CONTENT ANALYSIS OF POSTGRADUATE THESES IN EXTENSION EDUCATION: THE CASE OF COLLEGE OF AGRICULTURE, DAPOLI

THESIS

Submitted in partial fulfilment of the requirements
for the Degree of

MASTER OF SCIENCE

IN

AGRICULTURE
(AGRICULTURAL EXTENSION EDUCATION)

By

MISS. ALKA M.A.
ADPM/23/2996

DEPARTMENT OF AGRICULTURAL EXTENSION EDUCATION
COLLEGE OF AGRICULTURE, DAPOLI

DR. BALASAHEB SAWANT KONKAN KRISHI VIDYAPEETH,
DAPOLI, RATNAGIRI (M.S.) 415712

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Under the Guidance of

Lt. (Dr.) H. V. BORATE
Professor (CAS)
DEPARTMENT OF AGRICULTURAL EXTENSION EDUCATION
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DR. BALASAHEB SAWANT KONKAN KRISHI VIDYAPEETH, DAPOLI,
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JULY, 2025

DECLARATION OF STUDENT

I hereby declare that the experimental work and its interpretation of the Thesis entitled **"CONTENT ANALYSIS OF POSTGRADUATE THESES IN EXTENSION EDUCATION: THE CASE OF COLLEGE OF AGRICULTURE, DAPOLI"** or part thereof has neither been submitted for any other degree or diploma of any University, nor the data have been derived from any thesis/publication of any University or Scientific Organization. The source of materials used and all assistance received during the course of investigation have been duly acknowledged and that no part of the thesis has been submitted for any other degree or diploma.

Place: Dapoli
Date : 09/ 12/ 2025

(Miss. Alka M. A.)
ADPM/23/2996

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(Department of Agricultural Extension Education)
College of Agriculture, Dapoli

Date: 09/12/2025

CERTIFICATE

This is to certify that the thesis entitled, **"Content analysis of postgraduate theses in extension education: The case of college of agriculture, Dapoli"** submitted for the degree of M.Sc. (Agriculture) in Agricultural Extension Education, of the College of Agriculture, Dr.Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, is a Bonafide research work carried out by **Ms. Alka M. A. (ADPM/23/2996)** under my supervision and that no part of this thesis has been submitted for any other degree. The student had completed all the course and research requirement as per the norms in regular mode and has submitted one research paper from her M.Sc. work.

The assistance and help received during the course of investigation have been fully acknowledged.

Place: Dapoli
Date: 09/12/2025

Chairman
Student's Advisory Committee

Countersigned

Head
Department of Agricultural Extension Education

THESIS APPROVAL BY THE STUDENT'S ADVISORY COMMITTEE INCLUDING EXTERNAL EXAMINER

This is to certify that the thesis entitled, **"Content Analysis of Postgraduate Theses in Extension Education: The Case of College of Agriculture, Dapoli"** submitted by **Ms. Alka M. A. (ADPM/23/2996)** to the College of Agriculture, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, in partial fulfillment of the requirements for the degree of M.Sc. (Agriculture) in Agricultural Extension Education subject having Agricultural Economics as minor subject has been approved by Student's Advisory Committee, Board of Studies in Agricultural Extension Education and Languages. and evaluated by one External Examiner after the open viva-voce examination in the presence of External Examiner held on dated 09/12/2025 .

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Place: Dapoli

Date: 09/12/2025

(Alka M. A.)

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Abbreviations

NARS	:	National Agricultural Research System
ICAR	:	Indian Council of Agricultural Research
ATARI	:	Agricultural Technology Application Research Institute
DBSKKV	:	Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth
Ph. D	:	Doctor of Philosophy
et al.	:	et alia
IARI	:	Indian Agricultural Research Institute
PG	:	Post Graduate
B.H.U	:	Banaras Hindu University
TPB	:	Theory of Planned Behaviour
MAVIM	:	Maharashtra Arthik Vikas Mahamandal
EW & VLW	:	Extension Worker and Village Level Worker
URL	:	Uniform Resource Locator
MREGS	:	National Rural Employment Guarantee Scheme
PGD	:	Post-Graduate Diploma
HRD	:	Human Resource Development
SEM	:	Structural Equation Modeling
SHG	:	Self Help Group
etc.	:	Et Cetera
UAS	:	University of Agricultural Sciences
SMART-PLS	:	Smart Partial Least Square
NAEP	:	National Agricultural Research Project
AEP	:	Agricultural Extension Project
T &V	:	Training and Visit
ITK	:	Indigenous Technical Knowledge
JAE	:	Journal of Agricultural Extension
ICT	:	Information Communication Technology
UNIFESP-EPM	:	University of Sao Paulo – Paulista School of Medicine
M. Sc.	:	Master of Science
ANOVA	:	Analysis of Variance
PRADAN	:	Professional Assistance for Development Action
DRDA	:	District Rural Development Agency
NGO	:	Non-Governmental Organization
ToT	: :	Transfer of Technology
%	:	Percent

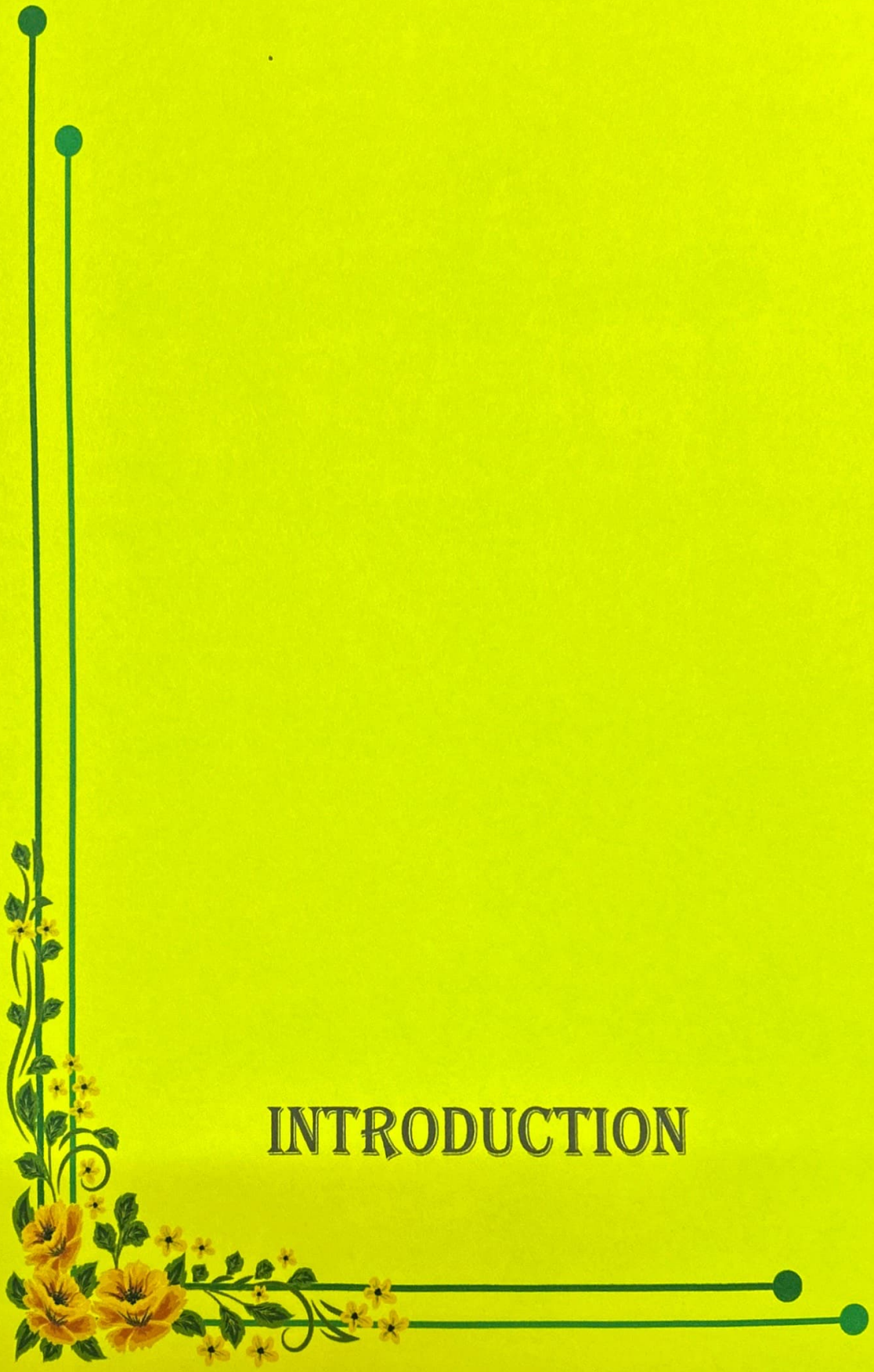
Fig.	:	Figure
i.e.	:	That is.
No.	:	Number

Glossary

Content Analysis: It is a research method used to systematically analyze and interpret the content of recorded communication, like text, images or audio to identify pattern theme and meaning.

Pattern: It is defined as any written matter or principles followed in the recorded communication such as text, images etc.

Trend: The general direction or change of something over time.



INTRODUCTION

CHAPTER I: INTRODUCTION

"Research is creating new knowledge"

-Neil Armstrong

"Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family"

-Kofi Annan

1.1 Background Information

Agricultural research can contribute to solving critical global challenges such as food insecurity, climate change and sustainable development. Sound communication is fundamental in agriculture research and underlies the successful development and sharing of findings, innovations, and technology. But there is limited uptake of research results, due to ineffective communication between researchers, policy makers, farmers and other interest groups. Addressing this gap in the provision of data and information is critical to ensuring that innovative developments from research reach the intended users for decision-making, better practices in society and a positive societal impact.

The pursuit of research in extension education is moving more and more beyond boundaries of discipline, focusing on other research areas like diffusion and adoption of innovations, communication, organizational development, documentation and validation of indigenous technical knowledge, training needs assessment, entrepreneurship development, program evaluation and impact assessment. However, it needs further strengthening to address emerging changes in agriculture and the societal needs.

One research method for identifying the existence of specific words, topics, or concepts in a given qualitative data set (i.e., text) is content analysis. Researchers can measure and examine the frequency, meanings, and connections of specific words, themes, or concepts by using content analysis. For instance, in order to look for prejudice or partiality, academics can assess the language used in a news story. After that, scholars might draw conclusions about the text's messages, the author or authors, the readership, and even the historical and cultural context.

Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication **(Berelson, 1952)**. Content analysis is a systematic, objective, and quantitative method for studying communication **(Kerlinger, 1986)**. Content analysis is any technique for making inferences by systematically and objectively

identifying special characteristics of messages **(Holsti, 1968)**. Content analysis is a research technique for making replicable and valid inferences from data to their context **(Krippendorff, 1980)**.

According to the data from the Press Information Bureau (Ministry of Agriculture and Farmer's Welfare,2021), India's National Agricultural Research System (NARS) is a vast and multifaceted network orchestrated by the Indian Council of Agricultural Research (ICAR) under the Ministry of Agriculture and Farmer's Welfare. The NARS has contributed immensely to make India self-sufficient in food production and serves the agricultural technology and information needs of the country. NARS has a research network of 102 ICAR Research Institutes, 11 Agricultural Technology Application Research Institutes (ATARIs) and 73 Agricultural universities (including 3 Central agricultural universities and 5 universities with agriculture faculty) spread across the country. For popularization of ICAR technologies, 725 Krishi Vigyan Kendras are operating throughout the country for different extension activities.

Dr. B. S. Konkan Krishi Vidyapeeth (DBSKKV), Dapoli in the state of Maharashtra, is one of the renowned universities among the 73 agricultural universities included in NARS in India. The Konkan region falls under the jurisdiction of Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli and it comprises five districts: Thane, Palghar, Ratnagiri, Raigad and Sindhudurg. Crop farming, cattle, horticulture, and fisheries might all be expanded in the Konkan region. Local evidence of the tested technology is established through extension education. The Directorate of Extension Education plans and implements a number of beneficial programs to meet the objectives of extension education. Extension education is therefore one of the university's key responsibilities.

Extension education was established as an academic field in India in 1955 when the first postgraduate program in the field was offered at Bihar Agricultural College, Sabour (Bihar). Later, in 1958, the Nagpur College of Agriculture started a postgraduate program. In 1961, IARI in New Delhi introduced the most important and well-run Ph.D. program. For many instructors, students, and institutions throughout, this organized programme with a uniform curriculum and targeted research aims served as an inspiration. With the help of IARI, Punjab Agricultural University launched its Ph.D. programme in 1963 with highly qualified staff.

The College of Agriculture in Dapoli, was established in 1957. Earlier, it was under Konkan Krishi Vidyapeeth, Dapoli in the state of Maharashtra. Later, it was renamed as Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth in the year 2003 .Postgraduate courses in extension education at the College of Agriculture, Dapoli started in 1964.

The Konkan region differs from other parts of Maharashtra due to its distinct coastal climate and copious amounts of rainfall. Mangoes (including the famous Alphonso mango),

cashews, coconuts, and arecanuts can all be grown there. This variety contributes to the expansion of extension studies in the Konkan area. A substantial collection of scholarly research priorities and contributions from students at the advanced level of education can be found in postgraduate theses. Very few studies that address the needs of farmers, students, and other stakeholders have been conducted by research scholars, which is a serious concern given the region's particular agricultural challenges. Therefore, it is necessary to examine and document postgraduate theses in extension education.

It is important to note here that the department was formerly known as Department of Extension Education. The name change reflects a broader alignment with the academic nomenclature. However, the academic and research functions have remained consistent. For the purpose of this study, both the names are considered. This research delves into a comprehensive content analysis of agricultural extension postgraduate theses submitted at the College of Agriculture Dapoli. Based on a comprehensive examination of the themes, methodology, and contributions of these postgraduate theses, this study aims to add values to the current discussion on agriculture extension research and development.

Content analysis in agricultural extension postgraduate research offers a great analysis of the theme areas in the subject. The coverage usually includes the most frequent themes, topics, and research foci within the agricultural extension discipline. Thus, it helps to identify areas that are under- researched or neglected, and thereby pointing to potential future research opportunities of agricultural extension in the Konkan region of Maharashtra.

1.2 Objectives

1. To examine the patterns of postgraduate research studies concerning content-related attributes
2. To explore the trends in identified key focus areas of post graduate research studies

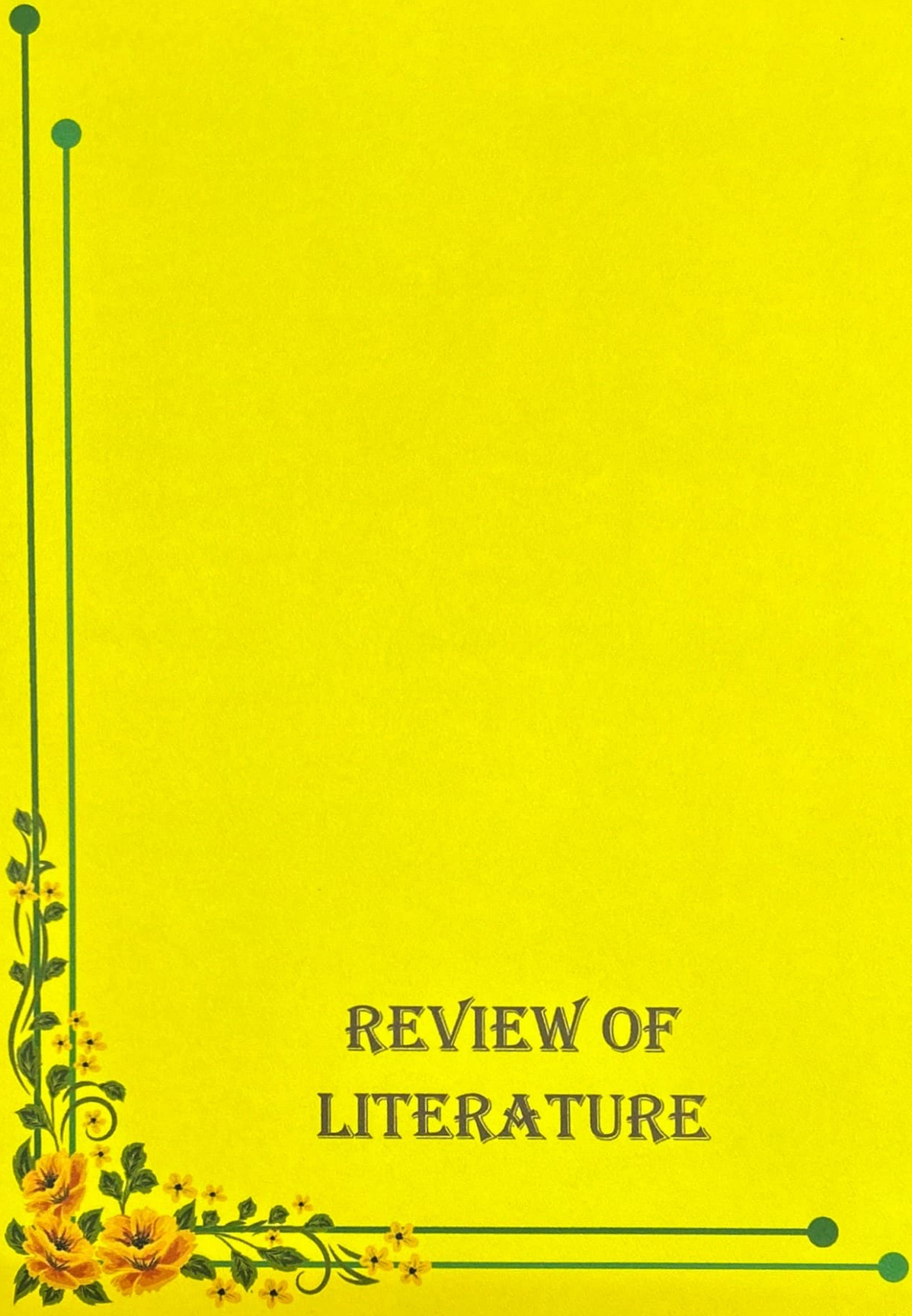
1.3 Need of the study

The need of this study is to analyze the present status of the PG research studies in the Department of Agricultural Extension Education and to document the findings through a comprehensive analysis of the methodological aspects. The primary purpose of this study is to identify any gaps or areas for improvement in the content of theses with the help of content-related attributes that help in understanding the nature and impact of the research. The secondary purpose of this study is to determine how these theses contribute to the field, their relevance to current agricultural challenges in general, and extension education specifically through research trend analysis. Trend analysis can be helpful to assess the research quality, research agendas, and research landscapes. Identifying areas for improvement will not only enhance the academic quality of future theses, but also strengthen their practical utility in driving meaningful change.

The implications derived from this research have wider applications for future research studies in the Konkan area.

1.4 Limitation of the study

The study was restricted to a limited period of time from 2014 to 2023 (10 years) and was conducted on 77 postgraduate theses. Moreover, this study has been restricted to only one discipline (extension education) of the College of Agriculture, Dapoli. Therefore, the results obtained from this study cannot be generalized and are applicable to the data gathered from the specific time period. Theses submitted during 2024 were not available in the department and university library at the time of data collection. However, the research was conducted in a structured and systematic manner to meet the reliability and validity of the objectives.



REVIEW OF LITERATURE

CHAPTER II: REVIEW OF LITERATURE

A review of literature refers to an overall analysis of past research related to the current study. It provides a backdrop for this study by pointing references from previous research that was examined to inform the conceptually related current study. For the purpose of content analysis of postgraduate theses, a systematic review of researches that have been done previously is important to identify the existing trends in PG Research, theme areas of research and methodological approaches of such research. The scarcity of published literature on content analysis in extension postgraduate studies had led to the inclusion of literature reviews from a broader array of academic and non-academic resources .By extending the scope of analysis to include works related to journal articles, newspapers and other pertinent publications, the review aims to capture a more comprehensive understanding of the prevailing themes and methodologies in extension researches. Guided by these objectives, the investigator meticulously reviewed relevant literature for the present study and structured the discussion into distinct sections.

2.1 Patterns of postgraduate research studies concerning content-related attributes

2.2 Trends in identified key focus areas of post graduate research studies

2.1 Patterns of postgraduate research studies concerning content-related attributes

2.1.1 Area of research

Reddy (2002) in his study on Content analysis of post graduate research in extension at UAS, Bangalore found that 31.57 per cent of studies indicated that diffusion and adoption areas were dominating. Management and oversight (10.52 per cent) development programs (6.38 per cent) and extension teaching approaches (9.39 per cent) were in second, third, and fourth place, respectively. In other areas, such as communication (4.88 per cent), entrepreneurship and achievement motivation (4.51 per cent), TOT programs (3.75 per cent), farmers training (3.38 per cent), extension personnel training (3.00 per cent), farm journalism (2.63 per cent), rural institutes and (2.63 per cent), farm broadcast (2.25 per cent), rural youth (2.25 per cent), technological gap (2.25 per cent), NAEP/AEP/T&V (1.87 per cent), program planning (1.87 per cent), and women in agriculture (1.50 per cent) and in farming system (1.50 per cent), only a small number of studies were found**.** Social and educational psychology (1.25 per cent), leadership and group dynamics, farm telecast, marketing behaviour (0.75 per cent each) and only one study (0.37 per cent) was on privatisation in extension.

Chandrakandan *et al.* (2002) revealed in their study on Content analysis in extension education that 25.00 per cent of the research was focused on "evaluation." The findings revealed

that 16.00 per cent of the research focused on communication, while the remaining 14 per cent focused on "adoption." 'Training' was the subject of only 10 per cent of the research. Administration accounts for 7.00 per cent and gender studies follows 6.00 per cent. Decision making (4.00 per cent), role participation (3.00 per cent).Farm journalism, ITK, credit, bank, savings, diffusion, programme planning and HRD (2.00 per cent each).The least focussed area was case study (1.00 per cent).

Takur and Trikha (2004) reported in their study on Content analysis of post-graduate theses in development communication that 14 research areas were covered, with the greatest number of theses (15.38 per cent) focusing on educational technology, followed by communication patterns (11.54 per cent), development journalism (11.54 per cent), and evaluation studies (11.54 per cent). 7.69 per cent each on management, speech communication and training. Development Studies, information sources, instructional technology, mass media, motivation, technology transfer, and video for development were the least focused topics (3.84 per cent each).

Edger's (2007) in his study on A 10-year content analysis to assess the research theme areas in agricultural education: Gap analysis of future research priorities in the discipline revealed that the preparation and competency of 80 teachers was the most commonly identified primary research theme (10.2 per cent). Needs assessment was the second most common primary study issue, appearing in 9.0 per cent of the JAE research articles. Assessment of perceptions and attitudes was found to be the third most popular primary research theme (6.5 per cent). The fourth most common primary study theme (6.2 per cent) was food, agriculture, natural resources, health, and family. Research (methods and models) was the fifth most common primary research theme, appearing in 5.3 per cent of cases. 3.7 per cent each were on academic programs, critical thinking, distance education, evaluation, instructional and programme delivery approaches, processes, principles and styles of learning and youth leadership and development. Appropriateness of education and leadership management follow 3.1 per cent each. Institutional organization and institutionalization (2.50 per cent), curriculum and programme development, professional development, service and experiential learning (2.20 per cent each). Diversity, knowledge competencies and development, leadership development, volunteer development and leadership (1.90 per cent each). Career development and assessment and leadership education (1.50 per cent each). Agriculture literacy, communication management, formal and informal teaching approaches and skill development and competencies (1.20 per cent each). Communication technology and policy issues (0.90 per cent). Communications of scholarship, globalization and internationalization, information sources and technology, writing, organizational development and leadership (0.60 per cent each). Areas such as diffusion of

innovations, marketing and promotion, media relations, quality of life and life skills followed 0.30 per cent each.

Faizely (2010) concluded in his study on Content analysis and reader's perception about the Mysore journal of agricultural sciences, agronomy accounted for 913 (25.06 per cent) of the 3643 published papers, with agricultural extension (9.75 per cent), soil science (9.06 per cent), plant pathology (8.29 per cent), genetics and plant breeding (8.23percent), veterinary science (7.47 per cent), horticulture (6.56 per cent), and agricultural entomology (6.01per cent) following closely behind. Agricultural economics (1.64 per cent), seed science and technology (1.29 per cent), animal science (2.14 per cent), agricultural microbiology (2.09 per cent), agricultural engineering (2.09 per cent), fisheries (4.25 per cent), and sericulture (2.99 per cent), home science (1.26 per cent) accounted for less than 5.00 per cent of the articles. Agricultural statistics (0.36 per cent), crop physiology (0.69 per cent), and forestry (0.77per cent) accounted for less than 1per cent of the articles.

Mahra *et al.* (2017) concluded in their study Trends in extension research in India- A case study revealed that the majority of M.Sc. research has been conducted in journalism and media communication (28.30 per cent and 22.40 per cent), followed by ICT (9.30 per cent), training and human resource development (8.80 per cent), impact assessment (6.90 per cent), content analysis (4.90 per cent), teaching and learning (4.40 per cent), adoption and diffusion(4.40 per cent), management (3.90 per cent), entrepreneurship (2.90 per cent), gender (2.90 per cent), and new fields like ecotourism (0.90 per cent).The fields of communication and ICT have seen the most Ph. D research, followed by management, gender, journalism and media, training and human resource development, teaching and learning, participatory extension, entrepreneurship, and impact assessment.

Sondarva *et al.* (2019) noted in their article Content analysis of Gujarat journal of extension education that the largest share of published papers focused on adoption-related research (23.00 per cent), highlighting that promoting technological adoption is a primary objective of extension work, which is why it receives more attention. Studies related to impact analysis constituted (10.00 per cent), aimed at examining the effects of various schemes and programs that hold significant importance as well. Articles on measurement of scales and development tools were (8.33 per cent). While attitude and perception related studies constituted (7.00 per cent each). Knowledge related studies were 6.33 per cent. Research areas like communication and constraint analysis were 5.00 per cent each. While areas less highlighted like management, opinion and suggestions, awareness, role performance, participation, training, social change, and public behaviour constituted (4.00, 3.33, 2.67, 2.67, 2.33, 2.33, 1.67, and 1.67 per cent each). Other categories constituted 7.67 per cent.

Jadhav *et al.* (2024) inferred in their study on Content analysis of fisheries related information in newspaper and magazine that the bulk of publications (45.98 per cent) were published in the agriculture sector, with horticulture (33.57 per cent), fisheries (16.42 per cent), veterinary (1.40 per cent), dairy (1.40 per cent), and floriculture (1.09 per cent) following closely behind.

2.1.2 Number of objectives

Reddy (2002) found that the bulk of the 266 studies (35.34 per cent) had four objectives. Eight (1.88 per cent), three (18.42 per cent), six (9.78 per cent), two (4.51 per cent), and five (25.56 per cent) targets came next. 4.13 per cent had seven objectives. Nine objectives are included in a single study (0.38 per cent).

Liebano *et al.* (2005) in their study on Number of objectives and conclusions revealed that the majority of theses and dissertations defended at the Federal University of Sao Paulo's Paulista School of Medicine (UNIFESP-EPM) in 2002 and 2003 included several objectives and conclusions.It is found that 8,57 per cent of the Master's theses had only one objective and one conclusion, 18.53 per cent had one objectives and more than one conclusion and 72.90 per cent had more than one objectives and conclusion.

Dkhar (2019) in her study on Perceived usefulness and content analysis of postgraduate theses in agriculture: The case of College of Agriculture, Vellayani revealed that 80.73 per cent of theses have a medium number of objectives, followed by 11.00 per cent with fewer objectives and 8.27 per cent with a high number of objectives in the theses submitted under the division of crop production.

Muppidi (2022) in her study on Research trends and academic research productivity of Ph. D dissertations in Kerala Agricultural University stated that 82.43 per cent of the theses belonged to the medium category of the objectives followed by 13.51 per cent with high number of objectives. 4.06 per cent is in low range in research studies under community science division.

2.1.3 Number of references

Reddy (2002) revealed that majority (23.30 per cent) of the studies referenced references in the range of 81 to 100, followed by 58 studies between 41 and 60 (21.80 per cent) and 50 studies between 61 and 80 (18.80 per cent), according to the study of the references given in the theses. References in the range of 101–120 were referenced in 39 papers (14.66 per cent). 8.21 per cent follows 21- 40 references. 6.02 per cent have references in the range of 121- 140. The range 141- 160 was referenced in 4.51 per cent. 2.26 per cent have above 160 number of references. The meager number of references were followed by 0.38 per cent.

Nicolaisen and Frandsen's (2021) in their study on Number of references: A large, scale study of interval ratios, found that the number of references in journal articles has been increasing over time. The extensive analysis of the number of references in three document types (articles, reviews, and notes) from seven different fields (arts and sciences, social sciences, computer science, mathematics, engineering, medicine, physics, and astronomy). Additionally, they show that the primary driver of growth across all fields is a decline in the proportion of articles with short reference lists (one to nine references) and a rise in the proportion of articles with somewhat longer and medium-sized reference lists (20–39 references, 40–59 references, and even 60–79 references, particularly in the social sciences). It is discovered that the proportions of journal papers with lengthy reference lists (80–99) and very long reference lists (100–199) are relatively stable throughout time.

Muppidi (2022) in her study revealed that 58.33 per cent of theses fell into the medium category of references, followed by 25.00 per cent and 16.67 per cent in the low and high categories, respectively, independent of the several departments under the crop protection division.

Mukhedkar *et al.* (2022) in their study on citation analysis of Postgraduate theses submitted to Department of Post-Harvest Management of Post Harvest Engineering in Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra reported that the highest ranking of citations contributed per thesis in 2018 was 817 out of 2155, or 37.91 per cent. In 2020, it ranked second with an average of 763 out of 2155 citations added, or 35.41 per cent. It ranked third in 2019 with an average of 575 out of 2155 citations added per thesis, or 26.68 per cent.

Mukhedkar *et al.* (2024) on their study citation analysis of Postgraduate theses submitted to Department of Renewable Energy Sources in College of Agricultural Engineering and Technology, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra stated that the average number of citations added to a thesis in 2021 was 172 out of 707, or 24.33 per cent, which is the top ranking. The average number of citations added in 2019 was 143 out of 707, or 20.23 per cent, placing it in second place. In 2017, the average amount of citations added per thesis was 142 out of 707, or 20.08 per cent, placing it in third place . 117 out of 707 (16.55 per cent) is in fifth place, while 33 out of 707 (18.81 per cent) is in fourth place. 16.55 per cent were the average number of citations during 2020. i.e, 117 citations out of 707 that held the last position.

2.1.4 Number of Pages

Reddy (2002) revealed that majority of theses (52.26 per cent) had pages between 101 and 140. Approximately 17.29 per cent of theses had a page between 141 and 160, followed by

81 and 100 (13.53 per cent). A small percentage of theses had pages ranging from 161- 180 (7.14 per cent) to 181-200 (3.38 per cent). Eleven theses (4.14 per cent) had the fewer pages (80), whereas nine theses (2.26 per cent) had the minimum number of pages.

Varule (2006) noted in his study Content analysis of journal of Maharashtra Agricultural Universities with special reference to social science studies found that the journal's page count did, however, indicate an upward tendency. From Volume 1 to Volume 30, the average page count was at least 280 and at most 450. This demonstrates that an increasing number of research papers and notes from Volumes 16 to 30 have been accepted throughout time, which is also a sign of the growing contribution of the scientific community to the journals.

Kulkarni (2011) in his study Coverage of extension researches in journal of Maharashtra Agricultural Universities noted that the journal's page count was on the rise. From Vol. 1 to Vol. 35, the average number of ranges was at least 280 and as high as 495. This indicates that the number of research papers and notes from Vol. 16 to 35 has increased over time, which is also a sign of the growing contribution of the scientific community to the magazine.

2.1.5 Number of illustrations (tables, figures, plates, appendices and abbreviations)

Reddy (2002) observed that more than half of the studies 65.79 per cent had less than five figures and one fourth 27.83 per cent of the studies had figures ranging between 6 and 10. Only few studies 6.38 per cent had more than 10 figures.

Varule (2006) concluded that there was a limit of six photographs and a maximum of twelve. Approximately 64.98 per cent of the illustrations were graphs, 19.14 per cent were drawings, and 16.0 per cent were photographs.

Kulkarni (2011) noted that almost all articles had visuals, with tables accounting for 86.56 per cent of the total, graphs for 8.40 per cent, pictures for 3.36 per cent, and sketches for 1.68 per cent.

Gadekar (2013) in her study critical analysis of illustrations appeared in farm articles of selected farm periodicals in Maharashtra reported that, the data that was shown in the Shetkari farm periodical, photographs accounted for 85.83 per cent of the illustrations, while tables, flow charts, drawings, and cartoons made up 12.6 per cent, 0.72 percent, 0.51 per cent, and 0.32 per cent of the illustrations.

Dkhar (2019) in her study reported that theses from the department of statistics had the most tables, figures, and appendices (56, 21, and 4), followed by 32 tables for the social sciences, 16 figures for the departments of crop production, and three appendices for each of the social science and crop protection departments. Crop protection theses have the most

abbreviations (16), whereas crop production has the most (39) when considering the average number of plates per theses.

2.1.6 Types of research design

Chandrakandan *et al.* (2002) discovered that among the 100 theses analyzed, an overwhelming majority (98.00 per cent) were ex-post facto studies, with only a small fraction (2.00 per cent) classified as experimental studies.

Biswas (2009) in his study Researches in extension education B.H.U – a content analysis indicated that the majority of theses (6.94 per cent) employed exploratory research design, followed by ex-post-facto research design at 5.78 per cent, and evaluator research design at 3.47 per cent. Descriptive and experimental research designs were utilized by only 1.73 per cent and 1.15 per cent of theses, respectively. The largest proportion of theses (80.93 per cent) did not specify the research designs used by the researchers for their studies.

Mahra *et al.* (2017) found that survey research is the predominant methodology in Ph. D studies, utilized in 70.60 per cent of cases, followed by action research at 13.70 per cent, evaluative research at 9.80 per cent, and case studies at 5.90 per cent.

2.1.7 Statistical method used and sample size

Reddy (2002) stated that majority of the studies (33.08 per cent) had sample sizes ranging from 101 to 120, followed by 23.31 per cent with sample sizes between 81 and 100. Nearly 9.78 per cent of the theses had sample sizes of 121-140, while 8.27 per cent utilized sample sizes of 141-160. A sampling range of 161-180 was seen in 1.88 per cent of the studies, and 4.89 per cent of the studies had sample sizes between181-200. The largest sample size of 200 and above was reported in 6.32 per cent of the studies, whereas the lowest sample size of less than 60 was found in 7.14 per cent of the studies. Additionally, 5.62 per cent of the studies had sample sizes of 121-140 and 61-80, respectively.

Thakur and Trikha (2004) noted that all respondents (100 per cent) employed the percentage method for data analysis.

Zende (2009) in his study on Content analysis of articles on agricultural journalism published in journals of extension education revealed that more than one third of the articles (36.17 per cent) used sample size from 101-200.It was followed by about one fourth (23.40 per cent) sample size ranging from 1-100 and 21.28 per cent 201-300 and 19.15 ranges 301 and above.

Dkhar and Thomas (2019) in their study on Content analysis of selected parameters in social science post-graduate theses stated that majority of the theses used percentage in the

Department of Agricultural Extension (25.00 per cent) followed by correlation (24.27 per cent). The Mean was utilized by 18.38 per cent and quartile by 10.29 per cent respectively. 5.88 per cent each were utilized by frequency and standard deviation. 5.15 per cent haven't distinguished the type of statistical tool. ANOVA was used by 4.41 per cent. The least used statistical tool is regression accounting for 0.74 per cent.

Sufi *et al.* (2022) in their study on Content analysis of management doctoral thesis in Indian universities indicated regression analysis to be the most popular statistical technique in the business doctoral thesis (29 per cent), followed by Correlation (24 per cent), Factor Analysis (23 per cent), Structural Equation Modelling (10 per cent), Discriminant analysis (5 per cent), Cross tabulation (3 per cent), Cluster analysis (3 per cent), Path Analysis (2 per cent), Conjoint Analysis (1 per cent).

2.1.8 Locale of study selected

Thakur and Trikha (2004) revealed that Universities, KVK, anganwadi centers, professional assistance for development action (PRADAN), District Rural Development Agency (DRDA), Regional Institute of Rural Development, and Women's Dairy Development Project comprised the largest percentage of theses (42.31 per cent) who selected an institution or organization as their study location. Villages (23.07 per cent) and blocks (19.23per cent) came in second and third, respectively. 7.69 per cent of the theses use specific regions as their study location. The state and districts each have 3.85 per cent.

Biswas (2009) revealed that the majority of the studies (71.68 per cent) were conducted in Uttar Pradesh, with Bihar coming in second (8.67 per cent). 6.36 per cent of the studies contained no information regarding the states in which they were carried out. 5.78 per cent of the study was done in Andhra Pradesh, only 2.89 per cent in Rajasthan, 1.16 per cent each in West Bengal, Jharkhand, and Jammu & Kashmir, and only 0.57 per cent each in Orissa and Karnataka.

2.1.9 Crops Studied

Dkhar (2019) stated that 22.99 per cent of the social science theses studied vegetable crops followed by fruits (14.94 per cent).12.64 per cent of the theses studied cereals whereas, 11.49 per cent studied the area information communication technology. Homesteads (8.05 per cent held the fifth position. The other crops or areas studied are spices (4.60 per cent), mushrooms (3.45 per cent), organizations (3.45 per cent), others (3.45 per cent). Legumes, nuts, schemes and tribes (2.30 per cent each). Plantation crops, aromatic and medicinal plants, flowers, honey bees, and integrated farming system (1.15 per cent each) are the least studied crops or areas.

Muppidi (2022) inferred that around 30.00 per cent of the researches under crop improvement division were studied on cereals (especially rice) followed by 20.00 per cent on vegetables, 10.00 per cent each on flowers ,fodder crops and tuber crops , 5.00 per cent each on fruits, legumes, plantation crops and spice crops respectively.

2.1.10 Types of respondents

Chandrakandan *et al.* (2002) reported that farmers made up the bulk of responses (69.0 per cent). State agriculture department officials made up slightly less than one-fifth (18.00 per cent) of the respondents. Respondents such as farm women, agricultural labourers, NGO workers in sugar factories, youth, tribal people, and KVK staff made up the remaining 13 per cent of the studies.

Biswas (2009) indicated that farmers made up the majority of respondents (43.93 per cent), followed by non-farmers in villages (16.76 per cent), university students (6.36 per cent), schoolchildren, city dwellers (3.46 per cent each), professional trainees, and a combination of respondents (2.31 per cent each). Only 1.73 per cent of respondents were rural women, followed by female health workers, schoolchildren, SHG and NGO members, and rural youth (1.16 per cent each). Tribal women, government officials, trainers, leaders, and Gram panchayath officials were the respondents in just one thesis (0.58 per cent). Of these, 12.14 per cent had no responders.

Zende (2009) stated that about one third of the notes (29.20 per cent) were considered the farmer respondents. This was followed by T V Owners (18.86 per cent), radio owners (13.20 per cent), house wife (8.80 per cent), readers of print media (7.50 per cent), articals and rural women (6.60 per cent each), gramapanchayath members (3.75 per cent), members of tele club (3.70 per cent), rural youth (1.88 per cent)

Verma (2017) on her study Researches conducted on extension communication methods, B.H.U- A content analysis indicated that most of the theses (37.23 per cent) took farmers of the village, university students (23.4 per cent), youth (10.64 per cent) , children (8.51per cent) thesis on farm women (5.32 per cent) as a respondents followed by thesis conducted teachers in agriculture (4.26 per cent). Three theses had been conducted on rural adults (3.19 per cent).

Sondarva *et.al* (2019) revealed that majority (67.68 per cent) articles published were on farmers as respondents where as 10 per cent on farm women. Articles on university staff were 9.33 per cent and students 6.00 per cent. 5.00 per cent belongs to others category of respondents. Articles on private extension service providers were very less only 1.33 per cent. 0.67 per cent was on rural women.

2.1.11 Sampling methods used

Thakur and Trikha (2004) concluded that majority of the theses used random sampling method for the selection of the respondents (38.46 per cent) followed by census method (26.92 per cent). Purposive sampling and probability sampling were used by 23.08 per cent and 3.85 per cent respectively. 7.69 per cent haven't mentioned the sampling procedure used for the selection of respondents.

Biswas (2009) stated that maximum number (83.24 per cent) of theses had no information about the sampling procedure used for selecting the states followed by 12.71 per cent of the theses which used purposive sampling method for selecting the states whereas 4.05 per cent of the theses did not select any particular state.

Sufi *et al.* (2022) indicated that convenience sampling was the most prevalent sampling technique used, followed by random sampling, purposive sampling, judgement sampling, Quota sampling, Multistage sampling, snowball sampling and proportional sampling. Such techniques represent (67.00 per cent) non probability and 33.00 per cent probability sampling.

2.1.12 Data collection techniques used

Chandrakandan et.al (2002) revealed that majority (81 per cent) of the research studies used interview schedule for data collection. Questionnaire was used as data collection tool in 16 per cent of the research studies .Only a meagre percentage (2 per cent and 1 per cent) of the research studies utilized mailed questionnaire and case study as their data collection tool.

Thakur and Trikha (2004) pointed that maximum number of theses used combination of schedule and questionnaire for data collection.

2.1.13 Scales used

Reddy (2002) found the distribution of theses with respect to scales used and developed. Majority of the researchers (24) used as many as 7 scales followed by 5 scales (23 researchers). Equal number of researchers (21) used 8 and 10 scales, about 19 researchers used 6 and 9 scales each. Exactly 14 researchers used 3 scales, followed by 1 (13), 2 (12) and 11 scales by 10 researchers. Less than 10 studies used 11 to 17 scales. Most of the researchers (52) developed 1 scale followed by two to six scales by 132 studies. Less number of scales (7, 8, 9, and10) was developed by 5, 4, 4 and 3 researchers respectively.

2.1.14 Type of data

Takur and Trikha (2004) concluded that primary data was used by majority (57.69 per cent) of the researchers followed by combination of primary and secondary data (42.31 per cent).

2.1.15 Type of dependent variables

Thakur and Trikha (2004) reported that 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 11-15variables (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.

Varule (2006) inferred that most of the articles (16.82 per cent) were related to adoption followed by socio economic status (14.02 per cent),economic analysis (11.21 per cent), marketing (9.35 per cent) impact and communication (7.48 per cent), evaluation and productivity (5.61 per cent), perception (4.67 per cent), very few were related to awareness ,attitude and performance (3.74 per cent), the least covered variables are leadership and income pattern (2.8 per cent) and training (0.93 per cent).

Zende (2009) pointed that about one fifth of the articles (17.52 per cent) covered the dependent variable such as viewing behaviour of farmers followed by knowledge (16.49 per cent), adoption (12.34 per cent) and perception (8.24 per cent), listening behaviour (7.21 per cent), readability and preference (6.18 per cent each), effectiveness and response (5.15 per cent each), readability (4.12 per cent), awareness (2.06 per cent), impact and job satisfaction (2.60 per cent each).Very few variables have considered dependent variable such as evaluation, viewing behaviour, (1.30 per cent each)motivation and retention (1.03 per cent each).

2.1.16 Number of independent variables

Dkhar (2019) revealed that out of the theses, 61.67 per cent had a medium number of independent variables (10 to 15), followed by 26.47 per cent with high numbers (more than 15), and 11.77 per cent with low numbers (less than 10).

Muppidi (2022) found that about 75.00 per cent of theses have (9-30) number of independent variables in agricultural extension followed by 26.47 per cent with high number of independent variables (more than 30).The minimum and maximum number of independent variables was ten and thirty five respectively.

2.1.17 Sources of references

Dkhar and Thomas (2019) in their study on content pattern analysis of selected parameters in social science post-graduate theses revealed that journals accounted for 55.64 per cent of the references, theses for 15.31 per cent, books for 14.03 per cent, online sources with URLs for 5.15 per cent, and seminars or conferences for 3.38 per cent. 1.81, 0.87, and 0.51 per cent from reports, magazines, and newspapers, respectively, and 3.27 per cent from other sources.

Mukhedkar (2022) revealed that the data reveals that researchers cited the journal or periodical articles most frequently. There are 1813 journal article citations among 2155 – the 1st rank and 129 Book citations – the 2nd rank and, 45 Manual citations among 2155 citations – the 3rd rank. 40 citations are from book chapters, thesis (28), Conference and webpage (20 each), data base (15), doctoral dissertations (10), Thesis (MS) (7), hand book and report (5 each), thesis Ph. D (4), Indian standard, market report and patent (2 each), conference paper, directory data book, M. Sc Dissertations, research bulletin, specification , symposium article, thesis (PGD) and workshop paper (1).

Mukhedkar (2024) concluded that researchers cited the journal or periodical articles most frequently .There are 530 journal article citations among 707 holds first rank, 29 book citations with second rank 27 conference papers and 27 web page with third rank. Other sources of citations are theses (25), report (15), manual (14), standards (8), book chapter and hand book (5), and field documents (3). Dissertations, lab manual, unpublished manual and test reports are 2 in number. Only one citation each among 707 has been found for yearbook, GI, guidebook, handout, booklet, newsletter, project report, database, seminar paper, software technical bulletin etc.

2.2 Trends in identified key focus areas of post graduate research studies

Reddy (2002) found that there has been a rise in thesis submissions over a five-year period, from 11 in 1969–1973 to 58 in 1984–1988.The next few years, from 1984–88 to 1994–98, were kept at a steady pace.1984–88 produced the most theses (58), followed by 1994–98 (54), 1979–83 (53), 1989–93 (52), and 1974–78 (25). 1969–73 11) produced the fewest theses.

Biswas (2009) found that, from 1977 to 1982–86, the department's research output increased from 8.09 per cent to 20.23 per cent whereas, from 1992–96, it decreased (17.92 per cent to 8.09 per cent). However, from 1997–2001 to 2002–06, there was once more an upward tendency from 16.19 per cent to 20.81 per cent. Again 2007 onwards, it decreased (8.67 per cent).

Zende (2009) stated that there is an increasing trend of the articles on agricultural journalism except 1995-2004 majority of the articles (66.00 per cent) were published on the television and radio .The very few articles were published on other areas of the agricultural journalism.

Kulkarni (2011) noted that, with the exception of 2004–2010, there was a rise in research articles from 1976–2010. Regarding adoption, there was a shifting trend from 1976 to 2010; it was stable at first, then climbed from 1990 to 1996, then fell and then marginally increased from 2004 to 2010. In the case of psychological aspects, there was a rise in trend from 1983 to 1989,

followed by a stable trend from 1997 to 2003. In the case of social elements, there was an upward tendency from 1976 to 1996, followed by a fall and then a subsequent stability. An increasing trend was observed in case of impact during the period of 1976 to 1996 then declined and remained constant. In case of communication methods increasing trend was observed during the period of 1976 to 1989 whereas not a single article was published from 1990 to 2010.In case of training an article was observed during 1983 to 1989 then increasing trend was observed. In case of evaluation increasing trend was observed during 1976 to 1989 then it was declined.

Verma (2017) stated that regular television broadcasting began in India in 1965. Thus, researchers were interested in studying television. As a result, we discovered that, from 1980 onward, research on television increased until the 1990s, at which point, according to the findings of their department of extension education, research on television also decreased.

Mukhedkar *et al.* (2024) said that the entire period is from 2017 to 2021. The highest master's degrees are granted in each of the following years: 2017, 2018, 2019, and 2021 and it is 3 each out of total 14 i.e., 21.43 per cent each ranking the first. In the year 2020, 2 theses are submitted which is 14.29 per cent each standing on the second rank.

METHODOLOGY

CHAPTER III: METHODOLOGY

The selection of appropriate methods is crucial in guiding the study towards meaningful conclusion. This chapter presents the methodology adopted to carry out the research study. It outlines the systematic approach employed to achieve findings and to ensure the reliability and validity of the results. This methodology chapter includes the following subheadings:

3.1. Locale of study

3.2. Research design

3.3. Sampling procedure

3.4. Attributes and their measurement

3.5. Trends in thesis submission and area of research

3.6. Tools and techniques of data collection

3.7. Statistical methods used

3.8. Attributes and their operational description.

3.1 Locale of study

The Department of Agricultural Extension Education, College of Agriculture, Dapoli, under Dr.Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli was the locale selected for this particular study.

3.2 Research design

Research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance Kerlinger (1986). Although it is initially referred to as “focus areas” in the objectives, these were operationalized as theme areas and sub areas for the purpose of doing content analysis. A qualitative content analysis method was used to interpret the theme areas, sub areas, and other patterns of PG theses through a process called coding.

3.3 Sampling procedure

3.3.1 Selection of the Department

One of the core functions of extension research is to assess and enhance the extent of technology dissemination, behaviour change, and capacity building at the grass root level .Since the present study aims to analyse the major focus areas of postgraduate research.

Selecting a department that directly contributes to understanding the impact of technology transfer was both logical and necessary. Hence, the Department of Agricultural Extension Education was selected purposively for this study, because it provides valuable insights into the state of the field, enabling researchers, educators and practitioners, to identify areas for implementation and to develop more effective strategies for promoting overall agricultural extension wing development.

3.3.2 Selection of Theses

A time period of the most recent 10 years was selected for this study due to the limited availability of time. For this study, all postgraduate theses submitted between 2014 and 2023 were chosen purposively with the intension to capture a representative sample of research trends along with their attributes and changes over time. This time frame allows for the identification of shifts in research focus, and topics within the present field. Seventy seven theses were submitted under the Department of Agricultural Extension Education during this time period. Thus, 77 theses were selected as the sample of the study.

3.4. Attributes and their measurement

3.4.1 Area of research

In order to analyze the research areas of postgraduate theses, the classification system adopted by Samanta *et.al* (1995, as cited in Reddy 2002) was used as a foundational framework. This system provides a structured way to categorize research areas in agricultural extension. However, to better align with the specific context of the present study and to capture emerging themes from the dataset, slight modification were made to the original classification.

The modified classification framework included broad theme area and corresponding sub areas ,which were identified through careful reading and interpretation of the “Introduction” ,”Objectives” ,”Need for the study” ,”Variables” and “Thesis abstract” sections of each thesis. According to the modified classification of Samanta *et.al* (1995, as cited in Reddy 2002) 4 theme areas (Agricultural extension, Extension education, Agricultural communication, Agriculture and allied enterprises) and nine sub areas were identified. The modified forms of classification are as follows:

1. Extension education

1.1. Social and educational psychology

1.1.1. Attitude

1.1.2. Perception

1.1.3. Intention

1.1.4. Technology utilization behaviour

1.1.5. Student aspiration and learning

1.1.6. Professional soft skills

1.1.7. Agribusiness anxiety

1.2. Entrepreneurship development and behaviour

1.2.1. Entrepreneurship behaviour

1.2.2. Marketing behaviour

2. Agricultural extension

2.1. Knowledge, diffusion and adoption

2.1.1. Adoption of agricultural technology

2.1.2. Adoption of nutritional practices

2.1.3. ITK

2.2. Human resource development

2.2.1. Research on tribal development

2.2.2. Women in agriculture and social groups

2.2.3. Research on small and marginal farmers

2.3. Administration, personal development and role performance

2.3.1. Role performance

2.3.2. Job performance

2.3.3. Rural institutions and voluntary organization

2.4. Agriculture and rural development programmes

2.5. Capacity development and impact assessment

3. Agricultural communication

3.1. Extension communication methods

3.1.1. Communication behaviour

3.1.2. Mass media

4. Agriculture and allied enterprises

4.1. Crop production and cropping pattern

4.1.1. Horticultural crops

4.1.2. Field crops

4.1.3. Forest crops

4.1.4. Cropping pattern

The number of theses under each classification was counted manually, and the frequency and percentage were calculated.

3.4.2 Number of objectives

The objective set forth in each thesis was counted manually, and the mean and standard deviation were used to classify theses into high, medium and low objective categories. Frequency and percentage of each category were calculated.

3.4.3 Number of references

The total number of references in the literature cited chapter was counted manually, and the mean and standard deviation were used to classify theses into high, medium and low reference categories. Frequency and percentage were also calculated.

3.4.4 Number of pages

Count of the pages was taken from the introduction chapter up to the literature cited. The mean and standard deviation of the data were calculated .The mean and standard deviation were used to classify theses into high, medium and low page categories. Frequency and percentage were calculated for each category.

3.4.5 Number of illustrations (tables, figures, plates, appendices, abbreviations)

Illustrations such as tables, figures, plates, appendices, and abbreviations were counted from each thesis. Thereafter, frequency and percentage of each illustration were obtained

3.4.6 Types of research design

The methodology chapter of each thesis was searched for the research design selected for the study. The results were presented using frequency and percentage.

3.4.7 Statistical method used and sample size

Data analysis tools and number of respondents were searched for in the methodology chapter. The outcomes of data analysis tools were shown in terms of frequency distribution and percentage value. Sample size was classified into three categories (high, medium, and low) based on the calculated mean and standard deviation.

3.4.8. Locale of study selected

The locale selected for each study was recorded from the methodology chapter, and the results were summarized using both frequency and percentage values.

3.4.9. Crops studied

Crops studied were identified from each thesis, and the results were enumerated using frequency and percentage.

3.4.10. Types of respondents

Types of respondents were identified from each thesis, and the outcomes were displayed in terms of frequency and percentage.

3.4.11 Sampling methods used

Different types of sampling methods used for the selection of districts, tehsils , villages and respondents were identified after careful observation of the methodology chapter**.** The sampling methods used for each selection were displayed as frequencies and percentages.

3.4.12. Data collection techniques used

Data collection techniques used were listed out from the methodology chapter, and the results were shown as frequency distributions and percentage values.

3.4.13. Scales used

Various empirical measurements used in the methodology, such as indices, tests, scales, arbitrary scoring was counted manually. Frequency and percentage of each were obtained.

3.4.14. Type of data

The type of data were identified and taken from each thesis and presented in terms of frequency and percentage.

3.4.15 Type of dependent variable

Types of dependent variable were listed out from each thesis and obtained in terms of frequency and percentage**.**

3.4.16. Number of independent variable

The total number of independent variables was counted from each thesis, and its mean and standard deviation values were calculated. High, medium and low categories of independent

variables were classified with mean and standard deviation. Further, it was presented as frequency distribution and percentage values.

3.4.17. Sources of references

Different sources of references were identified from the literature cited chapter and recorded. Thereafter, the frequency and percentage values of each source were calculated.

3.5. Trends in thesis submission and area of research

Trends in this study refer to the shift or progress of anything towards a specified time period. Trends in this study were operationalized as year-wise distribution of theses**.** Trends in thesis submission was analyzed by the year of submission of Master's theses to the Department of Agricultural Extension Education, College of Agriculture at Dapoli .The total number of theses submitted under Department of Agricultural Extension Education at College of Agriculture, Dapoli during 2014-2023 was categorized year-wise. In order to identify the theme area and sub areas covered by the Master's theses, classification adopted by Samanta *et.al* (1995, as cited in Reddy 2002) with slight modifications was used. The number of theses that covered each classification was counted manually and year-wise and was presented in terms of frequency and percentage. This will help to identify whether any specific areas gained prominence as well as any areas that were being neglected over a period of time.

3.6. Tools and techniques of data collection

A structured proforma (Appendix 1) was prepared to collect content-related attributes from the postgraduate theses. The proforma included various content-related attributes such as area of research, number of objectives, number of references, and so on. These attributes were identified through a thorough review of literature along with expert consultation. Each thesis was counted manually, and the data corresponding to the attributes were enumerated. Data were collected from the hard copies of theses available in the department library.

3.7. Statistical methods used

This study adopted different descriptive statistical methods to analyze the data.

3.7.1 Frequency and Percentage

Frequency in this study refers to the number of occurrence of an attribute. Percentage value was used for a simple comparison.

3.7.2 Mean

The arithmetic mean was calculated to categorize theses based on number of objectives, number of references, number of pages, sample size, number of dependent and independent variable.

$$\overline{X} = \frac{\sum_{i=1}^{n} Xi}{n}$$

Where,

$\overline{X}$ = Arithmetic mean

$\sum Xi$ = Sum of attribute's score

n = Number of attributes

3.7.3 Standard deviation

Standard deviation was found to categorize theses based on number of objectives, number of references, number of pages, sample size and number of independent variable**.**

$$S.D. = \sqrt{\frac{\sum (Xi - \overline{X})^2}{(n-1)}}$$

Where,

S.D. = Standard deviation

$Xi - \overline{X}$ = Deviation from mean

n = Number of attributes

3.8. Attributes and their operational description

Written matter or some illustrations followed by the researcher in his or her study refers to the pattern of a thesis. The pattern of postgraduate studies was operationalized in terms of the following content-related attributes. The attributes selected after the comprehensive study of review of literature to analyze the pattern of theses are as follows:

Sl.no	Attributes	Operational description
1	Area of research	Different theme areas and sub areas of study followed by the PG researchers in the Department of Agricultural Extension Education. Classification adopted by Samanta *et.al* (1995, as cited in Reddy 2002) with slight modifications was used.
2	Number of objectives	Total number of objectives set forth in a thesis.
3	Number of references	Total number of sources listed in the literature cited chapter of a thesis.
4	Number of pages	Space allocation is operationalized as the number of pages. Total number of pages from the introduction chapter to the literature cited in a thesis.
5	Number of illustrations (tables, figures, plates ,appendices, and abbreviations)	Total number of tables, figures, plates, appendices and abbreviations used in a thesis.

Sl.no	Attributes	Operational description
6	Types of research design	The plan or blueprint used to guide a research study with specific procedures for collecting, analysing and interpreting data in a systematic and objective manner to answer the research question.
7	Statistical method used and sample size	Application of tools such as mean, standard deviation, correlation, regression, ANOVA etc., depending on the nature of the data and research objectives. Sample size refers to the total number of respondents selected out of a population using a specific sampling method.
8	Locale of study	Place selected to carry out the research.
9	Crops studied	Agricultural crops that were the subject matter of research in extension theses.
10	Types of respondents	The nature of the respondents selected for the investigation, such as farmers, students etc.
11	Sampling methods used	Methods used to select samples out of a population under study.
12	Data collection techniques used	Techniques used to collect information / responses from the respondents to address the objectives of the study.
13	Scales used	Empirical measurement of the variables used.
14	Types of data	The nature of data collected and analyzed in extension research studies. These are of two types: primary and secondary data.
15	Type of dependent Variable	Variables that are affected by other variables in the study.
16	Number of independent variable	Total number of variables that are not affected by other variables in the study.
17	Sources of references	Various sources referred by the investigator .Sources of references can be a journal, thesis, seminar or conference, reports, books, magazines, newspapers, websites and other sources such as technical bulletins, handbooks, book chapters, institutional reports, yearbook etc.

Fig.1: Map of the locale under study

RESULTS AND DISCUSSION

CHAPTER IV: RESULTS AND DISCUSSION

This chapter explains the results of the pattern and trend analysis and what interpretations are obtained from it. Some illustrations, such as tables, bar charts, line graphs, and pie charts, were selected so that the results can be interpreted at a glance. This chapter is explained under the two headings.

4.1. Patterns of postgraduate research studies concerning content-related attributes

4.2. Trends in identified key focus areas of post graduate research studies

4.1. Patterns of postgraduate research studies concerning content-related attributes

Written matter or some illustrations followed by the researcher in his or her study refers to the pattern of a thesis. It was analysed using the following attributes selected from the review of literature.

4.1.1 Area of research

A research area is a broad domain of the study encompassing related topics and questions with in a particular discipline or field**.** A classification adopted by Samanta *et.al* (1995, as cited in Reddy 2002) was used with slight modifications. Data with respect to area of research are presented in Table no 1 and depicted in Fig 2 and 3

Table 1 Distribution of data according to the area of research or coverage of theses

Sl. No	Theme area	Sub areas of research	Frequency	Percentage
1	**Extension education (Frequency:30) (Percentage:38.97)**	**Social and educational psychology**		
		Attitude	8	10.39
		Intention	2	2.60
		Perception	8	10.39
		Student aspirations and learning	2	2.60
		Technology utilization behaviour	2	2.60
		Agribusiness anxiety	1	1.3
		Professional soft skills	1	1.3
		Sub Total	**24**	**31.18**
		Entrepreneurship development and behaviour		
		Entrepreneurship behaviour	3	3.90
		Marketing behaviour	3	3.90
		Sub total	**6**	**7.79**

Sl. No	Theme area	Sub areas of research	Frequency	Percentage
2	**Agricultural extension (Frequency:35) (Percentage:45.45)**	**Knowledge ,diffusion and adoption**		
		Adoption of agricultural technology	12	15.58
		Adoption of nutritional practices	1	1.30
		Indigenous technical knowledge	2	2.60
		Sub total	**15**	**19.48**
		Human resource development		
		Research on small and marginal farmers	1	1.30
		Research on tribal development	4	5.19
		Women in agricultural and social groups	3	3.90
		Sub total	**8**	**10.39**
		Administration, personal development and role performance		
		Job performance	2	2.60
		Role performance	2	2.60
		Rural institutions and voluntary organisations	1	1.30
		Sub total	**5**	**6.49**
		Agricultural and rural development programmes	**5**	**6.49**
		Capacity development andimpact assessment	**2**	**2.60**
3	**Agricultural communication (Frequency:6) (Percentage:7.79)**	**Extension communication methods**		
		Communication behaviour	1	1.30
		Mass media	5	6.49
		Sub total	**6**	**7.79**
4	**Agriculture and allied enterprises (Frequency:6) (Percentage:7.79)**	**Crop production and cropping pattern**		
		Horticultural crops	3	3.90
		Field crops	1	1.30
		Forest crops	1	1.30
		Cropping pattern	1	1.30
	Sub total		**6**	**7.79**
	Total		**77**	**100.00**

According to the modified classification adopted by Samanta *et.al* (1995, as cited in Reddy 2002) four theme areas and nine sub areas of research were identified .These nine areas were again divided into thrust areas of research. Table 1 showed that agricultural extension is the most focused theme area of research with frequency 35 and 45.45 per cent .Extension education stands as the second most studied area with frequency 30 and percentage 38.97. Agricultural communication and allied enterprises are the least focused theme area of research.

Analysis of the sub areas showed that, social and educational psychology represented the largest share of research with frequency 24 and percentage 31.18, indicating a strong academic inclination towards understanding behavioural, psychological and learning–related aspects of stakeholders in agriculture. This was followed by Knowledge, diffusion and adoption (19.48 per cent) refelecting a sustainable interest in technology transfer and adoption processes. Human Resource Development (HRD) accounted for 10.39 per cent, highlighting a moderate attention to issues concerning farmers, tribal communities, women and rural development.

Extension research is primarily intended for technology dissemination. It also deals with social and psychological traits of people. Overall, results revealed that postgraduate research has largely followed the same areas of research. The findings revealed that areas such as extension communication methods, entrepreneurship behaviour, crop production and cropping pattern, capacity development and impact assessment, agricultural and rural development programmes, administration and role performance had not been focused sufficiently. Capacity development and impact assessment is the least focused areas of research. Despite their significiant contribution in advancing research, these domains remain under-researched.

This classification of research areas are on par with Reddy (2002) and Biswas (2009) . The result of capacity development and impact assessment supports, Chandrakandan *et.al*(2002), Thakur and Trikha (2004),

4.1.2. Number of objectives

It refers to the objectives set forth by the researcher in a thesis. Set forth of objectives are required in theses because, it involves understanding of social phenomenon, capacity to discovering and verifying facts, developing explanations, addressing social problems, informing practices, evaluating new interventions, advancing the professions, assessing needs, developing new approaches, and enhancing social well-being. Keeping this in view numbers of objectives in theses are presented in Table no 2 and Fig 4

Table 2 Distribution of theses according to their number of objectives

SI.No.	Number of objectives	Theses (n=77)	
		Frequency	Percentage
1	Low (upto4)	31	40.26
2	Medium (4 to5)	36	46.75
3	High (5 and above)	10	12.99
Total		**77**	**100.00**
Mean= 4.68			**SD= 0.83**

The data in the table no.2 revealed that out of 77 theses, 36 theses had a medium number of objectives comprising 46.75 per cent.i.e,36 theses had 4 to 5 number of objectives.31 theses had the lowest number of objectives with 40.26 per cent, and 10 theses had the highest number of objectives (12.99 per cent) respectively.

It is concluded that around 31 theses had fewer than 4 objectives. A limited time frame may explain why fewer objectives were chosen; there is no strict university applied rule for the number of research objectives in PG or the Directorate of Agricultural Research. However, a good guideline is to aim for 2 to 3 well-defined objectives for PG and 3 to 5 for a doctorate dissertation. The key is to ensure each objective is clear, concise and directly contributes to answering the broader research question.

4.1.3 Number of references

A reference is a detailed description of the source of information that we want to give credit to via a citation. On this basis, research works were categorized and the results obtained are presented in Table no. 3 and depicted in Fig.5

Table 3 Distribution of theses according to their number of references

Sl.No	Number of references	Theses(n=77)	
		Frequency	Percentage
1	Low(up to 47)	12	15.58
2	Medium (48 to 89)	54	70.13
3	High (90 and above)	11	14.29
Total		**77**	**100.00**
Mean=68.5		**SD=21**	

The data in table no 3 showed the results of the number of references. It is shown that 54 theses had a medium number of references, with 70.13 per cent and 12 theses had a low number of references (15.58 per cent).14.29 per cent were followed by 11 theses with a high number of references.

Thus, it can be concluded that, the medium category ranges from 48 to 89. The majority (70.13 per cent) of the students had taken a medium to high number of references. Here, the highest number of references can be taken as an assessment tool for the quality of research. Higher side of number of references in research can be appropriate, when dealing with a wide research topic. However, in some cases, the number of references was varying in number. The number of references in agricultural extension research study can vary significantly depending on the specific objectives, the scope of study, and the methodology used. There was no fixed

number that applied to studies. Some students might have a few dozen of references, while others could have hundreds.

4.1.4 Number of pages

Here, the space allocation is operationalized as the number of pages. On the basis of number of pages, data were categorized and the result obtained are presented in Table no 4 and depicted in Fig.6.

Table 4 Distribution of theses according to number of pages

Sl.No	Number of pages	Theses (n=77)	
		Frequency	Percentage
1	Low(up to 69)	10	12.99
2	Medium (70 to 102)	54	70.13
3	High (103 and above)	13	16.88
Total		**77**	**100.00**
Mean = 85.66		**SD = 17**	

The data from table no 4 pointed out that the majority of the theses had a medium number of pages (70.13 per cent).16.88 per cent of the theses had a high number of pages, and 12.99 per cent had a low number of pages.

The number of pages in a thesis depends on the topic, institutional requirements, number of objectives, number of variables and the statistical tools. The number of pages in a thesis can vary significantly. The research quality cannot be determined solely by the number of pages. Although, the above shown results are satisfactory, as most of the theses had more than 70 pages. Very few theses had less than 70 pages.

4.1.5 Number of illustrations (tables, figures, appendices, abbreviations)

Illustrations in agricultural extension education theses can include tables, figures, appendices and abbreviations. These illustrations can enhance understanding, demonstrate findings, and make the theses more engaging. On the basis of number of illustrations, data were categorized, and the results pertained are shown in Table no.5 and depicted in Fig 7.

Table No.5 showed that tables were the most commonly used illustration in a thesis with 48.16 per cent. The second most used illustration is figure with 33.90 per cent , while abbreviations (5.21 per cent) and plates (5.77 per cent) are the least used illustrations.

Table 5 Distribution of theses according to number of illustrations

Sl.No	Number of illustrations	Theses (n=77)	
		Frequency	Percentage
1	Tables	1661	48.16
2	Figures	1169	33.90
3	Plates	199	5.77
4	Appendices	240	6.96
5	Abbreviations	180	5.21
Total		**3449**	**100.00**

Illustrations are used to get an idea of the results at a glance. Tables and figures are commonly used to represent the data. As tables and figures are used to represent results in a thesis, such a result is obtained. However, figures, plates and appendices are also utilized to provide a quick overview. Hence, this indicated that illustrations should be engaged more in the publications of research outcomes for easy interpretation of the research output and dissemination of agriculture database.

4.1.6 Types of research design

Research design is the set of procedures followed by the researcher in the study. Research designs such as ex-post facto design, exploratory design, case study and pre-test post-test were identified from the methodology chapter of each thesis. The designs should be carefully chosen to align with the research problem and available resources ensuring systematic and rigorous approach to generating reliable and valid findings. On the basis of research design, data were categorized, and the results pertained are presented in Table no 6 and depicted in Fig 8.

Table 6 Distribution of theses according to the research design selected

Sl.No	Types of research Design	Frequency	Percentage
1	Case study	1	1.30
2	Exploratory	14	18.18
3	Ex-post facto	61	79.22
4	Pre test post test	1	1.30
Total		**77**	**100.00**

The data in table no 6 showed that the majority of the studies selected ex-post facto design (79.22 per cent), followed by exploratory research design (18.18 per cent).

Most of the extension studies go for the relationship of causes on already happened effects. Hence, ex-post facto design held the highest position. However, there is a need to improve other research designs such as exploratory, case study, and pre-test post-test design. Results revealed that research scholars are familiar with ex-post facto and exploratory research design and not familiar with other types of research designs in social sciences.

Similar results regarding ex-post facto research design are were shown by Chandrakandan *et.al* (2002), Biswas (2009), Dkhar (2019)

4.1.7 Statistical method used and sample size

In agricultural extension education theses, statistical methods are used to analyze data and draw meaningful conclusions about effectiveness of the research. Various statistical methods used by the researchers were recorded from each thesis. On the basis of statistical methods used, data were categorized and the results obtained are presented in Table no7 and depicted in Fig.9

4.1.7.1 Statistical method used

Table 7 Distribution of the theses according to statistical method used

Sl.No	Statistical method used	Theses(n=77)	
		Frequency	Percentage
1	Average	2	0.54
2	Chi-square test	16	4.30
3	Coefficient of determination	1	0.27
4	Correlation	42	11.29
5	Frequency	65	17.47
6	Kendall's coefficient of concordance	3	0.81
7	Maximum likelihood estimation	1	0.27
8	Mean	76	20.43
9	Mean percent score	1	0.27
10	Omnibus test of model coefficient	1	0.27
11	Percentage	72	19.35
12	Principal component analysis	1	0.27
13	Range	1	0.27
14	Regression	5	1.34
15	SEM In SMART-PLS	2	0.54
16	Standard deviation	76	20.43
17	Wald test	1	0.27
18	Student's t-test	6	1.61
Total		**372**	**100.00**

It is observed from table 7 that the most commonly used statistical tools are standard deviation and mean (20.43 per cent each), followed by percentage (19.35 per cent) and frequency (17.47 per cent).Additionally,11.29 per cent of the theses had correlation.The Omnibus test of model coefficient, mean percent score, principal component analysis, range, and Wald's test, are rarely used statistical tools.

Nature of data and the variables selected are the determining factors of a statistical tool. Since most of the studies have been doing simple comparison and dispersion measures, frequency, percentage, mean and standard deviation are the most highly utilized tools for data analysis. Still, other statistical tools, such as Wald's test and principal component analysis are not selected by the researcher. The complexity of the tools, limited statistical trainings, time constraints are all possible reason for not considering these tools while doing a research.

The results are on par with Chandrakandan *et.al* (2002), Thakur & Trikha (2004), Biswas (2009)

4.1.7.2 Sample size

Sample size refers to the total number of respondents selected out of a population using a specific sampling method. The appropriate sample size depends on various patterns, including study objectives, total population size, and desired level of precision. On the basis of sample size, data were categorized, and results obtained are presented in Table no 8 and depicted in Fig 10.

Table 8 Distribution of theses according to sample size

Sl.No	Sample size	Theses (n=77)	
		Frequency	Percentage
1	Low (up to 86)	9	11.69
2	Medium (87 to 150)	62	80.52
3	High (151 and above)	6	7.79
Total		**77**	**100.00**
Mean = 118.31			**SD = 32.27**

The data in table no 8 revealed that out of 77 theses, 62 theses (80.52 per cent) had a medium number of respondents. The number of respondents ranges from 87 to 150**.** Only 6 theses (7.79 per cent) had a number of respondents ranging from 151 and above. 11.69 per cent theses selected low number of respondents, i.e , up to 8 respondents.

A sample size greater than 100 is sufficient to conduct a study. The number of respondents may not be a criterion to determine the standard of a study. But, in some situations,

sample size more than 150 may enhance the accuracy of the collected data and thereby enhance level of the research carried out. It means that the sample size should be appropriate for the analysis that is planned.

4.1.8 Locale of study selected

In the theses for agricultural extension education, the locale of study refers to the specific geographic area where the research is conducted. This could be a village, a tehsil, a district, a region or even a country depending on the scope of the study. Here, the Locale of study refers to the place selected to carry out the research. There are five districts under the jurisdiction of Konkan region. They are Ratnagiri, Sindhudurg, Raigad, Palghar and Thane. On the basis of locale of study selected, data were categorized, and the results pertained are presented in Table no 9 and depicted in Fig 11

Table 9 Distribution of the theses according to locale of study

Sl.No	Locale of study	Theses (n=77)	
		Frequency	Percentage
1	Ratnagiri	37	38.95
2	Sindhudurg	21	22.11
3	Palghar	12	12.63
4	DBSKKV,Dapoli (Jurisdiction)	11	11.58
5	Raigad	9	9.47
6	Thane	3	3.16
7	Pune	1	1.05
8	Trivandram	1	1.05
Total		**95**	**100.00**

The data in Table no 9 revealed that Ratnagiri is the most studied area in Konkan region (38.95 per cent), followed by Sindhudurg (22.11 per cent), Palghar (12.63 per cent), DBSKKV (Jurisdiction) (11.58 Per cent), and Raigad district (9.47 per cent) respectively.

As the university itself is located in Ratnagiri district, the highest number of studies was conducted in Ratnagiri district. Sindhudurg is the adjacent district to Ratnagiri as a part of South Konkan.The third highest number of studies was conducted in DBSKKV Dapoli (Jurisdiction) . These locations may be selected for the easiness of conducting a research. Although Pune and Trivandrum districts do not fall under the jurisdiction of the university, they were included as locales of study. These might have been selected as a part of a comparative study. But Thane district comes under the jurisdiction of this university; still, it is under-researched. Raigad district also needs more attention. Hence, in Raigad and Palghar districts as locales of study, researchers should concentrate on targeted research addressing socio-economic disparities of tribal communities in both districts.

4.1.9 Crops studied

Agricultural extension education theses often focus on a variety of crops, with a strong emphasis on the crop relevant to the local context and the specific research questions being addressed. On the basis of crops studied, data were categorized, and the results obtained are presented in Table no.10 and depicted in Fig12.

Table 10 Distribution of extension theses according to crops studied

Sl.No	Crops studied	Theses (n=77)	
		Frequency	Percentage
1	Flower crops	1	1.30
2	Groundnut	1	1.30
3	Mango	8	10.39
4	Not applicable	45	58.44
5	Not mentioned	4	5.19
6	Oilseed crop	2	2.60
7	Rice	6	7.79
8	Sapota	1	1.30
9	Sugarcane	2	2.60
10	Tree crop	1	1.30
11	Turmeric	1	1.30
12	Vegetable crops	4	5.19
13	Watermelon	1	1.30
Total		**77**	**100.00**

It is observed from Table no. 10 that most of the theses had not selected any crops for the study (58.44 per cent).After all, mango is the most selected crop under study (10.39 per cent).The second most studied crop is rice, with a frequency of 06 and a percentage of 7.79 and 5.19 per cent out of 77 theses had not mentioned the name of the crops.

The “not applicable” category recorded the highest frequency under “crops studied” because a significant number of studies were focussing on communication tools, behavioural analysis, and some other extension methods where no crops are studied. Selection of the crop is decided by the availability of farmer respondents. It also depends on the area of crop production of the district under study. Usually, Sindhudurg and Ratnagiri districts are selected, if the crop

under study is rice. Rice and mango are the most selected crops under study, because these two crops are among the mandate crops of Konkan region. However, It would be nice to consider crops such as vegetable crops, watermelon, oilseed crops, and various other fruit crops. In essence, it makes evident that the specific crops studied in theses are influenced by the broader research objectives, the region's agricultural context, and the specific challenges and opportunities related to crop production in that area.

The results obtained from crops studied are on partial agreement with Chandrakandan *et.al* (2002).

4.1.10 Types of respondents

In agricultural extension research, respondents can be broadly categorized into farmers, extension personnel, and other relevant stakeholders. Farmers are the primary target audience, while an extension personnel acts as intermediaries between researchers and the farmers. Other stakeholders include, researchers, policy makers, academic students, and agri-business professionals. On the basis of the type of respondents, data were categorized and the results were presented in Table no 11 and depicted in Fig 13.

Table no 11 showed that farmers were the most selected respondents, with 55.85 per cent. Among farmers, fruit crop growers were the highest in number (11.69 per cent).Students were the second most preferred type of respondents (10.39 percent).Rural youth and women were the third most preferred group of respondents (7.79 per cent) followed by university level employees (6.49 per cent).Tribal people, mass media users and entrepreneurs are not focused on at all.

The selection of respondents is based on the research topic, availability of the respondents, districts under study etc. Farmers are the prime beneficiaries of extension research, So they got more preference. The ease of getting respondents is also an important factor when selecting respondents. Researchers choose respondents based on their characteristics, experiences, and relationship to the agricultural system being studied. These choices are often driven by factors like farm size, gender, age, and their engagement with agricultural extension services.

The given results are on agreement with Chandrakandan *et.al*(2002) Biswas (2009), Verma (2017), Dkhar (2019), Sondarva *et.al* (2019).

Table 11. Distribution of theses according to the type of respondents

Sl. No.	Type of respondents	Theses (n=77)	
		Frequency	Percentage
1	**Farmers**		
	Fruit crop growers	9	11.69
	Livestock farmers	3	3.90
	Organic farmers	3	3.90
	Rice farmers	5	6.49
	Small and marginal farmers	1	1.30
	Sugarcane growers	2	2.60
	Tribal farmers	3	3.90
	Vegetable growers	3	3.90
	Others	14	18.18
	Sub total	**43**	**55.85**
2	**Local governance and community members**		
	Grama panchayath members	1	1.30
	Local leaders	1	1.30
	SHG Heads	2	2.60
	Sub total	**4**	**5.19**
3	**Rural youth and women**		
	Married women	1	1.30
	Rural women	1	1.30
	Rural youth	3	3.90
	Women in SHG & Social groups	1	1.30
	Sub total	**6**	**7.79**
4	**Entrepreneurs**		
	Farm input dealers	1	1.30
	Nursery growers	1	1.30
	Sub total	**2**	**2.60**
5	**Students**	**8**	**10.39**
6	**Tribal people**	**1**	**1.30**
7	**Age old people**	**2**	**2.60**
8	**Beneficiaries of schemes**	**4**	**5.19**
9	**Mass media users**	**2**	**2.60**
10	**University level employees**	**5**	**6.49**
Total		**77**	**100.00**

4.1.11 Sampling methods used

In agricultural extension education theses, students often utilize various sampling methods to collect the data from a targeted population. Data with respect to sampling methods used are presented in Table no 12, 13, 14 and 15, and depicted in Fig 14, 15, 16 and 17.

Table 12 Distribution of theses according to the sampling methods used for the selection of district

Sl.No	Sampling methods used	Theses (n=77)	
		Frequency	Percentage
1	Not applicable	33	42.86
2	Not mentioned	13	16.88
3	Purposive sampling	30	38.96
4	Random sampling	1	1.30
Total		**77**	**100.00**

Table 13 Distribution of theses according to the sampling methods used for the selection of tehsils

Sl.No	Sampling methods used	Theses (n=77)	
		Frequency	Percentage
1	Not applicable	18	23.38
2	Not mentioned	32	41.56
3	Purposive sampling	20	25.97
4	Random sampling	7	9.09
Total		**77**	**100.00**

Table 14 Distribution of theses according to the sampling methods used for the selection of villages

Sl.No	Sampling methods used	Theses (n=77)	
		Frequency	Percentage
1	Not applicable	27	35.06
2	Not mentioned	24	31.17
3	Purposive sampling	3	3.90
4	Random sampling	23	29.87
Total		**77**	**100.00**

Table 15 Distribution of theses according to the sampling methods used for the selection of respondents

Sl. No.	Sampling methods used	Theses (n=77)	
		Frequency	Percentage
1	Not applicable	5	6.49
2	Not mentioned	18	23.38
3	Proportionate sampling	1	1.30
4	Purposive sampling	3	3.90
5	Random sampling	50	64.93
Total		**77**	**100.00**

It is evident from the data revealed in Table no 12 that 42.86 per cent of the research did not select any sampling procedure for the selection of districts, and 38.96 selected purposive sampling for the selection of districts

Table no 13 showed that 41.56 per cent of the theses did not mention the sampling procedure properly, followed by 25.97 per cent selected purposive sampling while selecting the tehsils.

It is noted from Table no 14 that 35.06 per cent of the research did not select any sampling procedure for the selection of the villages, followed by 29.87 per cent of the studies used random sampling while selection of the villages

It can been seen from Table 15 that 64.93 per cent used random sampling method for the selection of respondents, and 23.38 per cent of the research had not mentioned the sampling method employed.

It can be inferred that most of the students are not serious about the selection of sampling procedure. Usually, the respondents are sampled through the random sampling method because of the limited time available to carry out PG research. Moreover, it is the easiest method to get a sample size. The researcher has a specific purpose for selecting districts and crops under study. Thus, purposive sampling held the second position. More sampling methods, such as cluster sampling, quota sampling, and so on can be selected. However, these are slightly more difficult methods of sampling. Hence, students might have refused to adopt such sampling methods in their respective research..

Similar findings regarding sampling procedure of districts and respondents were revealed by Thakur and Trikha (2004) and Biswas (2009) and Dkhar (2019).

4.1.12 Data collection techniques used

In agricultural extension education theses, students utilized a variety of data collection techniques to gather a information about agricultural practices, variables decided, forms adoption as well as knowledge, effectiveness and other behavioural science terms. Data with respect to data collection techniques are presented in Table no.16 and depicted in Fig 18.

Table 16 Distribution of theses according to the data collection techniques used

Sl.No	Data collection techniques used	Theses (n=77)	
		Frequency	Percentage
1	Interview schedule	72	93.51
2	Mailed questionnaire	5	6.49
Total		**77**	**100**

The data in Table no 16 showed that majority of the theses (72 out of 77) selected an interview schedule for data collection (93.51 per cent), while the remaining 5 theses selected a mailed questionnaire for data collection. It's difficult to get data through a mailed questionnaire, as there is no direct contact between the interviewer and the respondent. Therefore, the interview method may be preferred by the researchers. Despite this, it has already been revealed that most of the respondents are farmers. Generally, farmers had rural background. So, interview schedule had been adopted by majority of the researchers for the better communication with face- to-face contact.

Similar results were shown by Takhur and Trikha (2004) , Biswas (2009), Verma (2017), Dkhar (2019).

4.1.13 Scales used

In agricultural extension theses, students commonly utilize various scales to measure different aspects of their research. These scales are often used to assess different variables in their research. Data with respect to scales used are presented in Table 17 and depicted in Fig 19.

Table 17 Distribution of theses according to the scales used

Sl.No	Scales used	Theses (n=77)	
		Frequency	Percentage
1	Arbitrary scoring	320	70.03
2	Scales	110	24.07
3	Indices	17	3.72
4	Test	10	2.18
Total		**457**	**100.00**

It is inferred from the Table no.17 that 70.03 per cent of the theses used arbitrary scoring as their empirical measurement tool, followed by scales (24.07 per cent).Indices and teacher-made tests are the least used measurement tools (3.72 and 2.18 each).So, most of the variables selected by the researchers are of the direct measurable type. Almost all the researchers used scaling aspects in their research. They used an appropriate level of measurements, guided by the measurement postulates, which helps the researcher in deciding the best statistical tools to be used for analysis. Moreover, it is crucial to assess the reliability and validity of the instruments used, so that there is minimal error in data found.

4.1.14 Type of data

In agricultural extension education theses, researchers usually used both qualitative and quantitative data. The specific data types used depend upon the research questions and the objectives of the thesis. Data with respect to the type of data used is presented in Table no 18 and depicted in Fig 20.

Table 18 Distribution of theses according to the type of data

Sl.No	Type of data	Theses (n=7)	
		Frequency	Percentage
1	Primary	75	97.40
2	Primary and Secondary	2	2.60
Total		**77**	**100.00**

It is depicted in Table no18 that 97.40 per cent theses had taken data from primary sources, and 2.60 per cent had taken data from both primary and secondary sources. Thus, data collection was done by the investigator himself or herself, and a very few recorded data, such as newspapers, and official records were utilized for data collection in extension education research. Results regarding primary data are in agreement with Dkhar (2019).

4.1.15 Type of dependent variable

In agricultural extension education theses, the dependent variable is the outcome or effect that is being measured or observed in response to change in other variables (independent variables). The results obtained about the type of dependent variable are presented in Table no 19 and depicted in Fig 21.

It is inferred from Table no 19 that 12 out of 77 theses did not include any dependent variable (15.57 per cent).The second most selected dependent variable is adoption (14.28 per cent);11.68 per cent were on perception,10.39 per cent were on attitude and 3.90 per cent each on knowledge and adoption, marketing behaviour, utilization behaviour and role performance. 2.60

per cent of the theses included aspiration, cropping pattern, food consumption pattern, entrepreneurial behaviour, and theory of planned behaviour. Very few theses included communication behaviour, job performance, training needs, social capital formation, professional soft skills and learning styles as their dependent variable (1.30 per cent).

Table 19 Distribution of theses according to the type of dependent variable

Sl.No	Type of dependent variable	Theses (n=77)	
		Frequency	Percentage
1	Adoption	11	14.28
2	Aspiration	2	2.60
3	Attitude	8	10.39
4	Communication behaviour	1	1.30
5	Cropping pattern	2	2.60
6	Entrepreneurial behaviour	2	2.60
7	Food consumption pattern	2	2.60
8	Job performance	1	1.30
9	Knowledge and adoption	3	3.90
10	Learning style	1	1.30
11	Marketing behaviour	3	3.90
12	Not applicable	12	15.57
13	Others	9	11.68
14	Perception	9	11.68
15	Professional soft skills	1	1.30
16	Role performance	3	3.90
17	Social capital formation	1	1.30
18	Theory of planned behavior	2	2.60
19	Training needs	1	1.30
20	Utilization behaviour	3	3.90
Total		**77**	**100.00**

Selection of a dependent variable is dependent on the topic and the research requirements. It is observed from the results of areas of research that adoption is the second most focused area of research. Since many of the research studies had been carried out on diffusion and adoption, knowledge and adoption are generally selected for such studies. Hence, variables such as knowledge and adoption, attitude and perception accounted for the highest percentage in various research studies. So we may conclude that, researcher should had clear understanding on the dependent variable and as per the requirement in study he or she can select those variables which are direct bearing on the results of the study.

4.1.16 Number of independent variable

In agricultural extension education theses, the independent variable is the factor that the researcher manipulates or observes to see the effects on the dependent variable (the outcome interest). The results obtained about the independent variables are presented in table no. 20 and depicted in Fig 22.

Table 20 Distribution of theses according to the number of independent variable

Sl.No	Number of independent variable	Theses (n=77)	
		Frequency	Percentage
1	Low (up to 8)	16	20.78
2	Medium (9 to 11)	54	70.13
3	High (12 and above)	7	9.09
Total		**77**	**100.00**
Mean = 9.88			**SD = 2.07**

Results from table no.20 showed that 70.13 per cent of the theses had a medium number of independent variables, with 9 to 11 variables, followed by a low (20.78 per cent) with 8 independent variables.

Here, the results interpreted that, researchers give more emphasis while choosing independent variables. Efforts must have made to classify the extraneous and intervening variables when making their selections. Therefore, researcher had got clear relationship with each independent variable in their study.

4.1.17 Sources of references

In theses on agricultural extension education, researchers can draw references from wide range of sources including academic journals, books, government publications and online resources. The results pertained about the sources of references are presented in Table no 21 and Fig 23.

Sources of references were classified under nine categories such as journals, thesis or dissertations, report, books, website, seminar or conference, magazine, newspaper and others (technical bulletin, hand book, year book, book chapters, abstracts). 43.98 per cent of the total citations were from journals. 43.45 per cent had taken references from theses or dissertations. 3.20 per cent were from reports followed by books (2.81 per cent), website (2.12 per cent), seminar or conference (1.78 per cent) and magazine (0.87 per cent). The least cited one is newspaper with 0.19 per cent.

Table 21 Distribution of theses according to the sources of references

Sl. No	Sources of references	Frequency	Percentage
1	Journals	2321	43.98
2	Thesis or dissertations	2293	43.45
3	Report	169	3.20
4	Books	148	2.81
5	Website	112	2.12
6	Seminar or conference	94	1.78
7	Magazine	46	0.87
8	Newspaper	10	0.19
9	Others	84	1.60
Total		**5277**	**100.00**

Journals and theses were referred by the researchers the most. Since a thesis is a proven record of research findings, there is a need to refer theses and journal articles. Seminar papers and reports are also equally important. These also can be considered while giving citations.

Results obtained from the sources of references are on par with Dkhar (2019).

4.2 Trends in identified key focus areas of post graduate research studies

Generally, trend analysis refers to the shift or progress of something over a period of time in any type of research.

4.2.1 Trends in thesis submission

Results regarding trends in thesis submission are presented in Table no 22 and depicted in Fig 24

Table 22 Distribution of theses according to their year wise submission as a trend

Sl.No	Year of submission	Theses (n=77)	
		Frequency	Percentage
1	2014-2018	41	53.25
2	2019-2023	36	46.75
Total		**77**	**100.00**

Trends in thesis submission refer to year-wise submission of theses. It helps to show the progress of thesis submission towards a particular direction of time .The number of theses submitted were 53.25 per cent during 2014-2018 and 46.75 per cent during 2019-2023 respectively. Results revealed that the number of theses submitted had been declined during 2019-2023.i.e, thesis submission showed a declining trend as per the submission data found in this respective year.

Seats are often left vacant in the department, and some students discontinued their course after securing jobs. It indicates that occupation often takes precedence over academic qualification and it may impact the trends in thesis submission. Again it might be said that, a decline in submission could stem from several factors including shifts in educational priorities, evolving research interests, and challenges within the extension system itself. These factors may lead the students to pursue alternate career path, contributing to the observed downward trend.

4.2.2 Trends in areas of research

4.2.2.1 Main areas of research or theme area

In the present study, it explained simply research areas in extension and explained the paradigm shift in extension research on the basis of PG researches done year wise at the Department of Extension Education. Results pertained about main areas of research or theme area are presented in Table no 23 and depicted in Fig 25

Table 23 Distribution of theses according to their yearly theme areas of research

Sl. No.	Areas of research or theme areas	2014-2018	2019-2023	Overall areas of research or theme areas
1	Agricultural communication	3 (3.90%)	3 (3.90%)	6 (7.79%)
2	Agricultural extension	18 (23.38%)	17 (22.08%)	35 (45.46%)
3	Agriculture and allied enterprises	4 (5.19%)	2 (2.60%)	6 (7.79%)
4	Extension education	16 (20.78%)	14 (18.18%)	30 (38.96%)
Total		**41 (53.25%)**	**36 (46.75%)**	**77 (100.00%)**

Table no.23 revealed that the thematic area agricultural communication remained consistent over 10 years. The researcher's attention towards agricultural communication were 3.90 per cent each during 2014 to 2018 and 2019 to 2023.

The number of research works on agricultural extension was 23.38 per cent during 2014 to 2018, and it was declined to 22.08 per cent during 2019 to 2023. A slight decline is observed in the same thematic focus. So the research on agricultural extension shows a decreasing trend.

The research on agriculture and allied enterprises were 5.19 per cent during 2014-2018. Later, it was decreased to 2.60 per cent during 2019-2023.. i.e. the research on agricultural and related enterprises shows a decreasing trend with slight movement.

Extension education follows a decreasing trend as the percentage of research area was 20.78 during 2014-2018 and it was declined to 18.18 per cent during 2019-2023.

On this basis, this makes evident that all the above four areas of research, or theme areas, are emerging trends of research in the field of agricultural extension education, at the Department of Extension Education in the region. Results of trend analysis in theme areas align with the trend in thesis submission. Out of four theme areas, three show a decreasing trend.

4.2.2.2 Sub areas of research

With the focus on theses, broad sub themes and exploring extension research, students could make valuable contribution to the field of extension as well as agricultural extension in the department. Here is a more detailed breakdown of potential sub research areas or themes. The results obtained about sub areas of results were presented in Table.24 and depicted in Fig.26.

Table 24 Distribution of theses according to their yearly sub areas of research

Sl.No	Sub areas	2014-2018	2019-2023	Overall sub areas
1	Administration, Personal development and Role performance	3 (3.90%)	2 (2.60%)	5 (6.49%)
2	Agricultural and rural development programmes	4 (5.19%)	1 (1.30%)	5 (6.49%)
3	Capacity development and impact assessment	–	2 (2.60%)	2 (2.60%)
4	Human resource development	3 (3.90%)	5 (6.49%)	8 (10.39%)
5	Knowledge ,diffusion and adoption	8 (10.39%)	7 (9.09%)	15 (19.48%)
6	Social and educational psychology	12 (15.58%)	12 (15.58%)	24 (31.17%)
7	Entrepreneurship development and behaviour	4 (5.19%)	2 (2.60%)	6 (7.79%)
8	Extension communication methods	3 (3.90%)	3 (3.90%)	6 (7.80 %)
9	Crop production and cropping pattern	4 (5.19%)	2 (2.60%)	6 (7.79%)
Total		**41 (53.25%)**	**36 (46.75%)**	**77 (100.00%)**

It can be observed from Table 24 that administration, personal development and role performance show a decreasing trend with 3.90 per cent during 2014-2018 and 2.60 per cent during 2019-2023.Likewise, agricultural and rural development show a decreasing trend with 5.19 per cent during 2014-2018 and 1.30 per cent during 2019-2023.Both capacity development and human resource development show an increasing trend.

Knowledge, diffusion and adoption show a slightly declining trend with10.39 per cent and 9.09 per cent respectively. Both social and educational psychology and extension communication methods follow neither decreasing nor increasing trend. Research on social and educational psychology and extension communication methods were 15.58 per cent and 3.90 per cent during 2014-2023.

Research on entrepreneurship development and behaviour show a decreasing trend with 5.19 per cent and 2.60 per cent respectively.

In a nutshell, human resource development and capacity development and impact assessment show an increasing trend. Social and educational psychology and extension communication methods show the same trend. The other research areas show decreasing trend. Technology transfer was one of the main areas of study during the green revolution. Training and human resource development are two new opportunities and challenges in the field of agricultural extension that has arisen over time.

Similar results were shown by Mahra *et.al* (2017).

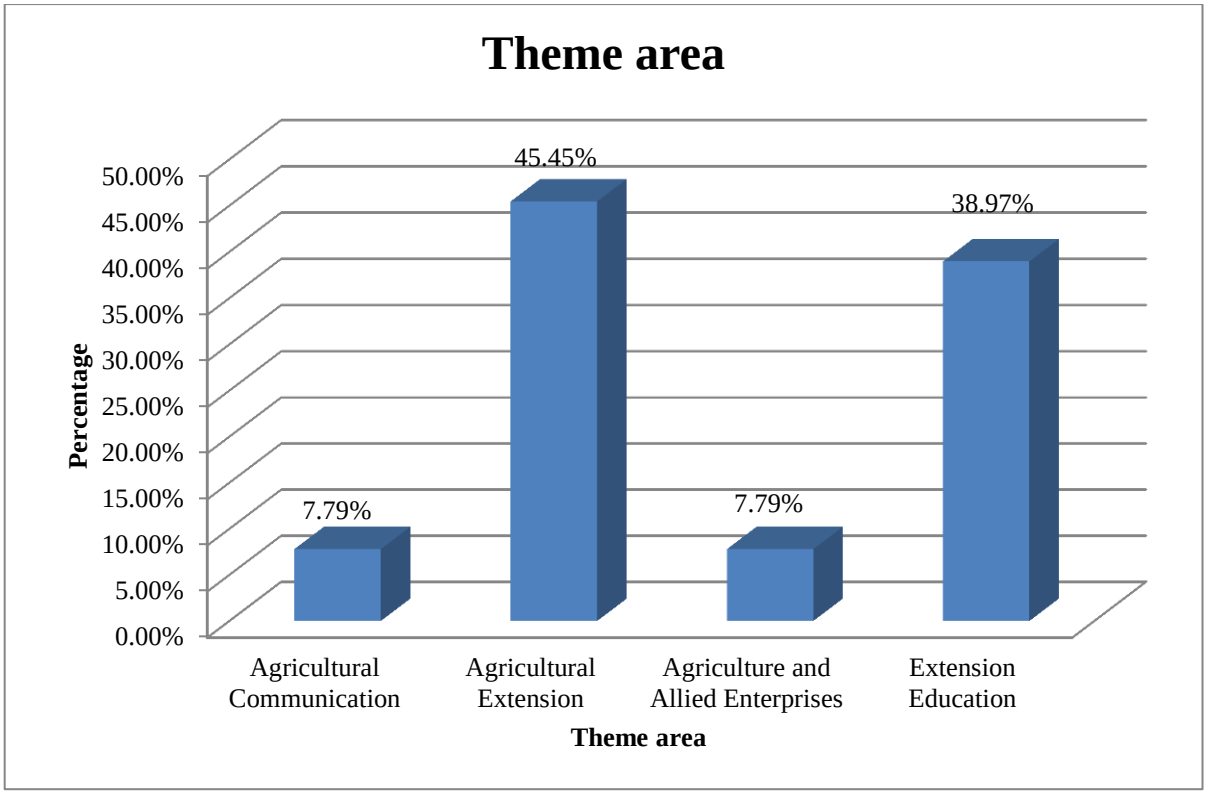


Fig. 2: Distribution of theses according to the theme area of research

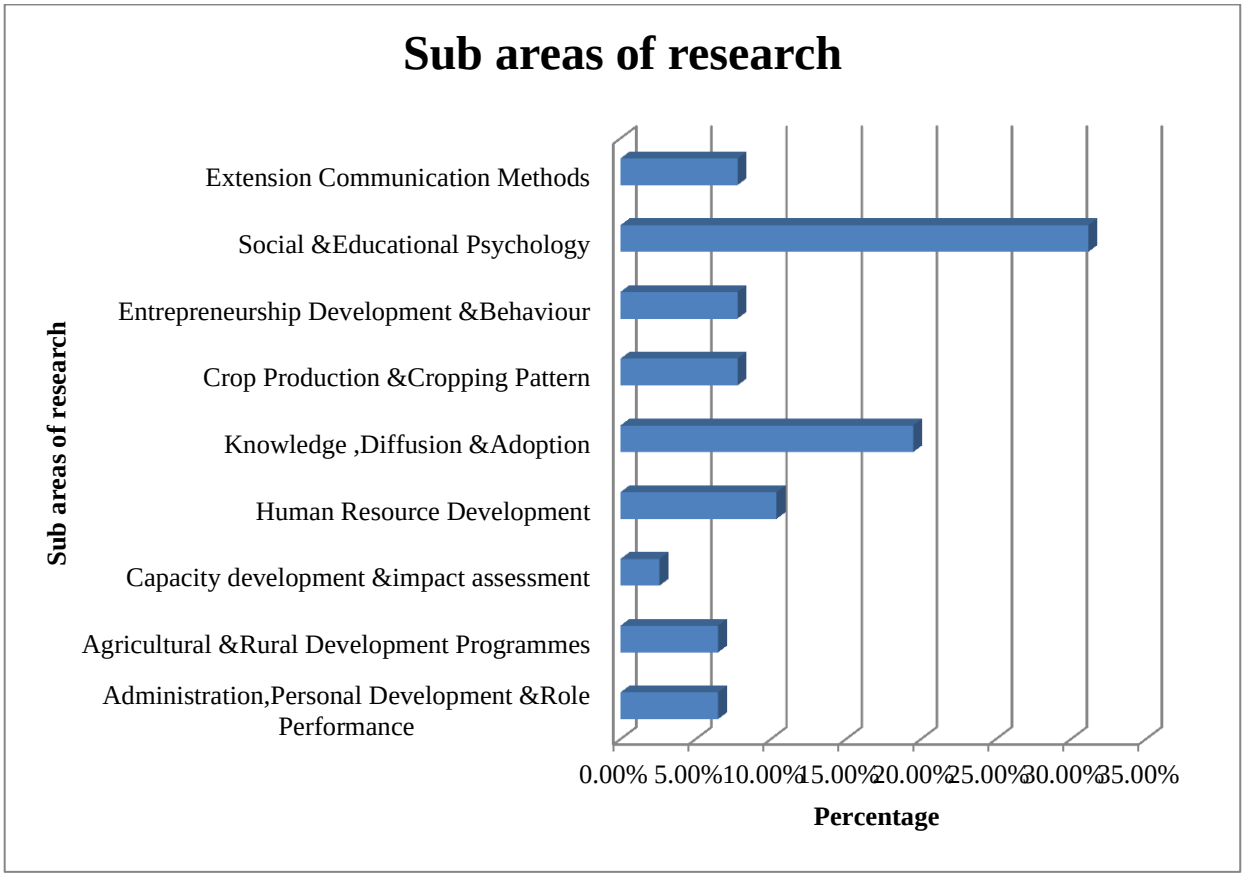


Fig. 3: Distribution of theses according to the sub areas of research

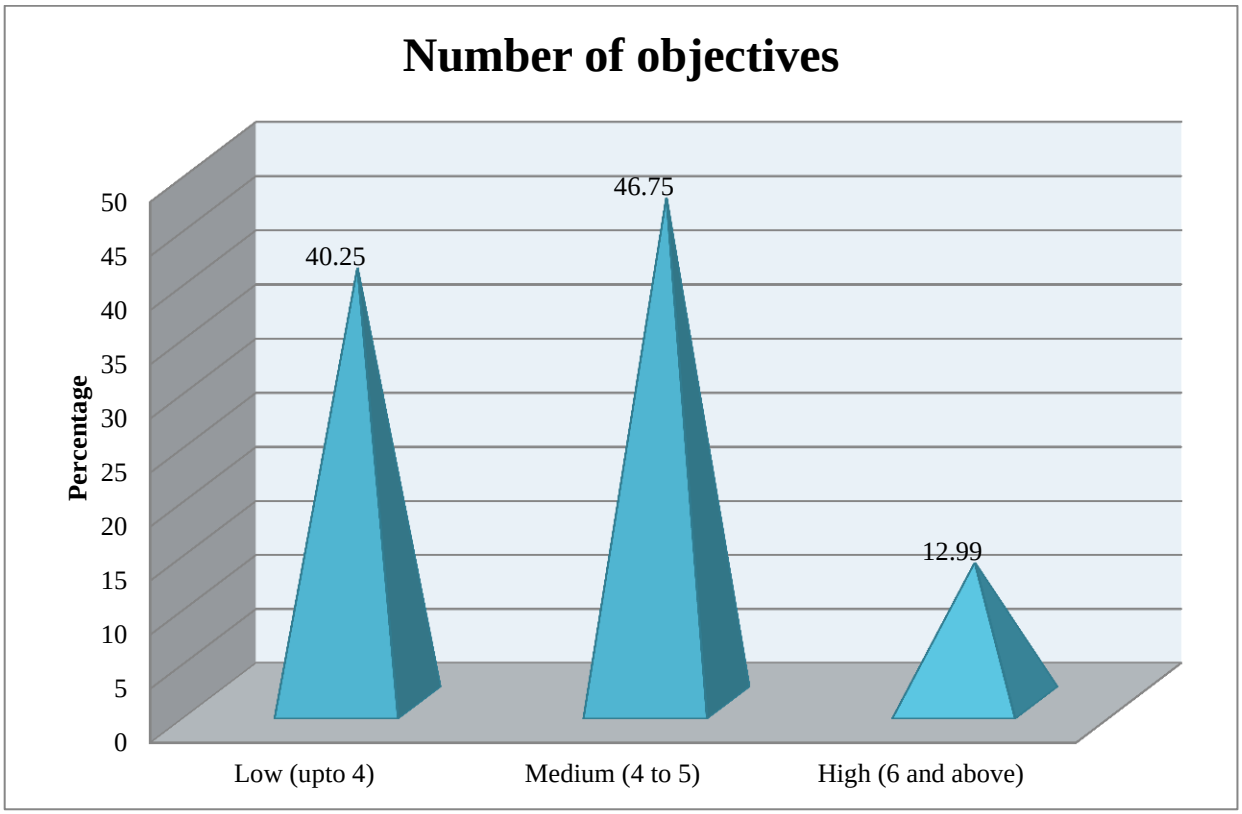


Fig. 4: Distribution of theses according to their number of objectives

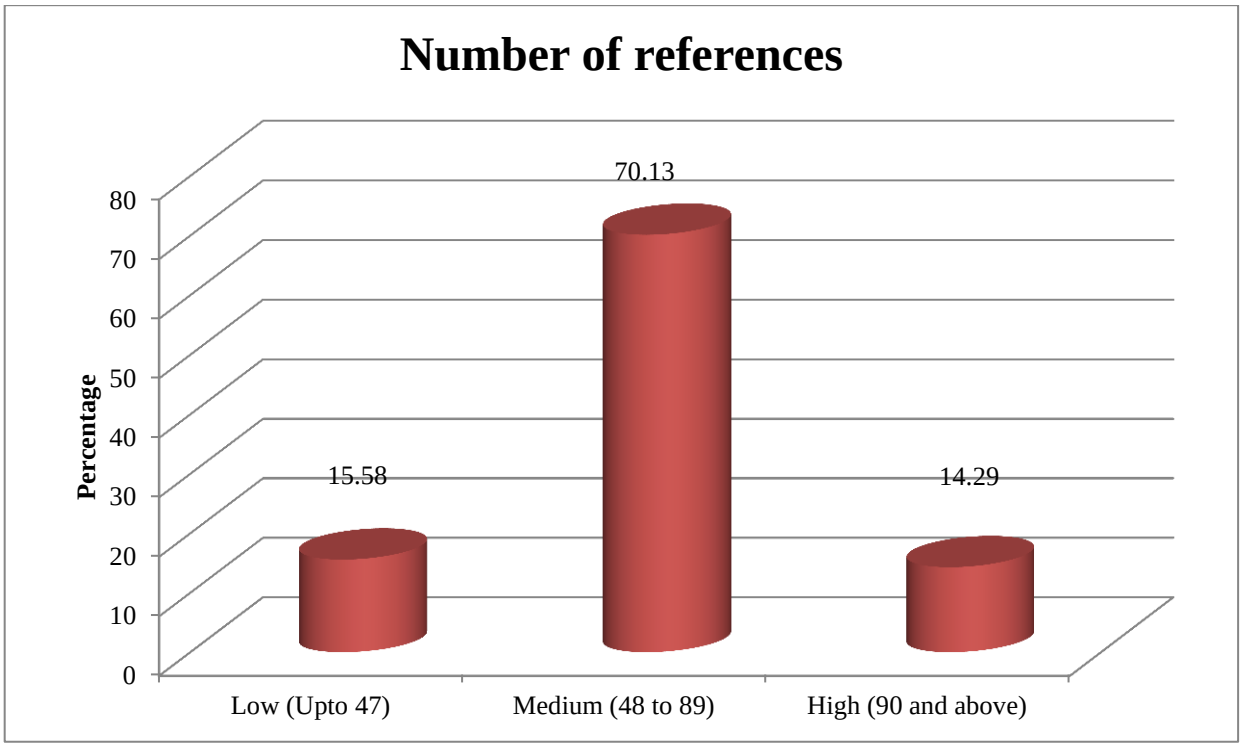


Fig. 5: Distribution of theses according to their number of references

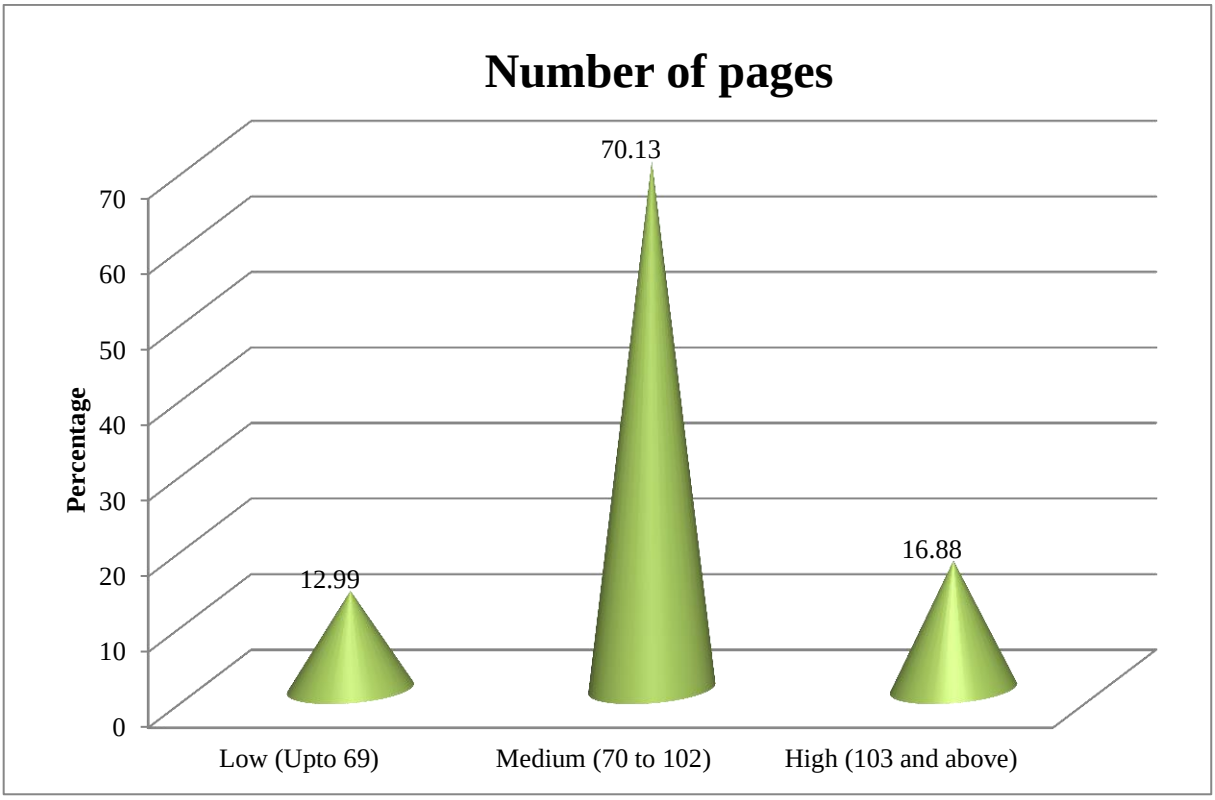


Fig. 6: Distribution of theses according to number of pages

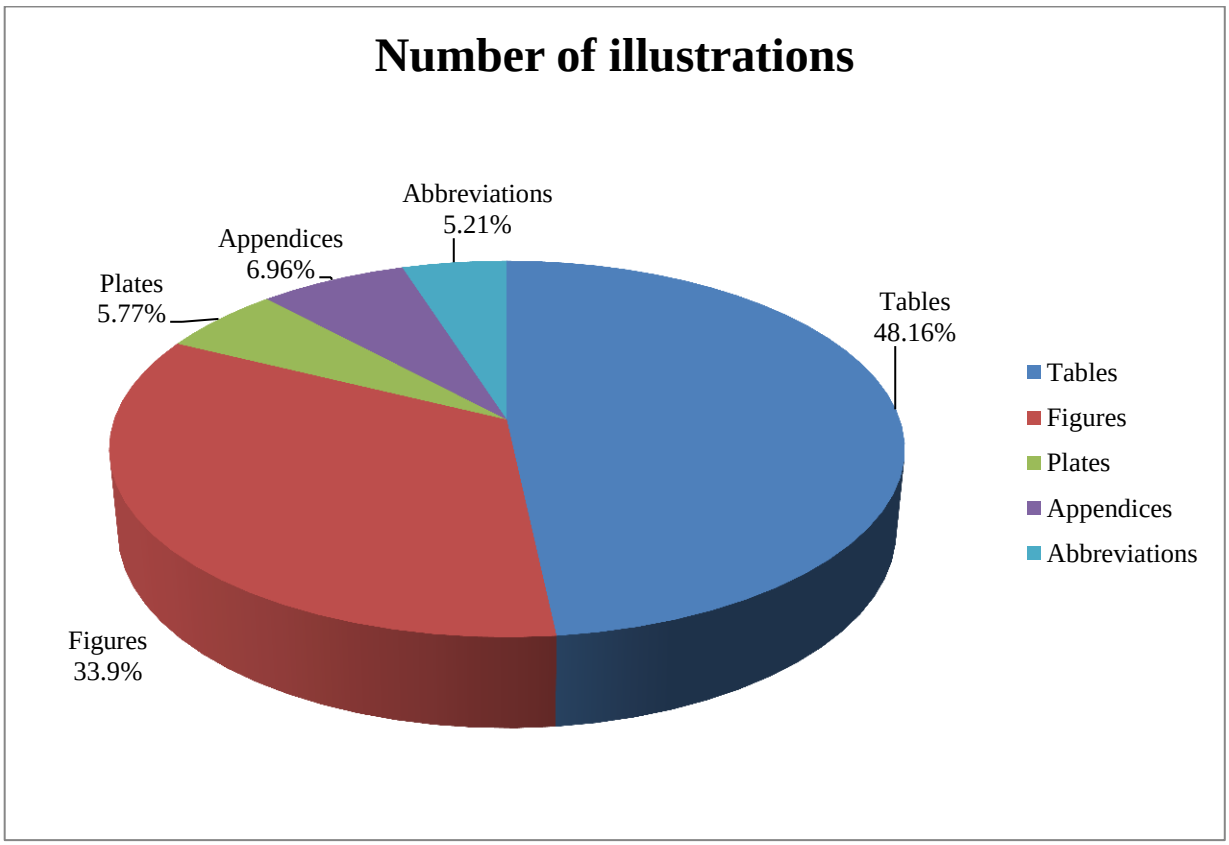


Fig. 7: Distribution of theses according to number of illustrations

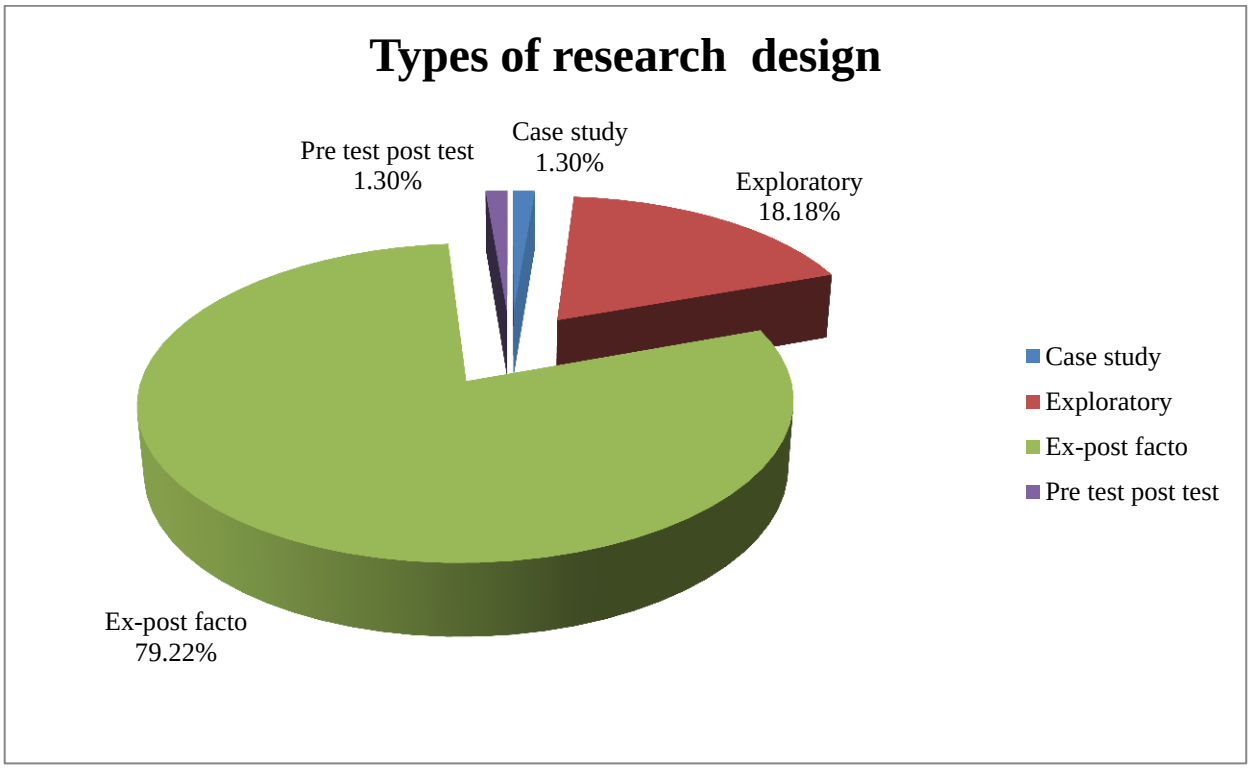


Fig. 8: Distribution of theses according to the research design selected

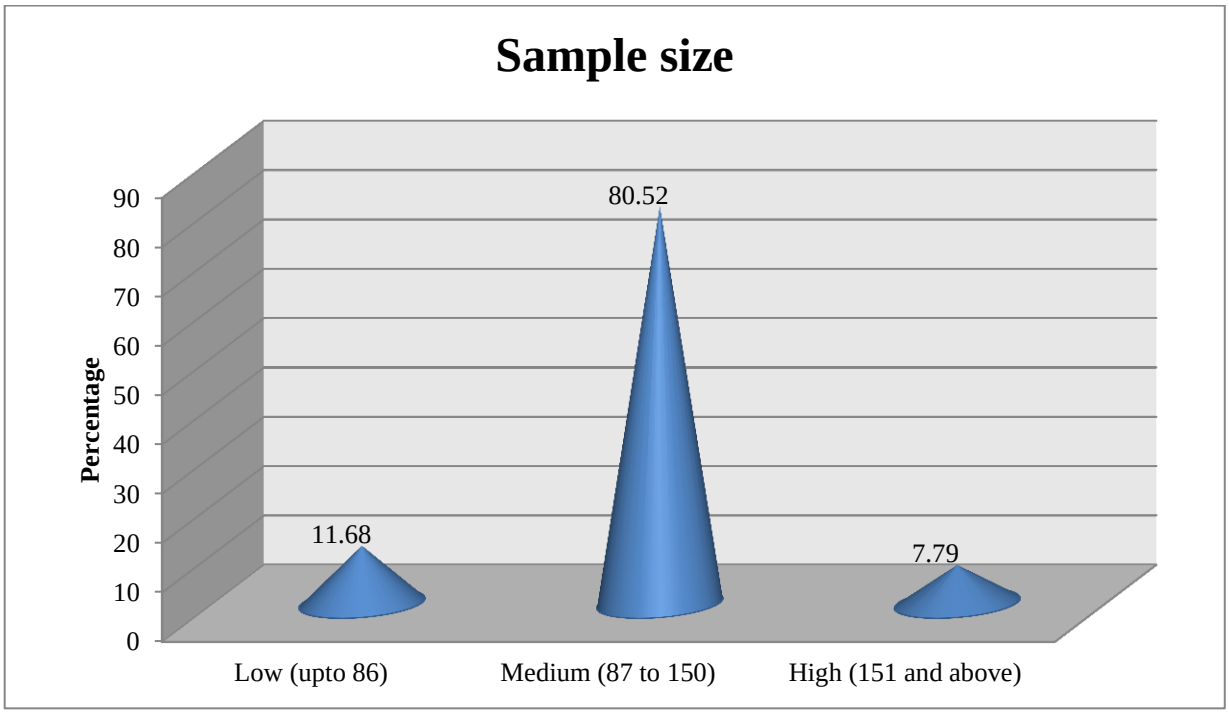


Fig. 10: Distribution of theses according to sample size

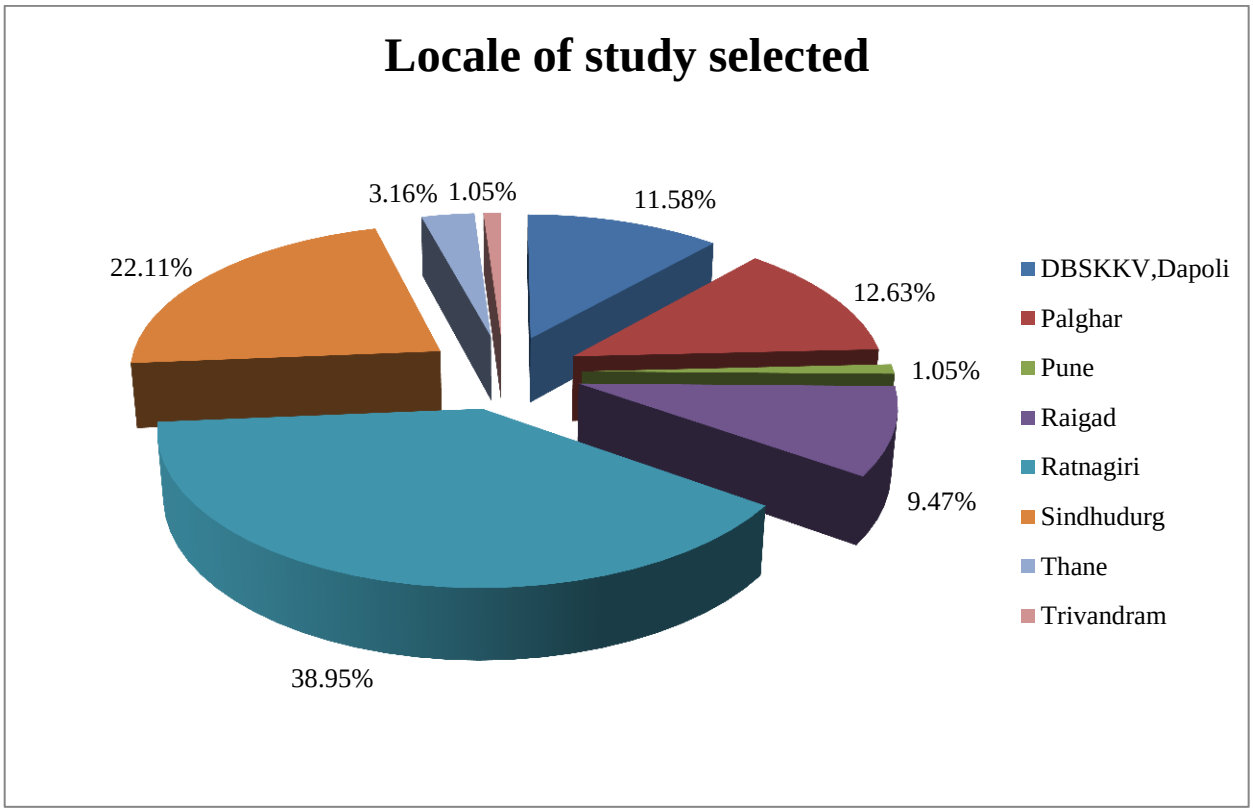


Fig. 11: Distribution of theses according to the locale of study selected

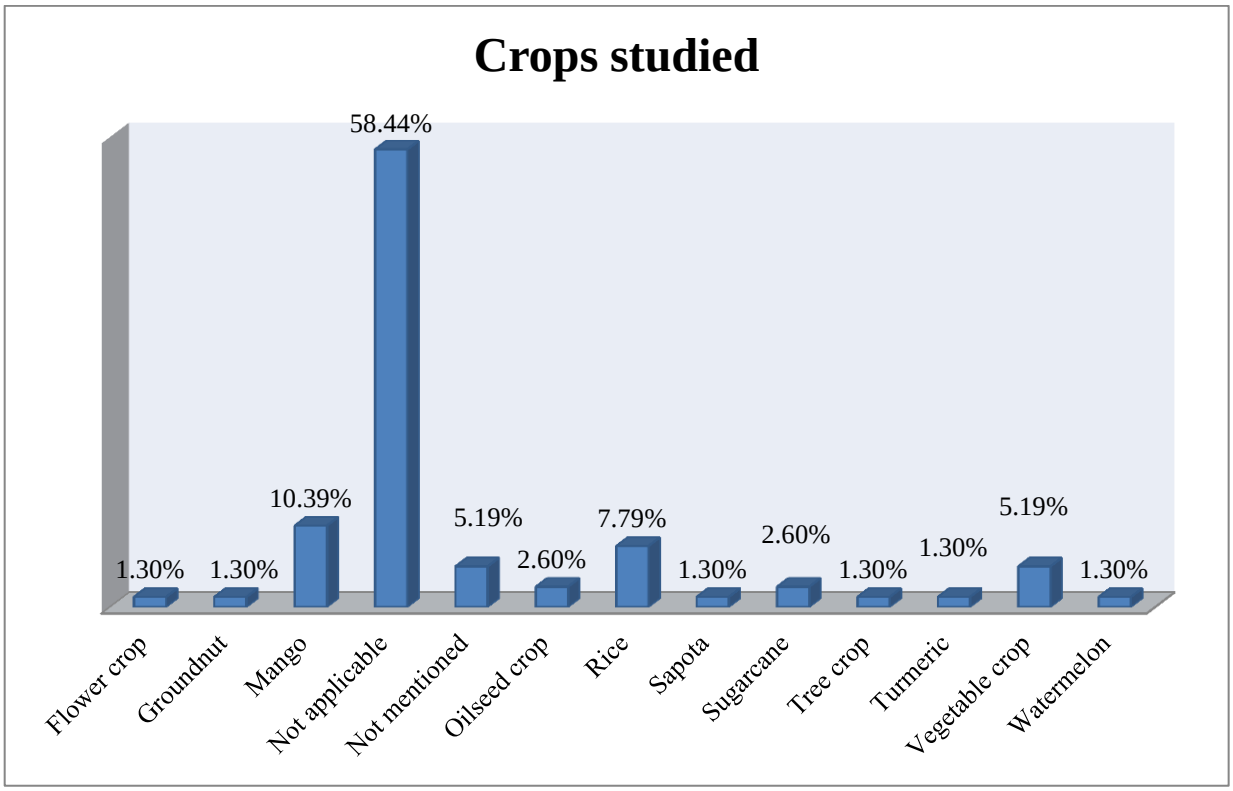


Fig. 12: Distribution of theses according to crop studied

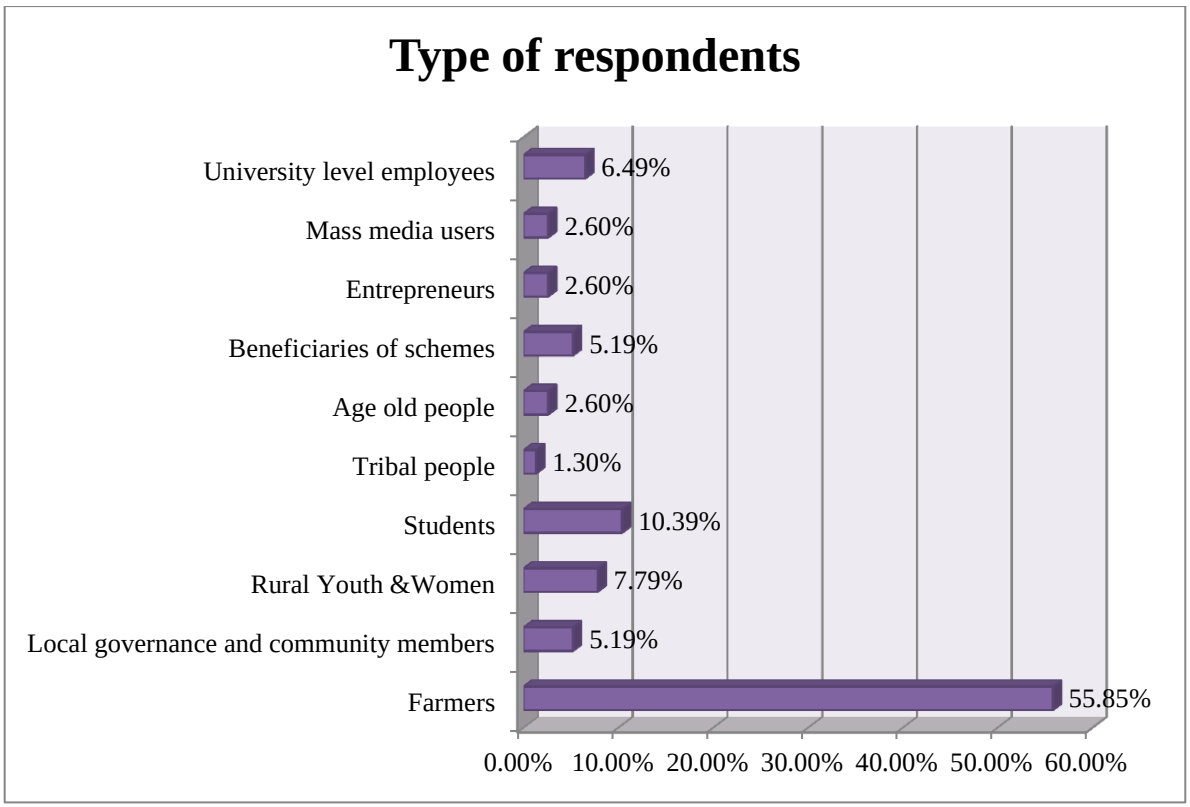


Fig. 13: Distribution of theses according to the type of respondents

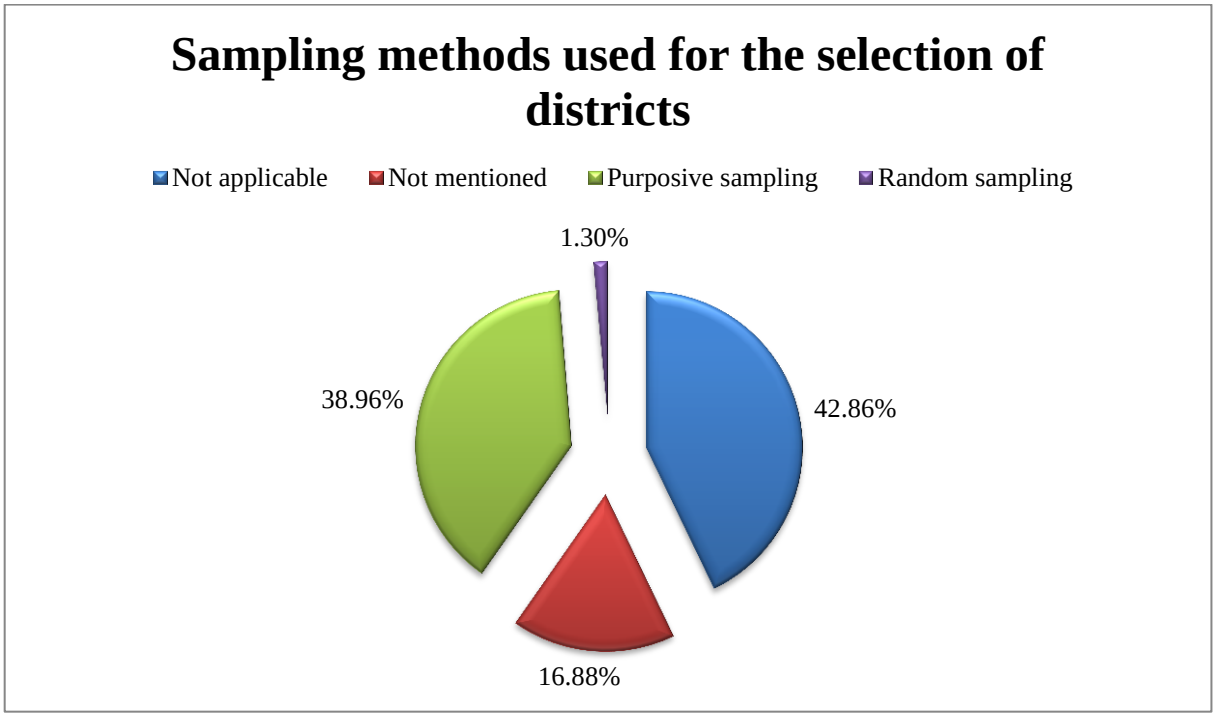


Fig. 14: Distribution of theses according to the sampling method of selecting districts

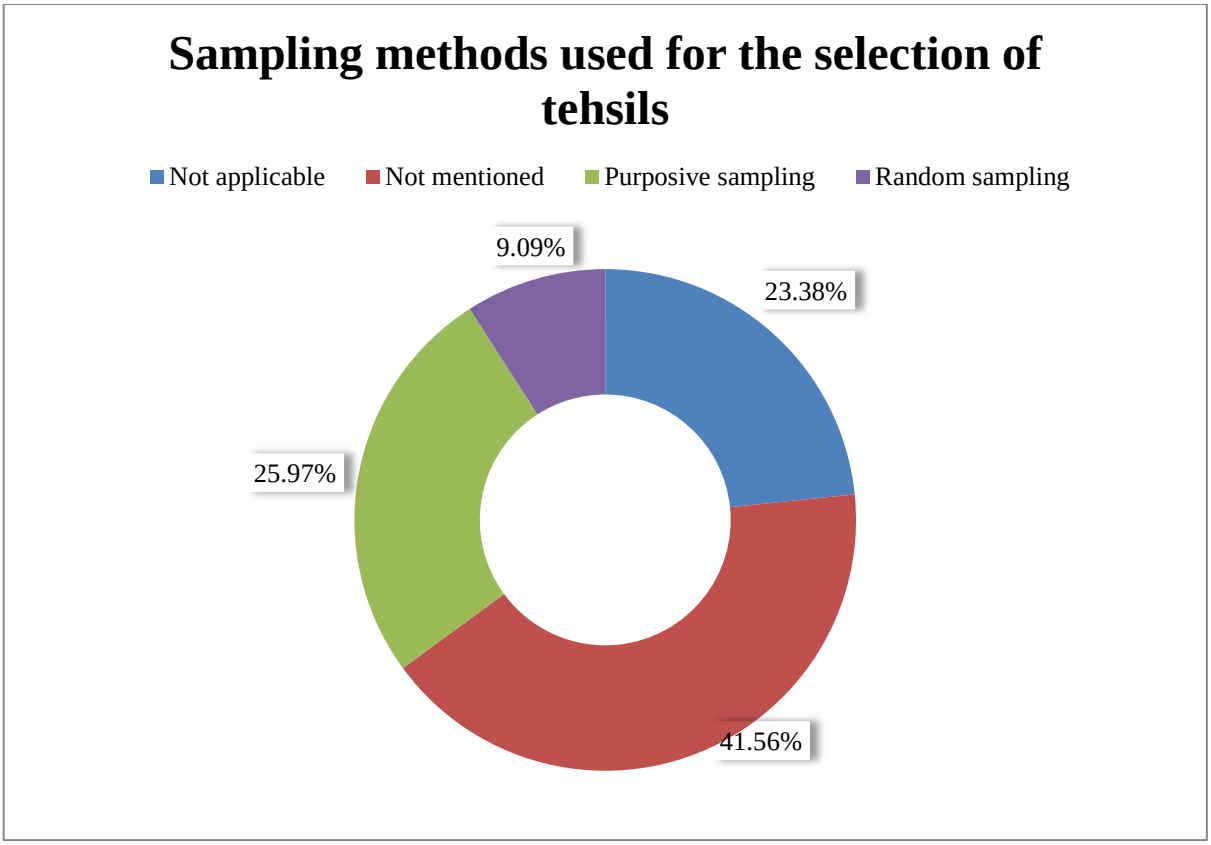


Fig. 15: Distribution of theses according to the sampling method of selecting tehsils

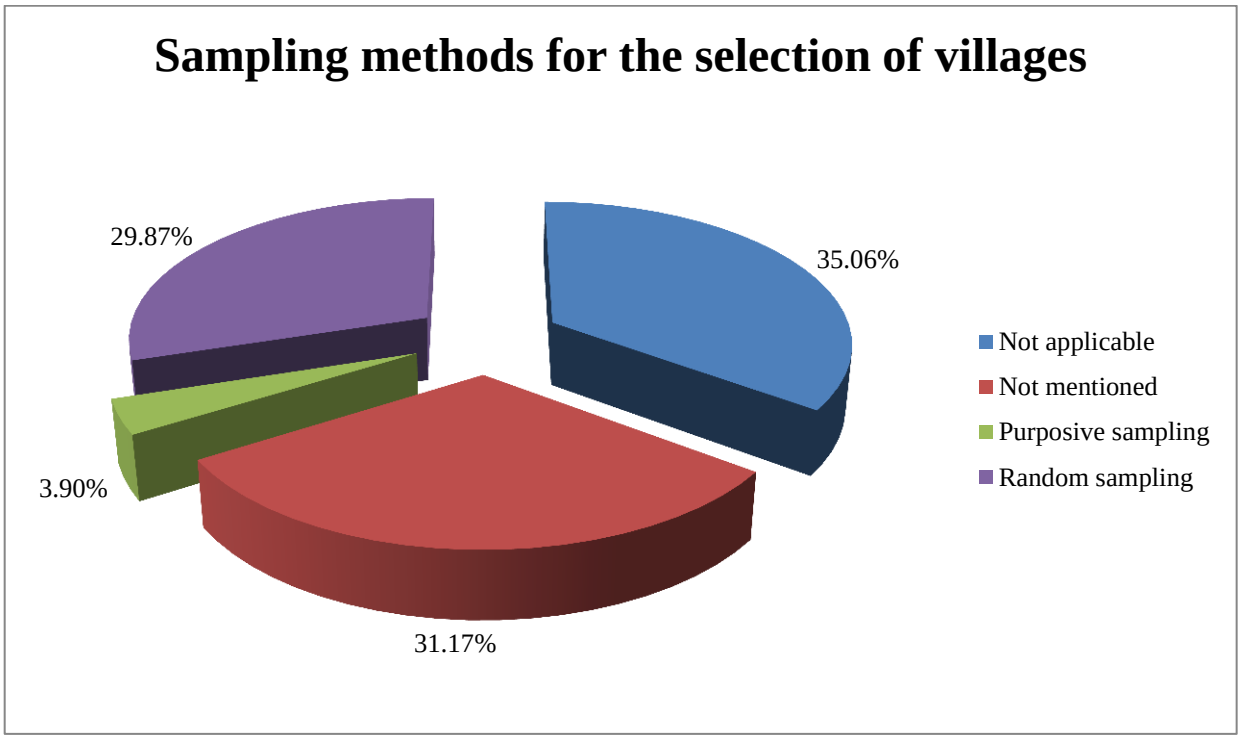


Fig. 16: Distribution of theses according to the sampling method of selecting villages

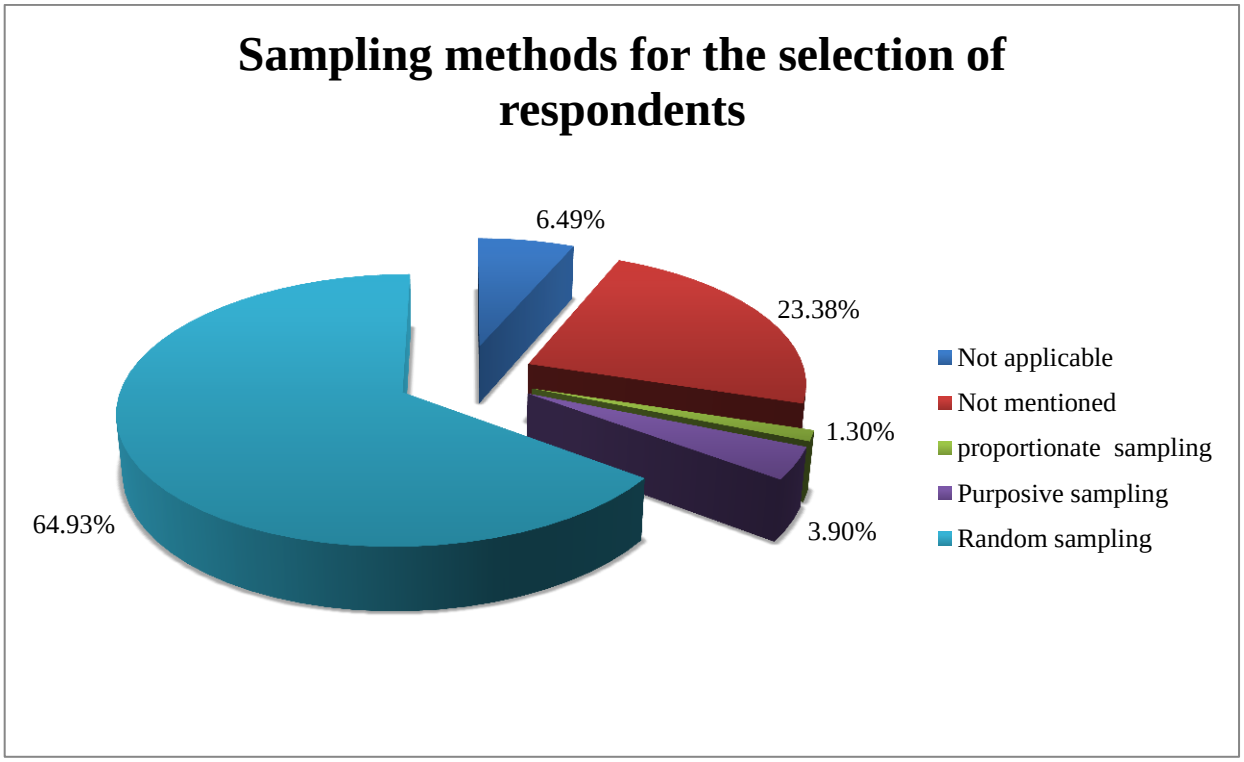


Fig. 17: Distribution of theses according to the sampling method of selecting respondents

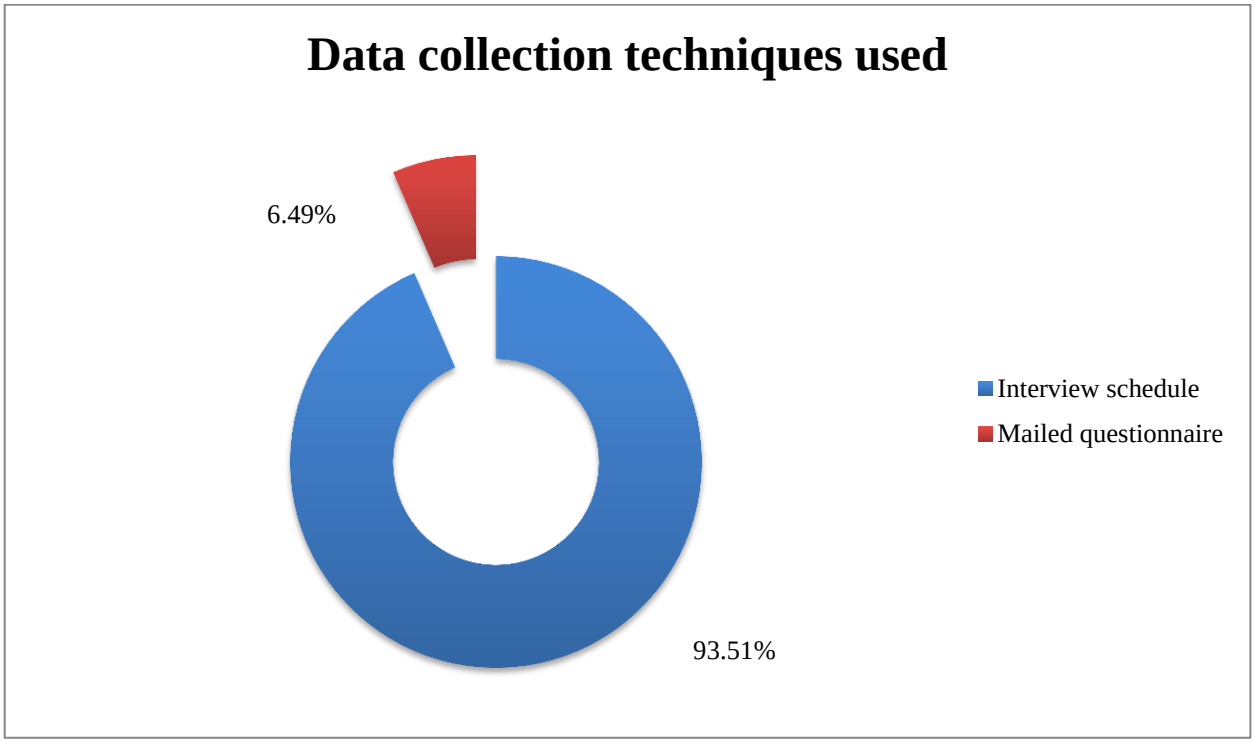


Fig. 18: Distribution of theses according to data collection techniques used

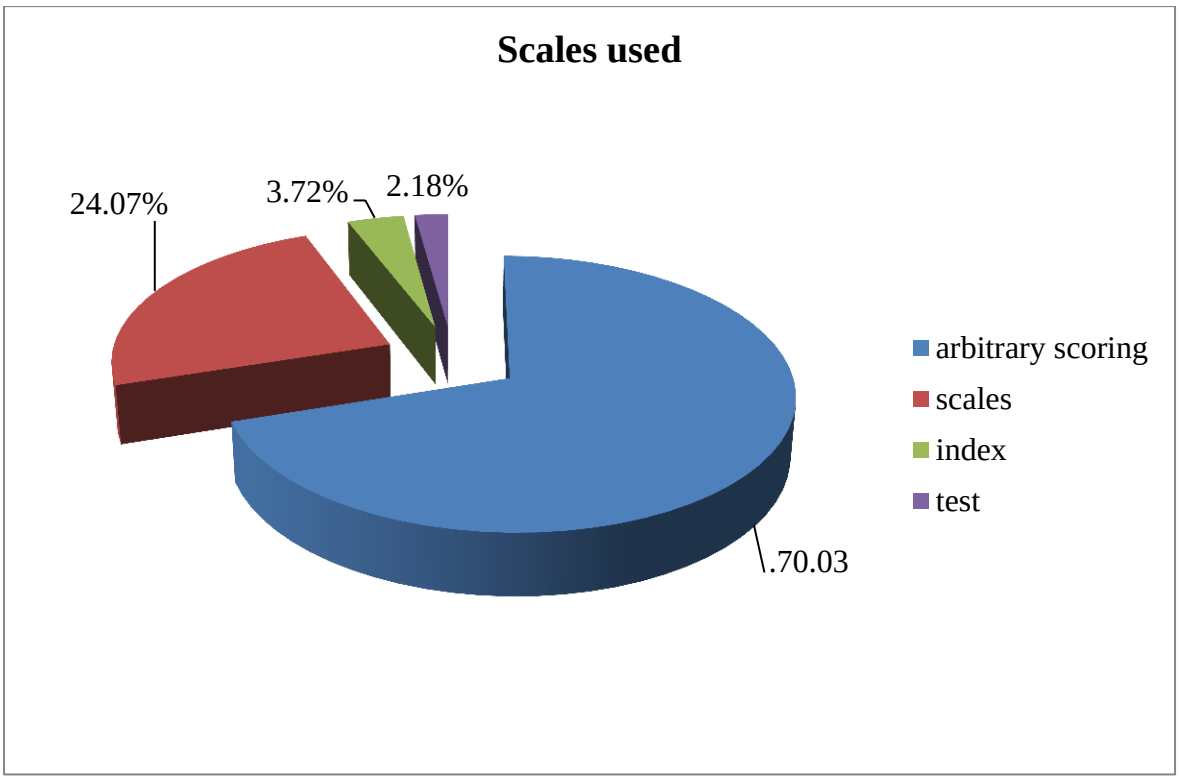


Fig. 19: Distribution of theses according to the scales used

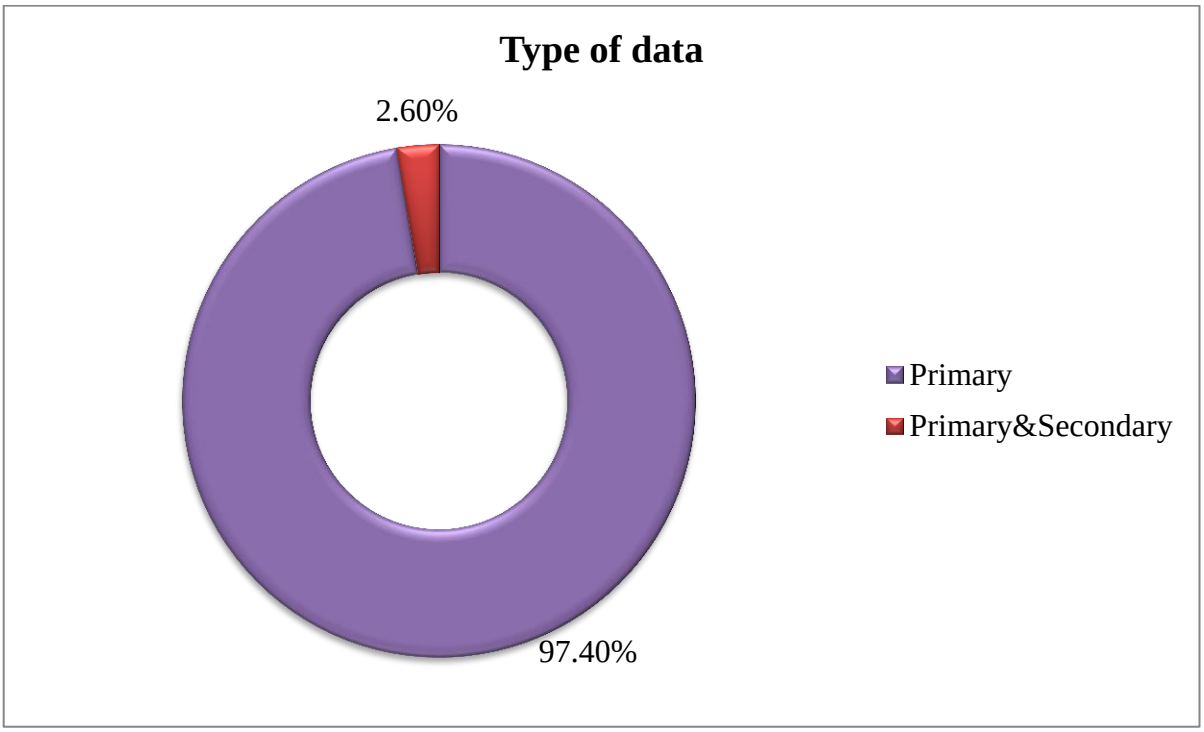


Fig. 20: Distribution of theses according to the type of data

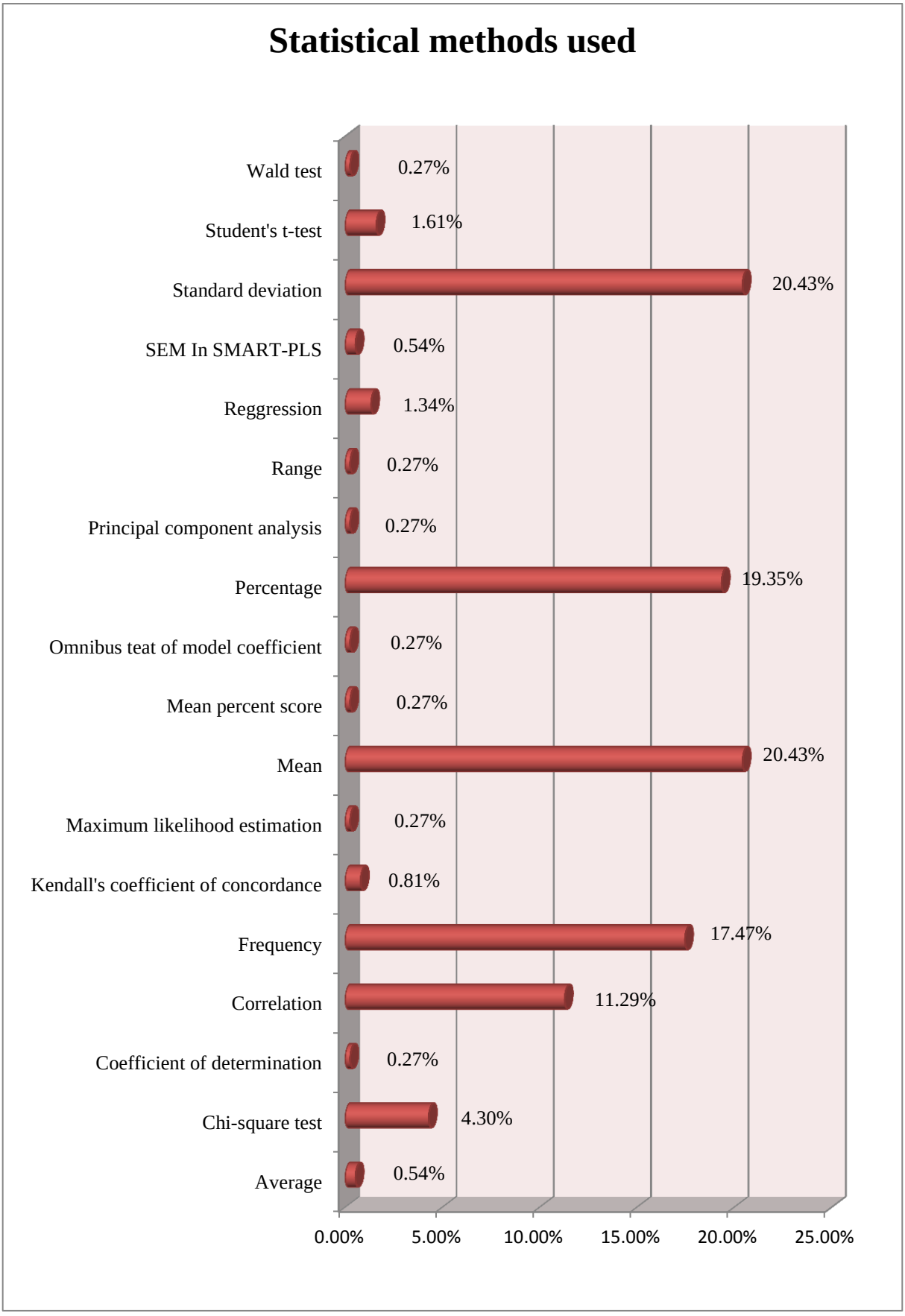


Fig. 9: Distribution of theses according to statistical methods

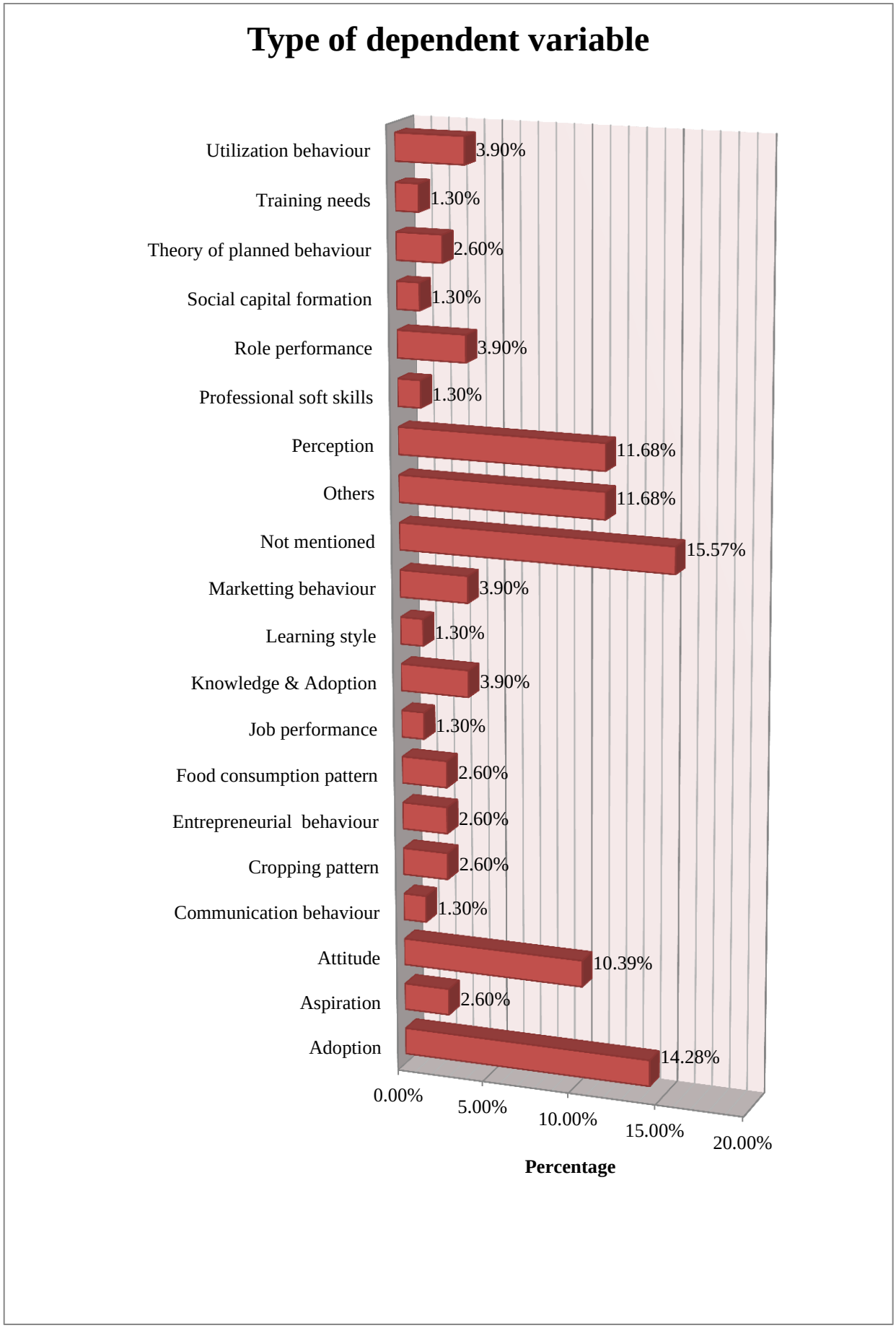


Fig. 21: Distribution of theses according to type of dependent variable

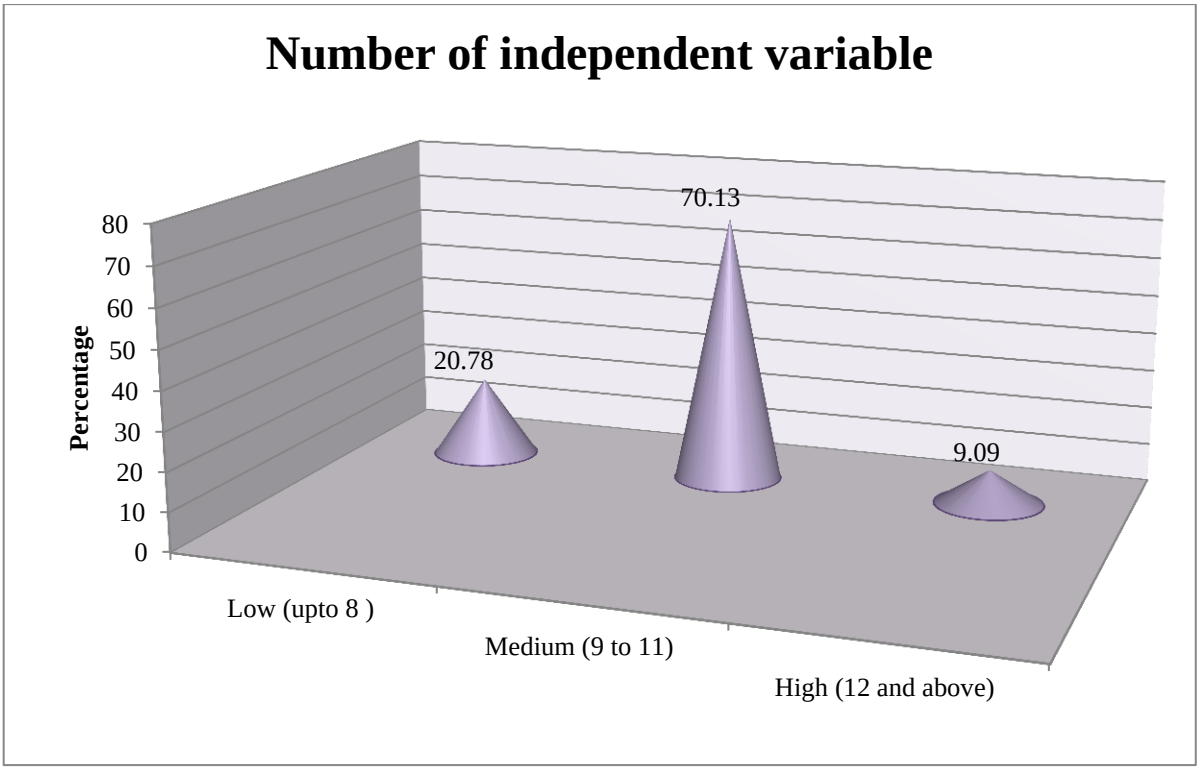


Fig. 22: Distribution of theses according to the number of independent variable

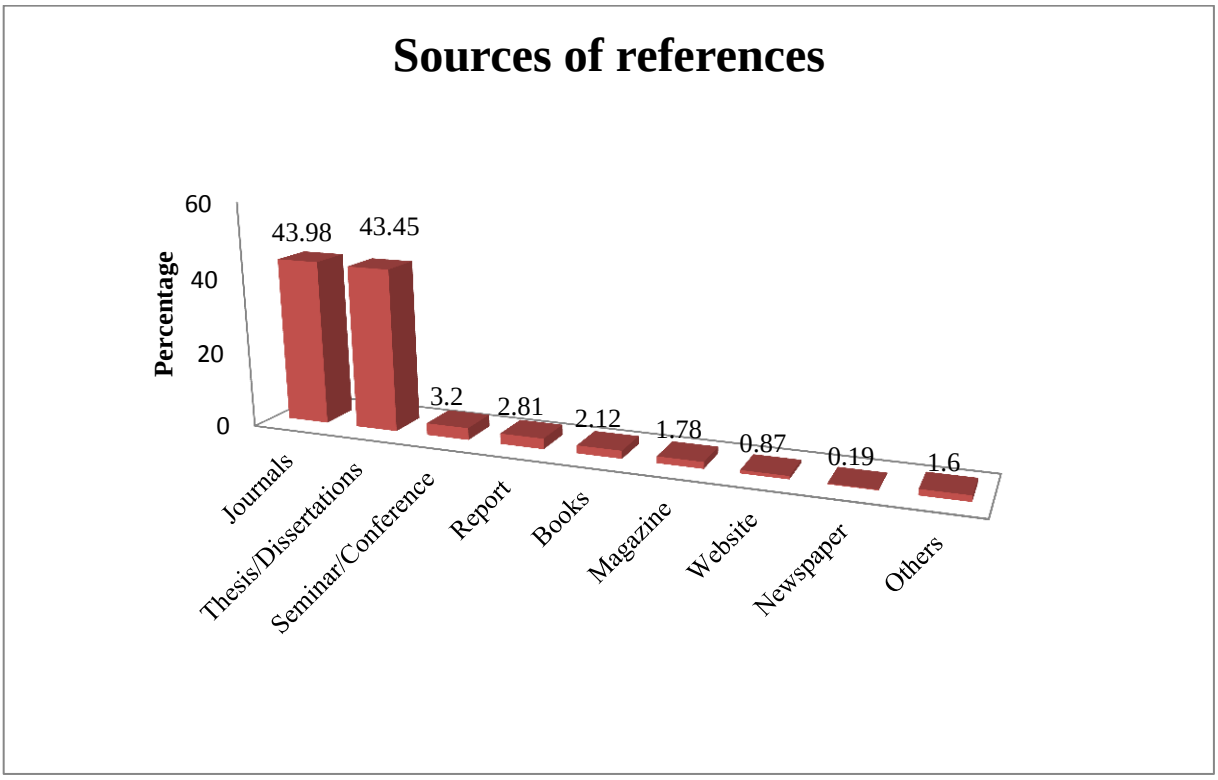


Fig. 23: Distribution of theses according to the sources of references

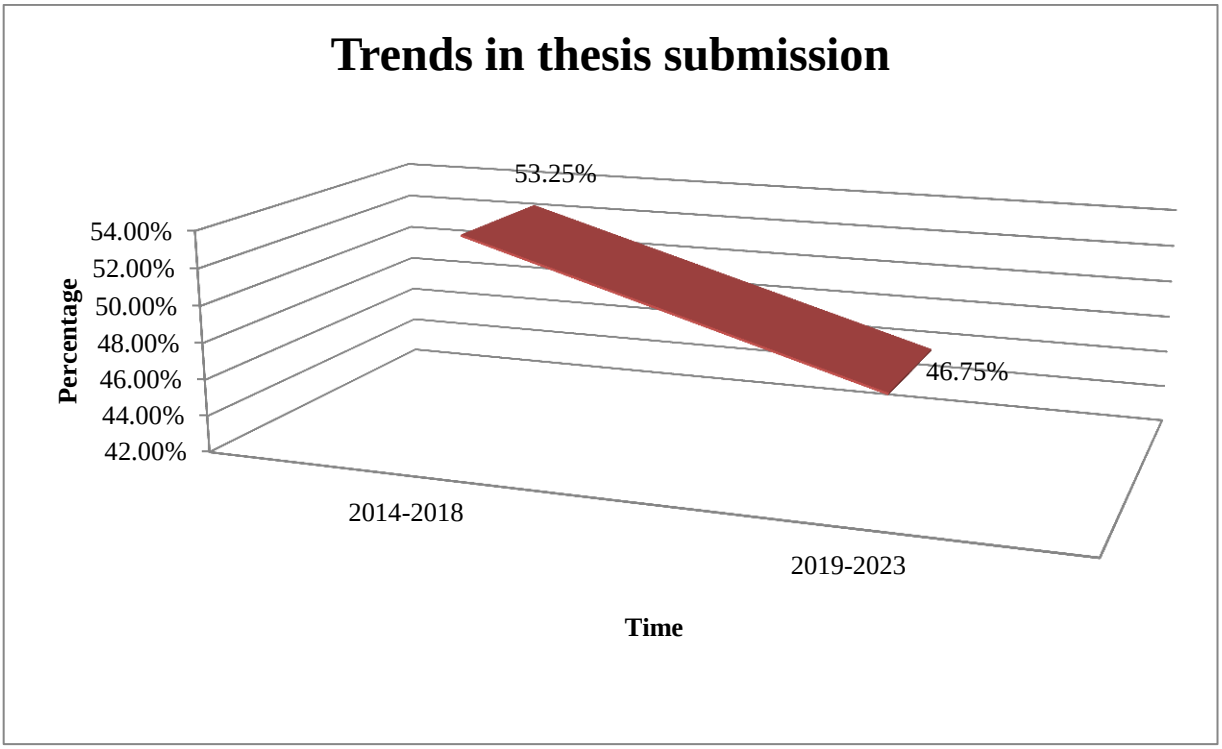


Fig. 24: Distribution of theses according to their year wise submission as a trend

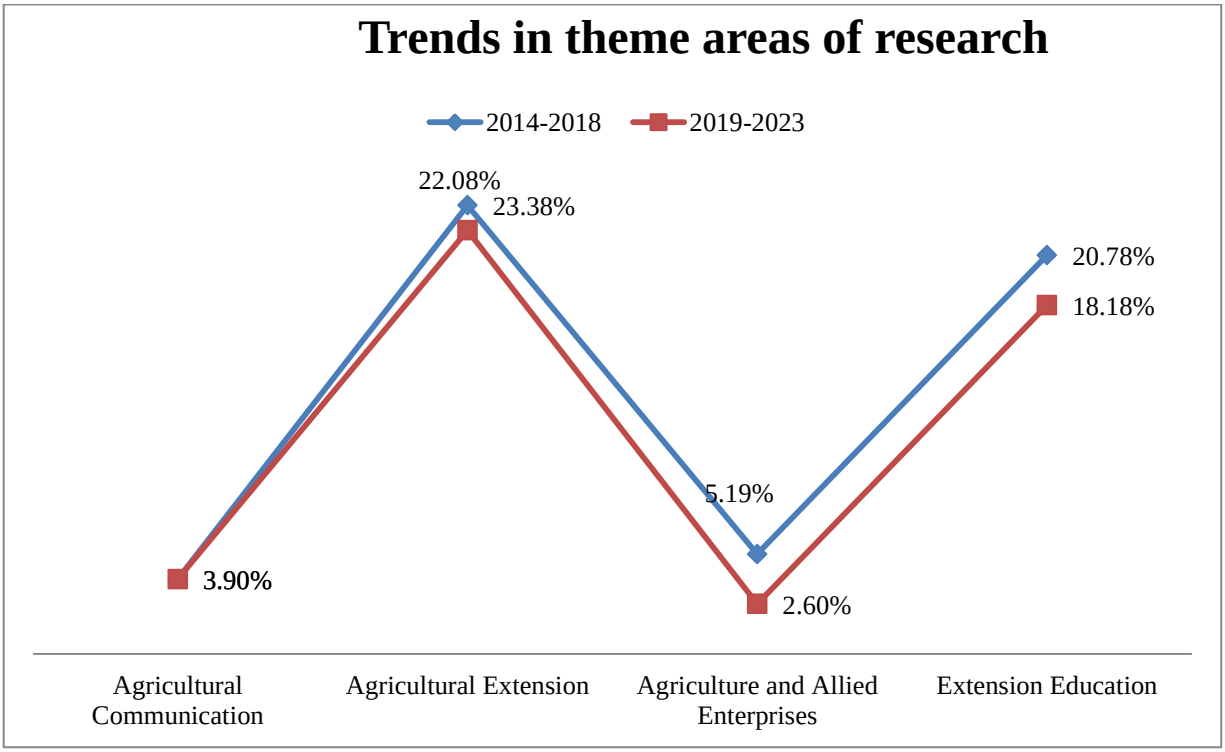


Fig. 25: Distribution of theses according to the yearly theme areas of research

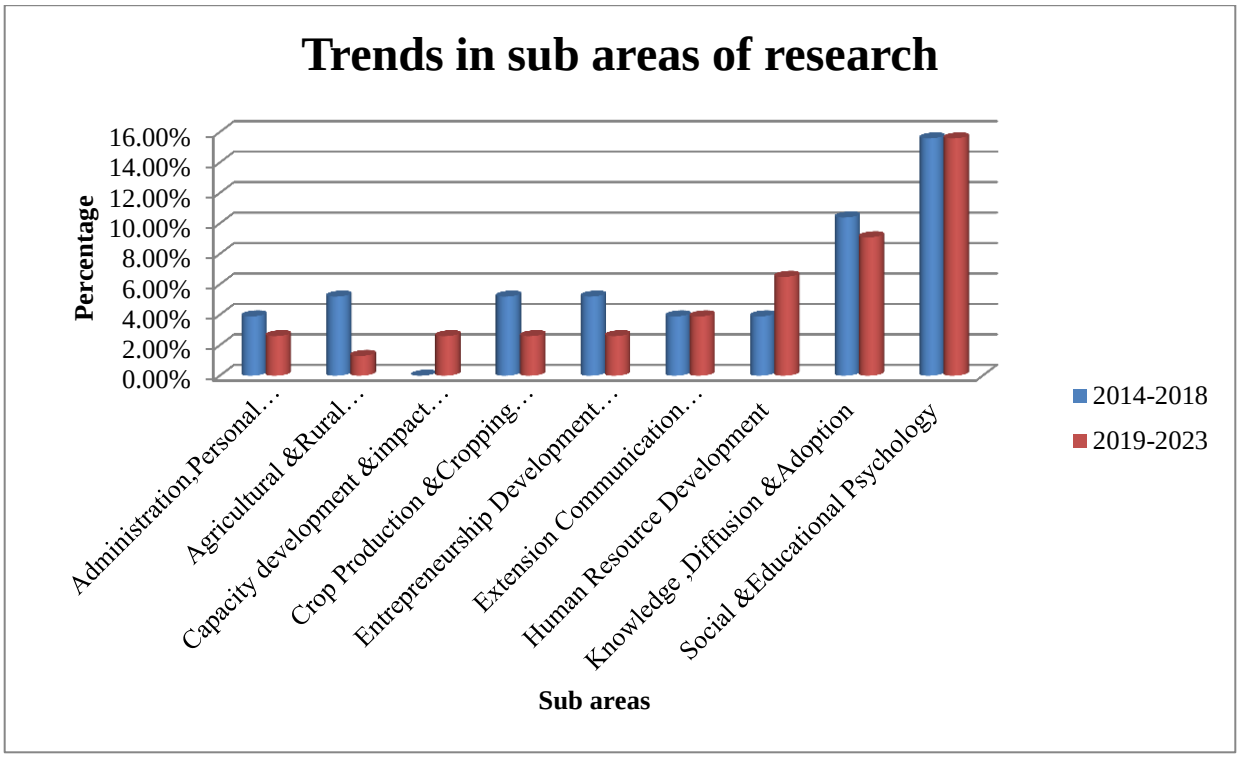


Fig. 26: Distribution of theses according to their yearly sub areas of research

SUMMARY AND CONCLUSIONS

CHAPTER V: SUMMARY & CONCLUSION

The Indian Council of Agricultural Research (ICAR) which is housed inside the Ministry of Agriculture and Farmer's Welfare is in charge of organizing the extensive and diverse National Agricultural Research System in India. The NARS has made significant contributions to India's food production self-sufficiency and meets the nation's needs for agricultural technology and information. The NARS has a research network of 102 ICAR Research Institutes,11 Agricultural Technology Application Institutes (ATARIs), and 73 Agricultural Universities (including three Central Agricultural Universities and five Universities with Agriculture Faculty) dispersed throughout the nation. To promote ICAR technologies,725 Krishi Vigyan Kendras are running various extension activities. Out of the 73 agricultural universities in India that are a part of NARS, DBSKKV, Dapoli is one. The Konkan region falls under the jurisdiction of DBSKKV, Dapoli and it comprises five districts: Thane, Palghar, Ratnagiri and Sindhudurg. This study explores a thorough content analysis of postgraduate theses that were published at College of Agriculture, Dapoli. In 1957, College of Agriculture, Dapoli was found .It was previously a part of Konkan Krishi Vidyapeeth at Dapoli. Later in 2003, it changed its name to Dr.Balasaheb Sawant Konkan Krishi Vidyapeeth. In 1964, it began offering postgraduate courses. A discipline that plays a key role in technology dissemination is the most suitable subject to do content analysis. The Department of Agricultural Extension Education was selected to do content analysis on postgraduate theses. Generally, content analysis is defined as the scientific study of communication. It helps to identify the theme areas of research and the areas that are under- researched. Hence, it helps to identify the future research opportunities.

Keeping this in view, the present study was planned with following objectives:

1. To examine the patterns of postgraduate research studies concerning content-related attributes
2. To explore the trends in identified key focus areas of post graduate research studies

The study was conducted in the Department of Agricultural Extension Education under DBSKKV, Dapoli. A 10-year period from 2014 to 2023 was selected for this study due to time limitations. A total of 77 theses were submitted during this period. "Pattern" in this study refers to certain principles followed by the investigators in their study. A proforma with 18 attributes were developed for content pattern analysis. Trends analysis is the method of identification of progress over a period of time. Trend analysis in this study has been done on thesis submission and areas of research. Frequency distributions and percentage values were calculated to obtain the number of occurrence of the attributes and their simple comparison. Mean and standard deviation was used to classify theses into high, medium and low categories on the basis of

number of objectives, number of references, number of pages, number of variables and sample size. Findings obtained were categorized under two main headings

5.1 Pattern of postgraduate theses concerning content-related attributes

- Agricultural extension is the theme area covered by majority of the theses (45.45 per cent) followed by extension education. Social and educational psychology is the most covered sub area of research (31.18 per cent) followed by knowledge, diffusion and adoption.
- Medium number of objectives (46.75 per cent) had been followed by most of the theses.
- Most of the theses (70.13 per cent) followed medium number of references.
- Most of the theses (70.13 per cent) had a medium number of pages.
- Tables are the most commonly used type of illustration followed by figures.
- Ex-post facto research design is followed by 79.22 per cent of the theses.
- Mean and standard deviation are the statistical tools selected by most of the theses, accounting for 20.43 per cent each. Percentage is the second most used statistical tool (19.35 per cent).
- 80.51 per cent of the theses had number of respondents ranging from 87 to 150.i.e, medium number of respondents.
- In the case of locale of study, Ratnagiri district is selected by most of the researchers (38.95 per cent) followed by Sindhudurg district (22.11per cent).
- Most of the researchers have not selected any crops as their subject matter (58.44 per cent).Among the selected crops, mango secured the highest position (10.39 per cent).
- Most of the selected respondents were farmers followed by students (55.85 and 10.39 per cent respectively).
- A large proportion of the researchers have not mentioned the sampling procedure for the selection of districts and villages (42.86 and 35.06 respectively).Sampling procedure for the selection of tehsils has not mentioned in 41.56 per cent of the theses. Random sampling is used by 64.93 per cent of the researchers for the selection of respondents.
- Majority of the researchers (93.51 per cent) used interview schedule for data collection.
- Arbitrary scoring is the most used empirical measurement tool (70.03 per cent).
- 97.40 per cent of the researchers collected only the primary data.

- Most of the theses lacked a dependent variable (15.58 per cent).Among the selected variable adoption is the most frequently used one (14.28 per cent).

- Majority of the theses have medium number of independent variable with frequency ranges from 9 to 11.

5.2 Trends in thesis submission and areas of research

- Trends in thesis submission show a decreasing trend.

- Research studies on theme areas such as agricultural extension ,extension education and agriculture & allied enterprises show a decreasing trend

- Research studies on agricultural communication show the same trend

- Research studies on sub areas such as capacity development and human resource development show an increasing trend.

- Research studies on administration personal development & role performance, agriculture and rural development programmes, knowledge, diffusion &adoption, entrepreneurship development & behaviour and crop production and cropping pattern show a decreasing trend.

- Both social & educational psychology and extension communication methods show the same trend.

IMPLICATIONS

IMPLICATIONS

- Analyzed methodologies used in theses can highlight the strength and weakness of different research approaches in the Department of Agricultural Extension Education. Methodology training should be conducted for both students and teachers. This can help other researchers in selecting relevant or appropriate methods for future studies.
- Raigad, Palghar and Thane districts come under the jurisdiction of the university. Still, these districts are the least focused. University should encourage locale- specific research themes so that researchers won't miss any locale of study from the region.
- Findings from the trend analysis of research areas reveal that most of the research areas are showing a decreasing trend. A research theme framework should be developed for the university for a particular time period after including current research trends such as climate-smart agriculture and ICTs so that research areas won't be missed and the trend will not show any significant change.
- Similar studies can be done on postgraduate theses of other disciplines, theses submitted in other constituent colleges of the universities and on Ph. D theses. This study has been done on a limited number of theses. It would be appropriate to select every theses submitted under the Department of Agricultural Extension Education. That means, studies should be conducted for all theses of individual departments so that instead of 10 years, researchers can select theses for 20 years and more, in order to make comprehensive assessment of department-wise study in research. This will be helpful for the research quality up gradation.
- Researchers must engage in more diverse research methodologies. Research must continue to determine whether current research methodologies are serving the discipline to maintain progressiveness, further research must be completed to provide methods and standards for exceptional and rigorous research.

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LITERATURE CITED

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APPENDICES

APPENDIX I

The area of research was classified into 31 divisions based on the classification adopted bySamanta *et.al* (1995, as cited in Reddy 2002). They are as follows

1. Animal husbandry and dairy adoption
2. Agricultural communication
3. Extension administration and management
4. Adoption of Agricultural technology
5. Communication behaviour
6. Constraints in crop production
7. Farm credit utilization and repayment behaviour
8. Development programmes
9. Social and Educational Psychology
10. Educational and information Technology
11. Entrepreneurship
12. Agricultural Extension/education
13. Extension methods and aids
14. Home science Extension
15. Information utilization
16. Leadership and Group dynamics
17. Mass media, Radio and Television
18. Administration and personal development
19. Print-media-farm magazines, Newspapers and others
20. Research methodology
21. Rural institutions
22. Rural youth activities
23. Small and marginal farmers
24. Social and Economic charges
25. T &V Extension system
26. Technological gap
27. ICAR (TOT) Programmes
28. Training of farmers
29. Training of E.W and V.L.W
30. Tribal Development Programmes
31. Women in agriculture and social groups

APPENDIX II

List of theses submitted to the department of agricultural extension education during 2014-2023

Sl.No	Thesis ID	Title of the thesis	Name of the author
2014			
1	234	Study of internet utilization behaviour of Postgraduate students	Swati Sahebrao Gaikwad
2	235	Knowledge and adoption of improved sugarcane cultivation practices in Sindhudurg district	Vinod Vasantrao Mane
3	236	Study of knowledge and adoption of selected nutritional practices among rural women in Ratnagiri district of Maharashtra	Rakesh Ravindra Devrukhakar
4	237	Attitude of mango growers towards pesticides in Ratnagiri district of Konkan region	Pooja Rajendra Choudhary
5	238	Existing cultivation practices followed by turmeric growers in Sindhudurg district	Ramesh Saubhaji Waghmare
6	239	A study of self help groups in Konkan and Western Maharashtra	Radhika Ajit Bongale
2015			
1	240	Communication behaviour of extension personnel in the Department of Agriculture in Maharashtra state ,India	Adedapo Ayodiji Oluwauuyiwn
2	241	Job performance of farm scientists from Krishi Vigyan Kendra in Maharashtra state ,India	Frederick Kobba
3	242	Knowledge and adoption of recommended groundnut cultivation practices by the farmers in Ratnagiri district	Pankaj Sharma
4	243	Extent of adoption and causes of non adoption of rice varieties developed by DBSKKV,Dapoli	Prajakta Satish Telange
5	244	Learning styles of agricultural students of Dr, B. S. K. K.V, Dapoli	Ashok Devendra Urhe
6	245	Study of selected socioeconomic aspects of Warli Community	Swapnil Rajendra Potdar
7	246	Agriculture in peri urban area around Mumbai	Radha Mahadev Jadhav
8	247	Study on adoption of improved watermelon cultivation practices in Raigad district	Ramesh Subhash Bhosale
9	248	Study of entrepreneurial behaviour of Mango growers in Ratnagiri district	Pramod Dattatray Wagh
10	249	Attitude of rural women towards girls education	Pranita Prabhakar Patil
2016			
1	252	Marketing behaviour of vegetable growers from Palghar district	Sapna Hanumant More
2	253	Preference pattern and satisfaction level of Agrowon daily readers from Raigad district	Rameshwar Mallikarjun Patil
3	254	Extent of participation of farmers in integrated watershed management programme	Suraj Manohar Gholape
4	255	Cropping pattern followed by awardee farmers in Konkan region	Neha Dilip Kale
5	256	Effectiveness of agricultural programmes of different channels as perceived by televiewing farmers	Vijay Maruti Shinde

Sl.No	Thesis ID	Title of the thesis	Name of the author
6	257	Aspiration of students undergoing lower education in agriculture	Nishikant Chanrakant Pakale
7	258	Marketing behaviour of mogra and kagda growers in Palghar district	Yogita Sunil Parab
8	259	Attitude of rural youth towards agriculture	Bhartesh Raosab Kuppanatte
9	260	Contribution of farm scientists in ToT in Dr. B. S. K. K. V, Dapoli	Santosh Bajirao Gawade
2017			
1	261	Existing cultivation practices followed by khurasani (*Guizotia abysinica*) growers of Palghar district of Maharashtra	Rohit Subhash Shelar
2	262	Effect of industrialization on agriculture and allied sectors as perceived by the farmers from Raigad district	Swapnil Chandrakant Holkar
3	263	Influence of social values on adoption of the commercial mango production technology	Aruna Anantrao Farakte
4	264	Adoption of IPM practices by the beneficiaries of crop sap	Sujitkumar Dilip Roham
5	265	Effect of climate change on Alphonso mango as perceived by the farmers from South Konkan coastal zone of Maharashtra	Abhishek .P .S
6	266	Attitude of agricultural university teachers towards educational technology in D. B. S. K. K. V, Dapoli	Shweta B Karadi Patil
7	267	Perception of mango growers about rejuvenation techniques in Mango	Sayali Rajratna Dabhole
8	268	Adoption of recommended rice cultivation practices by the farmers from Palghar district	Ravindra Shamrao Karangami
9	269	Dynamics of voluntary organization – A case study	Shivamsing Vittal Yadav
2018			
1	271	Existing cultivation practices followed by sapota growers in Palghar district	Sweety Jagannath Khirani
2	272	Farming system of tribal farmers in Palghar district	Akash Madhukar Lathad
3	273	Participation of rural youth in agricultural activities in Sindhudurg district	Pravin Balkrishna Martal
4	274	Effect of migration as perceived by local leaders on rural scenario in South Konkan region of Maharashtra	Omkar Ashok Jalgaonkar
5	275	Role performance of gramapanchayat members in Ratnagiri district of Maharashtra	Gauri Prakash Jadhav
6	276	Perception of farmers about crop insurance scheme in Ratnagiri district	Gaurav Gajanan Mhapsekar
7	277	Women entrepreneur behaviour in vegetable growing in Raigad district	Ankita Jerome Koli
2019			
1	280	Role performance of livestock supervisors from Raigad district	Pooja Subhash Sawant
2	281	Crop management practices of vegetable growers in Dapoli tehsil of Ratnagiri district	Pooja Sadashiv Ghorpade
3	282	Technology utilization behaviour of paddy growers in Sindhudurg district of Maharashtra	Ambarish Dhareppa Hattalli

Sl.No	Thesis ID	Title of the thesis	Name of the author
		state	
4	283	Status of fruit crop nurseries in Raigad district	Nalavade Preeti Pradeep
5	284	Awareness, health risk perception and handling behaviour of pesticides by farm workers	Prathmesh Dilip Shigwan
6	285	Adoption of livestock rearing practices by the farmers from South Konkan	Shubham Sharad Ghimhavnetar
7	286	Indigenous technical knowledge about animal husbandry and dairy management practices	Ashal Anil Chougule
2020			
1	295	Attitude of agricultural students towards entrepreneurship	Siddharth Bhau Gade
2	296	Study on farmers attitude, knowledge and practices related to organic farming in Ratnagiri district	Priyanka Sauadhan Ingale
3	297	Food consumption pattern of tribal families	Deshmukh Shavyu Khasherao
4	298	Role performance of farm input dealers in agro advisory in South Konkan	Shweta Alias Chetana Mayekar
5	299	Study on agribusiness anxiety of Postgraduate students of DBSKKV, Dapoli	Palavi Manoj Kakade
6	301	Readability of information published in newspaper	Mauli Kalappa Chiware
2021			
1	303	Use of e-resources among the Postgraduate students of DBSKKV, Dapoli	Ajithkumar K S
2	304	Factors governing family farming efficiency of small growers in South Konkan	Vishranti Pradharinath Gavali
3	305	Study on adoption behaviour of Wal growers in Raigad district	Pravin Haribau Dhaigude
4	306	Socio economic factors affecting on adoption of climate resilient technologies by the mango growers	Pandurang Bharat Jadhav
5	307	Knowledge and adoption of rice varieties developed by DBSKKV, Dapoli	Sandhya Sharad Pol
6	308	Impact of farmers field school on adoption of rice cultivation practices by the beneficiaries in Ratnagiri district	Swapnali Sanjay Aher
7	309	Gap analysis of professional soft skills among girl students of DBSKKV, Dapoli	Priya Shivaji Rathod
2022			
1	313	Modelling farmers intention regarding pesticide application in mango: An empirical analysis with extended theory of planned behaviour (TPB)	Abhijit Bibhishan Jagtap
2	314	Vegetable consumption pattern of tribal farmers in Palghar district	Prajakta Suresh Hankare
3	315	Women empowerment through self help groups promoted by MAVIM	Sanjay Raju Hirbhagat
4	316	Perception and participation of rural youth in agricultural activities in post covid situation	Suchita Ankush Adate
5	317	Adoption of recommended dose of fertilizers by the mango growers from South Konkan region	Nikita Dadasaheb Kadaskar

Sl.No	Thesis ID	Title of the thesis	Name of the author
6	318	Agro forestry systems followed by farmers from Ratnagiri district in Konkan region	Tejashri Pandurang Dahiphle
7	319	Utility perception about mechanization in rice in Sindhudurg district	Mayur Maruti Karande
2023			
1	321	Indigenous technical knowledge to curb the menace of wild animals	Komal Vivek Maske
2	322	Impact of MREGS on its beneficiaries in Ratnagiri district	Jadhav Suraj Laxman
3	323	Training needs of sugarcane growers in Sindhudurg district	Deasi Abasaheb Vilas
4	324	Social capital formation through women self help groups by agro-processing	Varadha V Mohan
5	325	Marketing pattern of organic vegetable growers from Palghar district	Mayuri Jaysingh Konduskar
6	326	Determining farmers intention towards adoption of organic agricultural practices using structural equation modelling (SEM)	Rahul Dipak Shelar
7	327	Attitude of farmers towards private extension services	Komal Ashok Chavan
8	328	Attitude of farmers towards mixed farming	Snehal Anandrao Bhosale
9	329	Effectiveness of different modes of imparting knowledge through Whatsapp	Gauri Vivek Naik

APPENDIX -III

Proforma for data collection from postgraduate research studies of agricultural extension education

1.Title of the thesis

2.Year of thesis submission

Year of thesis submission	No.of theses
2014-2018	
2019-2023	
Total	

3.Area of research

a)

Theme area	No. of theses
Agricultural extension	
Extension education	
Agricultural communication	
Agricultural and allied enterprise	
Total	

b)

Sub area	No.of theses
Social and educational psychology i. Attitude ii. Perception iii. Intention iv. Technology utilization behaviour v. Student aspiration and learning	
Knowledge, diffusion and adoption i. Adoption of agricultural technology ii. Adoption of nutritional practices iii. ITK	
Administration, personal development and role performance i. Role performance ii. Job performance iii. Rural institutions and voluntary organization	
Extension communication methods i. Communication behaviour ii. Mass media	
Crop production and cropping pattern i. Horticultural crops ii. Field crops iii. Cropping pattern	
Entrepreneurship development and behaviour i. Entrepreneurship behaviour	

ii. Marketing behaviour	
Human resource development i. Research on tribal development ii. Women in agriculture and social groups iii. Researches on small and marginal farmers	
Agriculture and rural development programmes	
Capacity development and impact assessment	
Total	

4.No.of objectives

5.No.of references

6.Sources of references

i) Journals :

ii) Thesis/Dissertations:

iii)Report:

iv) Books:

v) Website:

vi) Seminar or conference:

vii) Magazine:

viii) Newspaper:

xi) Others:

7.Format of the thesis

a) No.of pages
b) No.of tables
c) No.of figures
d) No of plates
e) No of abbreviations
f) No of indices

8. Research methodology adopted

a) Locale of study selected
b) Types of research design
c) Sample size
d) Sampling methods used
e) Types of respondents
f) Type of data
g) Data collection techniques used
h) Crops studied
i) Statistical method used
j) Scales used
k) Type of dependent variable

No. of independent variable

DEPARTMENT OF AGRICULTURAL EXTENSION EDUCATION
COLLEGE OF AGRICULTURE, DAPOLI
DR. BALASAHEB SAWANT KONKAN KRISHI VIDYAPEETH,
DAPOLI-415712 DIST. RATNAGIRI (M.S.), INDIA

a)	Title of the thesis	:	Content analysis of postgraduate theses in extension education: The case of college of agriculture, Dapoli
b)	Name of the student	:	Ms. Alka M. A.
c)	Name and address of major advisor	:	Dr. H. V. Borate Professor (CAS) (Agricultural Extension Education) D.B.S.K.K.V,Dapoli
d)	Degree to be awarded	:	M. Sc. (Agri.)
e)	Year of award of degree	:	2025
f)	Major subject	:	Agricultural Extension Education
g)	Total number of pages in the thesis	:	53
h)	Number of words in the abstract	:	443
i)	Signature of the student	:	
j)	Signature, name and address of forwarding authority	:	**Dr. S. C. Warwadekar** Head Department of Agricultural Extension Education, College of Agriculture, Dapoli.

ABSTRACT

The present study, entitled "Content analysis of postgraduate theses in extension education: The case of college of agriculture, Dapoli," was conducted in the Department of extension education at College of agriculture, Dapoli. A 10-year time period from 2014-2023 was selected to carry out the study. A maximum of 77 theses were submitted under the Department of Extension Education during 2014-2023. The objectives selected for this study were to examine the patterns of PG research studies on its content-related attributes and to explore the trends in identified key focus areas of postgraduate research studies. 18 attributes

were selected from the review of literature for the purpose of pattern analysis. These were areas of research, number of objectives, number of references ,number of pages, number of illustrations, types of research design, statistical method used and sample size, locale of study, crops studied, types of respondents, sampling methods used, data collection techniques used, scales used, types of data, type of dependent variable, number of independent variable and sources of references.

Results of pattern analysis revealed that agricultural extension and social and educational psychology were the most studied theme area of research and sub areas of research. A large proportion of the theses had a medium number of objectives, number of references, number of pages, sample size and number of independent variables. Tables were the most used kind of illustrations. Majority of the researchers selected ex-post facto research design followed by exploratory research design. Mean and standard deviation were highly utilized in most of the theses followed by percentage. Ratnagiri district was the most studied locale among the five districts of Konkan area followed by Sindhudurg district. A large proportion of the extension researchers had not selected any crop as the subject matter of study. Among the selected crops, mango is the most studied one. Most of the researchers selected farmers as their respondents. Random sampling and purposive sampling procedure were selected by most of researchers for the selection of respondents and districts respectively. Majority of the researchers used interview schedule for data collection. Majority of the researchers used primary data. Most of the researchers had not used any dependent variable. Among the selected variables, Adoption held the highest proportion. Journals were the most commonly referred source followed by theses by the researchers.

Results of trends in identified focus areas of postgraduate research revealed that there were a declining trend in PG thesis submission. Regarding the results of trends in areas of research, theme areas such as agricultural extension, extension education and agriculture and allied enterprises show a decreasing trend and sub areas showed a decreasing trend except capacity development and HRD.

Keywords: Content analysis, PG research studies, Pattern, Trend

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Postgraduate research in agricultural extension education in the DBSKKV, Dapoli, Maharashtra: A content analysis

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Abstract

Content analysis is a research method used to systematically examine and interpret the content of written, spoken or visual material to identify patterns, themes or meanings. The study was carried out to analyze research areas of postgraduate research conducted in the Department of Agricultural Extension Education, College of Agriculture, Dapoli under Dr. B. S. Konkan Krishi Vidyapeeth (DBSKKV), Dapoli, Maharashtra. A 10 year period from 2014 to 2023 was selected for this study. A total of 77 theses were submitted during this period. Qualitative or relational content analysis was the research method utilized for data collection. Data were collected from the hard copies of theses available in the university library using a structured proforma, and were analyzed using frequency and percentage method.

The results revealed that most of the research was concentrated on the theme area of agricultural extension (45.45%), followed by extension education (38.97%). Research on agricultural communication and agriculture and allied enterprises was comparatively lower, with each accounting for 7.79 per cent. Among the subareas of research social and educational psychology held the highest proportion (31.18%), followed by knowledge diffusion and adoption (19.48%) and human resource development (10.39%), entrepreneurship development and behavior, extension communication methods, crop production and cropping pattern (7.79% each), administration, personal development and role performance, agricultural and rural development programmes (6.49% each), capacity development and impact assessment (2.60%). The concentration of research in only a few areas and limited work in others indicates a mismatch between field needs and academic output, implying that curriculum in agricultural extension education must be revised to promote balanced research by integrating emerging themes such as climate services, digital extension, AI in agriculture, policy research and social innovation.

Keywords: Content analysis, Postgraduate research, Department of Agricultural Extension Education, Dr. B. S. Konkan Krishi Vidyapeeth, Research area, Theme area, Sub areas of research

Introduction

Agricultural research can contribute to solving critical global challenges such as food insecurity, climate change and sustainable development. Sound communication is fundamental in agriculture research and underlies the successful development and sharing of findings, innovation, and technology. The pursuing of research in agricultural extension education is moving more and more beyond boundaries of discipline focusing on other research areas like organizational development, documentation and validation of indigenous technical knowledge, training needs assessment, entrepreneurship development, program evaluation and impact assessment. However, it needs further strengthening to address emerging changes in agriculture and the societal needs.

According to the data from the Press Information Bureau (Ministry of Agriculture and Farmer's Welfare,2021), India's National Agricultural Research System (NARS) is a vast and multifaceted network orchestrated by the Indian Council of Agricultural Research (ICAR) under the Ministry of Agriculture and Farmer's Welfare. The NARS has contributed immensely to make India self-sufficient in food production and serves the agricultural technology and information needs of the country. NARS has a research network of 102 ICAR Research Institutes, 11 Agricultural Technology Application Research Institutes (ATARIs) and 73 Agricultural universities (including 3 Central agricultural universities and 5 universities with agriculture faculty) spread across the country. For popularization of ICAR technologies, 725 Krishi Vigyan Kendras are operating throughout the country for different extension activities.

Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli in the state of Maharashtra, is one of the renowned universities among the 73 agricultural universities that are included in NARS in India. The Konkan region falls under the jurisdiction of Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli and it comprises

five districts: Thane, Palghar, Ratnagiri, Raigad and Sindhudurg. Crop farming, cattle, horticulture, and fisheries might all be expanded in the Konkan region. The College of Agriculture in Dapoli, was established in 1957. Earlier, it was under Konkan Krishi Vidyapeeth, Dapoli in the state of Maharashtra. Later, it was renamed as Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth in the year 2003. Postgraduate courses in extension education at the College of Agriculture, Dapoli started in 1964.

The Konkan region of Maharashtra is a high-rainfall, coastal and hilly agro-ecological zone characterized by a farming system dominated by horticultural crops such as mango, cashew and coconut along with lowland rice and important fisheries sector. Dr. B. S. Konkan Krishi Vidyapeeth (DBSKKV), Dapoli, the state agricultural university established for this region, plays a central role in developing and disseminating location-specific technologies through education, research and extension. The university caters to the agricultural needs of five major Konkan districts: Ratnagiri, Thane, Sindhudurg, Raigad and Palghar. Hence, It would be appropriate to carry out a content analysis on agricultural extension education PG research, as it plays a vital role in technology dissemination.

Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication (Berelson, 1952) [1]. This research delves into a comprehensive content analysis of agricultural extension education postgraduate theses submitted in the College of Agriculture Dapoli. Content analysis in agricultural extension education postgraduate research offers great analysis of the theme areas in the subject. The coverage is usually including the most frequent themes, topics, and research foci within the agricultural extension discipline. Thus, it helps to identify under-researched or neglected areas and thereby pointing to potential future research opportunities of agricultural extension in the Konkan region of Maharashtra.

Methodology

Department of Agricultural Extension Education, College of Agriculture, Dapoli under Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli, Maharashtra was the locale selected for this particular study. A time period of recent 10 years was selected for this study. All postgraduate theses
submitted between 2014 and 2023 were chosen, and a total of 77 postgraduate theses were submitted under the department during this time period. All 77 theses were analyzed to identify their respective research areas. In order to analyze the research areas of postgraduate theses a classification system adopted by Samanta *et.al* (1995, as cited in Reddy 2002) [7] was used with slight modification. Qualitative content analysis was the research method used to analyze the research areas of postgraduate theses. Data were collected manually from the hard copies of postgraduate theses available in the university library. The outcomes were presented in terms of frequency and percentage.

Results and Discussion

A research area is a broad domain of the study encompassing related topics and questions with in a particular discipline or field**.** A classification system adopted by Samanta *et.al* (1995, as cited in Reddy 2002) [7] was used with slight modifications. Data with respect to area of research are presented in table no 1. According to the modified classification adopted by Samanta *et.al* (1995, as cited in Reddy 2002) [7] four theme areas and nine sub areas of research were identified. These nine areas were again divided into thrust areas of research. Table 1 showed that agricultural extension is the most focused theme area of research with frequency 35 and 45.45 per cent. Extension education stands as the second most studied area with frequency 30 and percentage 38.97. Agricultural communication and allied enterprises are the least focused theme area of research.

Analysis of the sub areas showed that, social and educational psychology represented the largest share of research with frequency 24 and percentage 31.18, indicating a strong academic inclination towards understanding behavioural, psychological and learning –related aspects of stakeholders in agriculture. This was followed by Knowledge, diffusion and adoption (19.48%) refelecting a sustainable interest in technology transfer and adoption processes. Human Resource Development (HRD) accounted for 10.39 per cent, highlighting a moderate attention to issues concerning farmers, tribal communities, women and rural development.

Extension research is primarily intended for technology dissemination. It also deals with social and psychological traits of people. Overall, results revealed that postgraduate research has largely followed the same areas of research. The findings revealed that areas such as extension communication methods, entrepreneurship behaviour, crop production and cropping pattern, capacity development and impact assessment, agricultural and rural development programmes, administration and role performance had not been focused sufficiently. Capacity development and impact assessment is the least focused areas of research. Despite their significant contribution in advancing research, these domains remain under -researched.

Table 1: Distribution of data according to the area of research or coverage of theses

Sl. No.	Theme area	Sub areas of research	Frequency	Percentage
1	Extension education (Frequency:30) (Percentage:38.97)	**Social and educational psychology**		
		Attitude	8	10.39
		Intention	2	2.60
		Perception	8	10.39
		Student aspirations and learning	2	2.60
		Technology utilization behaviour	2	2.60
		Agribusiness anxiety	1	1.30
		Professional soft skills	1	1.30
		Sub Total	24	31.18

		Entrepreneurship development and behaviour		
		Entrepreneurship behaviour	3	3.90
		Marketing behaviour	3	3.90
		Sub total	6	7.79
2	Agricultural extension (Frequency:35) (Percentage:45.45)	**Knowledge, diffusion and adoption**		
		Adoption of agricultural technology	12	15.58
		Adoption of nutritional practices	1	1.30
		Indigenous technical knowledge	2	2.60
		Sub total	15	19.48
		Human resource development		
		Research on small and marginal farmers	1	1.30
		Research on tribal development	4	5.19
		Women in agricultural and social groups	3	3.90
		Sub total	8	10.39
		Administration, personal development and role performance		
		Job performance	2	2.60
		Role performance	2	2.60
		Rural institutions and voluntary organisations	1	1.30
		Sub total	5	6.49
		Agricultural and rural development programmes	5	6.49
		Capacity development and impact assessment	2	2.60
3	Agricultural communication (Frequency:6) (Percentage:7.79)	**Extension communication methods**		
		Communication behaviour	1	1.30
		Mass media	5	6.49
		Sub total	6	7.79
4	Agriculture and allied enterprises (Frequency:6) (Percentage:7.79)	**Crop production and cropping pattern**		
		Horticultural crops	3	3.90
		Field crops	1	1.30
		Forest crops	1	1.30
		Cropping pattern	1	1.30
	Sub total		6	7.79
	Total		77	100.00

This classification of research areas are on par with Reddy (2002) and Biswas (2009) [2, 7]

Conclusion

The analysis of 77 postgraduate theses revealed distinct patterns in the thematic orientation of research within the field of agricultural extension education during 2014-2023 in the DBSKKV, Dapoli. The study indicated that postgraduate research in agricultural extension needs a more balanced and diversified focus. While behavioual and technology adoption studies dominate several important areas such as agricultural communication, entrepreneurship development, rural institutions, capacity development and allied enterprises are under researched suggesting the need for university to consider these trends when supporting research initiatives. A research theme framework should be developed for the university for a particular time period after including current research trends such as climate smart agriculture, policy research, social innovation and ICTs so that research areas won't be missed out. The university can organize regular workshops to guide researchers and ensure a balanced and diversified focus across all research areas.

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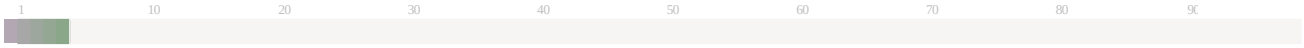

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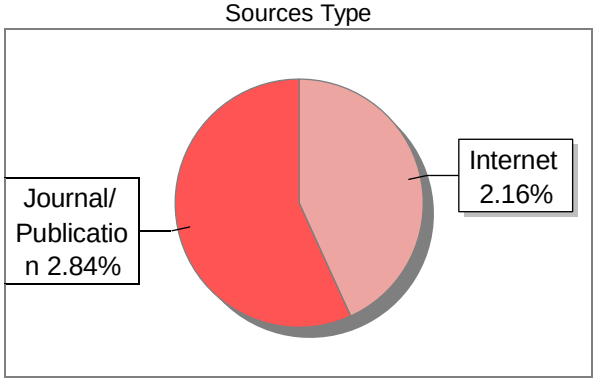

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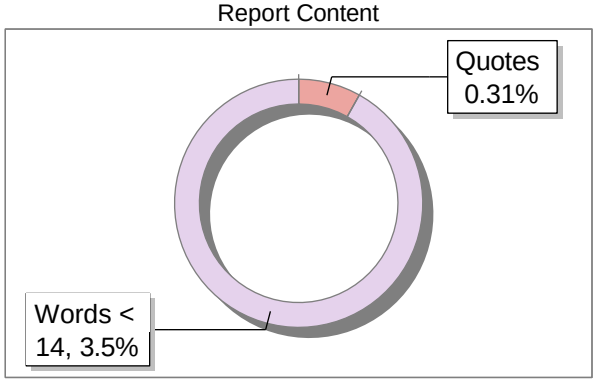

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8. Research Publication

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