultural Sciences in B.H.U.</td>
<td>50</td>
</tr>
<tr>
<td>Fig. 6:</td>
<td>Academic building of Institute of Agricultural Sciences</td>
<td>50</td>
</tr>
<tr>
<td>Fig. 7:</td>
<td>Distribution of Areas of Research (Multiple Analysis)</td>
<td>72</td>
</tr>
<tr>
<td>Fig. 8:</td>
<td>Trend of M.Sc. theses submitted since 1977</td>
<td>74</td>
</tr>
<tr>
<td>Fig. 9:</td>
<td>Distribution of theses according to the research designs used</td>
<td>76</td>
</tr>
<tr>
<td>Fig. 10:</td>
<td>Distribution of theses according to the coverage of states under study</td>
<td>77</td>
</tr>
<tr>
<td>Fig. 11:</td>
<td>Distribution of theses according to the sampling methods used for selection of states</td>
<td>79</td>
</tr>
<tr>
<td>Fig. 12:</td>
<td>Distribution of theses according to the sampling methods used for selection of districts</td>
<td>81</td>
</tr>
<tr>
<td>Fig. 13:</td>
<td>Distribution of theses according to the sampling methods used for selection of respondents</td>
<td>82</td>
</tr>
<tr>
<td>Fig. 14:</td>
<td>Frequency of theses according to the distribution of the number of respondents taken</td>
<td>84</td>
</tr>
<tr>
<td>Fig. 15:</td>
<td>Distribution of theses according to the types of respondents</td>
<td>86</td>
</tr>
<tr>
<td>Fig. 16:</td>
<td>Distribution of theses according to the tools and techniques used for data collection</td>
<td>90</td>
</tr>
<tr>
<td>Fig. 17:</td>
<td>Distribution of theses according to the methods of statistical analysis used (Multiple Analysis)</td>
<td>92</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS

TRYSEM  Training Rural Youth for Self Employment
SFDA    Small Farmer Development Agency
IRDP    Integrated Rural Development Programme
JRY     Jawahar Rozgar Yojana
ITDA    Integrated Tribal Development Agency
ICDS    Integrated Child Development Services
SGSY    Swarna Jayanti Gram Swarozgar Yojana
NAEP    National Adult Education Programme
T&V     Training and Visit
ICT     Information Communication and Technology
ITK     Indigenous Technical Knowledge
NGO     Non Governmental Organizations
KVK     Krishi Vigyan Kendra
SHG     Self Help Group
ANOVA   Analysis of Variance
IIMC    International Information Management Corporation
CSIR    Council for Scientific and Industrial Research
UPCAR   Uttar Pradesh Council of Agricultural Research
NABARD  National Bank for Agricultural and Rural Development
ICFRE   Indian Council of Forestry Research and Education
JRF     Junior Research Fellowship
SRF     Senior Research Fellowship
IPM     Integrated Pest Management
UGC     University Grants Commission
ICAR    Indian Council of Agricultural Research
NISAGENET National Information System on Agricultural Education Network in India
IT      Information Technology
B.C.    Before Christ
J&K     Jammu and Kashmir
UG      Under Graduate
PG      Post Graduate
M.Sc.   Master of Science
Ph.D.   Doctor of Philosophy
et al.  et alii and other people
etc.    Etcetera
DEDICATED
TO MY
BELOVED
Teachers, Parents, Friends
&
My Little Sister
Chapter I

Introduction
Chapter I
INTRODUCTION

Human beings in quest for better ways of living and meeting their food requirements have passed through various stages and finally to food producer. That was the dawn of agriculture and ever since the agriculture has been progressing.

At the time of independence of Indian agriculture was very dismal. After independence the Govt. of India on the pattern of Govt. of U.S.A. started 55 Community Development Project on 2nd October, 1952 to increase agriculture production, improves village communication, fosters primary education, and public health. Owing to limited financial and technical manpower in community development project, the National Extension Service started on 2nd October 1953. After C.D. and N.E.S. it was realized that people’s participation was not coming forth. So in order to promote local leadership and enable local people to take up planning and implementation, in the year 1958, the Panchayati Raj was introduced as recommended by Balwant Rai Mehta Committee to respect the need and aspiration of local people. The first agricultural university the “Govind Ballabh Pant university of Agricultural Sciences and Technology at Pantnagar (U.P.)” was established in 1960 for educating the farmers and youth for pursuing development in agriculture. The green revolution which was coined in 1968 was one of the biggest success stories of India to convert us from “begging bowl” status to that of self-sufficiency. After green revolution, India became self-sufficient in food grain production. With aim to transform social and economic life of villages and bring desirable changes in social life, various schemes of
socioeconomic development programme started. Similarly, Krishi Vigyan Kendras (KVKs) were established in 1974, to impart training to in-service personnel in agriculture with aim to improve and expand agriculture extension services to large number of farmers. Then various extension systems i.e. Training and Visit (T&V) in 1979, Institution Village Linkage Programme (IVLP) in 1994, National Agricultural Technology Project (NATP) in 1998, Agricultural Technology Management Agency (ATMA) under NATP in 24 pilot districts were initiated for proper transfer of technology. The NAIP was launched successfully on July 26, 2006 by Shri Sharad Pawar, Union Minister for Agriculture to facilitate an accelerated and sustainable transformation of the Indian agriculture so that it can support poverty alleviation and income generation through collaborative development and application of agricultural innovations by the public organizations in partnership with farmers’ groups, the private sector and other stakeholders. All this could be possible only through sincere working of different agencies with Agricultural Extension mechanism.

As defined by Leagans (1961), “Extension Education” is an applied behavioural science, the knowledge of which is applied to bring about desirable changes in the behavioural complex of human beings usually through various strategies & programmes of change & by applying the latest scientific & technological innovations. It is a catalyst in the field of development education and an imperative for all universities and other allied institutions, whether technological, agricultural, liberal or conventionally oriented.

The origin of extension education in India could be traced back to food crisis which was planned to be tackled through the adoption of
improved technology. Extension training in an organized form came into existence as part of Community Development programme started early in fifties. Extension education concept was new to many at that time and a bit difficult to disentangle from extension. Extension education became a subject at the undergraduate curriculum in agricultural colleges in the 1950s. Bihar Agriculture College was the first to adopt the course in extension education in 1953. Broadly extension education meant education and training in philosophy and methodology of extension. According to Yadava (1981), the discipline of extension education gradually gained importance and consequently got introduced in other courses such as Veterinary, Home science etc, by 1960 (Sulaiman, 1996).

The first M.Sc. programme in Extension Education was also started at Bihar Agricultural College in 1955, to be followed by Jabalpur Agriculture College in the year 1957. Since then most of the agricultural universities have created facilities for the post-graduate instruction in the subject of extension education. IARI was the first to initiate a doctorate programme in extension education in the year 1958. The history of extension education as a discipline is thus relatively short. During this period, it had to fight hard for its existence and recognition as a science and as a post graduate discipline. Post-graduate programme in extension was even discontinued for some time in few universities in the 60's.

Faster spread of this discipline to meet the increasing demands of teaching departments of agricultural colleges that grew rapidly in the 50's and 60's adversely affected the quality of its content. "The subject in fact, had not established its roots on sound foundation, when course outline and quality of teaching became a topic of concern. In 1967 a seminar was
organized at IARI where model syllabus for under-graduate courses was recommended. Nothing significant was done for post-graduate courses at that time” (Singh, 1981).

**Research in Extension:**

A majority of researches in extension education are conducted by students for earning M.Sc. or Ph.D. degrees. Studies have revealed that of Post-graduate theses in extension education emphasize on programme planning diffusion and adoption and communication methods and media (Jhamtani and Singh, 1980). An investigation into research papers published in *Indian Journal of Extension Education* form 1965-1987 also reveals a trend of emphasis on themes related with training, communication and diffusion. Various qualitative and quantitative techniques of data collection had been used to give scientific base. It is quite common now to use scales, test and analytical techniques. Extension researches are being encouraged in State Agricultural Universities, Indian Council of Agricultural Research and even State Departments of Agriculture. Most post-graduate departments have faculty research projects. ICAR institute have position of scientists (Agricultural Extension) who conduct problem-oriented researches in the field (Kumar and Singh, 2000).

The **M.Sc.(Ag.) Course** and **Ph.D. programme** through Course work started in the year 1975-76 and 1984-85 respectively in the Department of Extension Education of Institute of Agricultural sciences, B.H.U.

The Department of Extension Education at BHU is committed to preparing students for success in professions that include formal and non-
formal teaching and learning in agriculture, leading agricultural organizations and communities, and communicating agriculture to the society.

Agricultural sciences graduates also meet industry expectations for employment after graduation. In addition, this degree programme is meant to prepare undergraduates to enter and excel in graduate and professional programmes.

Post-Graduate degrees in the department are grounded in a personal relationship between student and advisor. Completing a Post-graduate degree in Extension Education at BHU proves to be an advantage in the job market as a well-prepared professional.

Statement of the Problem

Agricultural Extension, its teaching, research and service are very often criticized by different people. The subject areas of research in extension are sometimes found to be repetitive in nature, duplicated and not as per the need of the farmers. It has been a matter of concern that research in extension is not very often used for the benefit of farmers. As per the knowledge of the researcher, very few researches so far have been conducted on researches of extension that could guide the teachers, students and practitioners in the field of the agricultural extension. This question laid the author to put an attempt to classify, analyze and document the works so that it will serve as a record and evidence for the researchers in the field of Extension Science.

The present study entitled “Researches in Extension Education, B.H.U. - A Content Analysis” has been undertaken to find out the
pattern of Post-graduate research studies, the research design, the tools and techniques used the geographical distribution and the other contents of the theses with the following objectives:

**Objectives**

1. To study about the research areas and trends of the M.Sc. theses of Extension Education.

2. To study about the research designs, locale, sampling procedures and sample sizes taken in the theses.

3. To study about the nature of respondents, variables, tools of data collection and statistics used in the theses.

**Scope of the study**

A periodical review of the research done in any field of study is useful in gaining insights into the general direction of research and ascertaining the future needs in the context of changing perspective of a particular discipline. The study will help to find out the direction of movement of the extension education researches.

Findings of the study may have wider implications for telling what types of researches are being carried out and the methodologies used. It may also give the comprehensive report of the researches conducted and directives to the new researchers in future endeavour.

**Limitations of the Study**

1. The findings cannot be generalized for the other areas in the country due to its limited domain.
2. The study is confined to 173 Post-Graduate theses from year 1977-2008 (M.Sc. theses only), thus the results cannot be generalized on the basis of the limited standard of research study.

3. The analysis certainly could have achieved more depth if the results are compared with other dissertations submitted at other similar universities. However, due to paucity of time the study has been confined in one university.

**Organization of the Thesis**

The dissertation is divided into seven chapters. The first chapter “Introduction” deals with the statement of the problem, objectives, scope of study and limitation of the study. Chapter second deals with the “Theoretical Orientation” which explains the changing curricula of Extension Education. The third chapter covers “Review of Literature” that gives a brief account of past studies on area of research and research methodology of theses. The fourth chapter deals with the “Description of the Research Tract” of the study which describes the place of research conduction. The fifth chapter deals with the “Methodology” adopted for the research study which covers research design, locale of research, sampling procedure, tools of data collection, analysis of data and operationalization of terms and concepts. The sixth chapter constitutes “Results and Discussion” of the study and the seventh chapter covers the “Summary and Conclusion” after that bibliography is given. The Appendices are given at the end.
Chapter II

THEORETICAL ORIENTATION

The word ‘extension’ is derived from the Latin roots “ex” meaning ‘out’ and “tensio” meaning ‘stretching’. Extension is that type of education which is stretched out to people in the rural areas far and near, beyond the limits of the educational institutions to which the formal type of education is usually confined.

Education is an integral part of extension. Because of this, and because of the fact that extension is pursued in agriculture and many other disciplines to educate, motivate and change the behaviour of the people, this particular branch of science is also known as extension (Ray, 1991).

The word ‘Extension’ came to be used in this sense originally in U.S.A. is evident from the meaning given to it in Webster’s Dictionary as a “branch of a University for students who cannot attend the University proper”. In other words ‘Extension’ used in this context signifies an out-of-school system of education (Reddy, 1971).

Extension education is an applied behavioural science, the knowledge of which is applied to bring about desirable changes in the behavioural complex of human beings usually through various strategies & programmes of change & by applying the latest scientific & technological innovations (ICAR, 2009).

‘Extension’ is used in different countries with little variation but similar intention in essence. The Dutch use the word ‘Voorlichting’ meaning lighting the pathway. The British and German talk of ‘Advisory
work’ (Beratung) which means expert advice thought with choice to select the way. The Germans use the word ‘Enlightenment’ (Aufklärung). They also use ‘Education’ (Erzichung) like in USA to teach people to solve problems themselves. The Austrians use ‘Furthering’ (Forderung) to mean simulate one to go in a desirable direction which is similar to the Korean term ‘Rural Guidance’. The French speak of ‘Vulgarisation’ which stresses the need for simplification. The Spanish use ‘Capacitation’ to indicate intentions to improve people’s abilities, although it is used to mean training. In essence, there is common concern for communication of information to rural people to help them from sound opinion and good decisions. The goal is to help people to solve problems themselves. Thus, to be precise, extension is a method of non-formal education aimed at inducing behavioural changes in its clients for their increased knowledge, skills and income (Mishra, 1990).

Extension education, as it stands at the opening of the twenty-first century, has acquired an enviable status as discipline and profession responsible for initiating technological changes. It has been recognized as a discipline in its own right with distinct subject-matter areas. The contents have been dovetailed with the technologies for bringing changes in the behaviour of people with whom work is done. The range of technological areas have expended from mere Agricultural, Home Economics or Veterinary to include Forestry, Fisheries, Agricultural Engineering, Small Industries, Energy, Traffic, Environment, etc. Extension uses “communication” as a tool to motivate changes in behaviour of people. As the nature of change is necessarily voluntary in nature, use of communication intervention helps in convincing people as
much as enlisting their total involvement in programmes of changes. Extension is gradually incorporating many participatory methods of rural research and extension in order to become more interactive and relevant. The goal of extension education is developing human resource at the grassroots level by mobilizing rural leadership, entrepreneurship and social consciousness.

Extension education has come a long way since its early rudimentary beginning in U.K. and U.S.A. The field has grown to its full bloom with varied international experiences. There is a vast repository of knowledge available today. The science and profession of extension education have been formalized and enriched by over a century’s experience. However, there is wide variation in perceptions regarding concept of extension education.

The terms Extension, Agricultural extension or Extension education though look similar, carry different meanings. They should not be used interchangeably. Extension education points out the common fundamental principles, philosophy and procedures which are applied in different technological disciplines or problem areas. Extension education is the core with universal application. That is why many academic departments are now called as extension education rather than Agricultural or Veterinary education. Extension education also indicates the nature of the discipline or profession owing to its suffix ‘Education’. According to Rolling (1986), ‘Extension’ refers to the actual work done by professional extension agents at various levels of management while ‘extension education’ refers to the body of knowledge concerning that work or practice (Kumar and Hansra, 2000).
Conditions fostering the rise of discipline

Extension education as a discipline has its historical roots in the USA, where people made a significant contribution to both research and theory in extension education. They also established the first organization devoted explicitly to research in extension education.

The time and place of the rise of extension education were, of course, not accidental. The American society of “Cooperative Extension Service” provided the kind of conditions required for the emergence of such an intellectual movement. Over the years, since that time only certain countries have afforded a favourable environment for its growth. Today, extension education has taken firm root in both the USA and in India. Three major conditions seem to have been necessary for its rise and subsequent growth.

(a) A supporting society,
(b) Developed profession, and
(c) Developed social sciences.

The publication of “The Journal of Cooperative Extension Service” in the USA, and “The Indian Journal of Extension Education” in India, revolutionized thinking and led to the organizing of the development of professionals in India and the USA. The incentive to work for the growth of this discipline was no longer seen as simple and unitary but rather as infinitely varied, complex and dynamic. The new view opened the way for, and demanded, more research and new conceptualizations to handle the problems.
The controlled observation on social interaction, which was initially developed to provide objective and quantitative data concerning behaviour, subsequently has been used extensively in researches in extension education.

With the coming up of Agricultural Universities and Extension Education Institutes in India, the growth of this discipline was carried forward at a faster rate. Student researches and staff research projects opened new vistas in the development of the discipline.

Recent breakthrough

Recent breakthrough in revolutionizing and developing the professional leadership in the extension education discipline begin with:

(a) Establishment of the Indian Society of Extension Education on 22<sup>nd</sup> June 1964 and publication of the World’s Second Journal of Extension Education.

(b) The opening and developing of a chain of agricultural universities in various states.

(c) The integration of resident teaching, research and extension in and about agricultural universities.

(d) The organizing of a production unit and farm advisory services, with a team of subject-matter specialists in the integrated unit department, by the divisions of agricultural extension.

(e) Post-graduate teaching leading to doctoral programmes in such universities served as the breeding ground of highly skilled, field-oriented and sufficiently disciplined professionals.

(f) The rapidly growing body of knowledge with appropriate kinds of techniques.
(g) The continual process of evaluation, self-checking and self-directing.

(h) Lastly, the matching efficiency of the discipline to bridge the gap between morning invention of sophisticated technology and the evening diffusion of such innovation.

A Lacuna: But a lacuna of a very serious nature does exist. It has been found that some members, as teachers in the discipline, do not fulfill the established requirements of temperamental, personal and academic qualifications for admission into the profession. Barring this, we can easily claim that extension education, both as a discipline as well as a profession, are developing fast and providing a desirable leadership (Dahama and Bhatnagar, 2001).

Growth of Academic Discipline in India

The first ever post-graduate programme in extension education was started at Bihar Agricultural College, Sabour (Bihar) in 1955 presently known as Rajendra Prasad Agricultural University, Pusa. The Master’s Programme in Extension at Sabour attracted good teachers with interest in Social Science Research. The next post-graduate programme was started at College of Agriculture, Nagpur in the year 1958. The most notable and well organized programme began at Indian Agricultural Research Institute (IARI), New Delhi. Though provisions had been made to specialize in agricultural extension within Master’s Programme (Associate-ship of ICAR) in Agronomy division, creation of separate department of Agricultural Extension with assistance from Ford Foundation under expert advice of legendary J. Paul Leagans of Cornell (USA) was a landmark event in the history of agricultural
extension. Well-founded Ph.D. programme initiated in 1961 at IARI attracted many interested students, most of whom were in-service students. Thus, the programme at IARI with standard curriculum and thrust on research programme inspired replication of curriculum and research area in many institutions in the country. The IARI also served as headquarters of Indian Society of Extension Education. Thus, the faculty members at IARI provided academic leadership all over the country. Another distinguished post-graduate programme (1961) including Ph.D. (1963) came up at Punjab Agricultural University, Ludhiana.

Several agricultural universities were established in India in the early 1960s to produce desirable technical manpower through education, development and dissemination of useful technologies in agriculture to the clientele. These universities adopted the tripartite function of U.S. land-grant system (Hansra, 2001). At present there are about 42 agricultural universities in the country (NISAGENET, 2009).

Forty-eight years have passed since the establishment of the first agricultural university in India. During this time, India has achieved tremendous progress in the post-green revolution period (1966 and after). Most notable is self-sufficiency in food production with more than 80% of the Indian households having at least two meals a day. Efforts of agricultural extension boosted production of high yielding varieties and increased the use of new technologies (Radhakrishna, 1997 and Narasimha, Ranganath, and Chandrakanth, 1992). The role played by agricultural universities has been appreciated by a majority of the people (Doddahanumaiah and Murthy, 2001). Further, far-reaching changes
have taken place in India since 1991 under the new economic policy, General Agreement on Trade and Tariffs (GATT), globalization, and India’s entry to World Trade Organization (WTO).

A broad survey of curricula of post-graduate courses in extension education reveals much commonness. It is a norm to provide majority of courses from extension education followed by minor in allied technical subject-matter and compulsory course in statistical method. It is essential for post-graduate programmes to write thesis based on original research.

Though the courses at Master’s and Doctoral level look quite useful, there is general trend about lack of practical skills. Extension personnel, in general, have to serve as manager of developmental/educational programmes. Thus, adequate skills in communication, training, planning, teaching and management are essential with an extension agent. They should be well-versed in technical subject matter as well, to be able to solve field problems. This signifies the reason behind basic under-graduate degree in a technical area such as Agriculture, Veterinary, Fisheries, Forestry, Dairy Technology or Agricultural Engineering for entry into Master’s Programme in extension education in an Indian University (Kumar and Hansra, 2000).

Historically, agricultural extension courses have focused around traditional areas- extension methods, history of extension, adoption-diffusion, communication, etc. Agricultural extension curriculum is heavily loaded with lectures. Course content in most agricultural programs comprise of basic introductory concepts in sociology, economics, psychology and other disciplines. According to Sulaiman (1996), curricula for a master’s program in agricultural extension
included a mixture of courses drawn from different areas (program planning, extension method, audio-visual, training, fundamentals of sociology, psychology, leadership etc.). Training in research methods at the postgraduate level is also very weak with limited attention given to qualitative research methods. In addition, development of depth in subject matter specialization skills are also lacking at the postgraduate level (Sulaiman and van den Ban, 2000).

The curricula of extension should focus on identification of core courses which should include 1) level of teaching, 2) level of interdisciplinary faculty, and 3) credit hours of the courses. Some courses in agribusiness, economics, cooperatives, administration and management, marketing intelligence and quality control should be emphasized (Ray, 2001).

**Educational Importance**

The changing agricultural scenario has provided both challenges and opportunities to agricultural extension educators to revitalize curricula in Indian agricultural colleges and universities. Agricultural and extension educators should take advantage of the opportunities to be proactive than reactive. Suggested strategies include: interdisciplinary approach to course development and offerings, networking with other private agencies and NGOs, and strong linkage between extension and research, will help educators to adequately prepare and meet the challenges and opportunities.

**Relationship with other social sciences:**
The student having a career interest in extension education is interested in acquiring knowledge about the various other disciplines, especially the social sciences and their inter-relationship with extension education as given below:

- **Extension education and sociology**

  Extension education and sociology both study the groups from nearly the same angle. The immediate purpose of sociology is to study the structure, function and organization of the groups, while that of extension education is to study human behaviour in groups and also individual life, and how desirable changes can be introduced into them. But it is clear that neither extension education nor sociology can achieve this goal unless and until they seek the help of each other.

- **Extension education and rural sociology**

  Extension education and rural sociology are extremely close to each other. At this stage it is very difficult to distinguish between them, because both sciences are greatly oriented to the study of rural life. They are wedded to the cause of each other and reap the advantages of each other’s association.

- **Extension education and general psychology**

  Extension education and general psychology are closely related because human behaviour in society cannot be studied unless and until a thorough study of the individual behaviour is made.

- **Extension education and social psychology**
Extension education and social psychology are ultimately related, as both join hands in making a study of individual behaviour in a social situation. This shows that the fields of extension education and social psychology overlap each other.

- **Extension education and cultural anthropology**

  No doubt, cultural anthropology studies only the group behaviour. It is most often concerned with the individual but it is also true that from many anthropological studies our attention is directed towards many of those problems which extension education has to face.

- **Extension education and ethics**

  The ethical norms are framed in relation to the society. How these norms affect the individual behaviour is of great interest in extension education.

- **Extension education and economics**

  Again, the two sciences of extension education and economics work closely together with reference to economic conditions prevailing in a particular group, or a particular individual. Many of the problems of economics are the problems of extension education.

- **Extension education and political science**

  In spite of the fact that many of the problems of political science and extension education are common in the fields of individual and group behaviour and in institutions of administration it should be remembered that both the subjects are not identical but help in each other’s growth.
-Extension education and abnormal psychology

The study of abnormal psychology is helpful in understanding the anti-social behaviour of people. Extension education gets help in understanding those abnormalities of individual behaviour which have social, economic or political origin.

-Extension education and home science

Home science, the science of home, also deals with education through which desirable changes are brought about in family living. Extension education, which works with almost every institution and all individuals who come from these families or home fronts, has a very happy relationship with the home science discipline. Yet in certain countries like India, because of cultural and other reasons, the home science wings could not help extension education to the desirable extent.

Symbiosis with other social disciplines and practices:

The secret of how to get along with others, and how to direct or influence their behaviour, depends upon the knowledge of extension education. The various fields of modern life in which knowledge and application of extension education is important will be viewed briefly:

(a) Education: Some fields attempt to change individuals for the better to make them more effective and happy. The educational field is the birth place of extension education, but the mother field derives a lot from the various extension methods and the available resources in planning and executing the educational programme so as to be more realistic and field-oriented.
(b) **Social Work**: Social work exerts its efforts both on the environment and the individual in his endeavours. Extension education helps social workers to plan socially-oriented, educational activities.

(c) **Medicine, Law and the Police**: Medicine, law and the police deal with human nature and its mental aspects as affected by socio-biological factors. As a preventive measure and as a cure of all, the above fields take the help of principles, practices and methods of extension education.

(d) **Business, Banks and Industry**: A large number of disciplined extension educators are absorbed by the public and private sectors, in business, banks and industries. Extension educators, through their knowledge and training, know the technique of attracting customers and are proving efficient salesmen. They can work satisfactorily in any difficult situation.

(e) **Journalism and Public Service**: Journalism and extension education have a common aim, to disseminate information from the source of origin to the ultimate users. They are benefited by each other’s efforts in providing the best service to the public.

(f) **Family planning**: Much earlier in foreign countries, but at a late stage in India, the programme of family planning and extension education are associated with each other. There exists a great demand for extension educators to help and boost up the Family Planning Programme.

(g) **Administration**: Administration, according to Newman, is the “guidance, leadership and control of the efforts of a group of individuals towards some common goal”. In a democratic country
the role of “executive” is changing to “extension” in the administration of human affairs. Administrators trained in extension education prove better than those who do not have this background.

**Sources and contributions from various disciplines**

It is well known that people coming to extension education from different disciplines bring with them the special vocabularies of these disciplines and certain assumptions, theories and principles about the relative importance of various aspects of human life. Thus a sociologist and a rural sociologist may emphasize, in studying human behaviour, their laws for the development of society. An anthropologist may stress the importance of culture; a psychologist may maintain that cognitive, effective and behavioural aspects are of greater significance; a psychoanalyst and social psychologist may be deeply interested in group psychotherapy and proving the effectiveness of interactions upon the individual’s thoughts, feelings, conditions and habits. An economist may believe, by nature, that in extension education the dominant determinants are economic resources and technological skills.

Still there exists a number of disciplines such as Political Science, Ethics, Home Economics and other social sciences which rightly claim that their point of view need to be injected into the theoretical orientation and methodology so as to enrich the discipline of extension education.

Biological and natural scientists also have a significant contribution to make, and they rightly serve as the reservoir for the subject-matter concerned with the growth and success of the discipline.
The various circumstances surrounding the conduct of teaching, research and extension in the discipline of extension education generate a diversity of terminologies, and a variety of conceptions, as to what the important determinants of human behaviour are. Many of the more obvious disparities in terminology, deriving from the special languages brought to the discipline, will undoubtedly be eliminated as research techniques become more standardized, and as people from different disciplines become accustomed to communicating with each other about the same research material.

**Potential applicability of findings to social practice**

Extension Education has a long and distinguished history as a discipline, profession and an applied behavioural science. It has achieved great respect and confidence in the entire rural community. It has successfully helped the field workers and academicians in the growth of various disciplines, as well as in programmes of activities related to human improvement. Yet, recently, the extension educational activities, methods, resources, organizations and institutions have been called into question. While such questions are being raised, extension education is also being asked to expend still greater efforts in almost every activity occurring in, or related to, the agricultural community and certain parts of urban life.

Extension Education is needed not just as an extension; it is an intimate part of an entity, a force much greater than itself. This force is of a very dynamic nature and that is why it has established a deep rooted and happy relationship with the majority of the biological and social sciences.
It is an excellent example of the application of an inter-disciplinary approach and social research techniques.

All sciences freely borrow and incorporate ideas from other fields. Extension educators are often criticized for their use of jargon, their apparent predilection to develop new words while, at the same time, giving new and often strange meanings to old and familiar terms. The charges are rarely justified and this itself speaks for systematized knowledge, scientific communication and stability of the discipline of extension education.

Everyone, who feels the responsibility of strengthening the efforts of extension educators, must view his action in the light of the total programmes and practices under the extension education discipline. The professionalization of the discipline has brought about a conscious desire to improve standards and establish the requirements for proper training. The major universities now have professional courses and divisions to provide such training at the highest level. It should not be surprising, therefore, to find that course in extension education are becoming more and more common in professional schools, that people trained in extension education are being employed by agencies concerned with professional practices; and that extension education research is often carried out in connection with the work of such agencies.

Thus in short, it is proposed that extension education should be defined as a discipline, dedicated to advancing knowledge about the effect of the extension education approach in bringing about desirable change in human behaviour, and the laws of governing their development and their interrelations, etc ([Dahama and Bhatnagar, 2001]).
Chapter III

Review of Literature
In any specific investigation, a comprehensive review of relevant literature is an essential. Besides giving knowledge of work already done in the field and providing insight into method and procedure, it provides a basis for operational definition of major concepts and interpretation of findings.

In this chapter, literature having direct or indirect bearing on the study has been reviewed. The review has been divided under the following heads according to the objectives:

1. Areas and trends of research

2. Research design, locale of research, sampling procedure and sample size

3. Nature of respondents, variables, tools of data collection and statistics used

1. Areas and trends of research

Singh et al. (1972) reported that out of the 239 extension theses till 1972, 15.6 per cent were on Agricultural Communication.

Feliciano (1976) reported that on the basis of communication research conducted from 1964-1974, the Asian region has focused on three main areas:
I. Media infrastructural studies dealing with history and development of media.

II. Studies of communicators and receivers of message, and

III. Developmental type studies i.e. dealing with communication aspects of the various components of development such as agriculture, health, education, science, industry, national integration, etc.

Bhatnagar (1978) noted that the printed media viz. newspapers, magazines, leaflets and posters were not effective in the rural community in U.P. because of low literacy level.

Jhamtani and Singh (1980) reported in degree researches in extension during the period of 1972-78, the 16.4 per cent theses were directed towards Agricultural Communication.

Rogers and Stiff (1983) stated that the area of research in communication during the first World War were related to propaganda, advertising, public relations and media oriented audience exposure, whereas at the time of World War II, the emphasis was on the development of electronics and information theories, laboratory oriented research, survey research and field experiments. Later on mass media became popular.

Siddaramaiah and Raghavendra (1983) reported on content analysis of IJEE that out of 497 articles published during the year 1965-1981, the major area of research considered were 14 containing Adoption and Diffusion, Agricultural education, Communication, Extension administration, Extension methods, Leadership and group dynamics,
programme planning, Research method and techniques, Rural institutions, Social change, Special groups, Training of extension personnel, Training of farmers, and youth development.

Out of these the three major areas of extension research which have been covered to a greater extent were found to be adoption and diffusion (19.71%), Extension methods (16.49%) and communication (13.48%). These areas together constituted nearly 50 per cent of the total number of articles published in the journal. The areas which were the least represented, in terms of articles, were social change (2.21%), special groups (3.01%), training of farmers (3.01%), leadership and group dynamics (3.21%), rural institution (3.21%) and youth development (3.21%).

The trend in coverage of the different areas of research over a period of time was not consistent in all the areas. There was an increasing trend in the number of articles published from 1965-1981 in respect of the three areas having communication, rural institutions and special groups. In contrast to this, a decreasing trend was noticed in certain areas like programme planning, training of extension personnel, youth development etc.

Shanmugam (1984) reported the schematic classification of types of communication as major and minor. Under the major classification interdisciplinary researches, media studies and studies on communication process were included while minor classification included different disciplines and details of media and communication process.
Singh (1985) reported that during 1960s and 1970s a number of studies were conducted in the field of inter-personal communication but not thereafter.

Khot and Sawant (1986) reported that researches in farm print media in India are “Reader System Oriented”. Mostly the researches were concentrated on contents, quality, readability pattern, etc. A few studies were on the farm literature (Production System).

Singh (1986) stated in various sources of communication, different channels were used in various studies viz. in Institutional sources- extension services, VLW, extension personnel, agricultural colleges, universities, banks, etc. ; Media sources- television, radio, film, exhibitions, demonstrations, bulletins, print materials, fairs, etc. ; and Non-institutional services- web of words, key communicators (neighbours, family members and friends).

Trikha (1986) reported that the 50 research studies conducted during 1961-85 on Agricultural Journalism, maximum studies were on content analysis of newspaper and magazine (56%) followed by readability (35%), evaluator (5%) and production of publications (4%).

Sujan (1986) found in the analysis of 15 research studies conducted during 1983-1985 in Uttarakhand that 4 studies were conducted on NAEP programme followed by 3 studies on Radio listening. Two studies each were performed on communication profile, documentary film and communication behaviour. The areas like farm magazine and communication gap were also taken (1 study each).

Jain and Babu (1987) reported that out of 160 papers published in IJEE, the maximum number (75) were in the period of 1975-1984 and the areas
of research covered are viz. Multimedia-23, Mass communication (Radio)-22, Farm journalism-19, Sources of information-16, Television-16, Audio-visual aids-14, Interpersonal communication-10, Group contacts-9, Source credibility-8, Communication skills-8, Communication behaviour of extension personnel-8 and Communication behaviour of farmers-7.

Narula (1987) reported that much of the communication researches in India have concentrated on ‘target audience groups’ and ‘how the development messages are diffused’. He also found that the second concentration is on media channels, radio and television, print media (mainly newspaper) and to a lesser extent on films. A negligible amount of researches have been done in advertising and public relations, video utilization, telematics and telephone. Thirdly, very low concentrations of researches on messages have been carried out. Researchers conducted about interpersonal communication channels (particularly family communication) on development bureaucracy and on traditional media are insignificant.

Bhagat and Ramachandran (1993) stated that recent researches on agricultural communication by and large follow a system approach consisting of three distinct sub-systems and communication linkages between them. They are viz. the research system, the extension system and the client system.

Further they have categorized the recent trends of agricultural communication researches in 22 sub-areas. They are viz. system approach in agricultural communication, sources/channels of communication, choice and use of media, communication and adoption, communication barriers, communication behaviour of change agents and farmers,
communication distortion, communication fidelity, feedback, outer personal communication, key communications, mass media communication (radio, T.V., film, literature, print matter), message treatment, source of information, traditional media of communication, SITE studies, media mix studies, extension related studies, studies on farm journalism, communication studies as part of adoption diffusion studies, and other miscellaneous studies.

Mehra and Trikha (1993) reported ten areas of research in the content analysis of post graduate theses of agricultural communication conducted from 1983-1989 at the G.B. Pant University of Agriculture and Technology, Pantnagar having adult education, audience profile, audio visual, media mix, print, radio, television, and sources of communication, traditional folk culture, and training programme as the content of research.

Out of the ten areas of research, audience profile has the largest share (20.83) followed by radio (16.67%) and the audio visual (12.50%). The least focused area was traditional folk culture (2.08%).

Further, the areas of research have been categorized based on the Berlo’s model of communication i.e. Source, Message, Channel, and Receiver.

Singh and Gill (1993) stated on “Review of Adoption Research Studies in IJEE from 1980-1987” that out of 70 studies published under adoption area, the sub-areawise split-up of the studies shows that according to Jain and Babu (1987) the diffusion and adoption of Innovation area can be classified into ten sub-areas as Extent of adoption of farm practices, Attitude towards innovation, Attributes of innovation, characteristics of
adopters, Awareness of innovations, Constraints in adoption, diffusion of innovations, factors affecting adoption, opinion leadership, and social system and values. The social system and values sub-area did not have any research study in the said duration of period. They also revealed that one-fourth of research studies were published on adoption of farm practices followed by factors affecting adoption (18.57%) and characteristics of adopters (17.14%). It is also noted that one-sixth of the studies were published in the years 1983 and 1987.

Singh (1999) pointed out that research in communication mainly tended to be practice oriented that aimed at solving field problem. It does not mean that it is unimportant or unnecessary. He further stated that most of the research studies have concentrated on the process of communication including information sources at different stages of adoption process, key communicators, impact and content analysis of mass media, information needs, and modes of communication.

Further, he added that the time has come to switch over communication research from end users to the decision making process; from individual effects to institutional effects, specialized, energetic and computerized technology transfer system rather than general communication and emphasis on improving quality of products and labour.

Tripathy et al. (2000) reported that out of 89 research study on Agricultural communication, the highest contribution (41.58%) was from the field of communication media; followed by (17.89%) studies on television; (8.9%) on change agents, contact farmers and opinion leaders; (5.62%) on radio; (4.49%) on newspaper; (2.25%) on another print media, and (2.25%) on traditional media. where as 7.87% of the research
studies on the communication pattern followed by credibility (6.74%), communication behaviour (4.49%) and (2.25%) on information need respectively.

**Prolima and Kaushik (2000)** stated on content analysis of Home Science Extension Research articles published in IJEE that out of 56 issues from 1965-1993, the major areas of research considered were 21 containing Communication pattern, Women in agriculture, Attitude, Constraints/Factors, Impact, Diffusion/Adoption, Knowledge, Training, Job satisfaction, Social system, Journalism, Methods and aids, Performance, Tribal community, Role expectation, Community development, Decision making, Leadership, Management, Research methods, and Miscellaneous.

They also reveal that largest number of articles were based on research in communication (15.1%) followed by adoption (11.8%), Miscellaneous (8.2%), Women in Agriculture (8.2%) and Constraints (6.9%). These five areas constituted more than half (50.2%) of the total articles. The contribution of Articles on Leadership, Methods and Aids, Training, knowledge, Attitude was about one fourth of the total articles (26.8%). Next five areas of research on which articles were based were Role expectation, Impact, Job satisfaction, Performance and Decision making, their total contribution being 4.1 per cent. The contribution of remaining areas of research was only 8.0 per cent.

**Thakur and Trikha (2002)** reported 14 areas of research in the Content Analysis of Post-Graduate theses from 1996-2001 of Agricultural Communication conducted at the G.B. Pant University of Agriculture and Technology, Pantnagar having communication pattern, development journalism, development studies, educational technology, evaluation
studies, information source, instructional technology, management, mass media, motivation, speech communication, technology transfer, training, and video for development as the topics of study.

Out of the 14 areas of research, maximum number of theses (15.38%) was submitted on educational technology followed by communication pattern, development journalism and evaluation studies (11.54% each). Management studies, speech communication and training have the coverage of 7.69 per cent each. The least covered areas were development studies, information source, instructional technology, mass media, motivation, technology transfer and video for development which accounted for 3.84 per cent each.

Singh and Sharma (year not mentioned) while studying the researches in Agricultural Extension in IARI, New Delhi, found that in 309 Post-Graduate theses, 11 research areas were taken for the study containing Extension methods and techniques (7.77%), Extension administration and organizational management (10.03%), Human resource development (8.41%), Communication (20.39%), Social and group dynamics (8.74%), Rural women, youth and children (4.21%), Research and educational institutes (3.88%), Adoption and diffusion (22.65%), Farmers’ training programmes (3.88%), Entrepreneurship development (2.27%) and Miscellaneous (7.77%).

Regarding the trend of submission of number of theses, they revealed that the maximum number (29.77%) of the theses were submitted during the decade from 1971-1980 followed by the decade from 1961-1970 (26.54%) of the discipline. The next decade in order was from 1991-2000 with 16.50 per cent followed by the decade from 1981-
1990 (14.89%) of the discipline. 6.15 per cent of the theses were submitted during 1957-60 and 2001-03 each.

Singh (2008) in his study “Pioneer Research in Extension Education”, stated about the trend of extension education researches that out of 240 M.Sc. (Ag.) researches conducted during a period of five decades (1957-2006) in the Bihar Agricultural College, Sabour, the maximum number of theses (28.75%) were carried out in Behavioural and Socio-psychological domain followed by the area of Diffusion and adoption of agricultural innovations (26.67%), and next was Agricultural administration and management (17.92%). The area related with the Training of farmers and extension personnel received the next place (16.25%) followed by Agricultural communication and extension teaching methods (14.17%). A quite good number of theses (14.17%) were carried out taking the miscellaneous problems pertaining to Agricultural and rural development process.

Regarding the trend of submission of number of theses, he revealed that the maximum number (28.75%) of the theses were submitted during the decade from 1967-1976 followed by the last decade (1977-2006) of the discipline (24.58%). During the other three decades, the numbers of theses were more or less the same.

2. Research design, locale of research, sampling procedure and sample size

Berkhofer (1969) stated that case study approach which is largely narrative, impressionistic, subjective and descriptive towards the methods of the social and behavioural sciences, complete with concepts, theories, evidence to test theory, and it is a quantitative method of research study.
Narula and Pearce (1984) revealed that a new research technique has been developed and labeled as contextualizing for studying the interaction-analysis for development. This technique studies interaction at different levels of context from broader to narrower contexts of development.

Sujan (1986) found in the analysis of 15 research studies conducted during 1983-1985 in Uttarakhand that maximum number of studies (46.67%) used Exploratory research design followed by Experimental research design (40%). Only 20 per cent studies used Descriptive research design followed by Observation and Ex-post-facto research designs (6.67% each).

Regarding sampling procedures, he observed that 53.33 per cent villages were selected through Purposive sampling whereas 26.67 per cent through Random sampling method. Majority of the respondents were selected through Random method (66.67%) followed by Census method and combination of random and purposive methods (13.33% each). The least number (6.67%) of respondents were selected through Purposive method of sampling.

Regarding the number of respondents, he revealed that the maximum number (86.67%) of the studies had 51 to 100 numbers of respondents followed by 101 to 150 and 151 to 200 (6.67% each). No study had number of respondents in between 1 to 50.

Yadava (1987) reported that out of 889 methods of researches used in research methodology-wise studies, based upon the IIMC bibliography on mass communication studies in India during 1975-84, the sample survey was by far the most common research methods followed.
Trikha (1989) reported that most of the researches in the area of agricultural journalism have been on the content analysis followed by readability, evaluator and production of publications.

Ostman (1989) reported that the qualitative research methods rely heavily to gather information, which usually is subjective and impressionistic, explain reality in their own terms. Explanation is narrative. The qualitative researcher will be generalizing the findings. It has certain limitations like over confidence, lack of generalization, loose and unsystematic scope. Methods are participation, case study, whereas quantitative research methods need much more work in theory. These are deductive and investigative. It is transformed into number and focused on one way communication.

Mehra and Trikha (1993) stated on content analysis of 48 Post-Graduate theses of seven years of research from 1983-89 of Agricultural Communication and Extension conducted at the G.B. Pant University of Agriculture and Technology, Pantnagar that single research technique was used in 75.00 per cent followed by combination of research techniques in 25.00 per cent.

Singh and Gill (1993) stated on “Review of Adoption Research Studies in IJEE from 1980-1987” that out of 70 studies published under adoption area that three-fourth of the studies have used ‘survey’ design and most of these studies were ‘ex-post facto’ for the study of existing situation. The next order of research design used was the paired match (20%) in which urban-rural; progressive-non-progressive; innovative households, non-innovative households were used as sample of studies. The designs like case study, action research, etc. were conspicuous by their absence in these studies.
Regarding the locale of the studies, they revealed that majority of the studies (17.14%) were conducted in Haryana state followed by Andhra Pradesh (12.85%). It is noted that the maximum districts (5) have been covered in Uttar Pradesh. There is no such state where all the districts are covered under these studies. It is interesting to note that no study was undertaken in Assam, Gujarat, Madhya Pradesh and Rajasthan states. Besides India, one study each in Nigeria and Pakistan were conducted.

Regarding the sampling procedures used, they reported that multistage sampling procedure was used in almost all the research studies. Under this procedure, 60.00 per cent studies had adopted random sample technique followed by purposive sampling in 14.67 per cent cases. In about one-tenth of studies reviewed, the researchers did not mention any sampling technique. The other sampling procedures used were PPS, stratified cluster and incidental techniques. In some studies, researchers had used more than one technique of sampling.

Regarding the sample sizes taken, they found that 30 per cent research studies had taken sample size in the range of 75 to 150 and 43.43 per cent of research studies were conducted with sample size ranging from 150 to 225. Thus, majority of research studies were undertaken with sample size ranging from 75 to 225.

Prolima and Kaushik (2000) stated regarding the locale of research on content analysis of Home Science Extension Research articles published in IJEE that out of 56 issues from 1965-1993, twenty universities/institutes had contributed articles out of which three viz. IARI, New Delhi (21.5%), P.A.U., Ludhiana (15.4%) and H.A.U., Hisar (8.0%) contributed nearly half (45%) of the articles. Tamil Nadu Agri.
University, University of Agri, Science, Hebal and A.P. Agri. University contributed 29.5 per cent articles while Rajendra Agri. University, Bihar, N.D.R.I., Karnal and C.S. Azad University of Agri. And Technology, Kanpur contributed about 11.8 per cent. The contributions of remaining 11 universities/ Institute were about 19.9 per cent.

Regarding the sampling procedures, they observed that in the maximum number of articles random sampling techniques was used (61.8%) followed by Random + purposive (19.8%), Stratified (10.4) and multistage random 4.4 per cent, Cluster sampling and Census method had minimum contribution, i.e., only 3.2 per cent.

Singh et al. (2001) reported on “Four Decades of Research in Training: A Critical Analysis” that as far as the type of research design is concerned, an overwhelming majority (81.10 per cent) of studies were ex-post facto in nature followed by experimental and both (9.09 per cent).

Thakur and Trikha (2002) found on Content Analysis of 26 Post-Graduate theses of six years of research from 1996-2001 of Agricultural Communication and Extension conducted at the G.B. Pant University of Agriculture and Technology, Pantnagar that maximum number of theses (50.00 per cent) used descriptive research design followed by exploratory research design (46.15 per cent). Only 3.85 per cent theses used experimental research design. None of the theses used diagnostic research design. Regarding the pattern of research design, maximum number of theses (96.15 per cent) used single research design while only one thesis used a combination of research designs.

Regarding the locale of research, they revealed that maximum number of theses (42.31 per cent) covered institution/organization
followed by village (23.07 per cent) and block (19.23 per cent). Few
researches were conducted at regional level (7.69 per cent) and at district
level (3.85 per cent).

Regarding the sampling procedure, they reported that most of the
theses used purposive method of selection for the districts (66.67 per
cent), blocks (38.46 per cent) and villages (34.62 per cent) while random
sampling was used in maximum number of theses (38.46 per cent) for the
selection of respondents.

Regarding the number of respondents, they concluded that majority
of the theses (38.46 per cent) had 101 to 150 respondents. The maximum
number of respondents in a thesis was found to be 256 whereas 32 was
the minimum number of respondents in a thesis.

Goel (2009) reported regarding the locale of the contribution of the
articles published in 10 Indian social science journals during the year
2004-2005 that the geographical distribution is indicated by three sub-
categories i.e. Indian, foreign countries and status unknown. In total 28
foreign countries had contributed 192 (20.51%) articles and India had
contributed 700 (77.79%). The last sub-category, status unknown had
contributed only 44 (4.7%). He also found that 23 Indian states and 3
Union territories had contributed 700 articles to the source journals. The
contribution by New Delhi (186 articles) is the highest in India while
United States (62 articles) is at top in case of foreign countries.

3. Nature of respondents, variables, tools of data collection and
statistics used

Bowers (1970) defined laboratory experiment as it is usually conducted
in a tightly controlled, relatively artificial environment. The interest is in
measuring what happens to the dependent variable or variables (presumed effect or effects) as a result of the manipulation by the independent variable or variables.

Denzin (1970) reported that naturalistic observation is also known as ‘field research’ and ‘participant observation’, involves the study of persons in their natural societal settings by means of relatively uncontrolled, natural social interaction, either openly (overt participation) or covertly (unobstructive observation). This occurs within a particular locale with a particular group of people and it is often termed as case study.

Pausewang (1973) stated that questionnaire is a research tool to study a rather limited subject within a given social content with qualitative exactness.

Feliciano and Lozare (1974) reported that communication research in rural Asia shows an over dependence on or overuse of the survey method, which is less valid and relevant in the rural areas.

Dube (1976) reported that a large part of communication research in India as in many other developing countries, is based much on foreign models and tools and is so imitative that its validity is open to doubt. New conceptual frameworks and methodological approaches relevant to Indian conditions are needed for meaningful results.

Krippendorff (1980) defined content analysis as a research technique for making replicable and valid inferences from the data collected to their context.
Sujan (1986) found in the analysis of 15 research studies conducted during 1983-1985 in Uttarakhand that maximum numbers (93.33%) of the respondents were farmers followed by subscribers, instructors and extension workers (6.67% each).

Regarding the variables used in the studies, he observed that maximum number (66.67%) of the studies used the variable Socio-economic-status followed by Knowledge (53.33%). 26.67 per cent each of the studies used the variables Communication exposure and Mass-media exposure followed by Perceived attributes (20%).

Regarding the tools of data collection, he revealed that maximum number (73.33%) of the studies used interview schedule followed by combination of interview schedule and observation (20%). Questionnaire was used in 6.67 per cent of the studies.

Regarding the statistical methods used, he reported that maximum number (93.33%) of the studies used percentage followed by t-test (66.67%). 53.33 per cent studies used mean followed by coefficient of correlation (33.33%). Analysis of variance was used by 13.33 per cent of the studies.

Mehra and Trikha (1993) stated on content analysis of Post-Graduate theses of seven years of research from 1983-1989 of Agricultural Communication and Extension conducted at the G.B. Pant University of Agriculture and Technology, Pantnagar that the maximum number of studies (41.67%) were survey type. Structured interview schedule was used in majority (58.33 per cent) followed by combination of tools to collect the data in 35.42 per cent. Maximum number of variables ranged up to twenty-five.
The most commonly used techniques of analysis were percentage (93.75 per cent), followed by mean (52.08 per cent), frequency and coefficient of correlation (33.33 per cent each).

Singh and Gill (1993) stated regarding the nature of the respondents on “Review of Adoption Research Studies in IJEE from 1980-1987” that 61.43 per cent studies had taken crop farmers as their respondents and rest of studies were conducted on dairy/poultry/fish farmers, farming couples, far leaders and gobar gas adopters.

Regarding the techniques of data collection, they found that about two-third studies used interview schedule as data collection technique. The reason is obvious because in about 95% of respondents have been rural people who were to be interviewed for fact finding. Questionnaire was used in 13.69 per cent research studies. It is interesting to note that technique of data collection had not been mentioned in one-fifth of the studies. An observation technique has been used in a single study. In some studies, more than one technique of data collection was used.

Regarding the statistics used, they revealed from the data that the most commonly used analysis techniques from the “method of estimation” group were percentage, multiple regression ($R^2$), coefficient of correlation (r), mean and standard deviation. Among the “method of testing” group, ‘t’-test was applied in 12 studies. F-test and Z-test were used in 5 and 3 studies, respectively. In “non-parametric” statistical group, path analysis and $X^2$ were used in about one-tenth of the research studies. However, it is concluded that in most of the studies, method of estimation, statistical tools of data analysis were used, and followed by non-parametric techniques.
Prolima and Kaushik (2000) stated regarding the tools of data collection on content analysis of Home Science Extension Research articles published in IJEE that out of 56 issues from 1965-1993, maximum number of research articles (67.6%) used interview schedules for data collection followed by Questionnaire method (16.2%), case method and documentation were least used.

Regarding the statistical methods used, they observed that in maximum research articles (53.5%), percentages were used for analysis of data followed by Mean (27.9%), Frequency (22.9%), Coefficient of correlation (22.3%), t-test (19.8%), and Chi-square (16.2%). The Home Science articles by and large did not make use of path analysis, cluster analysis and other complex statistics. Coefficient of dispersion and b-value were the least used statistics.

Singh et al. (2001) reported on “Four Decades of Research in Training: A Critical Analysis” that farmers were taken as respondents of the studies followed by village level worker (VLW). Majority of the studies (81.80 per cent) used schedules for collecting data from respondents while few (18.18 per cent) employed questionnaires.

Thakur and Trikha (2002) found on Content Analysis of 26 Post-Graduate theses of six years of research from 1996-2001 of Agricultural Communication and Extension conducted at the G.B. Pant University of Agriculture and Technology, Pantnagar regarding the nature of respondents that most of the respondents were students and rural women (23.07 per cent each) followed by farmers (7.69 per cent), members of self-help groups and other organizations (7.69 per cent) and teachers (7.69 per cent). In some theses (11.54 per cent), more than one type of respondents was used.
Regarding tools of data collection, they revealed that maximum number of theses (65.38 per cent) used combination of interview schedule and questionnaire in the research study followed by interview schedule alone. Only one thesis used observation method for study.

Regarding the use of variables, they reported that 50.00 per cent of the theses were based on the study of dependent and independent variables. Maximum number of theses (30.77 per cent) used variables ranging from 16-20 whereas 26.92 per cent used 5-10 variables followed by 11-15 variables (19.23 per cent), 21-25 variables (11.54 per cent), and 26-30 variables (3.85 per cent). In 7.69 per cent of the theses, more than thirty variables were used. The maximum and minimum numbers of variables used were thirty-six and eight respectively.

Regarding the statistics used, they concluded that all the theses used percentage (100.00 per cent) while 84.62 per cent of theses used frequency distribution followed by arithmetic mean (57.69 per cent), standard deviation and coefficient of correlation (53.84 per cent each). In 3.85 per cent, Ranking, Cumulative frequency distribution, Multiple regression, Factor analysis varimax rotation, Z-test and Chi-square test each were used for analyzing the data.
Chapter IV

Description of the Research Tract
DESCRIPTION OF THE RESEARCH TRACT

The chapter presents the demographic background of research local. This helps the reader to feel that in what situation, facilities and people the study was conducted. The background data of local of study provides the clear picture and study of the people and area. In addition the chapter justifies the relevance of objectives and methodology adopted for the study. A brief detail of local of study has been presented here under.

About Varanasi

The history of Varanasi is very ancient and worth mentioning. It has been the centre of civilization of Aryans. In the sixth century B.C. out of the 16 large states called Maha-Janapadas, “Kashi” occupied a pride of place and the same Kashi in the passage of time metamorphosed as Banaras and latter on renamed as Varanasi.

Varanasi is one of the easternmost districts of Uttar Pradesh. Bhadohi district lies on the west of it, Jaunpur is in the north-west, Ghazipur is in the north-east while Shahabad district of Bihar State bounds it from east. Mirzapur and Sonbhadra districts form the southern boundry. When sketched on a map, the shape of the district looks like the Arabic numeral seven with a truncated limb. The district headquarters is located at Varanasi. The district lies between 24.44° to 25.32° on the North latitude and 8092 sq. km.

The district is picturesquely placed on both sides of the Ganga River. The northern part of it is alluvial plain while the southern part is
having hilly tracts of projecting mountainous ranges of Vindhyas. The district is made up of two natural divisions, namely, the plain under the Ganga and its tributaries and the plateau area of Naugarh. Naugarh development block of Chakia tehsil has mountainous ridges overcast with dense forests and deep valleys drenched with rushing streams. The river system consists of two rivers – the mighty Ganga highly revered by Hindus since ages and its main tributary Gomti, Varuna, Asi, Banganga, Chandra Prabha and Karmanasa are the other important tributaries of the Ganga that drain the area. The soil of the hilly-tract is hard and of red colour. In some places pieces of alkaline land is also found but a major part of Chandauli tehsil has black soil. The total area under forest in the district is 77404 hectares and almost 90% of it is found in Naugarh development block of Chakia tehsil. The forest area mostly belonged to eastwhile Banaras princely State that is presently under the charge of U.P. forest department. Benarasi langra and yellowish betel leaves (Banarasi pan) grown in the district are famous throughout the country.

Total population of the district, according to 1991 census is about 3.8 million. There are 889 females per 1000 males. Rural population of the district is about 68.7% and urban population is about 31.3%0. The Scheduled Castes and Scheduled Tribes population of the district is 17.2% and 2.0% respectively. The density of population is 951 per sq. km. Decennial growth rate between 1981 and 1991 was 30.77%. Main languages spoken in the district of Varanasi are Hindi, Bengali and Urdu.

Sarnath which is at stone throw distance from Varanasi was the first place where great Buddha preached his first sermon and laid the
foundation of his order. In the post-Buddhist period Varanasi become a great seat of learning.

Varanasi is one of the ancient and oldest cities of Eastern U.P., situated at the western bank of sacred Hindu river Ganga in the South East corner of U.P. It is also known as Kashi, one of the holy spot (place pilgrimage) of Hindu. History of its origin is too old and proof of its origin can be seen in ancient Hindu scriptures.

It was October 15, 1949 when the erstwhile state of Banaras also merged with the district of Varanasi. Since then the area of district has almost doubled.

**About Banaras Hindu University**

Banaras Hindu University ranks among the first few in the country in the field of academic and research output. This university has two campuses, 3 institutes, 16 faculties, 140 departments, 4 advanced centers and 4 interdisciplinary schools. The University is making its mark at the national and international levels in a number of frontier areas of Science, Social Science, Technology, Medicine and Agriculture etc.

A university can grow successfully only when research and teaching mesh together seamlessly - one without the other is incomplete. Therefore we have ensured the development of a collaborative environment conducive to learning, exposure to the best international practices and promotion of innovation and creativity.

BHU today has nearly twenty thousand students including 2500 research scholars and 650 foreign students from 34 nations under one
roof who are pursuing different academic programmes at this campus as well as the newly established Rajiv Gandhi South Campus. These are some of the brightest young minds in the country and abroad, who have joined this University after clearing a rigorous All India Entrance Test.

There are 60 hostels (including 17 Girls Hostel) with an accommodation capacity of 9128 students (7003 boys and 2125 girls) in the campus. The University provides accommodation to its faculty as well as staff. The numbers of residential quarters are 538 and 678 respectively for teaching and non-teaching staff. In addition, the University has 4 guest houses and a transit house to provide accommodation to the guests.

We realize that the rapid pace of development in the country has raised the awareness as well as expectations of the people. Institutions of higher learning are instrumental in providing equality of opportunities, which is the essence of participatory democracy. This will not only remove a sense of alienation and neglect in the backward regions but also prevent out migration from these areas.

BHU has established the Rajiv Gandhi South Campus at Barkachha about 75 Km southwest of Varanasi on 2760 acres of land. The first academic session commenced from 2006-07 with six programmes which has increased to more than 25 in the present session. This campus is emerging as a potential hub to impart education, training and entrepreneurship development skills, to the youth, women and marginalized sections of society in the backward region of Mirzapur and adjoining districts of Uttar Pradesh, Western Bihar and Northern Madhya Pradesh. The Campus is heading well as per your vision for education to
Fig. 1: Position of Uttar Pradesh in India

Fig. 2: Position of Varanasi district in Uttar Pradesh
Fig. 3: Layout of Varanasi district

Fig. 4: Position of B.H.U. in Varanasi district
Fig. 5: Position of Institute of Agricultural Sciences in B.H.U.

Fig. 6: Academic building of Institute of Agricultural Sciences
generate new breed of human resource who would be job creators and not job seekers.

About Institute of Agricultural Sciences

The Institute of Agricultural Sciences spare formally established in August 1980 had its inception as Institute of Agricultural Research, Banaras Hindu University in 1931 upon the recommendation of the Royal Commission on Agriculture, of which, the illustrious founder of this university the late Mahamana Pt. Madan Mohan Malaviya Ji was a member. At the time of its establishment, the Institute was one of the pioneers in starting postgraduate teaching and research programmes in Agriculture in India, the only other institution being at Lyalpur (now in Pakistan). In fact, India was the first to have established an Institute of Agricultural Research offering M. Sc. & Ph. D. degrees. Subsequently, in 1945, undergraduate teaching started and the Institute of Agricultural Research was renamed as College of Agriculture and brought under the Faculty of Technology. In 1968 the College of Agriculture became an independent Faculty of Agriculture. Subsequently 6 departments viz. Plant Physiology, Agronomy, Genetics & Plant Breeding, Soil Science & Agricultural Chemistry, Plant Pathology and Agricultural Economics were created in 1969. Departments of Horticulture and Entomology & Agricultural Zoology were added in 1971, and Extension Education, Animal Husbandry & Dairying and Farm Engineering were created in 1981. With the opening of the Agricultural Universities in India on the pattern of the Land Grant Colleges in the U.S.A., greater emphasis was naturally placed in augmenting teaching, research and extension activities in the field of agriculture. There was thus, felt the need of reorganizing
the Faculty of Agriculture into an Institute of Agricultural Sciences, so that apart from teaching, it could also meet the research and extension needs of the area comprising of eastern Uttar Pradesh. With these views, a joint Team of the ICAR and the UGC visited the university to assess the requirements of the Faculty, to raise its status to the Institute of Agricultural Sciences. On the recommendation of the aforesaid Visiting Team, the Institute of Agricultural Sciences was created in August 1980 with the following objectives in view:

- To improve the quality of technical manpower with integrated approach for teaching, research and extension, thereby providing a practical bias to all the three aforesaid functions and making research production oriented, problem solving, comprehensive and interdisciplinary. Due emphasis was given to practical training, particularly at the B.Sc. (Ag.) level;

- To create easily adoptable technical know-how from well organized, well equipped research laboratories and experiment stations;

- To develop technically competent and organizationally strong extension service for transmitting the results of researches down even to the remote fields and farmers of the region and bringing back the cultivator's problems to the laboratories for their solution; and

- To organize with the co-operation of the State Government a dependable supply-line of pure and improved seeds and related inputs.

Ever since the creation of the Institute of Agricultural Research in 1931 this Institute has been rendering unique service to the country particularly in the areas of teaching and research. This has been made
possible largely because the Institute has had the privilege of possessing one of the better faculty members in the country. If the contribution of the Institute of Agricultural Sciences, B.H.U. is weighed in terms of its contribution to Indian Agriculture in relation to its budget, it is far more impressive than many others. For example the IARI's annual budget of nearly 80 crores is startling in face of the meager budget of nearly seven crores of the Institute of Agricultural Sciences, B.H.U. Despite this, our students imbibed the spirit and commitment of its founder and have made significant contributions, and have achieved positions in the country that any institution may envy of. Quite a number of expert panels and committees from the ICAR, UGC and World Bank have visited the Institute from time to time to assess its achievements and various developmental requirements. Dr. B.P. Pal committee recommended in 1964 that Faculty of Agriculture deserves to be treated at par with other agricultural universities. While no grants were received during the first three Five Years Plans, the development and expansion started during Third and subsequent Five Year Plans after the visits of Pal committee (1964), Naik committee (1968), Gautam Committee (1972) and Pawar Committee (1976).

With a humble beginning with only 3 teachers in 1931, the Institute now has strength of 135 teachers and scientists. The Institute offers education at under graduate and postgraduate levels. The credit course system of instruction was introduced in 1974 to bring this institute at par with State Agricultural Universities (SAU's) and to improve the standard of Agricultural Education. Admissions are made through All India Entrance Examination. The present intake of students of B.Sc. (Ag), and M. Sc. (Ag) / Ph.D. per department is 80 and 8 respectively. Besides this
15 and 25 per cent seats are allocated to ICAR sponsored candidates at B.Sc. (Ag) and M. Sc. (Ag) levels respectively.

With a view to evolve appropriate technology for crop and animal production, a number of important research projects are running in almost all the departments. The projects are being supported by the ICAR, UGC, CSIR, UPCAR, CST, NABARD, World Bank and other national and international agencies. The institute at present, has 10 All India Coordinated Research Projects involving multi-disciplinary approach on land use management practices, crop improvement, crop-weather interaction, on farm research in participatory mode, integrated pest management, mechanization etc. Besides, Institute has several NATP research Projects in production system & mission mode and Competitive Grant Project (CGP) being funded by the World Bank through the ICAR. A number of Adhoc projects are also running with emphasis on bridging the technological gap on location specific problems. The institute with its well established auxiliary units like campus agriculture farm (60 ha), Barkachha farm (1000 ha), Dairy farm & Goshala and Horticulture unit are not only facilitating excellent training to the UG & PG students but are providing quality seeds, saplings, organic manures to the farming community of the region. Dairy unit of the Institute also supplies milk and farm yard manure to the university community.

List of important aspects about the institute:

- Established as Institute of Agricultural Research in 1931.
- Renamed as College of Agriculture in 1945.
- Faculty in Agriculture in 1968.
• Institute of Agricultural Sciences in 1980.

• Comprises 11 departments & 4 auxiliary units.

• Imparts teaching at UG, PG & Admission to all courses through All India Entrance Test.

• Intakes 80 students at UG, 8 each at PG & Doctoral level in each department.

• 15 percent seats at UG & 25 percent at PG level reserved for ICAR sponsored candidates.

• Credit course system at instruction since 1974.

• 130 teaching & scientific, 153 non-teaching and 54 supporting staff.

• 2 independent hostels (Dr. Sarwapalli Radha Krishnanan & Bal Gangadhar Tilak) for male students. Female students reside within Triveni Complex Girls Hostel of the University.

• Well established institute library, excellent laboratory facilities, computer & media lab.

• Basic, strategic and location specific research activities through national networking, ad-hoc research projects & student researches.

• 10 All India Coordinated, 13 National Agriculture Technology and large number of ad-hoc research projects in operation.

• Major funding for research activities through the INDIAN COUNCIL OF AGRICULTURAL RESEARCH. Other funding agencies are
UNIVERSITY GRANTS COMMISSION, UPCAR, CSIR, ICFRE and World Bank.

- Research mandate - Rainfed & Irrigated Agro-Eco Systems of the region.
- Over 750 research papers published in Journals of repute at National & International levels in last 5 years.
- Recipients of Maximum JRFs & SRFs of ICAR among the Agricultural Universities & Institutions, in the country.
- Representation in Advisory / Consultative / Review Committees of academic, research and development organizations.
- Resource person in Human Resource Development Programmes.
- New land use system developed for better agriculture resource management through diversification.
- Varieties of wheat, rice, field pea, pigeon pea, rajmash, green gram, and safflower developed & popularized.
- New techniques of Crop weather interaction, IPM and custom hiring of improved farm mechanical tools identified and promoted.
- Aqua-Agro model & mushroom cultivation popularized.
• Centre for supply of improved seeds, saplings of fruit trees, medicinal plants & bio-fertilizer.

• Prestigious awards and recognition for contribution in the fields of agricultural education, research & development.

• Fellowship of various academies & societies.

• Office bearers & members of Professional societies.

About Department of Extension Education

The Department of Extension Education at BHU is committed to preparing students for success in professions that include formal and non-formal teaching and learning in agriculture, leading agricultural organizations and communities, and communicating agriculture to the society.

In the year 1964-65, U. P. Govt. provided full financial support for the establishment of extension wing in the college of agriculture along with teaching and non-teaching staff; bus and jeep with the provision of funds for POL expenses and contingent grant. These facilities were provided to look after the under-graduate teaching and related field extension activities. After a lapse of five years, the budget of the university and it become a section under the charge of the Dean, Faculty of Agriculture. In the year 1981 the section was upgraded to the level of Department of Extension Education. The M.Sc.(Ag.) course and Ph.D. Programme through Course work started in the year 1975-76 and 1984-85 respectively.
Post-Graduate degrees in the department are grounded in a personal relationship between student and advisor. Completing a Post-graduate degree in Extension Education at BHU has been proved to be an advantage in the job market as a well-prepared professional. As per the record so far till 2008, 182 M.Sc. theses have been conducted in the department. Agricultural sciences graduates also meet industry expectations for employment after graduation. In addition, this degree programme is meant to prepare undergraduates to enter and excel in graduate and professional programmes.
Chapter V

Research Methodology
RESEARCH METHODOLOGY

A systematic method was adopted for conducting the present investigation. The complete methodology for investigation is presented in different steps listed below:

5.1 Research design

It is the plan of the investigation to get answer to the problems of research. On the basis of the objectives set forth content analysis was followed to collect relevant researches in extension education.

5.2 Locale of Research

The research was conducted at institute of agricultural sciences, B.H.U., Varanasi which has been described at Chapter-IV, Page no. 44.

5.3 Sampling procedure

Purposive sampling procedure was followed where almost all the M.Sc.(Ag.) research works from the year 1977 to 2008 were considered for the study to find out the following:

5.3.1 Areas of Research

5.3.2 Trends of Research

5.3.3 Research Methods
5.3.1 Areas of Research

The areas of research are decided by the researcher after taking suggestions from different teachers and experts in the field of Extension Education. The final areas and sub-areas decided are following:

1. Adoption and diffusion
   (i) Improved farm practices
   (ii) Characteristics of adopters
   (iii) Factors affecting adoption
   (iv) Constraints in adoption
   (v) Awareness of innovations

2. Agricultural journalism

3. Content analysis

4. Human resource management
   (i) Adult education
   (ii) Agricultural education
   (iii) Distance education
   (iv) Researches on tribal people

5. Entrepreneurship development

6. Environmental studies

7. Health studies

8. ICT

9. Developmental projects/programmes
   (i) T and V system
   (ii) TRYSEM
(iii) S.F.D.A. programme
(iv) I.R.D.P.
(v) JRY
(vi) I.T.D.A. programme
(vii) I.C.D.S.
(viii) SGSY
(ix) NAEP

10. Social and psychological dimensions
   (i) Knowledge
   (ii) Attitude
   (iii) Skill
   (iv) Opinion
   (v) Temperament
   (vi) Socio-economic studies

11. ITK

12. Studies of gender, youth and children

13. Training programmes of farmers

14. Research and educational institutions/organizations
   (i) KVKs
   (ii) Universities

15. Private extension
   (i) NGOs
   (ii) Agricultural inputs
   (iii) Participatory studies
16. Extension administration and organizational management

(i) Leadership

(ii) Rural social institutions/organizations and social change

(a) Village Panchayat

(b) Co-operative/institutional credit societies

(c) Political awareness

17. Extension methods and communication studies

(i) Communication behaviour

(ii) Group methods

(iii) Mass media

(a) Broadcast media (Radio & Television)

(b) Print media (Newspaper & Magazine)

(c) Electronic media (Tape recorder)

(d) Others

18. Miscellaneous studies

5.3.2 Trends of Research

The trends of the extension researches have been decided on the basis of number of thesis submitted in every five years of duration in the Department of Extension Education.

5.3.3 Research Methods

The common methodologies used in extension researches are following:

1. Research design

2. Locale of study
3. Sampling procedure
4. Number of respondents (Sample size)
5. Nature of respondents
6. Variables taken
7. Tools of data collection
8. Statistics used

5.4 Tools of Data Collection

The data was collected through review and observation of all the research works personally by the researcher.

5.5 Analysis of data

The following techniques of analysis were used for precise and meaningful analysis and interpretation of the data collected.

5.5.1 Frequency:

It was counted in total number distributed in a particular cell. It is the weightage of a particular variable.

5.5.2 Percentage:

\[ P = \frac{n}{N}.100 \]

Where,

\[ n = \text{frequency of a particular observation} \]

\[ N = \text{Total number of observations} \]

\[ P = \text{Percentage} \]
5.6 Operationalization of Terms and Concepts used in the study

All the terms and concepts used in the study have been operationalized as under:

Content Analysis

The terms content analysis is used here as the technique of analysis of the theses in terms of areas and trends of research and research methods used in the theses.

Objectives

It refers to the total number of objectives set forth for the research study and are mentioned in the theses.

Areas of Research

It refers to the different fields of study in M.Sc.(Ag.) researches conducted by the department of Extension Education.

Trends of Research

Trend is the tendency or a general direction in which something tends to move. A research trend is decided by analyzing the pattern of changes in the research areas over time.

Research design

Appropriate research design is the prime need of any research. It is the arrangement for collection and analysis of data in a manner that aims to combine relevance to research objectives with economy in procedure. As per the time of study, the content analysis design is used to analyses
the area of research, research methodology and format of the theses to meet the requirements of objectives.

**Locale of the study**

It refers to the place of study mentioned as state, region, district, block, villages and others (organizations, institutions, communication centers) where the researches were conducted.

**Sampling Procedures**

It refers to the methods and pattern of sampling of districts, blocks, villages, other (organization) used by the researchers in their study.

**Sample Size**

It refers to the total number of respondents used in the theses from the whole population for investigation.

**Nature of respondents**

It means the kind of respondents considered for any kind of research.

**Variables**

Any response or behaviour which can take different degrees. Is a symbol to which numerals or values are assigned. For example land holding, adoption, attitude etc. are the variables.

**Techniques of Data Collection**

It refers to the techniques and methods used for the collection of data. It also includes the variables and scales used.
Tool of Data Collection

For data collection for the content analysis of 173 theses, screening sheets were used to screen out the required data from the theses.

Analysis of Data (Statistics used)

The collected data were tabulated first then various techniques like Frequency and Percentage were used to analyze the data.

Types of Data

The data used for the study are of secondary in nature. All the theses submitted by M.Sc.(Ag.) students of Department of Extension Education during the period 1977 to 2008 were taken for the investigation.

Presentation of Review

It refers to the number of reviews consulted and their presentation in sequence i.e. whether alphabetical or year-wise.

Bibliography

It refers to the method of presentation of references either published or unpublished and consulted in the preparation of the thesis on the basis of alphabetical order or chronological order.

Appendices

It is the placement of enclosures between the final chapter and the bibliography or immediately after the bibliography. It refers to the number of enclosures in the theses.
Year

The term refers to the year of submission of thesis in the office of the Dean, Post-Graduate Studies Institute of Agricultural Sciences, BHU, Varanasi.

Format

It refers to the overall appearance of the publication. It also refers to the style of presentation of the theses.

Pages

It refers to the number of pages from introduction chapter to the appendixes.

Illustration

It refers to the number of tables and figures (photographs) used in the theses.

Table

It refers to the number and type of the tables, short (simple) and long (complex) tables used.

Figure

It refers to the number of figures either colour or black and white with or without captions used in the theses.
Chapter VI

Results & Discussion
Chapter VI

RESULTS AND DISCUSSION

In 1977, the very first M. Sc. (Ag.) thesis was submitted to the Department of Extension Education, B.H.U. Since then, 182 theses had been submitted to the department till the year 2008. However, during the study, only nine theses could not be available in the departmental library for thesis research. So, the collection of information was done from the available 173 theses of the department. The collected data were classified, tabulated and analyzed in the light of objectives of the study. The results are presented under the following sub-heads in accordance with the objectives set forth for the study:

6.1 Areas and trends of research

6.2 Research design, locale of research, sampling procedure, number of respondents (sample size)

6.3 Nature of respondents, variables taken, tools of data collection, and statistics used

6.1 Areas and trends of research

6.1.1 Classification of Extension Education Researches according to research areas:

After the discussion with different teachers and experts in the field of Extension Education, the available thesis were analyzed and classified into the following areas and sub-areas. The M. Sc. (Ag.) theses in Extension Education have been classified as per detail in Table-1.
Table 1: Distribution of theses according to the areas and sub-areas of research (Multiple Analysis) (Number of theses, N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Areas</th>
<th>Sub-areas</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adoption &amp; diffusion</td>
<td>Improved farm practices</td>
<td>23</td>
<td>13.30</td>
</tr>
<tr>
<td></td>
<td>(Frequency:41)</td>
<td>Characteristics of adopters</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td>(Percentage:23.70)</td>
<td>Factors affecting adoption</td>
<td>11</td>
<td>6.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Constraints in adoption</td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Awareness of innovations</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>2.</td>
<td>Agricultural journalism</td>
<td></td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td>3.</td>
<td>Content analysis</td>
<td></td>
<td>13</td>
<td>7.52</td>
</tr>
<tr>
<td>4.</td>
<td>Human resource management</td>
<td>Adult education</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>(Frequency:18)</td>
<td>Agricultural education</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td></td>
<td>(Percentage:10.41)</td>
<td>Distance education</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Researches on tribal people</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>5.</td>
<td>Entrepreneurship development</td>
<td></td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>6.</td>
<td>Environmental studies</td>
<td></td>
<td>14</td>
<td>8.09</td>
</tr>
<tr>
<td>7.</td>
<td>Health studies</td>
<td></td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td>8.</td>
<td>ICT</td>
<td></td>
<td>5</td>
<td>2.89</td>
</tr>
<tr>
<td>9.</td>
<td>Developmental projects/programmes</td>
<td>T&amp;V system</td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td>(Frequency:22)</td>
<td>TRYSEM</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>(Percentage:12.72)</td>
<td>S.F.D.A. programme</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I.R.D.P.</td>
<td>10</td>
<td>5.78</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JRY</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I.T.D.A. programme</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I.C.D.S.</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SGSY</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NAEP</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>10.</td>
<td>Social &amp; psychological dimensions</td>
<td>Knowledge</td>
<td>11</td>
<td>6.36</td>
</tr>
<tr>
<td></td>
<td>(Frequency:52)</td>
<td>Attitude</td>
<td>12</td>
<td>6.94</td>
</tr>
<tr>
<td></td>
<td>(Percentage:30.06)</td>
<td>Skill</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Opinion</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Temperament</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Socio-economic studies</td>
<td>18</td>
<td>10.41</td>
</tr>
</tbody>
</table>
## Results and Discussion

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Areas</th>
<th>Sub-areas</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>ITK</td>
<td></td>
<td>9</td>
<td>5.20</td>
</tr>
<tr>
<td>13.</td>
<td>Training programmes of farmers</td>
<td></td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>14.</td>
<td>Research &amp; educational institutions/organizations</td>
<td>KVKs</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>(Frequency:9) (Percentage:5.20)</td>
<td>Universities</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td>15.</td>
<td>Private extension</td>
<td>NGOs</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td>(Frequency:6) (Percentage:3.47)</td>
<td>Agricultural inputs</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participatory studies</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>16.</td>
<td>Extension administration &amp; organizational management</td>
<td>Rural social institutions/organizations and social change:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Frequency:14) (Percentage:8.09)</td>
<td>a)Village Panchayat</td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b)Co-operative/institutional credit societies</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c)Political awareness</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>17.</td>
<td>Extension methods &amp; communication studies</td>
<td>Communication behaviour</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td></td>
<td>(Frequency:55) (Percentage:31.79)</td>
<td>Group methods</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mass media:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a)Broadcast media (Radio, Television)</td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b)Print media (Newspaper, Magazine)</td>
<td>18</td>
<td>10.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c)Electronic media (Tape recorder)</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d)Others</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td>18.</td>
<td>Miscellaneous studies:</td>
<td></td>
<td>9</td>
<td>5.20</td>
</tr>
<tr>
<td></td>
<td>(Social forestry, Career dynamics, Livestock management, Time management, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>301*</td>
<td>173.99*</td>
</tr>
</tbody>
</table>

* Due to multiple analysis of the data.
After analyzing the theses, the research topics were classified into 18 areas of research which have been presented in the table-1 and fig. 7 with their respective frequencies. The areas of research have again been divided into different sub-areas. The table reveals that the highest number (31.79 per cent) of researches have been conducted in the area of extension methods and communication studies followed by (30.06 per cent) in social and psychological dimensions, (23.70 per cent) in adoption and diffusion, (12.72 per cent) in developmental projects/programmes, (10.98 per cent) in studies of gender, youth and children, (10.41 per cent) in human resource management, (8.09 per cent) in both environmental studies and extension administration & organizational management, (7.52 per cent) in content analysis, (5.20 per cent) in both ITK and research & educational institutions/organizations, (3.47 per cent) both in agricultural journalism and private extension, (2.89 per cent) in ICT, (2.31 per cent) in health studies, (1.73 per cent) in training programmes of farmers, (1.16 per cent) in entrepreneurship development and (5.20 per cent) in miscellaneous studies including social forestry, career dynamics, time management, livestock management, etc.

We know extension is a mechanism and tool to motivate people towards adoption of technology by bringing change in knowledge, attitude and skill. While doing this, the extension agents take the help of different extension and communication methods for effective transfer of technology. So, it is obvious that majority (31.79 per cent) of researches has been conducted in extension methods & communication studies with respect to broadcast, print and electronic media. Similar findings were shown by Siddaramaiah and Raghavendra (1983) and Promila and Kaushik (2000).
Fig. 7: Distribution of Areas of Research

(Multiple Analysis)

X= AREAS OF RESEARCH
Y= NUMBER OF THESES

[ N= 173]
As we know, extension brings overt and covert behaviour among the rural people towards agricultural development. So, while doing this job, many of the psychological dimensions like knowledge, attitude, skill, opinion, etc. are studied to know about the social-psychological conditions of the people. That’s why; the area of studies in social & psychological dimensions (30.06 per cent) has secured a second major place in our finding.

The area adoption & diffusion (23.70 per cent) has acquired the third major place as it is very important to know the impact of the efforts made by the extension agents in motivating the rural people in relation to adopting the improved farm practices, factors affecting the adoption, constraints in adoption, awareness of the innovations of technologies and characteristics of the adopters.

6.1.2 Number of M.Sc. theses submitted in Extension Education:

The number of theses submitted in every five years of duration in the Department of Extension Education is shown in Table-2.

Table 2: Frequency of M.Sc. theses submitted since 1977

(N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Years</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1977-81</td>
<td>14</td>
<td>08.09</td>
</tr>
<tr>
<td>2.</td>
<td>1982-86</td>
<td>35</td>
<td>20.23</td>
</tr>
<tr>
<td>3.</td>
<td>1987-91</td>
<td>31</td>
<td>17.92</td>
</tr>
<tr>
<td>4.</td>
<td>1992-96</td>
<td>14</td>
<td>08.09</td>
</tr>
<tr>
<td>6.</td>
<td>2002-06</td>
<td>36</td>
<td>20.81</td>
</tr>
<tr>
<td>7.</td>
<td>2007 onwards (Observation of two years)</td>
<td>15</td>
<td>08.67</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>
Table-2 shows an increasing trend of the research works conducted since 1977 in the department till 1982-86 whereas a decreasing trend is observed till 1992-96. However, again an increasing trend is observed from 1997-2001 to 2002-06. The above mentioned data are represented in frequency in the Fig. 8 excluding 15 theses in the category of 2007 onwards as it has the data of only two years. Similar findings were shown by Singh and Sharma (year not mentioned).

![Fig. 8: Trend of M. Sc. theses submitted since 1977 (N=158)](image)

6.2 Research design, locale of research, sampling procedure, number of respondents (sample size)

6.2.1 Classification of Extension Education Researches according to the research designs adopted:

The various research designs used by the researchers in their theses are shown in the Table-3.
Table 3: Distribution of theses according to the research designs used

(N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Research design</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ex-post-facto</td>
<td>10</td>
<td>5.78</td>
</tr>
<tr>
<td>2.</td>
<td>Exploratory</td>
<td>12</td>
<td>6.94</td>
</tr>
<tr>
<td>3.</td>
<td>Evaluatory</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td>4.</td>
<td>Descriptive</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>5.</td>
<td>Experimental</td>
<td>2</td>
<td>1.15</td>
</tr>
<tr>
<td>6.</td>
<td>Not mentioned</td>
<td>140</td>
<td>80.93</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>

It is indicated from the table-3 that majority of theses (6.94 per cent) used exploratory research design followed by ex-post-facto research design (5.78 per cent) whereas 3.47 per cent of the theses used evaluatory research design. Only 1.73 per cent and 1.15 per cent of the theses used descriptive and experimental research designs respectively. Maximum number of theses (80.93 per cent) did not mention the research designs used by the researchers for their studies. The above mentioned data are shown in frequency distribution in Fig. 9.

Research in post-graduation is some sort of orientation of students towards systematic research programme. Many of the students may not be aware about the research designs existing in social science research. This may be the reason that 80.93 per cent of the researchers did not mention the research designs. Similar finding regarding exploratory research design was shown by Sujan (1986).
Fig. 9: Distribution of theses according to the research designs used (N=173)

6.2.2 Classification of Extension Education Researches according to the locale of research:

In India, there are so many villages, blocks and districts in every state. So due to paucity of time, we have confined our study around the states only. The coverage of states for research work by the researchers is given in Table-4

Table 4: Distribution of theses according to the coverage of states under study (N =173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>States</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Uttar Pradesh</td>
<td>124</td>
<td>71.68</td>
</tr>
<tr>
<td>2.</td>
<td>Bihar</td>
<td>15</td>
<td>8.67</td>
</tr>
<tr>
<td>3.</td>
<td>Andhra Pradesh</td>
<td>10</td>
<td>5.78</td>
</tr>
<tr>
<td>4.</td>
<td>Rajasthan</td>
<td>5</td>
<td>2.89</td>
</tr>
<tr>
<td>5.</td>
<td>West Bengal</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>6.</td>
<td>Jharkhand</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>7.</td>
<td>J &amp; K</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>8.</td>
<td>Orissa</td>
<td>1</td>
<td>0.57</td>
</tr>
<tr>
<td>9.</td>
<td>Karnataka</td>
<td>1</td>
<td>0.57</td>
</tr>
<tr>
<td>10.</td>
<td>Not mentioned</td>
<td>11</td>
<td>6.36</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>
It is shown from the table-4 that most of the researches were carried out in Uttar Pradesh (71.68 per cent) followed by Bihar (8.67 per cent). There were 6.36 per cent of the researches which did not give any information about the states where the research works were conducted. In Andhra Pradesh 5.78 per cent of the research works were conducted while in Rajasthan only 2.89 per cent of the researches were conducted followed by 1.16 per cent each for West Bengal, Jharkhand, and Jammu & Kashmir whereas only 0.57 per cent each for Orissa and Karnataka. The above mentioned data are shown in frequency distribution in Fig. 10.

B.H.U. is situated in the Uttar Pradesh state of Varanasi and it is close to the Bihar state. It is a general tendency of the students to choose places of research nearby the university. So, we can observe that maximum researches were conducted in Uttar Pradesh followed by Bihar.

![Graph showing distribution of theses according to the coverage of states under study (N=173)](image)

**Fig. 10:** Distribution of theses according to the coverage of states under study (N=173)
6.2.3 Classification of Extension Education Researches according to the sampling procedures used:

The sampling methods used to select the states, districts and respondents for the investigations are mentioned in the following sub-heads:

6.2.3.1 Sampling procedures of states

6.2.3.2 Sampling procedures of districts

6.2.3.3 Sampling procedures of respondents

6.2.3.1 Sampling procedures used for selection of states

The sampling methods (procedures) used for the selection of states are given in Table-5.

Table 5: Distribution of theses according to the sampling methods used for selection of states (N=173)  

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Sampling procedures</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Purposive sampling</td>
<td>22</td>
<td>12.71</td>
</tr>
<tr>
<td>2.</td>
<td>Random sampling</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>Not mentioned</td>
<td>144</td>
<td>83.24</td>
</tr>
<tr>
<td>4.</td>
<td>Not applicable</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>173</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

It is revealed from the table-5 that maximum number (83.24 per cent) of theses had no information about the sampling procedures used for selecting the states followed by 12.71 per cent of theses which used purposive sampling method for selecting the states whereas 4.05 per cent of theses did not select any particular state. No thesis used random
sampling method for selecting the states. The above mentioned data are shown in frequency distribution in Fig. 11.

Generally, the importance of research is not understood properly by post-graduate level students. Due to problem of unemployment and uncertainty about future career, students somehow try to submit the theses quickly which is a partial requirement to fulfill the course. So, it may be concluded here that due to lack of knowledge and proper understanding, the students have not used the sampling procedure or even they have used, they have not mentioned in their research work.

**Fig. 11: Distribution of theses according to the sampling methods used for selection of states (N=173)**

**6.2.3.2 Sampling procedures used for selection of districts**

The sampling methods (procedures) used for the selection of states are given in Table-6.
Table 6: Distribution of theses according to the sampling methods used for selection of districts (N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Sampling procedures</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Purposive sampling</td>
<td>105</td>
<td>60.69</td>
</tr>
<tr>
<td>2.</td>
<td>Random sampling</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>3.</td>
<td>Not mentioned</td>
<td>59</td>
<td>34.10</td>
</tr>
<tr>
<td>4.</td>
<td>Not applicable</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>

It is clear from table-6 that maximum number of theses (60.69 per cent) used purposive sampling whereas 34.10 per cent of the theses did not mention the sampling procedure used for selecting the districts. There were only 4.05 per cent of researchers which did not select any particular district for their studies followed by 1.16 per cent of researchers who used random sampling methods for selection of the districts. The above mentioned data are shown in frequency distribution in Fig. 12.

The reason behind the maximum number of theses with purposive sampling may be that the researchers belong to the same districts or nearby districts but the other reason may be due to lack of proper guidance and exposure to research orientation. **Similar finding regarding the purposive sampling method was revealed by Thakur and Trikha (2002).**
Fig. 12: Distribution of theses according to the sampling methods used for selection of districts (N=173)

6.2.3.3 Sampling procedures used for Selection of Respondents

The sampling methods (procedures) used for the selection of respondents are given in Table-7.

Table 7: Distribution of theses according to the sampling methods used for selection of respondents (N= 173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Sampling Procedures</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Purposive sampling</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td>2.</td>
<td>Random sampling</td>
<td>111</td>
<td>64.16</td>
</tr>
<tr>
<td>3.</td>
<td>Probability sampling</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>4.</td>
<td>Census</td>
<td>10</td>
<td>5.78</td>
</tr>
<tr>
<td>5.</td>
<td>Combination</td>
<td>10</td>
<td>5.78</td>
</tr>
<tr>
<td>6.</td>
<td>Not mentioned</td>
<td>12</td>
<td>6.94</td>
</tr>
<tr>
<td>7.</td>
<td>Not applicable</td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>
It is shown from table-7 that most of the researchers used random sampling method (64.16 per cent) for the selection of respondents whereas in 12.14 per cent of the theses no respondents were taken followed by 6.94 per cent of theses having no information about the sampling methods for selecting the respondents. Only 5.78 per cent of theses were conducted each with census method and combination of sampling procedures for selecting the respondents. There was only one (0.58 per cent) thesis having probability sampling method for selecting the respondents. The above mentioned data are shown in frequency distribution in Fig. 13.

To minimize the biasness in data collection and convenience in selecting the heterogeneous respondents may be the reasons behind using the random sampling method for selection of respondents by majority of the researchers. Similar findings were due to Sujan (1986) and Thakur and Trikha (2002).

Fig. 13: Distribution of theses according to the sampling methods used for selection of respondents (N=173)
6.2.4 Classification of Extension Education Researches according to number of respondents taken:

The number of respondents (sample size of respondents) taken by the researchers are given in Table-8.

Table 8: Frequency of theses according to the distribution of the number of respondents taken (N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Range</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Below 51</td>
<td>13</td>
<td>7.52</td>
</tr>
<tr>
<td>2.</td>
<td>51-100</td>
<td>106</td>
<td>61.27</td>
</tr>
<tr>
<td>3.</td>
<td>101-150</td>
<td>18</td>
<td>10.41</td>
</tr>
<tr>
<td>4.</td>
<td>151-200</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td>5.</td>
<td>201-250</td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td>6.</td>
<td>Above 250</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>7.</td>
<td>No respondents</td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>173</td>
<td>100</td>
</tr>
</tbody>
</table>

The data in table-8 shows that majority of the theses (61.27 per cent) had respondents ranging from 51 to 100, whereas 12.14 per cent of the theses were without respondents. 10.41 per cent of the theses had 101-150 respondents followed by 7.52 per cent of theses having below 51 respondents. The maximum number of respondents among the studies was 500 while the minimum number of respondents was 25. The above mentioned data are shown in frequency distribution in Fig. 14.

Due to the convenience in data analysis for small sample sizes and lack of time, most of the researchers might have used the sample size of 51-100 for selecting the respondents. Similar finding was revealed by Sujan (1986).
Fig. 14: Distribution of theses according to the number of respondents taken (N=173)

6.3 Nature of respondents, variables taken, tools of data collection, and statistics used

6.3.1 Classification of Extension Education Researches according to the nature of respondents:

The nature (types) of respondents taken by the researchers for their studies are given in Table-9.

Table 9: Distribution of theses according to the types of respondents (N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Types of respondents</th>
<th>Sub-Types</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Village people</td>
<td>Farmers</td>
<td>76</td>
<td>43.93</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-farmers</td>
<td>29</td>
<td>16.76</td>
</tr>
<tr>
<td>2.</td>
<td>Women</td>
<td>Rural</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tribal</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health worker</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>3.</td>
<td>University students</td>
<td></td>
<td>11</td>
<td>6.36</td>
</tr>
<tr>
<td>4.</td>
<td>Children</td>
<td>School</td>
<td>6</td>
<td>3.46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-school</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>S.No.</td>
<td>Types of respondents</td>
<td>Sub-Types</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------</td>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>5.</td>
<td>Members of SHG &amp; NGO</td>
<td></td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>6.</td>
<td>Government officials</td>
<td></td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>7.</td>
<td>City people</td>
<td></td>
<td>6</td>
<td>3.46</td>
</tr>
<tr>
<td>8.</td>
<td>Professional trainees</td>
<td></td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td>9.</td>
<td>Rural youths</td>
<td></td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>10.</td>
<td>Trainers</td>
<td></td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>11.</td>
<td>Teachers</td>
<td></td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>12.</td>
<td>Gram Panchayat leaders</td>
<td></td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>13.</td>
<td>Combination</td>
<td></td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td>14.</td>
<td>No respondents</td>
<td></td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>173</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

It is indicated from table-9 that most of the theses (43.93 per cent) took farmers as respondents followed by non-farmer village people (16.76 per cent), university students (6.36 per cent), school children, city people (3.46 per cent each), professional trainees, combination of respondents (2.31 per cent each). Only 1.73 per cent theses took rural women as respondents followed by women health worker, non-school children, members of SHG and NGO, rural youths (1.16 per cent each). Only one thesis (0.58 per cent) had been conducted each with tribal women, government officials, trainers, teachers and gram panchayat leaders as respondents. 12.14 per cent of theses did not have any respondents. The above mentioned data are shown in frequency distribution in Fig. 15.

Extension education is mainly confined to rural development by bringing desirable changes in the behavior of farmers in adopting the new technologies. As farmers are found in majority in a rural community, they are considered as the key persons of rural development. These may be the
reasons behind taking farmers as the major respondents by majority of the researchers. **Similar findings are due to Sujan (1986) and Singh et al. (2001).**

![Distribution of theses according to the types of respondents (N=173)](image)

**Fig. 15: Distribution of theses according to the types of respondents (N=173)**

6.3.2 **Classification of Extension Education Researches according to the variables taken:**

Variables are of two types namely dependent variables and independent variables and they are decided according to the research topic. The dependent variables are estimated on the basis of the independent variables. The various dependent variables used by the researchers in their studies are given in Table-10.
Table 10: Distribution of theses according to the dependent variables used (Multiple Analysis) (N=173)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Dependent variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Adoption</td>
<td>37</td>
<td>21.38</td>
</tr>
<tr>
<td>2.</td>
<td>Knowledge</td>
<td>35</td>
<td>20.23</td>
</tr>
<tr>
<td>3.</td>
<td>Attitude</td>
<td>20</td>
<td>11.56</td>
</tr>
<tr>
<td>4.</td>
<td>Constraints</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td>5.</td>
<td>Opinion</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td>6.</td>
<td>Socio-economic status</td>
<td>6</td>
<td>3.47</td>
</tr>
<tr>
<td>7.</td>
<td>Radio listening behaviour</td>
<td>5</td>
<td>2.89</td>
</tr>
<tr>
<td>8.</td>
<td>Mass-media exposure</td>
<td>4</td>
<td>2.31</td>
</tr>
<tr>
<td>9.</td>
<td>Awareness</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>10.</td>
<td>Skill</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>11.</td>
<td>Environmental risk perception</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>12.</td>
<td>Communication behaviour</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>13.</td>
<td>People’s participation</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>14.</td>
<td>Management orientation</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>15.</td>
<td>Risk taking ability</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>16.</td>
<td>Self-confidence</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>17.</td>
<td>Level of Technological gap</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>18.</td>
<td>Use pattern of IT</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>19.</td>
<td>Tele-viewing behaviour</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>20.</td>
<td>Source utilization</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>21.</td>
<td>Value orientation</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>22.</td>
<td>Life-style</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>23.</td>
<td>Field experience</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>24.</td>
<td>Scientific temperament</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>25.</td>
<td>Yield</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>26.</td>
<td>Farm decision making</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>27.</td>
<td>Effects of internet use</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>28.</td>
<td>Deprivation</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>29.</td>
<td>Social isolation</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>30.</td>
<td>Social power</td>
<td>1</td>
<td>0.58</td>
</tr>
<tr>
<td>31.</td>
<td>Not distinguished</td>
<td>54</td>
<td>31.21</td>
</tr>
<tr>
<td>32.</td>
<td>Not mentioned</td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>225</strong></td>
<td><strong>130.06</strong></td>
</tr>
</tbody>
</table>

* Due to multiple analysis of the data
It is clear from table-10 that a majority of the theses (24.67 per cent) used adoption as one of the dependent variables followed by knowledge (23.33 per cent) and attitude (11.56 per cent). 31.21 per cent of the theses did not clearly distinguish between the dependent and independent variables whereas 12.14 per cent of the theses did not used any of the dependent or independent variables.

Since a majority of the researches have been conducted under the research area of adoption and diffusion and variables like adoption, knowledge and attitude are generally used in adoption and diffusion researches. Therefore, the above mentioned dependent variables have got a high percentage.

Some of the common independent variables used by the researchers are given below:

Age, Sex, Occupation, Annual income, Family size (family structure), Family type, Education (Educational level), Material possession (House-holding goods), Caste, Farm size (Land holding), Farm power, Farm implement, Irrigation potentiality, Social participation, Communication factor, Dwelling pattern (House), Marital status, Socio-economic status (Social status), Cosmo politeness, Background, Level of aspiration, Communication behaviour, Extension contact, Religion, Birthplace, Birth-order, Information source, Type of farm, Credit-orientation, Financial sources, Cropping pattern, Father’s education, Mother’s education, Knowledge, Constraints, Mass media exposure, Extent of fertilizer use, Constituent of fertilizer use, Future orientation, Risk orientation, Value orientation (Scientific motivation), Economic motivation, Expenditure group, Preference towards agriculture, Basis of admission in agriculture, Educational achievement of the respondent,
Motive behind joining the course, Expenditure on newspapers and magazine, Paper availability, Frequency of reading, etc.

6.3.3 Classification of Extension Education Researches according to the tools and techniques of data collection:

The tools and techniques used for data collection are categorized and shown in Table-11.

Table 11: Distribution of theses according to the tools and techniques used for data collection (N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Tools and Techniques</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Interview Schedule</td>
<td>99</td>
<td>57.23</td>
</tr>
<tr>
<td>2.</td>
<td>Questionnaire</td>
<td>9</td>
<td>5.20</td>
</tr>
<tr>
<td>3.</td>
<td>Interview schedule &amp; questionnaire</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>4.</td>
<td>Interview schedule &amp; Gadgets/Equipments</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>5.</td>
<td>Interview schedule &amp; secondary data</td>
<td>39</td>
<td>22.54</td>
</tr>
<tr>
<td>6.</td>
<td>Not applicable</td>
<td>21</td>
<td>12.14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>173</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

It is shown from table-11 that maximum number of theses (57.23 per cent) used only interview schedule in the research studies followed by combined use of interview schedule and secondary data (22.54 per cent), questionnaire (5.20 per cent), combined use of interview schedule and questionnaire (1.73 per cent) and use of interview schedule with gadgets/equipments (1.16 per cent) as the tools and techniques of data collection. In 12.14 per cent of the theses data collection was not necessary. The above mentioned data are shown in frequency distribution in Fig. 16.
To avail more reliable data independent of the literate or illiterate respondents may be the cause of using interview schedule by most of the researchers for data collection. This finding is supported in parallel by Sujan (1986), Mehra and Trikha (1993), Singh and Gill (1993), Prolima and Kaushik (2000) and Singh et al. (2001).

![Pie chart showing distribution of theses according to tools and techniques used for data collection](image)

**Fig. 16:** Distribution of theses according to the tools and techniques used for data collection (N=173)

### 6.3.4 Classification of Extension Education Researches according to statistics used:

The analysis of data in all the theses had been analyzed according to the different statistical techniques used. The details are given in Table-12.

### Table 12: Distribution of theses according to the methods of statistical analysis used (Multiple Analysis) (N=173)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Statistical methods</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Percentage</td>
<td>141</td>
<td>81.50</td>
</tr>
<tr>
<td>2.</td>
<td>Frequency</td>
<td>94</td>
<td>54.34</td>
</tr>
<tr>
<td>3.</td>
<td>Mean</td>
<td>62</td>
<td>35.84</td>
</tr>
</tbody>
</table>
## Results and Discussion

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Statistical methods</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Standard Deviation</td>
<td>41</td>
<td>23.70</td>
</tr>
<tr>
<td>5.</td>
<td>Correlation Coefficient</td>
<td>52</td>
<td>30.06</td>
</tr>
<tr>
<td>6.</td>
<td>Multiple Regression</td>
<td>3</td>
<td>1.73</td>
</tr>
<tr>
<td>7.</td>
<td>Regression Analysis</td>
<td>19</td>
<td>10.98</td>
</tr>
<tr>
<td>8.</td>
<td>Weighted Mean Score</td>
<td>12</td>
<td>6.94</td>
</tr>
<tr>
<td>9.</td>
<td>T-test</td>
<td>18</td>
<td>10.41</td>
</tr>
<tr>
<td>10.</td>
<td>Z-test</td>
<td>7</td>
<td>4.05</td>
</tr>
<tr>
<td>11.</td>
<td>F-test</td>
<td>13</td>
<td>7.52</td>
</tr>
<tr>
<td>12.</td>
<td>Chi-square test</td>
<td>47</td>
<td>27.17</td>
</tr>
<tr>
<td>13.</td>
<td>Ranking</td>
<td>8</td>
<td>4.62</td>
</tr>
<tr>
<td>14.</td>
<td>Multiple correlation</td>
<td>18</td>
<td>10.41</td>
</tr>
<tr>
<td>15.</td>
<td>ANOVA</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td>16.</td>
<td>Coefficient of Variance</td>
<td>2</td>
<td>1.16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>539</strong>*</td>
<td><strong>311.56</strong>*</td>
</tr>
</tbody>
</table>

*Due to multiple analysis of the data.

It is revealed from table-12 that maximum number of theses (81.50 per cent) used percentage for analysis of data, while 54.34 per cent of theses used frequency followed by arithmetic mean (35.84 per cent), coefficient of correlation (30.06 per cent), Chi-square test (27.17 per cent) and standard deviation (23.70 per cent). Similarly, regression analysis, t-test and multiple correlation were used by 10.98 per cent, 10.41 per cent and 10.41 per cent of theses respectively. Only 7.52 per cent theses used f-test followed by weighted mean score (6.94 per cent), ranking (4.62 per cent), z-test (4.05 per cent), multiple regression (1.73 per cent) and 1.16 per cent each for analysis of variance (ANOVA) and coefficient of variance for data analysis. The above mentioned data are shown in an increasing trend of frequency distribution in Fig. 17.

Percentage is used by most of the researchers because it is required to calculate the percentage at least in primary analysis of most of the data. Similar finding was due to Sujan (1986), Mehra and Trikha (1993) and Prolima and Kaushik (2000).
Results and Discussion

Frequency is used by a majority of the researchers next to percentage because all the collected data are needed to be denoted in the form of frequency distribution for further analysis of the data. Similar findings were shown by Thakur and Trikha (2002).

Fig. 17: Distribution of theses according to the methods of statistical analysis used (Multiple Analysis) [N=173]
SUMMARY AND CONCLUSION

As defined by Leagans (1961), “Extension Education” is an applied behavioural science, the knowledge of which is applied to bring about desirable changes in the behavioural complex of human beings usually through various strategies & programmes of change & by applying the latest scientific & technological innovations. It is a catalyst in the field of development education and an imperative for all universities and other allied institutions, whether technological, agricultural, liberal or conventionally oriented.

Agricultural Extension, its teaching, research and service are very often criticized by different people. The subject areas of research in extension are sometimes found to be repetitive in nature, duplicated and not as per the need of the farmers. It has been a matter of concern that research in extension is not very often used for the benefit of farmers. As per the knowledge of the researcher, very few researches so far have been conducted on researches of extension that could guide the teachers, students and practitioners in the field of the agricultural extension. This question laid the author to put an attempt to classify, analyze and document the works so that it will serve as a record and evidence for the researchers in the field of Extension Science.

The M.Sc. (Ag.) course work in Extension Education was started in Department of Extension Education, B.H.U. since 1975. An attempt has been made to review all the M.Sc. theses of Extension Education submitted in the department during 1977-2008 to find out the direction of
the extension education researches and the research methods used in the theses.

The present study entitled “Researches in Extension Education, B.H.U. - A Content Analysis” has been undertaken to find out the pattern of Post-graduate research studies, the research design, the tools and techniques used the geographical distribution and the other contents of the theses with the following objectives:

(i) Areas and trends of research

(ii) Research design, locale of research, sampling procedure, number of respondents (sample size)

(iii) Nature of respondents, variables taken, tools of data collection, and statistics used

7.1 Research Methodology

7.1.1 Research design

It is the plan of the investigation to get answer to the problems of research. On the basis of the objectives set forth content analysis was followed to collect relevant researches in extension education.

7.1.2 Locale of Research

The research was conducted at institute of agricultural sciences, B.H.U., Varanasi which has been described at Chapter-IV, page no. 44.
7.1.3 Sampling procedure

Purposive sampling procedure was followed where almost all the M.Sc.(Ag.) research works from the year 1977 to 2008 were considered for the study to find out the following:

7.1.3.1 Areas of Research

The list of different areas and sub-areas of researches in extension education is given in Chapter-V, Page no. 60.

7.1.3.2 Trends of Research

The trends of the extension researches have been decided on the basis of number of thesis submitted in every five years of duration in the Department of Extension Education.

7.1.3.3 Research Methods

The common methodologies used in extension researches are following:

1. Research design
2. Locale of study
3. Sampling procedure
4. Number of respondents (Sample size)
5. Nature of respondents
6. Variables taken
7. Tools of data collection
8. Statistics used
7.1.4 Tools of Data Collection

The data was collected through review and observation of all the research works personally by the researcher.

7.1.5 Analysis of data

Frequency and percentage were used for precise and meaningful analysis and interpretation of the data collected.

7.2 Major Findings

The major findings of the theses are summarized as follows:

7.2.1 Areas of research

After analyzing the theses, the research topics were classified into 18 areas of research. The highest number (31.79 per cent) of researches have been conducted in the area of extension methods and communication studies followed by (30.06 per cent) in social and psychological dimensions, (23.70 per cent) in adoption and diffusion, (12.72 per cent) in developmental projects/programmes, (10.98 per cent) in studies of gender, youth and children, (10.41 per cent) in human resource management, (8.09 per cent) in both environmental studies and extension administration & organizational management, (7.52 per cent) in content analysis, (5.20 per cent) in both ITK and research & educational institutions/organizations, (3.47 per cent) both in agricultural journalism and private extension, (2.89 per cent) in ICT, (2.31 per cent) in health studies, (1.73 per cent) in training programmes of farmers, (1.16 per cent) in entrepreneurship development and (5.20 per cent) in miscellaneous studies including social forestry, career dynamics, time management, livestock management, etc.
7.2.2 Trends of research

The theses reveal an increasing trend of the research works conducted since 1977 in the department till 1982-86 whereas a decreasing trend is observed till 1992-96. However, again an increasing trend is observed from 1997-2001 to 2007 onwards.

7.2.3 Research design

Majority of theses (6.94 per cent) used exploratory research design followed by ex-post-facto research design (5.78 per cent) whereas 3.47 per cent of the theses used evaluatory research design. Only 1.73 per cent and 1.15 per cent of the theses used descriptive and experimental research designs respectively. Maximum number of theses (80.93 per cent) did not mention the research designs used by the researchers for their studies.

7.2.4 Locale of study

Most of the researches were carried out in Uttar Pradesh (71.68 per cent) followed by Bihar (8.67 per cent). There were 6.36 per cent of the researches which did not give any information about the states where the research works were conducted. In Andhra Pradesh 5.78 per cent of the research works were conducted while in Rajasthan only 2.89 per cent of the researches were conducted followed by 1.16 per cent each for West Bengal, Jharkhand, and Jammu & Kashmir whereas only 0.57 per cent each for Orissa and Karnataka.

7.2.5 Sampling procedure

Maximum number (83.24 per cent) of theses had no information about the sampling procedures used for selecting the states followed by 12.71 per cent of theses which used purposive sampling method for
selecting the states whereas 4.05 per cent of theses did not select any particular state. No thesis used random sampling method for selecting the states.

Maximum number of theses (60.69 per cent) used purposive sampling whereas 34.10 per cent of the theses did not mention the sampling procedure used for selecting the districts. There were only 4.05 per cent of researchers which did not select any particular district for their studies followed by 1.16 per cent of researchers who used random sampling methods for selection of the districts.

Most of the researchers used random sampling method (64.16 per cent) for the selection of respondents whereas in 12.14 per cent of the theses no respondents were taken followed by 6.94 per cent of theses having no information about the sampling methods for selecting the respondents. Only 5.78 per cent of theses were conducted each with census method and combination of sampling procedures for selecting the respondents. There was only one (0.58 per cent) thesis having probability sampling method for selecting the respondents.

7.2.6 Number of respondents (Sample size)

Majority of the theses (61.27 per cent) had respondents ranging from 51 to 100, whereas 12.14 per cent of the theses were without respondents. 10.41 per cent of the theses had 101-150 respondents followed by 7.52 per cent of theses having below 51 respondents. The maximum number of respondents among the studies was 500 while the minimum number of respondents was 25.
7.2.7 Nature of respondents

Most of the theses (43.93 per cent) took farmers as respondents followed by non-farmer village people (16.76 per cent), university students (6.36 per cent), school children, city people (3.46 per cent each), professional trainees, combination of respondents (2.31 per cent each). Only 1.73 per cent theses took rural women as respondents followed by women health worker, non-school children, members of SHG and NGO, rural youths (1.16 per cent each). Only one thesis (0.58 per cent) had been conducted each with tribal women, government officials, trainers, teachers and gram panchayat leaders as respondents. 12.14 per cent of theses did not have any respondents.

7.2.8 Variables taken

A majority of the theses (24.67 per cent) used adoption as one of the dependent variables followed by knowledge (23.33 per cent) and attitude (11.56 per cent). 31.21 per cent of the theses did not clearly distinguish between the dependent and independent variables whereas 12.14 per cent of the theses did not used any of the dependent or independent variables.

7.2.9 Tools of data collection

Maximum number of theses (57.23 per cent) used only interview schedule in the research studies followed by combined use of interview schedule and secondary data (22.54 per cent), questionnaire (5.20 percent), combined use of interview schedule and questionnaire (1.73 per cent) and use of interview schedule with gadgets/equipments (1.16 per cent) as the tools and techniques of data collection. In 12.14 per cent of the theses data collection was not necessary.
7.2.10 Statistics used

Maximum number of theses (81.50 per cent) used percentage for analysis of data, while 54.34 per cent of theses used frequency followed by arithmetic mean (35.84 per cent), coefficient of correlation (30.06 per cent), Chi-square test (27.17 per cent) and standard deviation (23.70 per cent). Similarly, regression analysis, t-test and multiple correlation were used by 10.98 per cent, 10.41 per cent and 10.41 per cent of theses respectively. Only 7.52 per cent theses used f-test followed by weighted mean score (6.94 per cent), ranking (4.62 per cent), z-test (4.05 per cent), multiple regression (1.73 per cent) and 1.16 per cent each for analysis of variance (ANOVA) and coefficient of variance for data analysis.

7.3 Conclusion:

Extension education is a tool to bring out desirable changes in knowledge, skill and attitude of farmers for more income, more production and better living. The research on the subject is very important to know direction and content towards which the subject is oriented.

The study conducted at BHU gives a scope to acknowledge the situation of extension research. It is good to note that a wide range of topics has been covered in research starting from agriculture to health and from primary education to higher education. Studies on extension methods and communication technologies, social and psychological dimensions and adoption and diffusion have been studied vary frequently. The areas like gender, youth and children, human resource development, indigenous techniques and private extension have also been the subjects of research in the Department of Extension Education, BHU. Most of the studies were confined in U.P. and Bihar states of India. It is a matter of
concern that most of the studies conducted at Department of Extension Education, BHU is based on rural/ village people, who are the core of extension.

Findings with relation to sampling procedure, conceptualization of variables and statistics not yielded satisfactory results. It seems that most of the post-graduate scholars are not properly aware and serious about this particular aspect. It was noted that sampling procedures and variables are not clearly mentioned or categorized, operationalized/ defined properly. Statistical tools in many researches seemed to be improper or not applicable as per the requirement of objectives and variables. The sample size in most of the researches was 50 to 100. This shows a weak trend in the social science research as error is more in small samples.

The major areas like Entrepreneurship development, Training programmes of farmers, Health studies, ICT, Agricultural journalism and Private extension need attention in the extension education research studies for future prospects of the students, teachers and the researchers. All the researchers should mention the research designs used by them. More researches are needed to be conducted in the states other than Uttar Pradesh and Bihar.

7.4 Suggestions:

Based on the research findings and experience gain in the field the following suggestions are made:

1) Field oriented research should be given priority to minimize the gap between farm and lab.
2) More research should be conducted on remote areas and different states other than those mentioned in the previous studies.
3) Studies related to gender, youth, marginal farmers and landless labourers should be given a little more importance.
4) Some researches should be initiated based on diagnostic research design.
5) There must be a training programme or orientation on research techniques and methods.
6) A serious effort is required for master’s degree research as it leads to Ph.D research.
7) Some research incentives in the form of scholarship should be given to students to motivate/encourage them for research programme.
8) Orientation on statistical methods should be conducted frequently to make the students updated and high in statistical procedures.
9) The author could not study the bibliographical aspects of the researches and should be studied by other researchers to increase the knowledge of researches.
10) The trend of research on each topic covered could not be studied by the author due to lack of time. So, we expect from future researchers to know the trend of researches of each major topic against the time which will help us to know the position, progress and direction of extension research.
Bibliography
BIBLIOGRAPHY


ICAR: Indian Council of Agricultural Research (2009). Website: www.icar.org.in


NISAGENET: National Information System on Agricultural Education Network in India (2009). Website: www.iasri.res.in


Singh, B. and Sharma, P. (year not mentioned). Researches in Agricultural Extension, Division of Agricultural Extension, IARI, New Delhi.


Communication Research in India. NCDC, October 14-16, BHU, Varanasi, U.P. p. 30.


Appendices
APPENDIX-1

Master Sheet

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Research topic</th>
<th>Year</th>
<th>Areas of research</th>
<th>Sub-areas of research</th>
<th>Research design</th>
<th>Locale of research (States)</th>
<th>Sampling procedure</th>
<th>Number of respondents</th>
<th>Nature of respondents</th>
<th>Dependent variables</th>
<th>Independent variables</th>
<th>Tools of data collection</th>
<th>Statistics used</th>
</tr>
</thead>
</table>
APPENDIX-2

List of M.Sc.(Ag.) theses submitted in the Department of Extension Education from the year 1977 to 2008:


2. Study on Differential Characteristics of adopters and non-adopters of high yielding varieties of Paddy in Kovur block, Nellore district, A.P. (1978)


4. A study of factors associated with the adoption of improved practices for cultivation of Wheat in Gyanpur block, Varanasi (1978)

5. Study of Knowledge and use of certain Extension Teaching Methods for convincing the Farmers by Village Development Officers in Andhra Pradesh (1978)

6. A study on the various sources of Agricultural Information and its utilization by the Farmers of Runnisaidpur block, Sitamarhi district, Bihar (1978)


8. An analysis of the Factors in functioning the acceptance and non-acceptance of Improved Practices related to certain Vegetable Crops in Kashi Vidyapeeth block, Varanasi, U.P. (1979)*


11. A study of Factors affecting the Adoption of Improved Farm Practices related to the cultivation of High Yielding Varieties of Paddy and Wheat in Nokha block, Rohtas district, Bihar (1981)


32. A study on utilization of Farm Information Sources and its relationship with Socio-personnel characteristics of Farmers of Paya block, Samastipur district, Bihar (1983)*


40. Role of Gomati Grameen Bank in Development of Weaker Section in Dobhi block, Jaunpur district, U.P. (1985)
41. A study of Factors influencing the Adoption of Improved Farm Practices related to certain Vegetable Crops in Majhawan block, Mirzapur district, U.P. (1985)


43. An Socio-economic and Cultural Profile of village Dahiyaon, Rohtas district, Bihar (1985)

44. A study on the Constraints to use of Plant Protection Measures in Major Crops in block Paraiya, Gaya district, Bihar (1985)

45. A study of Factors affecting the Adoption of recommended doses of NPK Fertilizers and Irrigations in High Yielding Wheat Varieties in block Arazilines, Varanasi district, U.P. (1985)


47. Prospects and Operational Constraints to Crop Production Lending through Cooperative Societies in Buxa block, Jaunpur district, U.P. (1986)


52. A study of Extent of Adoption of Fertilizer Technology in Transplanted Rice Crop in Meerut block, Meerut district, U.P. (1986)


54. Impact of I.R.D.P. on Socio-economic Development of Weaker Section People of the Siddikpur block, Jaunpur (1987)

55. A study of Factors associated with the Adoption of Improved Practices related to the cultivation of Sugarcane in Padrauna block, district Deoria, U.P. (1987)


57. Belief Pattern and Knowledge of Anganwadi Workers- An Exploratory Study (1987)


60. A study on Training and Visit System in Karagahar block of district Rohtas, Bihar (1988)


62. Impact of Television on Farming Communities (1988)
63. A study of Content and Coverage of Environmental News in National and Regional Dailies (1988)

64. Impact of Television Viewing on Adolescents (1988)


68. An Evaluative study of Integrated Tribal Development Agencies Programme in Paderu block, Visakhapatnam (1988)

69. Image of Banaras Hindu University through Local Dailies (1988)


73. Adoption of Sugarcane Cultivation in Birbhum district, W.B. (1989)

74. A study of Content and Readability of Kisan Bharati- A Farm Magazine (1989)

75. Knowledge of Agricultural Scientists about the Hazards of Agricultural Pollution (1989)
76. A study on Employment and Income Generation through Special Component Plan in Kashi Vidyapeeth block of district Varanasi (1990)

77. A study on Adoption of Improved Agricultural Practices of Rice Cultivation under Special Rice Production Programme in Rajoun block, Bhagalpur district, Bihar (1990)


79. Community Televiewing (CTV) - An Impact Analysis (1990)

80. Analysis of Factors influencing the Adoption of Improved Practices of Table Pea Cultivation in Kashi Vidyapeeth block, Varanasi district, U.P. (1990)

81. Effectiveness of Audio Tapes on Adoption of Recommended Agricultural Practices of Cotton - An Experimental Study (1991)

82. Family Interaction amongst Televiewers (1991)

83. Advertising Trends in Indian Television (1991)*

84. A study of Farm Level Constraints in the village Amora Khaira Chak of Kashi Vidyapeeth block, Varanasi (1991)*

85. A study on Print Media, Gender and Environmental Awareness (1991)

86. Extension Role of Private Input Traders (1991)*

87. A study on Factors affecting Knowledge and Attitude of Farmers towards Pesticides used in HYV of Paddy Cultivation (1992)


90. A study on Factors affecting the Attitude of Employees towards NGOs (1993)

91. A study on Constraint Analysis in Adoption of Bio-gas technology (1993)

92. Attitude of the Small and Marginal Farmers towards Chemical Fertilizers (1993)


94. Opinion of Rural Listeners about the Farm Programmes of A.I.R. Calcutta (1994)

95. A study on Awareness of Agricultural Graduates about Agricultural Issues in Print Media (1994)

96. A study of Content and Coverage of Yojana (A Leading magazine) (1994)


102. Livestock Development in British India (1997)


111. Role of Social Forestry Programme in Rural Economy (1998)


114. To study the extent of Environmental Risk Perception in Varanasi City Dwellers (1999) (A)

115. To study the extent of Environmental Risk Perception in Varanasi City Dwellers (1999) (B)


120. A study on Content and Coverage of Science and Technology in National and Regional Dailies (2000)

121. Impact of Science and Technology Communication on Youth (2000)

122. Distribution and Consumption Pattern of Fertilizer in Buxar district of Bihar (2000)

123. A study of Tribal Presentation in Printed Mass media (Newspapers and Magazines) of India (2000)


128. Career Dynamics among Under-graduate and Post-graduate Students of Agriculture (2001)
129. A study of Adoption of Rice Cultivation Practices by the Farmers of Chas block, Bokaro district, Jharkhand (2001)

130. A study of Environmental News in National and Regional Dailies- A Content Analysis (2001)


140. Spread and Impact of Use Pattern of Information Technology in the Selected Families of Varanasi City (2003)


143. A study on Pattern of Internet Use by Technology and Agricultural Students (2003)

144. A study on Traditional Folk Media in Alwar district of Rajasthan (2004)


148. A study on Women Empowerment through Self-Help groups (SHGs) in Baharia block, district Allahabad (2004)*


150. Farmers’ Response towards the Products of Selected Agro-Industries (Kribhco Seeds, Fertilizers and Dhanuka Pesticides) in Samber block, district Jaipur, Rajasthan (2004)


153. A study on Attitude of Under-graduate Students on Distance Education in Agriculture (2005)


156. A study on Traditional Folk Media prevalent in district Kannauj of U.P. (2005)
157. Opinion of Teachers and Students towards prospects of Distance Education in Agriculture: A Comparative Study (2005)


159. A study on SGSY in Danapur block of Patna district, Bihar (2005)


163. Impact of Radio and Television on Life Style of Tribal Farm Women (2006)

164. A study on Traditional Method of Storage in Darbhanga district, Bihar (2006)

165. A study on Social Acceptability of Distance/Open Schooling (2006)


168. A study on Women’s Image and Participation of Female Journalist in Media (2007)

169. Content Analysis of Krishi Vistar Samiksha- A Farm Magazine (2007)

170. A study on Content and Coverage of Magazine Yojana (2007)


176. A study on Adoption of Improved Wheat Varieties developed by B.H.U., Varanasi (2007)


178. A study on Effectiveness of Vocational Education through Open and Distance Learning (2008)

179. To study the Programme Structure and Listening Behaviour of Radio Mirchi Listeners (2008)


N.B.- “*” marked theses were not available during the study.