ANALYSIS OF ENTREPRENEURSHIP DEVELOPMENT TRAININGS OF KRISHI VIGYAN KENDRAS (KVKs) IN KERALA

By

GAYATHRI B.R.

(2018-11-112)

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF HORTICULTURE

VELLANIKKARA, THRISSUR – 680656

KERALA, INDIA

2020

ANALYSIS OF ENTREPRENEURSHIP DEVELOPMENT TRAININGS OF KRISHI VIGYAN KENDRAS (KVKs) IN KERALA

By

GAYATHRI B.R.

(2018-11-112)

THESIS

Submitted in partial fulfilment of the

requirement for the degree of

Master of Science in Agriculture

Faculty of Agriculture

Kerala Agricultural University, Thrissur

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF HORTICULTURE

VELLANIKKARA, THRISSUR – 680656

KERALA, INDIA

2020

DECLARATION

I, hereby declare that the thesis entitled "Analysis of Entrepreneurship Development Trainings of Krishi Vigyan Kendras (KVKs) in Kerala" is a bonafide record of research done by me during the course of research and that it has not previously formed the basis for the award to me of any degree, diploma, fellowship or other similar title, of any other University or Society.

Vellanikkara
19/09/2020

Gayathri B. R.
2018-11-112

CERTIFICATE

Certified that this thesis entitled **"Analysis of Entrepreneurship Development Trainings of Krishi Vigyan Kendras (KVKs) in Kerala"** is a record of research work done independently by **Ms. Gayathri B. R.(2018-11-112)** under my guidance and supervision and that it has not previously formed the basis for the award of any degree, diploma, fellowship or associateship to her.

Vellanikkara
19/09/2020

Dr. Binoo. P. Bonny
(Major advisor, Research Advisory Committee)
Professor and Head
Department of Agricultural Extension
College of Horticulture
Vellanikkara, Thrissur

CERTIFICATE

We, the undersigned members of the advisory committee of **Ms. Gayathri B. R. (2018-11-112)**, a candidate for the degree of **Master of Science in Agriculture** with major field in **Agricultural Extension** agree that this thesis entitled **"Analysis of Entrepreneurship Development Trainings of Krishi Vigyan Kendras (KVKs) in Kerala"** may be submitted by **Ms. Gayathri B. R.** in partial fulfilment of the requirement for the degree.

Dr. Binoo P. Bonny
(Chairperson of Advisory Committee)
Professor and Head
Department of Agricultural Extension
College of Horticulture
Vellanikkara, Thrissur

Dr. Prema. A
(Member, Advisory Committee)
Professor and Head
Department of Agricultural Economics
College of Horticulture
Vellanikkara, Thrissur

Dr. Laly John C.
(Member, Advisory Committee)
Professor and Head
Department of Agricultural Statistics
College of Horticulture
Vellanikkara, Thrissur

Dr. Jayasree Krishnankutty M.
(Member, Advisory Committee)
Professor (Agrl. Extn.) and Head
Communication Centre
Mannuthy, Thrissur

ACKNOWLEDGEMENT

Even though there is lot of magic that the almighty does in our life, the greatest magic that the ***almighty*** *does is, simply give the opportunity. The opportunities to learn, grow, build character and even improve one's capabilities in facing struggles. For that reason alone I want to thank him first as I am sure that I have felt his grace in completing this study, despite the hardships. In the very same line that I thank the almighty, I would like to express my gratitude to my major advisor* ***Dr. Binoo P Bonny****, Professor and Head, Department of Agriculture Extension for her valuable advice, unwavering guidance, practical suggestions, constant patience, persistent help and pleasant approach at various stages of my research work and thesis preparation which will be remembered with utmost gratification forever.*

I sincerely thank ***Dr. Laly John C, Dr. Prema. A and Dr. Jayasree Krishnankutty M.*** *for their solid encouragement, timely support and critical examination of the manuscript that has helped me for the improvement and preparation of the thesis throughout the course of my research.*

I express my heartiest gratitude to ***Dr. Jiju. P. Alex, Dr. Mercykutty M. J, Dr. Sulaja O.R and Dr. Smitha S.*** *from the Dept. of Agricultural Extension for their ever-willing help, valuable guidance and creative suggestions throughout the period of my study.*

I sincerely thank ***Dr. Pratheesh*** *Department of Agricultural Statistics, College of Agriculture, Vellayani for his sincere guidance, expert advice, valuable suggestions and support rendered to complete the thesis work on time amongst the pandemic Covid-19 crisis.*

I duly acknowledge ***Dr. Binu*** *(Programme Coordinator, KVK Mitraniketan),* ***Dr. Muralidharan, P.*** *(Programme Coordinator, KVK Alappuzha),* ***Dr. Manoj Kumar T.S*** *(Programme Coordinator, KVK Kasaragod),* ***Dr. Jayalakshmi G*** *(Programme Coordinator, KVK Kottayam) and* ***Dr. Abdul Jabbar*** *(Former Programme Coordinator, KVK Malappuram) for providing suitable data at the needful times, valuable technical advice and support during my survey.*

I would like to express my extreme gratitude to all the Subject Matter Specialists and other staffs of KVKs especially ***Dr. Bindhu and Dr. Devika from KVK Mitraniketan, Ms. Jissy and Ms. Lekha from KVK Alappuzha, Dr. Saritha Hedge, Dr. Neelofar, Dr. Panduranga and Mr. Bhaskaran from KVK Kasaragod, Dr. Jisha from KVK Kottayam and Dr. Lilia Baby and Mr. Roshan from KVK Malappuram*** *for having helped me during my data collection. I am extremely thankful to all the respondent EDP KVK Trainees, for their co-operation and support during the survey.*

I would take this opportunity to thank my senior ***Akhil Ajith*** *for his help, support and critical evaluation during the entire research and analysis. I express my heartfelt gratitude to* ***Rashidha*** *and* ***Joseph*** *for being with me, a call away during the entire course of study.*

True words of thanks to all my friends, more personally I would like to express my sincere gratitude to my dearest and intimate friends ***Aysha, Lakshmi, Shivasankar and Mahesh.*** *I appreciate all my seniors and juniors, especially* ***Nadhika, Vivek S, Shilpa Karat, Deini, Geethu, Lokesh, Parvathy and Shilpa*** *for their guidance and emotional support. I thank all my batch mates of College of Horticulture who helped me in one way or the other. I thankfully remember the services rendered by all the staff members of Student's computer club, College Library, Office of COH and Central library, KAU. I am thankful to Kerala Agricultural University for the technical and financial assistance in the persuasion of my study and research work.*

I cannot express the quantum of love and gratitude to all my best friends, especially, and ***Mili, Milu, Athira, Karishma, Aparna, Shilpy, Siddharth, Sooraj and Liju*** *for being the pillars of encouragement and strength throughout my ups and down.*

I am speechless! I can barely find words to express all the wisdom, love and support given to me for that I am eternally grateful to my grandmother ***Leela.C*** *and my parents,* ***Bindu.S.L and Ravindran. R*** *my brother* ***Govind.R.B*** *and my sisters* ***Revathy and Rohini*** *for their unconditional love, fidelity, endurance and encouragement.*

A word of apology to those I have not mentioned in person and a note of thanks to everyone who helped for the successful completion of this endeavour.

GAYATHRI B. R.

CONTENTS

LIST OF TABLES

Contd…

…Contd.

LIST OF FIGURES

APPENDICES

PLATES

Introduction

CHAPTER 1

INTRODUCTION

"Entrepreneurs are non-fixed income earners who pay known costs of production but earn uncertain incomes"—Richard Cantillon

Agriculture has played a critical role in the economic development process of India, both through its contribution to national income and as the livelihood base to the majority of its population. Technology served as the key component of the processes that enabled remarkable achievements in agricultural production and productivity. Mitra (2018) reported that extension advisory services formed an integral part of the technology transfer that helped to improve the socio-economic standards of rural farmers by upgrading their knowledge and skills. It facilitated adoption and diffusion of agricultural technologies and innovations that served as strategic drivers in attaining food and nutritional security and provided better quality of life to people engaged in agriculture and allied sectors (Medhi *et al*., 2017). In this transformation Krishi Vigyan Kendras (KVKs) have been serving the critical role of a major institutional innovation in transfer of technology at the district level ever since its inception in 1974. KVKs supported farmers to have access to appropriate technologies that suited their micro-farming situations under various production systems in the country. Government of India through the Indian Council for Agricultural Research (ICAR) has funded the establishment of a wide network of KVKs that served as the first-line technology transfer centres of farming throughout the country.

The approach and methodology followed by KVKs are based on action plans developed on thrust areas delineated for the district. They also served as knowledge centres involved in technology adaptation trials and refinement through field trials. The KVK has been focussing on vocational skill development trainings for farmers, farm women and young prospective farmers. The trainings served in capacity development and skill upgradation of farmers that reduced the time lag between technology generation and transfer. Trainings organized by KVKs thus helped to ameliorate the poor socio-economic conditions of farmers by raising agricultural

productivity, income and employment through technology application and process innovations generated from agricultural research (Dubey *et al.*, 2008).

Genesis of Krishi Vigyan Kendras (KVKs)

Education Commission (1964-66) recommended the establishment of specialised institutions to provide vocational education in agriculture and allied sectors to combat the problems related to the increase in the number of unskilled rural youth in the country. It was aimed at catering to the training needs of rural boys and girls at pre- and post-matriculate levels. These institutions were termed as Agricultural Polytechnics as suggested by the commission (NILERD, 2017).Based on the discussions held on the recommendations among the Ministry of Education, Ministry of Agriculture, Planning Commission, and other allied institutions during 1966-72, ICAR was endorsed with the establishment of Krishi Vigyan Kendras (KVKs).Accordingly in 1973,ICAR constituted a committee under the Chairmanship of Dr. Mohan Singh Mehta of Seva Mandir to propose a detailed plan for implementation of KVK. As per the recommendation of the Committee report, the first KVK was established at Pondicherry in 1974 and Tamil Nadu Agricultural University served as its host organization (Gupta and Sood, 2012).It was mandated to provide vocational training to the practicing farmers, school dropouts and field level extension functionaries.

Later in 1976-77 the Planning Commission of India approved the proposal of the ICAR to establish 18 KVKs during the 5th Five Year Plan. In the consequent Five Year Plan periods, many more KVKs were established in various parts of the country. During the past five decades, several high-powered committees have recommended for establishment of KVKs indifferent parts of the country. As per 2020 statistics 716 KVKs under 11 Agricultural Technology Application Research Institutes (ATARIs) are working in the country under ICAR funding with administrative control of different host agencies.

Krishi Vigyan Kendras (KVKs)

Krishi Vigyan Kendras (KVKs) are termed as the first line transfer of technology (TOT) centres under the National Agricultural Research System (NARS). KVKs have been established under various host organizations mostly SAUs, ICAR institutes and non-governmental organizations (NGOs) funded by the ICAR. KVKs designed various need based training modules to impart skill oriented vocational trainings and knowledge about new technologies and practices to the farmers/ farm women, rural youth, extension workers and groups for self-employment. These trainings were provided not only in agriculture and allied sectors but also in other areas of income-generating activities that increases the income of farm families.

Mandate and Activities

Field trials for technology assessment, demonstration for its application and capacity development formed the principal mandates of KVKs. In order to implement the mandates effectively, the following interventions are envisioned for all KVKs:

1. On-farm trials to assess the locational adaptability of agricultural technologies under various farming systems.

2. Organize frontline demonstrations in farmers' fields to prove the production potential of technologies.

3. Capacity development of farmers and extension personnel to appraise their knowledge and skills on latest agricultural technologies.

4. To serve as knowledge and resource centre of agricultural technologies at the district level for augmenting public, private and voluntary sector initiatives to improve the agricultural economy.

5. Promoting the integrated use of ICT and other media tools to provide farm advisories to farmers and other agricultural stakeholders

Vocational training of self-employed farm men, women, youth and extension personnel also came under the mandate of KVKs. Moreover, the KVKs which follow flexible, need based training curriculum are considered as innovative institutions for

transfer of technology. Mentoring activities through demonstrations, personal visits, village and block level meetings and audio-visual aids are all effectively utilised by KVKs in their pursuit of excellence in transfer of technology in agriculture (Bhattacharyya and Mukherjee, 2019).

Need for Entrepreneurial Development Programmes (EDP)

Conventional theories held that entrepreneurial qualities are inborn traits and propagated the notion that only those persons with business family background would become successful entrepreneurs. However, the myth has been demystified by more and more successful entrepreneurs who proved that anyone who gained proper knowledge and training can be an entrepreneur. The view was further strengthened by David C. McClelland's motivation theory of entrepreneurship (Mohan and Revathi, 2012). The theory was based on a five-year Harvard University experimental study in order to answer whether the need for achievement could be induced. The study on youth, popularly known as the Kakinada Experiment, was conducted in Andhra Pradesh in India in collaboration with the Small Industries Extension and Training Institute (SIET), Hyderabad. The study found that the need to achieve motivated people to work hard and moneymaking was incidental. The need for achievement was the driving force for any entrepreneur and it concluded that motivation could be provided through appropriate training strategies (Chandrasekhar and Vanisree, 2018). It was the findings from the Kakinada Experiment that gave the much needed impetus to entrepreneurial training, which became popular as the Entrepreneurial Development Programmes **(**EDP). Thus EDPs based on the premise that entrepreneurs can be trained and developed became a common intervention to induct motivation and competence among prospective entrepreneurs. This understanding made India to embark on substantial programs of entrepreneurship development since 1971. Currently there are about 700 all India and state level institutions involved in the organization of EDPs in the country.

Entrepreneurship Development Programmes (EDP) of KVKs

EDP formed an effective human resource development tool. It served to address unemployment, one of the biggest challenges faced in the development of the

country. The mismatch between the employment generation capacity of the economy and the number of job aspirants in the country has been reflected in the rising unemployment rate and growing frustration among the youth. In addition there are problems of underemployment and disguised unemployment. It was in this backdrop India accepted the principles of entrepreneurship development which emerged as a potential tool to redress these problems. Accordingly entrepreneurial activities are considered as a means of socio-economic empowerment that enable in contributing to the overall personal development (Channal and Natikar, 2018). It enabled a person in developing his/her skills, motives and capabilities which were essential to his successful entrepreneurial roles. It also contributed to the balanced utilization of local resources, employment generation and promotion of small scale units (Masur, 2014).It also played a vital role in inducing potential individuals to build on new business opportunities and helped existing entrepreneurs to improve their problem solving skills. Therefore, increasing the EDP interventions has remained a priority in development policies and programs of the country in the past few decades. This is reflected in the promotion of Entrepreneurship Development Programmes (EDP) by both public and social sector organizations in the country.

EDP has been conceptualised not merely as a training program but as a process that helped to:

1. Enhance the knowledge, skill and motivation of potential entrepreneurs
2. Reform their entrepreneurial behaviour in day-to day activities
3. Encourage them to develop their own ventures.

In India, many agencies and institutions are involved in organizing EDP and Krishi Vigyan Kendras (KVKs) funded by ICAR formed a primary agency in agriculture sector that dealt with EDP trainings. The KVKs provided intensive hands on training in various components of agriculture, horticulture and animal husbandry to inspire unemployed youth and farmwomen to initiate their own agro based enterprises. Thus KVKs played a dynamic role in improving the economic status of farmers through various Entrepreneurship Development Programmes and skill development trainings. Hence EDP trainings organized by KVKs held great significance in employment generation in agriculture.

Recent years have seen the emergence of Entrepreneurship development programmes (EDP) as a major extension intervention in income and employment generation in Agriculture and allied sectors. Therefore analysis of Entrepreneurship development training programmes of Krishi Vigyan Kendras (KVKs), the first line transfer of technology (TOT) centres of the Indian Council of Agricultural Research assumes significance. As nodal agricultural resource centres at the district level, they have significant role in improving the farmers' income by facilitating entrepreneurship development. Therefore an understanding of the extent to which the entrepreneurship development training modules of KVKs meet the entrepreneurial needs of trainees would enable stream lining of EDP programmes. The recommendations from the study can be used to improve the KVK EDP trainings and there by contribute to improvement in the farmers' income and agricultural development.

It was in this pretext, the present study entitled *Analysis of entrepreneurship development trainings of Krishi Vigyan Kendras (KVKs) in Kerala* was undertaken with the following specific objectives.

Objectives of the study

- To analyse the perceived entrepreneurial training needs of KVK trainees
- To evaluate the extent to which the entrepreneurial development training modules meet the needs of the trainees
- To delineate the factors affecting the effectiveness of entrepreneurship development trainings of KVKs
- To evolve recommendations for improving the entrepreneurship development training programs of KVKs

Scope of the study

Entrepreneurs played key role in the socio-economic development of a nation. This warranted focus on entrepreneurship development programs organized by various development agencies. Therefore, the entrepreneurship development programme (EDP) trainings organized by Krishi Vigyan Kendras, the primary agricultural knowledge centres at the district level assumed importance. The results

from the study will bring out entrepreneurial qualities, entrepreneurial training needs, the effectiveness of entrepreneurial development training modules in meeting the training need and factors affecting the effectiveness of EDP trainings of KVKs. Based on the results appropriate recommendations that aid to improve planning and conduct of future KVK-EDP trainings has been envisaged. The inputs from the study could also form the base in formulating appropriate training curriculum for the KVK training programs.

Limitations of the study

Concentrated and deliberate efforts have been made to make the study comprehensive to derive facts of academic and practical relevance. However, the inherent limitations of being a student research project as listed below could not be ruled out:

1. Inherent limitation of time, finance and other resources encountered from being a student research project.
2. The results can be generalised only in areas of similar socio-economic and technological contexts as the research covered only a small percent of the KVK trainees.
3. The results of the research project were based on the expressed responses of the respondent's perceptions and as such were prone to the effects of individual bias and prejudice and complete neutrality cannot be expected.

Organisation of the thesis

The thesis is organized into a logical sequence of five chapters that facilitated easy handling and report writing as given below:

1. Introduction
2. Review of literature
3. Research methodology
4. Results and discussion
5. Summary and conclusion

The first chapter outlined a brief introduction, objectives, scope and limitation of the study. Chapter two covered findings from earlier research investigations that were related to the objectives of the study. Methodology, the third chapter, covered the study locale, research design, sampling, operationalisation and measurement of selected variables, data collection and statistical tools used to analyse the data. The results from the study are depicted as the fourth chapter i.e. results and discussion. Finally, the fifth chapter put forth the summary and conclusions of the thesis followed by the list of references and Appendix. The appendix and the abstract are presented at the end.

Review of literature

CHAPTER 2

REVIEW OF LITERATURE

Evaluation of previous works done in the related areas of a research work formed an important step towards systematic research. It provided a scientific base for the investigation and helped in developing a better understanding of the research problem. In line with the objectives of the study, the reviews of earlier studies undertaken are presented under the following sub-headings.

2.1 Concept related to entrepreneur and entrepreneurship

2.2 Entrepreneurship development programmes

2.3 Socio-economic and psychological profile of EDP trainees

2.4 Training programmes of Krishi Vigyan Kendras (KVKs)

2.5 Training needs analysis

2.6 Effect of personal attributes of trainees on training need

2.7 Content analysis of training

2.8 Effectiveness of EDP trainings of KVKs

2.9 Effect of personal attributes of trainees on training effectiveness

2.10 Factors affecting EDP training effectiveness

2.1 Concepts related to entrepreneur and entrepreneurship

2.1.1 Entrepreneur- definition

The term "Entrepreneur" was first coined in 18th Century by Richard Cantillon (1730). According to him, an entrepreneur is an agent who bought the factory production at a certain price in order to combine them into a product with a view to selling it at a higher price.

Drucker (1985) defined an entrepreneur as one who always searched for change, responded to it and exploited it as an opportunity. Entrepreneurs innovate and innovation is considered an explicit instrument of entrepreneurship.

Bolton and Thompson (2000) defined an entrepreneur as a person who habitually created and innovated to build something of recognized value around perceived opportunities.

According to Rao (2008) an entrepreneur was defined as a person who had the ability to identify a real market for a product or service idea, could price it economically in order to make the whole venture sustainable.

Zwan *et al*. (2016) defined entrepreneur as a person who created a new business in the face of risk and uncertainty for the purpose of achieving profit and growth by identifying significant opportunities and assembling necessary resources to capitalize on them.

2.1.2 Entrepreneurship- definition

Suresh (2004) asserted that entrepreneurship is defined as a composite skill, the resultant of mix of many qualities and traits that included intangible factors such as imagination, readiness to take risks, ability to bring together and use other factors of production. Factors of production included capital, labour, land and also intangible factors such as the ability to mobilize scientific and technological advances.

Onuoha (2007) viewed entrepreneurship as the practice of starting new organizations or revitalizing mature organizations, particularly new businesses in response to identified opportunities.

Hisrich *et al*. (2010) defined entrepreneurship as process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychological and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence.

2.2 Entrepreneurship development programmes

Saina (2009) emphasized that entrepreneurship development training programmes (EDP) which helped in strengthening informal and unorganized sector motivate enterprising people to opt for self-employment and entrepreneurial career, thus helping in solving the problem of increasing unemployment. EDP also played an

important role in harnessing local resources and entrepreneurship. Successful EDP helped in faster industrialisation and reducing concentration of power in few hands.

Patowary (2012) emphasized that entrepreneurship development training programme was needed for active decision making power and to gain knowledge about entrepreneurship. EDPs also formed an integral part of economic development programmes and they were directed towards developing entrepreneurship with the objective of increasing the number of entrepreneurs who start new business units. EDP formed one of the novel approaches for entrepreneurship development and was organized by a number of institutions.

Kumar (2017) asserted that entrepreneurship development programmes played an important role in the economic and industrial development of any country whether developed or developing. It was an effective and comprehensive human resource development programme. It helped in increasing motivation, knowledge and skill, developing analytical ability, farsightedness, and gave confidence to solve variety of problems boldly.

2.3.Socio-economic and psychological profile of KVK trainees

2.3.1 Age

Bhagyalaxmi *et al.* (2003) observed that majority (60.00%) of the dairy entrepreneurs belonged to middle age group, followed by 21.67 per cent and 10 per cent respondents belonging to old and young age categories respectively.

Meena (2015) stated that majority of the respondents (78.30%) who attended training from KVK were in the age group of 36 to 55 years followed by young age group (18.30%) and above 55 years group (3.3%).

Bhupendra (2016) observed that majority (72.85%) of the women entrepreneurs of agro-based enterprises belonged to middle age group of 36 to 55 years. Old age group comprised of 27.15 per cent whereas none of the respondents were found to belong in the young age group of upto 35 years.

Pandey (2017) observed that more than half (56.67%) of the respondents who attended dairy based entrepreneurship development training were middle aged, followed by 33.33 per cent old age group and 10.00 per cent young age group.

Patel *et al.*(2017) revealed that less than half (48 percent) of the trainees who attended training from the KVK were from middle age group. 35 per cent of the trainees were young. And only 17 per cent of the trainees were in the old age group.

Raju (2017) reported that majority (47%) of the agripreneurs belonged to middle age category. 39.00 per cent were old aged entrepreneurs and 14.00 per cent were young entrepreneurs.

Channal and Natikar (2018) conducted a study on the impact of entrepreneurship development programmes in North Karnataka. He observed that majority of the trainees belonged to middle age group and only a small percentage belonged to old age and young age groups.

2.3.1 Gender

Geethu (2019) observed that female trainees were more than the male trainees in the KVKs. Out of the 150 respondents, majority (61.33 %) trainees were female and remaining 38.66 per cent were female. She also inferred that women were more enthusiastic towards training and enterprise formation than men.

2.3.2 Marital status

Masur (2014) revealed that 94.00 per cent of the women who were trained from KVK Dharwad and 86.00 per cent of the trainees from RUDSETI were married. It was also inferred that their husbands encouraged them to attend the Entrepreneurship Development Programme and to start their own venture.

Rajini and Sarada (2008) in their on women entrepreneurship and support system observed that most (92%) of the entrepreneurs were married and unmarried constituted 8 per cent.

Bhupendra (2016) observed that majority (80%) of the women entrepreneurs of agro-based enterprises were married. Remaining 20.00 per cent of the entrepreneurs were not married.

Sinha (2016) found that a significant majority (73.3%) of the trainees who participated in the Entrepreneurship development training programme of RUDSETI were married.

2.3.3 Family type

Rajini and Sarada (2008) in their on women entrepreneurship and support system observed that a vast majority (90%) of the respondents belonged to nuclear family. Only 10 per cent were from joint family.

Sinha (2016) reported that 80.00 per cent of the trainees who attended Entrepreneurship development trainings from RUDSETI had nuclear family. And remaining 20.00 per cent had joint family.

Shahjar *et al.* (2018) observed that out of the 120 dairy entrepreneurs, a significant majority (94.16%) belonged to nuclear family. Remaining 5.63 per cent of the respondents belonged to joint family.

2.3.4 Family size

Sushma (2007) revealed that majority (68.46 %) of the entrepreneurship development trainees of Rural Development and Self Employment Training Institute were from small family (upto four members). Remaining belonged to medium and large family respectively.

Bhupendra (2016) observed that majority (51.43%) of the women entrepreneurs of agro-based enterprises belonged to small family upto four members. 48.57 per cent belonged to medium family and none belonged to large family.

Deepthi (2016) reported that majority (60.00 %) of the entrepreneurs had small family upto 4 members. 24.58 per cent respondents had medium family with five to eight members and 15.41 per cent had large family.

Gajendra (2017) reported that out of the 210 respondents 48.58 % belonged to small size family followed by 38.57 % medium and remaining 12.85 % were found to have large family size. Majority of the respondents had small size family upto four members.

2.3.5 Educational status

According to Issac *et al.* (2007) higher levels of education was found to be associated with better entrepreneurial performance as well as higher rate of enterprise formation.

Sushma (2007) revealed that 28.96 per cent of the entrepreneurs had education up to college level, followed by 24.61 per cent with education up to high school, 19.52 per cent with middle school education. However, about 10 per cent of the entrepreneurs were illiterate.

Levie and Autio (2008) through his study revealed that education provides individuals the cognitive ability to match their potential entrepreneurial opportunities with their respective skills and abilities.

Palaniappan *et al.* (2012) observed in his study that 64.00 per cent of the women entrepreneurs from erode district were educated upto high school level and 36.00 per cent of the entrepreneurs were educated upto college level.

Sabira (2016) revealed that majority of the trainees who attended training from KVK Thrissur had education from high school level to college level and there were no illiterate trainees who attended the KVK training programme.

Gajendra (2017) observed that more than one third of the respondents who attended entrepreneurship training studied upto college level, while 28.10 per cent and 19.52 per cent of the respondents had education upto pre-university (11^{th} and 12^{th}) and high school levels respectively. There were 11.43 per cent who studied upto middle school. It was interesting to find that none of the respondents belonged to primary school and illiterate category.

Kumar (2018) reported that 88.88 per cent of the respondents who attended EDP training from KVK were having college level education. Only 11.12 per cent respondents were found to have middle to high school level education. Thus the education status was satisfactory among the KVK beneficiaries.

Ranjitha *et al.* (2018) reported that majority (66%) of the trainees who attended training from KVK studied above matriculation level.

Geethu (2019) observed that out of the 120 respondents who attended vocational trainings from KVK, 44.00 per cent had education upto high school level, followed by 28.67 per cent with college level education and 27.33 per cent with middle school education. None were illiterate among the respondents.

2.3.6 Occupational status

Shehrawat (1998) observed that out of the 120 entrepreneurs, majority (31.67%) had farming along with business as their occupation. 26.67 per cent had service oriented business and 22.50 per cent had business alone as their primary occupation. He inferred that majority of farming community had established entrepreneurial venture.

Deepthi (2016) revealed that majority (55%) of the entrepreneurs had business/enterprise as their primary occupation without any agriculture. However, there were 32.50 per cent who had enterprise with agriculture as their occupation and 12.50 per cent respondents had enterprise with service as their source of living.

2.3.7 Extension contact

Upadhyay (2010) reported in his study that 65.83 per cent of the dairy entrepreneurs had medium level of extension contact with the different extension agencies, followed by high (22.50 per cent) and low (11.67 per cent) level of extension contact.

Gade (2011) revealed that majority (71.88 per cent) of the entrepreneurs were found to have medium level of extension contact, followed by 15.62 per cent and 12.50 per cent of the entrepreneurs had high and low level of extension contact respectively.

Devi *et al.* (2016) reported that majority (38.67 per cent) of the trainees who attended training programme from KVK, Andro had medium extension contact followed by high (32.00 %) and low (29.33 %) extension contact category

respectively. According to him the possible reasons for medium level of extension contact by most of the trainees may be due to the regular field visits by extension personals in the locality.

Pandey (2017) observed that 43.33 per cent of the respondents who attended the entrepreneurship development training on dairy had medium extension contact, followed 30.00 per cent with high extension contact and 26.67 per cent with low extension contact.

Shahjar *et al.* (2018) revealed that out of the 120 dairy entrepreneurs of Jammu district, more than half of the respondents (73.33 %) had medium contact with extension agency and 11.66 per cent had high level of extension contact.

2.3.8 Mass media exposure

Thilagam (2012) reported that majority (72.00 %) of the entrepreneurs were under medium level exposure to mass media, followed by high (16.00 %) and low (12.00 %) level of mass media exposure.

Sindhu (2015) revealed that more than half (60.84 %) of the agripreneurs had medium and 28.75 per cent had high mass media exposure due to frequent reading of newspapers and magazines and viewing of television and internet. About 21.66 per cent of the agripreneurs had medium exposure to mass media, followed by 17.50 per cent with low mass media exposure. About 22.92 per cent had low exposure to mass media.

Deepthi (2016) revealed that majority (48.33 %) of the entrepreneurs had medium mass media exposure as most of the entrepreneurs regularly read newspapers, browse internet and watch television programmes to update their knowledge.

Pandey (2017) indicated that 36.66 per cent respondents who attended entrepreneurship development training on dairy had medium exposure to mass media. 31.67 per cent had high mass media exposure.

Raju (2017) observed that a significant majority (77.00%) had medium level of exposure to mass media. He also found out that 16.00 per cent had high mass media exposure and only 8.00 per cent had low mass media exposure.

Shahjar *et al.* (2018) observed that out of the 120 dairy entrepreneurs, a significant majority (56.66%) had medium exposure to mass media due to possession of television and radio which helped to access information easily. About 28.33 per cent had low mass media exposure and 15 per cent had high mass media exposure.

2.3.9 Land holding

Bhavana (2010) revealed that majority (45.71%) of the entrepreneurs had small land holding upto one hectares.

Sinha (2016) who found that irrespective of the type of EDP, majority of trainees came from families' that owned marginal land holdings upto one hectares.

Gajendra (2017) observed that more than half (59.05 %) of the respondents belongs to medium land holding and 21.43 per cent of the trainees possessed large land holding. 15.24 per cent of the respondents were having small farm size. Only 4.29 % were having marginal land holdings. He inferred that the respondents who were having more land holdings and sound financial backgrounds were actively initiating entrepreneurship.

2.3.10 Income

Shehrawat (1998) observed that majority (83.33%) of the entrepreneurs belonging to low to medium income group had entered into entrepreneurship profession and thus he suggested it is the duty of government and other financial institutions to help the entrepreneurs financially to set up the enterprise units.

Rajini and Sarada (2008) in their on women entrepreneurship and support system elucidated that supplementing to family income from annual income was the most motivating factor to start entrepreneurship venture.

Mamata and Renuka (2012) observed that majority (31%) of the trained women entrepreneurs had a stable income generation. About 40 per cent of the

entrepreneurs trained showed an increasing trend in their income generation. However in 29 per cent entrepreneurs there was no increased income.

Jayarani *et al.* (2013) reported that majority of the entrepreneurs had high annual income above two lakhs. Only 15.40 per cent of the respondents had very low annual income below one lakh.

Tabasum *et al.* (2013) revealed that majority of the entrepreneurs agreed that the vocational training provided helped to enhance their economic status. More than half of the entrepreneurs reported that adopting the skills and trainings by KVK gave them an opportunity to earn more profit. It was also inferred that there was increase in the annual income after the establishment of the enterprise by the trainees.

2.3.11 Entrepreneurial intention

Bird (1988) defined entrepreneurial intention as the state of mind that directed and guided the entrepreneur to act towards the implementation and development of new business concepts.

Thompson (2009) indicated that entrepreneurial intention can be understood as a self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do so at some point in the future.

Doan *et al.* (2011) simply identified entrepreneurial intention is an individual's desire and determination to engage in new venture creation.

Peng *et al*. (2012) elucidated that entrepreneurial intention is a mental orientation such as desire, wish and hope to influence their choice of entrepreneurship.

Sinha (2016) reported that the entrepreneurial intentions of majority (53.33%) of the farm trainees who attended entrepreneurship development training from RUDSETI Ghaziabad centre came under the medium category and 46.7 per cent belonged to the high entrepreneurial intention group. None had low level of entrepreneurial intention. While in the case of non-farm trainees, majority (60.00 %)

had medium and 20.00 per cent had high and 20.00 per cent had low level of entrepreneurial intentions respectively.

2.3.12 Entrepreneurial need

Sinha (2016) elucidated that the entrepreneurial need included the need for achievement, need for power and need for affiliation. It was observed that out of the 120 respondents majority had high entrepreneurial need. He also inferred that successful entrepreneurs possess high need for achievement, moderate need for power and low need for affiliation.

2.3.13 Entrepreneurial capacity

Lau (2002) indicated that the entrepreneurial capacity which includes the job performance in the enterprise, competence, social networking and growth opportunity of the individual is positively related to the entrepreneurial career success.

Clarysse *et al.* (2011) defined entrepreneurial capacity as the capacity to identify, recognize and absorb opportunities and entrepreneurial experience and have been identified as one of the most important determinant to become a successful entrepreneur. He also inferred that entrepreneurs with high degree of entrepreneurial capacity are required.

Sinha (2016) inferred that the entrepreneurial capacity of half (53.3 %) of the farm trainees and majority (80%) of the non-farm trainees had medium level of entrepreneurial capacity and remaining had high level of entrepreneurial capacity at RUDSETI. The medium to high entrepreneurial capacity was due to the training programme at the institution where the trainees were provided the experiential learning to manage their enterprise effectively.

Lopez (2020) indicated that the emerging entrepreneurs requires training in areas that reinforce their entrepreneurial capacity, combines other essential ingredients of entrepreneurship and also increase the entrepreneurial capacity.

2.3.14 Innovativeness

Bhagyalaxmi *et al.* (2003) elucidated that majority (69.44 %) of the entrepreneurs had medium level of innovativeness. This was followed by 15.56 per cent and 15 per cent of entrepreneurs having high and low level of innovativeness respectively.

Nagesh (2005) revealed that 63.30 per cent of the respondents had medium level of innovativeness. About 18.30 per cent each were categorised into having low and high level of innovativeness respectively.

Kumar (2008) reported that majority (39.17 %) of the entrepreneurs had medium innovativeness, followed by 32.90 per cent and 27.92 per cent of the respondents having high and low innovativeness.

Taufiq *et al.* (2011) reported that 68.33 per cent of the agripreneurs had medium innovativeness followed by 20.00 per cent having high level of innovativeness. Only 11.67 per cent respondents had low level of innovativeness.

Deepthi (2016) reported that out of 240 respondents, majority (50.83 %) of the entrepreneurs had medium level of innovativeness followed by 32.92 per cent and 16.25 per cent with high and low levels of innovativeness respectively.

Katole *et al.* (2017) studied the Impact analysis of activities of Krishi Vigyan Kendra. They inferred that innovation is the main theme of KVK training. It is the degree of an individual's interest and desire to seek changes in their farming techniques and to introduce change into his own operations as and when found practicable and feasible. It was observed that 71 per cent of the trainees have medium innovative proneness and 20 per cent have high innovativeness. Only seven per cent have low innovative proneness.

Geethu (2019) revealed that majority (62.67%) of the trainees who attended training from KVKs had medium level of innovativeness. 21.33 per cent trainees had high innovativeness and 16 per cent trainees had low innovativeness.

2.3.15 Achievement motivation

McClelland (1961) stated that achievement motivation is the degree to do well to attain an inner feeling of self-accomplishment and not for the sake of social recognition.

Suresh (2004) found that majority of the dairy entrepreneurs (61.25%) were having medium level of achievement motivation , followed by 20.42 and 18.33 per cent of respondents having high and low achievement motivation respectively.

Taufiq *et al.* (2011) observed that 70.00 per cent of the agripreneurs had medium achievement motivation followed by 16.67 per cent having high level of achievement motivation. Only 13.33 per cent respondents had low level of achievement motivation.

Jayarani *et al.* (2013) revealed that majority (48.60%) of the entrepreneurs had medium achievement motivation, followed by 26 per cent having high achievement motivation and 25.40 per cent belonged to the low achievement motivation group.

Bhupendra (2016) observed that majority (72.14%) of the women entrepreneurs of agro-based enterprises had medium achievement motivation. 18.57 per cent had high achievement motivation. However 9.29 per cent were found to belong to low achievement motivation group.

Deepthi (2016) reported that out of 240 respondents, majority (59.58 %) of the entrepreneurs had medium level of achievement motivation followed by 29.58 per cent and 10.84 per cent with high and low levels of achievement motivation respectively.

2.3.16 Decision making ability

Suresh (2004) revealed that two-third (65.83%) of the respondents had medium level of decision making ability. High and low level of decision making ability among the respondents were 21.67 per cent and 12.50 per cent respectively.

Sathiabama (2010) elucidated that entrepreneurship development through training programmes enhanced the respondent's personal capabilities and improved their decision making status in the family and society as a whole.

Taufiq *et al.* (2011) observed that 71.67 per cent of the agripreneurs had medium decision making ability followed by 20.83 per cent of the respondents having high level of decision making ability and 7.50 per cent having low level of decision making ability.

Jayarani *et al*. (2013) revealed that majority (62%) of the entrepreneurs belonged to medium decision making ability category, followed by 33.40 per cent having high decision making ability and only 4.60 per cent belonged to the low decision making ability group.

Bhupendra (2016) observed that majority (67.86%) of the women entrepreneurs of agro-based enterprises had medium decision making ability. 22.14 per cent had high decision making ability. However 10 per cent were found to belong to low decision making group.

Deepthi (2016) reported that out of 240 respondents, majority (61.25 %) of the entrepreneurs had medium level of decision making ability. 25.83 per cent and 12.92 per cent of the respondents had high and low levels of decision making ability respectively and further showed that most of the entrepreneurs had better ability regarding decision making about their own enterprise.

2.3.17 Risk orientation

Bhagyalaxmi *et al.* (2003) elucidated that a significant majority (75.36 %) of the entrepreneurs had medium level of risk orientation. This was followed by 15.56 per cent and 13.33 per cent of entrepreneurs having high and low level of risk orientation respectively.

Suresh (2004) reported that a vast majority of the entrepreneurs had medium level of risk orientation.

Sushma (2007) revealed that majority (61.55 %) of the entrepreneurship development trainees of Rural Development and Self Employment Training Institute had medium risk orientation followed by 27.69 per cent having high level of risk orientation. Only 10.76 per cent of the respondents had low risk orientation.

Khanka (2010) elucidated in his book "Entrepreneurial development" that risk orientation is one of the most essential entrepreneurial attribute required for a successful entrepreneur.

Bhupendra (2016) observed that majority (76.42%) of the women entrepreneurs of agro-based enterprises had medium risk orientation, followed by 14.28 per cent with high risk orientation. However 9.28 per cent were found to belong to low risk orientation group.

Deepthi (2016) reported that majority (46.25 %) of the entrepreneurs had medium risk orientation followed by 29.17 per cent with high risk orientation. It was interpreted that a significant majority of the respondents had medium to high level of risk orientation due to more experience, confidence and more exposure to mass media. However 24.53 per cent respondents had low risk orientation.

2.3.18 Self confidence

Chaudhari (2006) observed that majority (48 %) of the respondents had medium self- confidence while 31 per cent of the respondents were having high level of self-confidence. 21 per cent had low self-confidence.

Dayananda (2016) observed that majority (69.16%) of the dairy entrepreneurs had medium self-confidence. 20.48 per cent respondents had high self-confidence and 10.00 per cent belonged to the low self-confidence category.

Medhi (2017) reported that half (50.00 %) of the trainees who attended training from KVK had medium level of self-confidence followed by those having high (40.83%) and low (9.17%) levels of self confidence.

2.3.19 Cosmopoliteness

Shehrawat (1998) observed that nearly half (49.17%) of the entrepreneurs had medium level of cosmopoliteness, followed by 33.66 per cent having low cosmopoliteness and19.17 per cent with high cosmopoliteness.

Patel *et al.* (2003) indicated that majority (74.00%) of the entrepreneurs had medium cosmopoliteness, followed by low (14.50%) category and high (11.50%) cosmopoliteness groups.

Suresh (2004) reported that 45.00 per cent of the entrepreneurs belong to low cosmopoliteness category, 44.17 per cent had medium level of cosmopoliteness and about 10.83 per cent had high level of cosmopoliteness.

Dayananda (2016) reported that 60.00 per cent of the dairy entrepreneurs had medium cosmopoliteness, followed by 20.83 per cent having low level of cosmopoliteness. About 19.17 per cent belonged to high cosmopoliteness category.

2.3.20 Economic motivation

Shehrawat (1998) observed that majority (53.53%) of the entrepreneurs had medium economic motivation, followed by 35 per cent having high economic motivation. He inferred that the medium to high economic motivation provides the entrepreneurs the motive for entrepreneurship development programmes and adopt new technologies for their enterprise units.

Bhagyalaxmi *et al.* (2003) revealed that majority (45 %) of the entrepreneurs had medium level of economic motivation followed by those having low (30 %) and high (25 %) levels of economic motivation.

Chauhan and Patel (2003) revealed that majority (48.75 %) of the entrepreneurs had medium economic motivation, whereas 20.00 per cent of them had low level of economic motivation and only 13.25 per cent of the respondents were having high economic motivation.

Dayananda (2016) reported that 55 per cent of dairy entrepreneurs had medium level of economic motivation. 24.16 had low economic motivation and 20.84 per cent had high economic motivation.

2.3.21 Empowerment gain

Vidhya *et al*. (2010) observed from their study on women empowerment in rural Maharashtra that about 80.00 per cent of the respondents had improvement in their self-confidence, courage and feeling of security after the training.

Nazir *et al.* (2013) found that KVK played a positive role for the empowerment of rural women through trainings. Majority of the respondents (46.75%) became independent, (30.5%) respondents had reduced their dependency and a small number of respondents (22.75%) did not feel any change in their dependency after the training programme. Women became socially, economically, psychologically empowered and their economic status increased.

Masur (2014) revealed that there was an increase in the psychological, social and economic empowerment of the trainees after attending the entrepreneurship development training. Regarding economic empowerment, power to invest, power to sale, operating personal bank account had significantly increased after training. Political empowerment like awareness of human right and awareness of laws improved after attending the EDP training.

Nashine *et al.* (2015) observed that there was significant difference between the extent of empowerment of beneficiaries and non-beneficiaries. The activities of Krishi Vigyan Kendra had significant impact on the empowerment of the tribal women. The trainings improved their skill, enhanced their income, upgraded technical knowledge and empowered them socially and economically.

Rana (2017) revealed that the vocational training programs of KVKs played a vital role in empowerment of rural women. Majority of women beneficiaries, after going through vocational training programmes adopted the recommended techniques, became independent and were empowered socially, economically and psychologically.

Pandey *et al*. (2018) revealed that trainings play an important role in empowerment of rural women and skill development. Majority of rural women who

participated in training programmes became independent and were empowered economically and socially.

Employment gain

Veena (2009) reported that the entrepreneurship development training programme on value added products from soya led to an improvement in employment generation and financial independence by 58 percent. Out of 338 women trained, about 83 (25 %) women had taken up entrepreneurial activities related to papad (78%), chutney powder (43%), multimix (42%), hurigaalu (24%) and vermicelli (1%).

Rana (2010) revealed that majority (45.83%) of the respondents had medium employment generation after the training.

Dhanabhakyam and Mufliha (2013) revealed that training provided by Kudumbasree helped them to start micro enterprises like tailoring units, beauty parlours and food processing units, handicraft units, screen printing enterprise and even animal husbandry for their livelihood. Thus this study highlighted that the training program helped 85per cent of unemployed women by providing self employed job.

Jain (2013) observed that more than half (53.33%) of the respondents had medium employment gain, followed by 34.44 per cent having low employment gain and 12.22 per cent having high employment gain.

Sindhu (2015) revealed that majority (76.76%) of the entrepreneurs had medium level of employment gain of 131 to 250 days after attending the training, followed by 21.67 per cent with high (above 250 days) and 1.66 per cent with low level (upto 130 days) of employment gain respectively.

Rana *et al.* (2018) conducted a study on assessing impact of Krishi Vigyan Kendra on employment generation of rural youth. It was found that the highest percentage (45.83 percent) of rural youth had medium employment generation. There were 35 per cent who had low and 19.17 per cent in high employment generation categories.

2.3.22 Adoption of technology from training

Medhi (2017) reported that about half of the respondents (50.83 %) who attended training from KVK had medium level of adoption of technologies from training, followed by 42.50 per cent having high level of adoption. Only 7.50 % were found to be of low adoption.

Sabira (2016) revealed from the study that a significant majority of the respondents who attended the training programme from KVK Thrissur had fully adopted the technologies which were recommended by the Subject Matter Specialists of the respective KVK.

Devi *et al.* (2017) indicated that the adoption level of the trainees who attended training from KVK Guntur of Andhra Pradesh amplified after attending the trainings conducted by the KVK scientists.

2.3.23 Credit support

Bhabar (2012) observed that out of the total respondents, 40.83 per cent had partial availability of credit, 30.83 per cent having full credit available and remaining 28.33 per cent reported non availability of credit.

Sharma (2013) observed that out of the 120 respondents' majority (41.66%) had no credit available for maintaining their agro based enterprise. 35 per cent had partial credit availability and remaining only 23.34 per cent had sufficient credit available.

2.4.Training programmes of Krishi Vigyan Kendras (KVKs):

Ahmad *et al.* (2012) reported that majority of the respondents (63.42%) were of the opinion that KVK training programmes were fully based on their needs and problems, followed by 23.44 per cent who reported that it was only partially based on the needs. About $4/5^{th}$ of the respondents felt that the training courses were balanced as per the proportion of theory and practical were concerned. Almost $3/4^{th}$ of respondents had benefitted from the KVK trainings of which about half (52.29%) had realized increase in productivity of enterprise followed by 37.03 per cent who felt it to be of only general/domestic usefulness. A minority (10.68%) reported that they could gain employment from the training. KVKs working under NGOs had performed better in providing benefits to the farmers (44.65%) followed by SAUs (37.03%) and ICAR

institute (18.32%). SAU KVKs accounted for the highest employment benefits to the farmers (19.58%) followed by NGO KVKs (7.83%).

Sharma *et al*. (2013) indicated that the exposure of KVK training programmes significantly changed the attitude of farmers in desired direction.

Katole *et al.* (2017) revealed that KVK trainings were able to bring significant changes in the level of knowledge and adoption among farmers. Training and guidance given to trainees by KVK have played key role in influencing technological changes besides other managerial tasks, therefore having positive impact. Farmers with progressive attitude will always try to involve themselves in all activities through which more annual income can be achieved.

Krishnaveni *et al*.(2017) observed that KVKs provided training not only in agriculture and allied sectors but also in other areas of income-generating activities that increased the income of farm families.

Shahi *et al.* (2018) reported that trainings and demonstrations were integral part of KVK extension system. KVK plays an important role in encouraging rural farmers and farm women to take up simple and quick income generating enterprises from where they can earn additional income. It provided an opportunity to strengthen the link between farmers and scientists which helped in technology dissemination and overall development of the weaker section.

2.5. Training need analysis of trainees

Shehrawat (1998) observed that quality management of the product was the most preferred area of entrepreneur's training need. Marketing management, packaging techniques for export, marketing techniques, technology upgradation and financial management were the other areas preferred by them.

Patel and Kokate (2011) formulated Training Need Index (TNI) and used it to evaluate the training need of KVK subject matter specialists (SMS). It was found that 78.42%had higher training needs about agriculture and allied sciences and maximum training need of SMS was observed in agricultural engineering (82.71%).

According to Sajeev *et al.* (2012) identification of training needs of farmers/rural youth/extension personnel is the most important step in any training programme by KVKs. Income generating activities , formation and maintenance of SHGs and training on small scale processing and value addition were the training needs. It was revealed that even though considerable efforts have been made in training of farmers there still remains a gap which needs to be addressed. Thus KVKs have to re-orient their trainings to fill the gap existing with respect to imparting need based training.

Kaur *et al.* (2014) conducted on study the training needs of respondents and out of the 205 female respondents selected randomly from six blocks of Ferozepur, it was observed that training on both stitching and soap and detergent making was the most needed training by 93.17 per cent of the respondents. But the major constraint was that 64.88 per cent of the respondents were ignorant regarding the trainings provided at the KVK.

Venkattakumar *et al.*(2015) conducted a study on training needs of KVK personnel and farmers of NEH Region in horticulture. It was revealed that integrated pest management, vegetable production technology, integrated nutrient management, integrated disease management, nursery management techniques, fruit crops production technology and vegetable seed production were the training needs of farmers of NEH region. These themes had percentage more than the overall average (51.5%). Hence, while conducting training programmes these themes may be considered, so that the training programmes will be effective.

Geethu (2019) studied the training need on different vocational trainings by KVK Thiruvananthapuram and KVK Kollam and inferred trainees of KVK Kollam preferred training on nursery management the most, followed by trainings on agro machinery, organic cultivation, processing and value addition and mushroom production. The most preferred area of training in KVK Thiruvananthapuram was training on agro machinery, followed by trainings on mushroom production, processing and value addition, organic cultivation and bee keeping

2.6.Effect of personal attributes on training need

Shehrawat (1998) indicated the relationship between entrepreneur's independent variables with the training need perceived by them and found out that educational qualification, innovativeness, economic motivation, cosmopoliteness, risk orientation, extension contact and mass media exposure had a positive and significant correlation with the training need of entrepreneurs.

Sangeetha (2014) observed that independent variables like education, extension contact, mass media exposure, risk orientation, economic motivation, achievement motivation and innovation was positively and significantly correlated with the training need of cotton growers. It was inferred that there was a negative and significant correlation between occupation and training need of farmers about the recommended practices of cotton.

Kshash (2016) revealed that the educational status and annual income of the respondents had a positive and significant correlation with their training needs at 0.05 per cent level of probability. He further explained that more educated the farmers; more will be their desire to learn skills through training and thus more will be their training needs. Whereas age of the respondents was found to be non-significant with the training need.

Shahjar *et al*. (2018) observed that the training need of dairy entrepreneurs in Jammu district where positively and significantly related to age, mass media exposure and extension contact. However, variables like family type and family size had positive and non-significant correlation with the training need.

2.7.Content analysis of training

According to Krippendorff (1980) content analysis is defined as a research technique for making replicable and valid inferences from data to their context. Researchers often use this technique to examine texts in a way that provides knowledge, new insights, representation of facts, and practical guide to action.

Weber (1990) elucidated that the content analysis is a research method that have been utilised since many decades. He indicated that both quantitative and qualitative operations are being used in the best content-analytical studies.

Prasad (2008) indicated that content analysis is a method used by researchers from various disciplines such as social science, psychology, communication, history, political science and language studies. But this method of analysis is most widely utilised in social science and mass communication researches.

Biswas (2009) used statistical methods like frequency and percentages in content analysis for the interpretation of the data meaningfully and comprehensively.

Schreier (2012) elucidated that out of the several qualitative methods that are currently available, qualitative content analysis is one which is available for analysing the data and interpreting its meaning.

Datt (2016) indicated the steps in content analysis, which includes preparation of the data, identification of the units of analysis, developing categories and the coding schemes, coding all the texts, assessing the coding employed and drawing conclusions based on the coding and themes and finally presentation of the results obtained.

2.8.Effectiveness of training programmes of KVKs

Bhatt *et al.*(2011) reported that 90 per cent of the trainees were highly satisfied with accuracy of the subject matter and 80 per cent of the trainees were highly satisfied with all aspects of the physical facility available at the institution. Majority of the trainees (90 %) were of the opinion that the training was based on their needs and interest. But they were not satisfied with the duration of the training period. 61.25 per cent trainees were satisfied with the timing or month of the training.

Tyagi and Tyagi (2014) revealed that the respondents perceived the training by KVK Hastinapur in Meerut district as most effective. It was reflected from the perception score of 66.32. It was inferred from the study that the respondents were satisfied with the training output, teaching quality and coverage of topics. But the

trainees perceived that the physical facilities provided by the KVK for the training programme was not sufficient.

Senthilkumar *et al.* (2014) conducted a study on assessment of training effectiveness based on perception of Krishi Vigyan Kendra trainees. It was observed that the KVK training was perceived as most effective by the respondents. The perception score was 67.73. The respondents were satisfied with quality of teaching, training output, and facilities provided during the training. But the respondents perceived that the coverage of topic was not sufficient.

Medhi (2017) elucidated that the overall effectiveness score of the training programme as perceived by the trainees was worked out to be 66.45 which indicated that the KVK training was considered to be effective with respect to the dimensions under the study. Also the KVK do require re-orienting their trainings based on the findings for effective transfer of technology.

Devi *et al.* (2017) revealed that majority of the trainees in Sawombung and Keirao Bitra blocks were satisfied with the EDP training programme provided by the KVK. Among the five perceptional factors, training output was perceived highest with training effectiveness score of 80.50 and while the training quality was perceived lowest with training effectiveness score of 71.75. The overall training effectiveness was very high (79.02 per cent) which showed the effectiveness of training programmes provided by KVK, Andro.

Ranjan *et al.* (2017) revealed that majority of the KVK beneficiaries had favourable perceptions towards the effectiveness of training programmes (50 %), followed by low (34 %) and only 15 per cent respondents had high favourable perception. Over all farmers' perceptions towards effectiveness of KVK trainings was medium.

Pandey *et al.* (2018) conducted a study on the Evaluation of Krishi Vigyan Kendra training programme on mushroom cultivation. Perception of the trainees were studied through different aspects of trainings like resource persons, course content, time and duration, practical activities, facilities and overall usefulness of the training

programs. It was revealed that most of the beneficiaries were found to be satisfied with the many aspects of training viz., training programs, course content and time and duration, facilities and overall usefulness of training.

2.9. Effect of personal attributes of trainees and training effectiveness

Deepthi (2016) observed that the correlation between personal attributes like age, educational status, annual income, size of land holding, economic motivation, cosmopoliteness and extension contact with effectiveness of training programmes through perception of KVK trainees were found to be positive and significant. However family size had a positive and non-significant correlation with the training effectiveness.

Devi *et al.* (2017) revealed that independent variables namely, educational level, total annual income, size of land holding, economic motivation, sources of information and extension contact of the trainees who underwent training by KVK was positively and significantly correlated with the training effectiveness.

2.10. Factors affecting EDP training effectiveness

Haslinda and Mahyuddin (2009) reported that lack of support from top management and peers of the institute, trainees' individual attitudes and also the deficiencies in training practice are the main factors which affect the effectiveness of training.

Driskell (2011) revealed the type of training implemented, training content and trainee expertise affect the training effectiveness. The factors like how the training was given, what was the content and who was the trainer can influence the success of a training programme.

Nyachome (2012) conducted a study on factors influencing the effectiveness of entrepreneurship training programmes in Kenya from which he reported that training methods, learners' characteristics, the choice of programme content and facilitators' skill had influence on the effectiveness of entrepreneurship training programme.

Meena and Singh (2013) inferred that the trainers suggested a number of measures for improving the effectiveness of training programmes of KVK. Among important suggestions given by trainers, were the development of infrastructural facilities, need based, practical and skill oriented trainings. He also opined that the trainees should be provided with opportunities to record practical demonstration as part of every training. Increased stipend, well-developed infrastructural facilities, distribution of input after training and more off-campus trainings were the other important suggestions provided by the trainees in order to improve the effectiveness of KVK training programmes.

Punia and Kant (2013) conducted a study on A review of factors affecting training effectiveness vis-à-vis managerial implications and future research directions and inferred that many factors that affect training effectiveness but three factors i.e. motivation, attitude and emotional intelligence emerged to be more responsible in making training effective. Trainers should first motivate the trainees to learn new abilities and skills. Next, to ensure better training effectiveness, they should support trainers' efforts to practice such skills. Trainees' attitude decides that what would be learning ratio from training programme and emotionally intelligent trainers are always found successful in inspiring their trainees.

Research Methodology

CHAPTER 3

RESEARCH METHODOLOGY

Research methodology has been defined as the systematic and theoretical analysis of the procedures applied in the field of study. The methodology includes the research design, selection of location for the study, identification and selection of respondents, screening out appropriate variables and deciding their measurement techniques, developing schedule and its pre-testing, collection of data, analysis of data and interpretation of the results.

The present study intended to analyse the entrepreneurship development programmes of KVKs in Kerala. This chapter dealt with the methods and techniques followed in conducting the research. The different aspects included in the chapter have been organized under the following sub-headings.

3.1 Research design

3.2 Study locale

3.3 Selection of respondents

3.4 Independent variables and measurement

3.5 Dependent variables and measurement

3.6 Methods used in data collection

3.7 Statistical tools used for the study

3.1 Research design

According to Kothari (2017) research design is the arrangement of the conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It is the basic blueprint for the collection, measurement and analysis of data.

In the present research, ex-post facto research design was used as the manifestation of the variables presumably had occurred and there was no scope for

manipulation of any variable. Ex-post facto design formed a systematic empirical investigation in which the independent variables were not directly managed because they had already happened or because they were inherently not manageable (Kerlinger, 1964).

3.2 Study locale

Kerala formed the locale of the study and five districts were purposively selected to include KVKs under different host agencies from northern, central and southern regions of the state. The districts selected for the study viz. Kasaragod, Malappuram, Kottayam, Alappuzha and Thiruvananthapuram are shown in Figure 1.

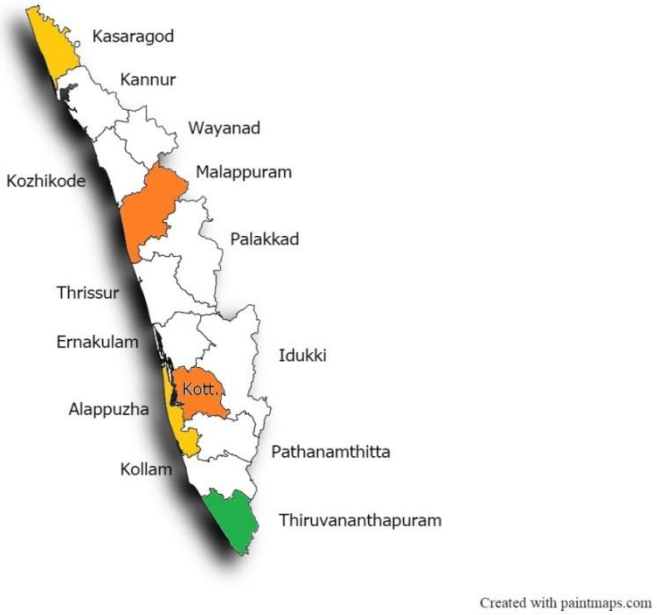
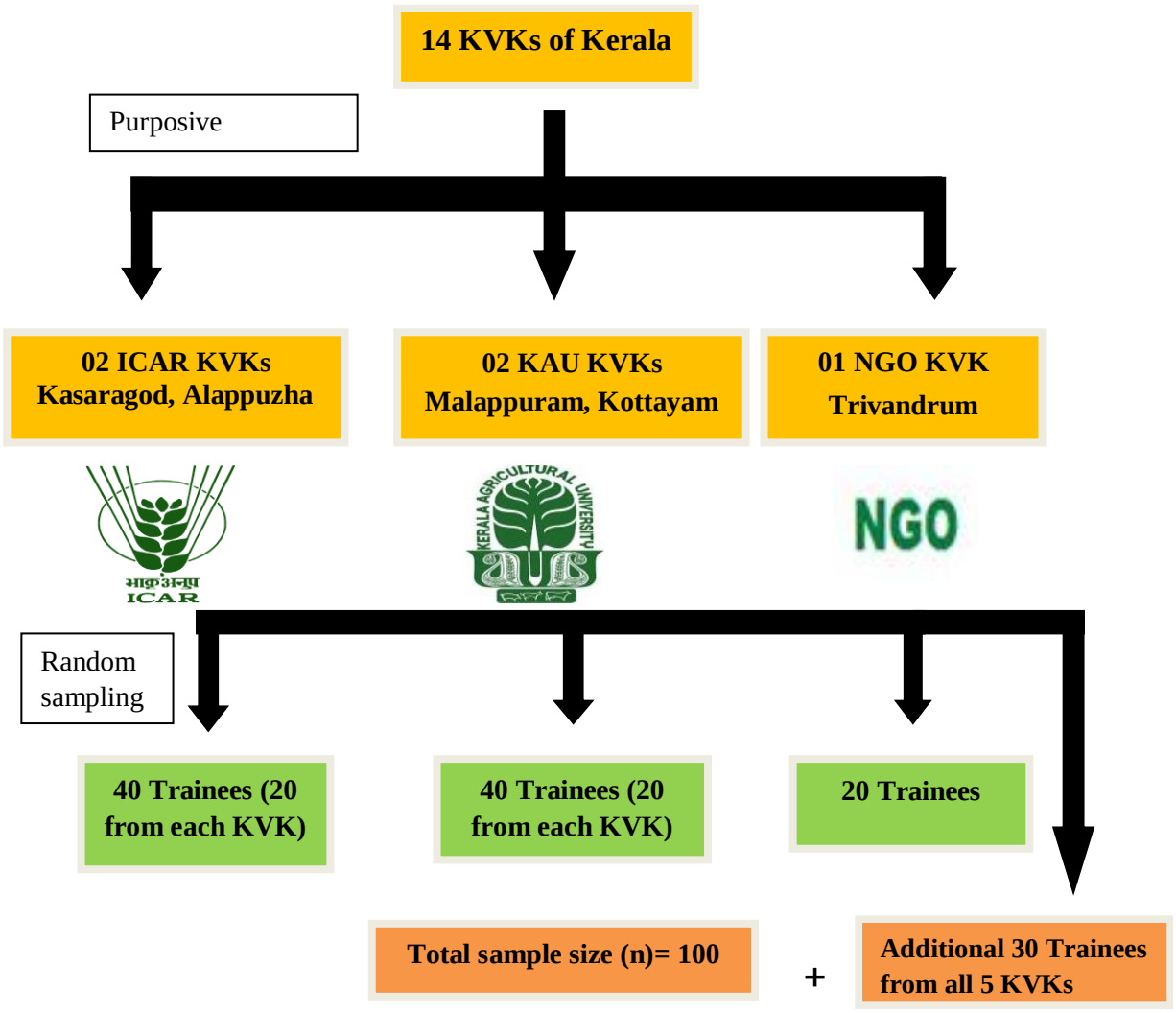


Figure 1 Map of study area

3.3 Selection of respondents

There are 14 KVKs working under different host organizations in Kerala viz. Kerala Agricultural University (KAU), Indian Council of Agricultural Research (ICAR) and Non-governmental organizations (NGOs). Purposive sampling was followed to select a total of five KVKs (2 KAU KVKs, 2 ICAR KVKs and 1 NGO KVK) to represent southern, central and northern regions of the state. List of trainees

who had undergone entrepreneurship training programs for the last 3 years from the selected KVKs was used for the selection of respondents. Random sampling was used to select 20 trainees from each of the selected KVK to make a total sample of 100 trainees. An additional 30 trainees who were undergoing EDP training at the KVKs were randomly selected for measurement of empowerment gain through EDP trainings The flow diagram depicting the selection of KVKs and respondents is given as Figure 2.



3.4 Independent variables and measurement

In line with the objectives of the study, the variables were identified through extensive literature review and consultation with the experts. Operationalisation was

used for the measurement of the concept in terms of the research requirement and theoretical propositions. Operational concept of each independent variable along with the measurement technique adopted in the study is presented below:

3.4.1 Socio-economic and psychological profile of KVK trainees

Table 3.1Measurement tools of selected independent variables

Sl. No.	Independent Variables	Measurement tools
A.	**Socio-personal attributes**	
a)	Age	Chronological age
b)	Gender	Schedule developed
c)	Marital status	Schedule developed
d)	Family type	Sinha (2016)
e)	Family size	Kumar (2018)
f)	Educational status	Chandargi (1994)
g)	Occupational status	Sahu (2014)
i)	Extension contact	Mohammad (2006)
j)	Mass media exposure	Narayan (2005)
B.	**Economic attributes**	
a)	Land holding	Gajendra (2017)
b)	Income	Sinha (2016)
C.	**Entrepreneurial attributes**	
a)	Entrepreneurial intention	Sinha (2016)
b)	Entrepreneurial need	Sinha (2016)
c)	Entrepreneurial capacity	Sinha (2016)
d)	Innovativeness	Chaudhari (2006)
e)	Achievement motivation	Chaudhari (2006)
f)	Decision making ability	Chaudhari (2006)
g)	Risk orientation	Chaudhari (2006)
h)	Self confidence	Chaudhari (2006)
i)	Cosmopoliteness	Chaudhari (2006)
j)	Economic motivation	Supe and Singh (1969)
2.	**Empowerment gain**	Masur (2014)
3.	**Employment gain**	Jain (2013)
4.	**Adoption of technologies from training**	Geethu (2019)
5.	**Credit support**	Sharma (2013)

The variables selected after extensive literature review and consultation with the experts to analyse the socio-economic characteristics of trainees were broadly classified into three categories, namely socio-personal, economic and psychological attributes as reported in Table 3.1. A brief description of each of these variables, its operationalisation for the study and measurement are detailed.

3.4.1. 1. Socio-personal attributes

a. Age

Age was measured in terms of chronological age of the trainees who had undertaken trainings from the KVKs during the period of study. The trainees were categorized into three groups viz., youth (up to 35 years), mid age(36 to 50 years) and senior age (above 50 years) according to the method followed by census of India (Government of India, 2011). In order to calculate the relationship with dependent variables each group was assigned the score 1, 2 and 3.

Sl. No.	Age group	Score
1.	Youth (Upto 35 years)	1
2.	Mid age (36 - 50 years)	2
3.	Senior age (> 50 years)	3

b. Gender

Gender was operationalized as being male or female by birth with varied roles and responsibilities as prescribed by the social system. It was documented as directly reported by the respondent at the time of data collection. It was conceptualised to have effect on mobility, socio-economic roles and entrepreneurial ability of the individual and was grouped into two categories with scores as detailed below.

Sl. No.	Gender	Score
1.	Male	1
2.	Female	2

c. Marital status

It referred to the status of the individual with regard to whether the person was single or married at the time of the investigation. It was measured by direct interview and categorized into two groups with assigned scores of 1 and 2respectivelyto married and unmarried respondents as given below.

Sl. No.	Marital status	Score
1.	Married	1
2.	Unmarried	2

d. Type of family

Family type was measured following the procedure used by Sinha (2016) and was conceptualised in terms of the cooking arrangements and pooling of income adopted in the family. The families that had pooled all their income and had common cooking arrangement were considered joint family and otherwise as nuclear with scoring pattern as given below.

Sl. No.	Family type	Score
1.	Nuclear family	1
2.	Joint family	2

e. Family size

Family size referred to the number of members in the family and the procedure followed by Kumar (2018) was used with scoring pattern as follows.

Sl. No.	Family size	Score
1.	Upto 4 members	1
2.	5-8 Members	2
3.	Above 8 Members	3

f. Educational status

Education was defined as the process of producing desirable changes in the behaviour of individuals. It produced change in knowledge, skill, attitude and action. It was operationally defined as the number of years of formal education acquired by a respondent. The procedure followed by Chandargi (1994) was used and trainees were categorised into the following groups.

Sl. No.	Level of education	Score
1.	Illiterates	1
2.	Primary school	2
3.	Middle school	3
4.	High school	4
5.	College/JOC	5

g. Occupational status

Occupation of a person was considered as the source of livelihood of his/her family. It included both the primary as well as subsidiary vocation of an individual. The procedure followed by Sahu (2014) was used and the respondents were grouped into the following groups.

Sl. No.	Occupational categories	Score
1.	Agriculture (farming)	1
2.	Farming + Business	2
3.	Farming +Service	3
4.	No-farming (only business)	4
5.	Any other	5

h. Extension contact

Extension contact referred to both acquaintance of respondents with extension personnel of different ranks and frequency of contact with them. It was measured using a scale developed by Mohammad (2006). It was measured considering the frequency of meeting of respondents with the Village Level Worker (VLW), Extension officer, Subject Matter Specialist (SMS), Agricultural scientists, Training

centres, University/ Research stations, District Agricultural officer and Krishi Vigyan Kendras. The scoring system adopted was 5, 4, 3, 2, 1 and 0 for weekly, fortnightly, monthly, half yearly and yearly contacts respectively. Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low contact (Below Q1.) Medium contact (Below Q2) and High contact (above Q3).

Sl. No.	Extension personnel/ agency	Weekly 5	Fortnightly 4	Monthly 3	Half yearly 2	Yearly 1
1.	Village Level worker (VLW)					
2.	Extension officer					
3.	Subject matter specialist					
4.	Agricultural scientist					
5.	Training centres					
6.	University/ Research station					
7.	District agricultural officer					
8.	Krishi Vigyan Kendras					

i. Mass media exposure

Mass media exposure referred to the degree of utilization of mass media viz. newspapers, television, radio, magazines etc. by the respondents. The procedure followed by Narayan (2005) was adopted and the response was recorded on three point continuum scale with responses regularly, occasionally and never with assigned scores of 2, 1, and 0 respectively as given below.

Sl. No.	Mass media sources	Regularly 2	Occasionally 1	Never 0
1.	Newspaper, magazines, leaflets, bulletins			
2.	Radio			
3.	Television			
4.	Melas			
5.	Exhibitions			
6.	Demonstrations			

Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low mass media exposure (Below Q1.) Medium mass media exposure (Below Q2) and High mass media exposure (above Q3).

3.4.1. 2. Economic attributes

a. Land holdings

Size of land holdings was the actual area of land expressed in terms of hectares possessed by the respondent at the time of investigation. It also included the area under houses, farmyard, textures, net cultivable land which were recorded in hectares. The respondents were further classified into marginal, small, medium and large farmers according to the following scoring procedure adopted by Gajendra (2017).

Sl. No.	Land holding categories	Score
1.	Marginal farmer (< 1.0 ha)	1
2.	Small farmer (1.0 – 2.0 ha)	2
3.	Medium farmers (2.1 – 4.0 ha)	3
4.	Large farmers (> 4.0 ha)	4

b. Annual income

Sl. No.	Annual income (Rs)	Score
1.	Less than 50000	1
2.	50000 to 100000	2
3.	100000 to 150000	3
4.	150000 to 200000	4
5.	200000 to 250000	5
6.	250000 to 300000	6
7.	More than 300000	7

Annual income referred to an individual's income in addition to his/her family from different sources such as agriculture, business, job and any other sources in a

year expressed in terms of rupees. The income of respondents was categorized into seven groups and scores awarded as follows based on the scale developed by Sinha (2016).

3.4.1. 3. Entrepreneurial attributes

Psychological characteristics like entrepreneurial intention, entrepreneurial need, and entrepreneurial capacity were assumed to have significant influence on starting of business by an individual. The individual who scored high in these psychological attributes were assumed to have greater inclination towards entrepreneurial ventures compared to individuals with low scores.

a. Entrepreneurial intention

Entrepreneurial intention was operationally defined as an individual's conviction to start an enterprise as a livelihood activity. The method followed by Sinha (2016) was adopted with suitable modifications for its measurement. The measurement tool comprised of ten statements measured on five-point continuum of strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA)and weights of 5, 4, 3, 2 and 1 for positive statements and the scoring was reversed for negative statements. The measurement scale is included in Appendix.

The summation of the scores of all statements formed the scores for entrepreneurial intention. The observed scores of the individuals ranged from 10 to 50. Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low entrepreneurial intention (Below Q1.) Medium entrepreneurial intention (Below Q2) and High entrepreneurial intention (above Q3).

b. Entrepreneurial need

Entrepreneurial theory suggested the achievement need, power need and affiliation need as the significant indicators of successful entrepreneurship (McClelland, 1961). It was theorised that an individual with high need for achievement, moderate need for power and low need for affiliation had the best chance to become a successful entrepreneur. The method followed by Sinha (2016)

was adopted with suitable modifications which had fifteen statements for which respondents were requested to respond as agreement or disagreement to each statement on a five point continuum of 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree' with scores 5, 4, 3, 2 and 1 for positive statement and the scoring was reversed for negative statements. The scale is included as Appendix.

The scores received for every statement was summed up to arrive at the individual's score on entrepreneurial need. The observed scores of the individuals ranged from 15 to 75. Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low entrepreneurial need (Below Q1.) Medium entrepreneurial need (Below Q2) and High entrepreneurial need (above Q3).

c. Entrepreneurial capacity

Entrepreneurial capacity has been operationalized as the trainee's ability to effectively start and manage a business venture. It was measured using a six item scale adapted from Sinha (2016), with five items measuring general self-efficacy and one item referring to controllability as detailed in Appendix. The respondents recorded their agreement or disagreement to each statement on a five point continuum of strongly agree (SA), agree (A), undecided (UD), disagree (DA) and strongly disagree (SDA) with assigned scores of 5, 4, 3, 2 and 1 for positive statement and the scoring was reversed for negative statements

The aggregate of the scores for all the statements gave the measure of entrepreneurial capacity that ranged from 06 to 30. Based on the distribution of the scores on quartile range, the KVK trainees were classified into three categories viz. Low entrepreneurial capacity (Below Q1.) Medium entrepreneurial capacity (Below Q2) and High entrepreneurial capacity (above Q3).

d. Innovativeness

Innovativeness was defined as the extent to which an individual adopted new ideas relatively earlier than other members of the social system. It was operationally

defined as the extent to which an entrepreneur adopted new ideas relatively earlier than other entrepreneurs in the social system. The instrument developed by Chaudhari (2006) was adopted and it consisted of ten statements with respect to entrepreneurship development training programme (Appendix). A positive response was assigned with a score of (1) and for negative response with a score of (0). Thus the maximum score was 10 and minimum was 0.Based on the distribution of the scores on quartile range, the respondents were classified into three groups' viz. Low innovativeness (Below Q1.) Medium innovativeness (Below Q2) and High innovativeness (above Q3).

e. Achievement motivation

It was defined as a social value that accentuated a desire for excellence in an individual so that he would strive to attain a sense of personal achievement. It was operationally defined as the desire for excellence of an entrepreneur so as to attain a feeling of personal accomplishment. The instrument developed by Chaudhari (2006) which had five statements with two options for each statement was adopted and is given in Appendix.

The total score for each entrepreneur ranged from 0 to 5. Based on the distribution of the scores on quartile range, the trainees were grouped into three categories viz. Low achievement motivation (Below Q1.) Medium achievement motivation (Below Q2) and High achievement motivation (above Q3).

f. Decision making ability

Decision making ability was operationally defined as the ability of the entrepreneur to select the most efficient means among the alternatives on the basis of scientific criteria for achieving the maximum economic profit. The instrument adopted from Chaudhari (2006) consisted of eight decision criteria and has been included as Appendix. The response categories for each item were "deciding after consulting others", "deciding after consulting experts" and "self decision". The alternative scores for each were 0, 1 and 2. Thus the possible score for each respondent on his decision-making ability was 0 to 16.Based on the distribution of the scores on quartile range the respondents were classified into three categories viz. Low

decision-making ability (Below Q1.) Medium decision-making ability (Below Q2) and High decision-making ability (above Q3).

g. Risk orientation

Risk orientation was operationalized as the extent to which an entrepreneur is oriented towards risk and uncertainty in facing the problems in enterprise. The instrument developed by Chaudhari (2006) had six statements and response was obtained on three point continuum, viz. 'agree', 'undecided' and 'disagree'. A weightage of 2,1 and 0 respectively was assigned to the response categories, in case of positive statements and the scoring was reversed for negative statements. Statement number 1, 3, 5 and 6 were positive while 2 and 4 were negative statements and the scale is included as Appendix. The total score range was 0 to 12.Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low risk orientation (Below Q1.) Medium risk orientation (Below Q2) and High risk orientation (above Q3).

h. Self confidence

Self-confidence was operationally defined as the extent to which an individual believed in his/her own abilities to achieve one's desires. The instrument adopted from Chaudhari (2006) consisted of eight questions. The responses were obtained on dichotomous continuum in 'yes' and 'no' form by assigning the scores of 1 and 0 respectively for positive questions and was reversed for negative questions. The questions 1, 5 and 7 were positive questions and 2, 3, 4, 6 and 8 were negative questions (Appendix). The total score range was 0 to 8.Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low self-confidence (Below Q1.) Medium self-confidence (Below Q2) and High self-confidence (above Q3).

i. Cosmopoliteness

Cosmopoliteness was operationally defined as the degree an entrepreneur is oriented towards outside domains of his social system. The instrument developed by

Chaudhari (2006) with five statements and responses obtained on a three point continuum of “agree”, “undecided” and “disagree” is given in Appendix. The scores were assigned using weights of 2, 1 and 0 respectively for the statements. The total score range was 0 to 10.Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low cosmopoliteness (Below Q1.) Medium cosmopoliteness (Below Q2) and High cosmopoliteness (above Q3).

j. Economic motivation

Economic motivation was referred to the occupational success in terms of profit maximization and the relative values an individual place on economic ends. The scale developed by Supe and Singh (1969) was used to measure economic motivation with slight modifications. The scale had five statements in which 4 four were positive and one was negative (Appendix). It was measured on three-point continuum such as “agree”, “undecided” and “disagree” with weightage of 2, 1 and 0 respectively. The total score range was 10 to 0.Based on the distribution of the scores on quartile range, the respondents were classified into three categories viz. Low economic motivation (Below Q1.) Medium economic motivation (Below Q2) and High economic motivation (above Q3).

3.4.4. Empowerment gain

Empowerment is defined as a process in which people gained greater share of control over resources such as materials, human, intellectual (like knowledge, information, ideas) and financial resources and control over decision making and access to power (Sushma,2007). EDP programmes consists of three stages viz. pre-training, training and post-training as delineated by Chandra (2013). Each phase has its own features related to activities, duration and stage as detailed below.

i. Pre-training phase: This formed the initial phase which included the preparations and activities needed to start the training programme. The main activities were the creation of training infrastructure, finalizing training syllabus, selection of trainees and publicity campaign for the programme. The selections of potential trainees were based on the entrepreneurial traits and suitability of enterprise. Entrepreneurial traits included the socio-personal characteristics like

age, education, size and type of family along with human resource factors like achievement motivation, risk bearing ability etc. The enterprise selection was based on resource, market and technological capability of the potential entrepreneur.

ii. Training or implementation phase: It formed the implementation phase of training intended to develop desirable changes in their behavioural components of knowledge, attitude and skill. The trainers involved them in activities related to their cognitive domains on technology, resources and other related entrepreneurial traits. The content of training programme covered technical knowledge, achievement motivation training, managerial skills, details about market and financial linkages.

iii. Post-Training or Follow-up phase: In this phase, follow up meetings and handholding support were provided to ensure the success of EDP. This phase involved assessments to judge how far the objectives of the programme have been achieved.

Keeping these theoretical concepts in view the variable empowerment gain in the study was operationally defined as the difference in empowerment of trainees before and after undergoing training programme. It was measured on four dimensions of empowerment namely psychological, social, economic and political. The method followed by Masur (2014) having sixteen statements with respect to the empowerment gain of the trainees were adopted with suitable modifications as detailed in Appendix. The additional randomly collected samples of 30 EDP trainees during 2019-20 were used in the analysis. Paired t test was used to find out the difference between empowerment of the trainees before and after attending the training.

3.4.5. Employment gain

Employment gain was operationally defined as the total number of days the trainees engaged and served themselves for producing the products for which they were trained. The trainees were further classified into employment gain upto 130 days, 131 to 250 days and above 250 days according to the following scoring procedure developed by Jain (2013).

The categories for days of employment gain by the respondents were as follows.

Sl. No.	Employment gain	Scores
1.	Upto 130 days	1
2.	131 - 250 days	2
3.	> 250 days	3

3.4.6. Adoption of technologies from training

Adoption was defined as the process of making full use of an innovation leading to beneficial changes in the life of the adopter. It was operationally defined as the extent to which the trainees implemented different technologies and practices learned from trainings they participated. It was measured using the scale developed by Geethu (2019) with modifications and the scale is included in Appendix. Adoption of technologies from the trainings received was measured on a 4 point continuum with scores as follows:

Sl. No.	Adoption category	Scores
1.	Fully adopted	4
2.	Partially adopted	3
3.	Disenchantment/Replaced	2
4.	Not adopted	1

The trainees were categorized into low, medium and high adoption groups based on the adoption index. Adoption index was calculated using the following formula:

$$\text{Adoption index} = \frac{\text{Total score obtained by an individual trainee}}{\text{Maximum score obtainable}} \times 100$$

3.4.7. Credit support

Credit support can be defined as the ease with which the respondents acquire credit from financial institutions, money lenders or other sources of credit. It was measured using the scale developed by Sharma (2013). The trainees were asked to

rate their credit support on any of the three options and were categorized as not available, partially available and sufficient credit support as given below.

Sl. No.	Credit support	Scores
1.	Not available	0
2.	Partial	1
3.	Sufficient	2

3.5 Dependent variables and measurement

Dependent variables and the measurement techniques adopted are presented as Table 3.2.

Table 3.2 Measurement tools of selected independent variables

Sl. No.	Dependent variables	Measurement tools
1.	Training need analysis	Scale developed by Haneef (2015) was used with suitable modifications
2.	Content analysis	Awasthi, (2000)
3.	Effectiveness of EDP training programmes	Scale by Senthilkumar (2014) was used with suitable modifications

3.5.1. Training need analysis

Training is a systematic and organized procedure for increasing knowledge and skills of trainees which caused changes in their attitude and behaviour (Mishra, 1990).

Haneef (2015) indicated training need as the difference between what an individual can do now (actual attribute) and what they desire to do (desired attribute).

The method followed by Haneef (2015) was adopted. The data on training needs were collected by assigning a three point Likert type scale, as most needed, needed and not needed with respective scores of 3, 2 and 1. Training Need Index (TNI) was used in the measurement with the following formula.

$$TNI = \frac{\text{Total score obtained}}{\text{Maximum score obtainable}} \times 100$$

3.5.2. Content analysis

Content analysis described as a research technique used for the objective, systematic and quantitative description of the manifested content of communication. The method followed by Awasthi, (2000) was adopted with suitable modifications to perform content analysis of entrepreneurial development training. This was used to evaluate the extent to which the entrepreneurial development training modules met the needs of the trainees.

The following steps were used in content analysis:

1. Formulation of research objective

Objective of content analysis was to assess the comparative orientation and importance given to different topics under the major EDP trainings by selected KVKs.

2. Selection of the communication content

Communication content formed the universe of study. EDP training programmes offered during the period of 2014 to 2019 was identified as the universe of the study. It was collected and studied for the entire study period.

3. Developing the content categories

It involved the categorization of EDP trainings: The EDP trainings of KVKs during the study period were categorized into 3 broad categories- Mushroom EDP, Apiculture EDP and Value addition EDP. The categories were selected based on the major thematic areas covered during the period of study.

4. Finalizing the units of analysis and analysing the data

Unit of analysis used in content analysis of the study were words, terms and theme. The counting or quantification of the unit was performed using the time and frequency method of enumeration.

3.5.3 Effectiveness of entrepreneurship development training programme

The method followed by Senthilkumar (2014) was adopted with suitable modifications to find out the effectiveness of training programmes through the perception of KVK trainees. Scale on various dimensions of perceived training effectiveness is included as Appendix. The respondents were interviewed using the set of structured questions which comprised of statements and were placed on a 3 point continuum ranging from strongly agree/most adequate, agree/adequate and disagree/least adequate with scores of 2, 1 and 0 respectively. The trainees' preferences towards various aspects of training were asked and tabulated. For identifying individual effectiveness of the training aspects, the following formula was applied:

$$\text{TE}= \frac{D_1}{P_1} + \frac{D_2}{P_2} + \frac{D_3}{P_3} + \cdots + \frac{D_n}{P_n} \times 100$$

Where TE= Training effectiveness, D_1, D_2 , D_3,.....D_n referred to the total scores obtained by all the trainees on a particular dimension of items P_1 , P_2 , P_3.....P_n referred to the potential scores obtainable on each dimension included in the research study. In order to calculate the overall programme effectiveness the following formula was used.

$$\text{OPE}= \frac{\text{TEI}_1 + \text{TEI}_2 + \text{TEI}_\text{n}}{\text{Z}}$$

Where summation, $TEI_1 + TEI_2$ refers to the individual item effectiveness for all the items 1 to Z included in the programme..

3.6 Methods used in data collection

Keeping in view the objectives and variables, a semi structured interview schedule was prepared under the guidance of advisory committee for primary data collection. It was initially pre-tested to find out redundancy and ambiguity in the questions. After pre-testing required modifications were made in the schedule and that was used for data collection. The final interview schedule which was used for data collection is

given in Appendix. Secondary data was collected from the training documents, registers and farm records of KVKs.

The interview schedule consisted of two sections. The first section was designed to elicit the information of the trainees who have undergone entrepreneurship development training programmes from the KVKs which consisted of three parts.

a) Part I: It consisted of general information of the trainees like age, gender, marital status, family size, family type, educational status, occupational status, source of information, size of landholding and annual income. It also consisted of psychological characteristics like entrepreneurial intention, entrepreneurial need, entrepreneurial capacity, achievement motivation, risk bearing ability and innovativeness. These were collected during the interview of the trainees.

b) Part II: It covered entrepreneurship related information such as empowerment and income gains before and after attending the training, financial assistance for staring the enterprise, factors contributing to the progress of the enterprise along with constraints faced was collected by personal interview

c) Part III: It collected information related to perception of the trainees about the EDP trainings of the KVKs. Training related information like the type of EDP training programmes undergone by the trainees, duration of training, source of information, main course content areas, guidance and support of the institution to set up the enterprise, assistance received from the institution, effectiveness of the training were recorded by interviewing the trainees.

The second section was designed to collect information of the KVKs which consisted of information on training programmes of KVKs, duration, methodologies used, facilities provided and services provided for the trainees.

3.7 Statistical tools used for the study

In line with the objectives of the study, the data was subjected to different statistical analysis. Frequencies, percentages, quartiles, Spearman's rank correlation, Kruskal-Wallis test, Principal component analysis were the statistical techniques used for the study.

3.7.1 Percentage analysis

Percentage analysis was used in descriptive analysis to find out the distribution of respondents according to different variables for making comparisons. Wherever applicable, the percentage was corrected to two decimal places.

3.7.2 Quartiles

In Quartile method KVK trainees were categorized into low, medium and high groups. The number of items less than Q1 was included in "low" category, those lying between Q1 and Q3 were fitted in the "medium" category and those with values above Q3 were in the "high" category. Based on the score values, the number of respondents belonging to each category was also determined.

3.7.3 Paired t test

The paired t test was used to find out the difference between empowerment of the trainees before and after attending the training.

3.7.4 Spearman's Rank Order Correlation

Spearman's rank correlation coefficient is a non parametric measure of rank correlation (statistical dependence between the rankings of two variables). It assess how well the relationship between two variables can be described using a monotonic function. The Spearman's rank order correlation is the non parametric version of the Pearson product moment correlation. Spearman's correlation coefficient ($r_{sp)}$ measures the strength of association between two ranked variables.

Correlation analysis was used to find out whether there exists any linear relationship between any two variables in the study and also its nature if such a relationship existed. The association between various independent variables and training need of the respondents was assessed by Spearman's Correlation. It was also used to find out the association between the independent variables and the training effectiveness.

3.7.5 Kruskal-Wallis test

The Kruskal-Wallis nonparametric test was used to determine if there are statistically significant differences between the training needs of respondents of the five KVKs included in the study. It was also used to find out if there were statistically significant differences between the perceived training effectiveness scores of the trainees.

3.7.6 Principal component analysis

Principal Component Analysis (PCA) is a variable-reduction technique which is used to reduce a larger set of variables into a smaller set of 'artificial' variables called 'principal components', which accounted for most of the variance in the original variables. It used orthogonal transformation to convert a set of observations of possibly correlated variables into a set of linearly uncorrelated variables called principal components.

The first component extracted in PCA accounted for the maximum amount of total variance in the observed variables. This revealed that the first component will be correlated with at least some of the observed variables. The second component extracted will account for maximum amount of variance in the data set that was not accounted for by the first component. This showed that the second component will be correlated with some of the observed variables that did not display strong correlation with the component one. Also the second component will be uncorrelated with the first component. The remaining components that were extracted in the analysis displayed these two properties. A PCA proceeds in a fashion with each new component accounting for smaller and smaller amount of variance.

Computing the Principal Components

In computational terms, the principal components were found by calculating the Eigen vectors and the Eigen values of the covariance matrix. This process was equivalent to finding the axis system in which the covariance is diagonal. The Eigen vector with the largest Eigen value gave the direction of greatest variation; the one with the second largest Eigen value gave the (orthogonal) direction with the next highest variation and so on.

In the study, PCA was used to categorize the factors influencing the effectiveness of EDP training programme into specific dimensions of training effectiveness.

Statistical package for social sciences (Version- IBM SPSS Statistics 22) and Microsoft excel were used for the statistical analysis.

Results and discussion

CHAPTER 4

RESULTS AND DISCUSSION

The results were analysed according to specific objectives of the study based on the framework mentioned in the methodology. The findings of the study and the discussions relating the results to the existing theory and literature are presented in this chapter under the following heads:

4.1. Profile of EDP trainees of KVKs

4.2. Perceived entrepreneurial training needs of KVK- EDP trainees

4.3. Effect of personal attributes on training needs

4.4. Evaluation of the entrepreneurial development training modules of KVKs

4.5. Effectiveness of EDP trainings of KVK

4.6. Relationship between personal attributes of trainees and training effectiveness

4.7. Factors affecting EDP training effectiveness

4.8. Recommendations for improving the EDP training programmes

4.1 Profile of EDP trainees of KVKs

The distribution of the respondents into different categories based on the socio-economic and psychological characteristics are described below and interpreted through frequency, percentage and quartile.

4.1.1. Age

The age wise distribution of the respondents presented in Table 4.1 revealed that a majority of the respondents (47%) belonged to the middle age group of 36 to 50 years. It was followed by 39.00 per cent of the trainees who came under old age category (above 50 years) and 14.00 per cent of the respondents were found in the youth group of below 35 years. This indicated that the middle aged group were more enthusiastic and interested in trying new dimensions of learning for making larger profit in their respective business ventures. The educated youth preferred government

jobs over entrepreneurship and perceived entrepreneurship as an unstable profession. This is in agreement with the findings of Sithoula (2015) .So the number of youngsters who attended trainings of entrepreneurship from KVK were comparatively less. The findings are also represented as Figure 3.

Table4.1 Distribution of EDP trainees based on age (n=100)

Sl. No.	Category	Age group	Percentage
1	Youth	upto 35 years	14
2	Mid aged	36-50 years	47
3	Senior aged	> 50 years	39
	Total	-	100

The findings were in line with the results reported by Pandey (2017) and Geethu (2019). These studies reported that more than half of the trainees who attended trainings from KVK were of middle age.

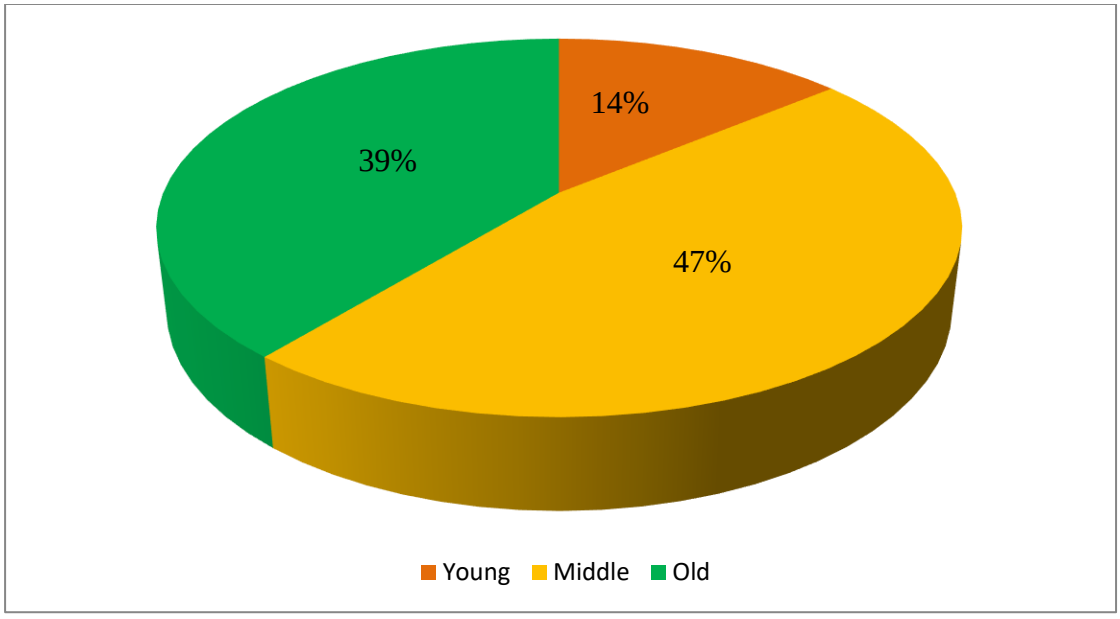


Figure 3 Distribution of EDP trainees based on age

4.1.2 Gender

The gender wise participation of the EDP trainees has been presented in Table 4.2. Results from the table indicated that the participation of women in EDPs was

higher (60.00%) compared to men which was only 40.00 per cent. This was due to the fact that women were more enthusiastic towards earning additional profit through entrepreneurship. Moreover, many of them were members of self help groups (SHGs) under programs like Kudumbasree. The results are also depicted as Figure 4.

Findings of the study were in concurrence with the results of Geethu (2019) who reported that female trainees (61.33%) from KVKs were more than that of male trainees (38.66 %).

Table 4.2 Distribution of EDP trainees based on gender (n=100)

Sl. No.	Gender groups	Percentage
1	Male	40
2	Female	60

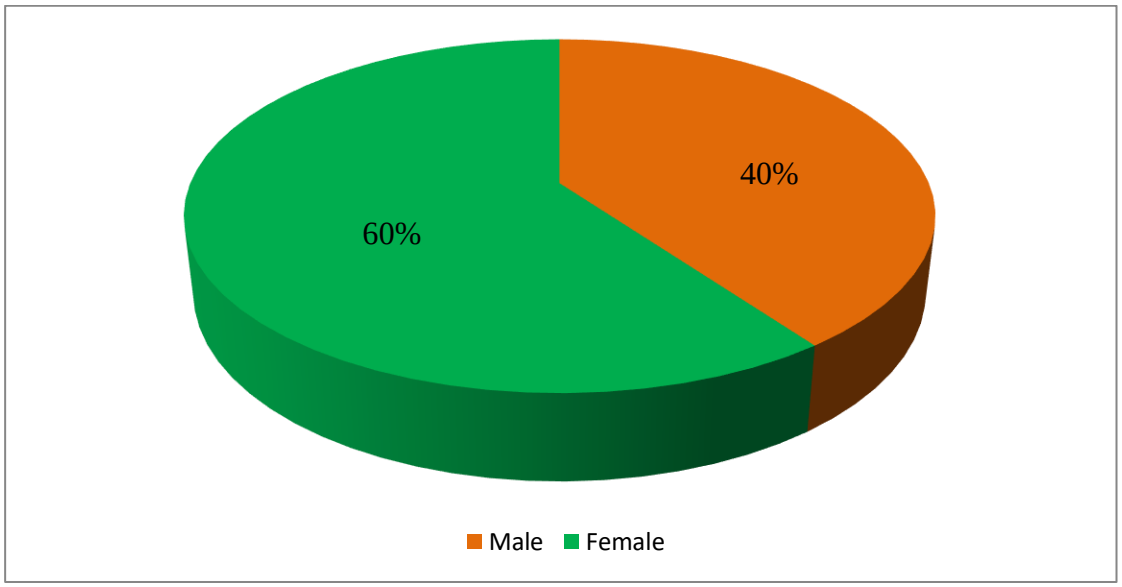


Figure 4 Distribution of EDP trainees based on gender

4.1.3 Marital status

Marital status referred to whether the respondents in the study had a spouse during any stage of their life. The result with respect to marital status from the study is presented in Table 4.3 and also as Figure 5.

Table 4.3 Distribution of EDP trainees based on marital status (n=100)

Sl. No.	Marital status	Percentage
1	Married	88
2	Unmarried	12

The results shown in Table 4.3 revealed that maximum distribution of respondents were found in the married category (88%) with only 12% in the unmarried group. The results were in line with the finding that the youths formed only a minority among the trainees and were less interested in entrepreneurship as a career. The findings are supported by the results of Sinha (2016) who found that majority (73.3%) of the trainees who participated in the EDP training programme of RUDSETI were married.

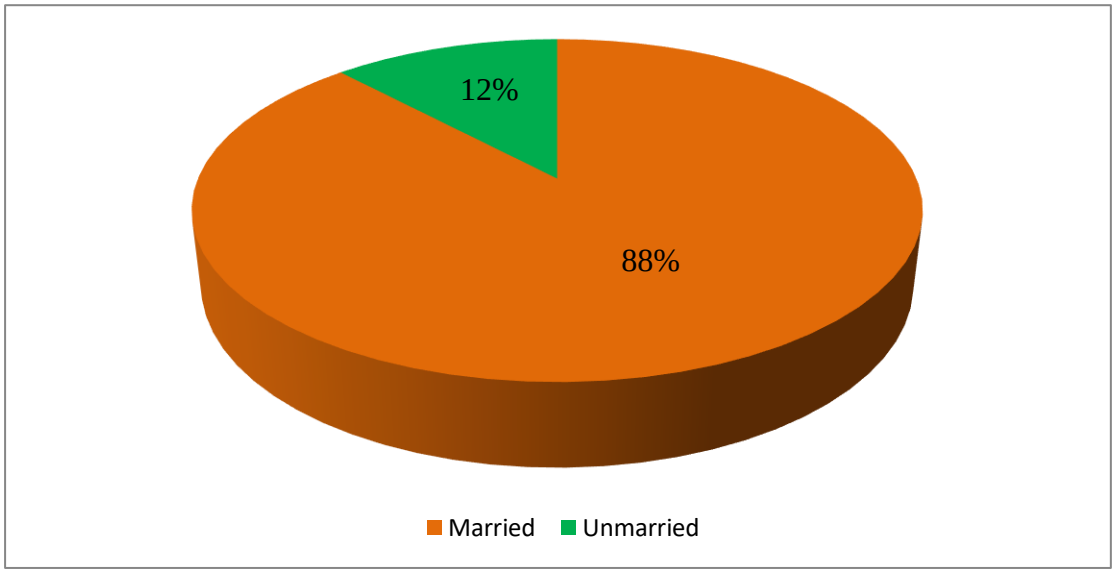


Figure 5 Distribution of EDP trainees based on marital status

4.1.4 Family type

The results in Table 4.4 revealed that majority (90.00%) of the EDP trainees had nuclear family with only 10.00 per cent having joint family. The results could be attributed to the prevalent social norms that preferred nuclear family with financial independence compared to joint family. The results are illustrated in Figure 6.This

was in line with the findings of Sinha (2016) who reported that 80.00 per cent of the trainees who attended EDP trainings from RUDSETI had nuclear family.

Table 4.4 Distribution of EDP trainees based on family type (n=100)

Sl. No.	Family type	Percentage
1.	Nuclear family	90
2.	Joint family	10

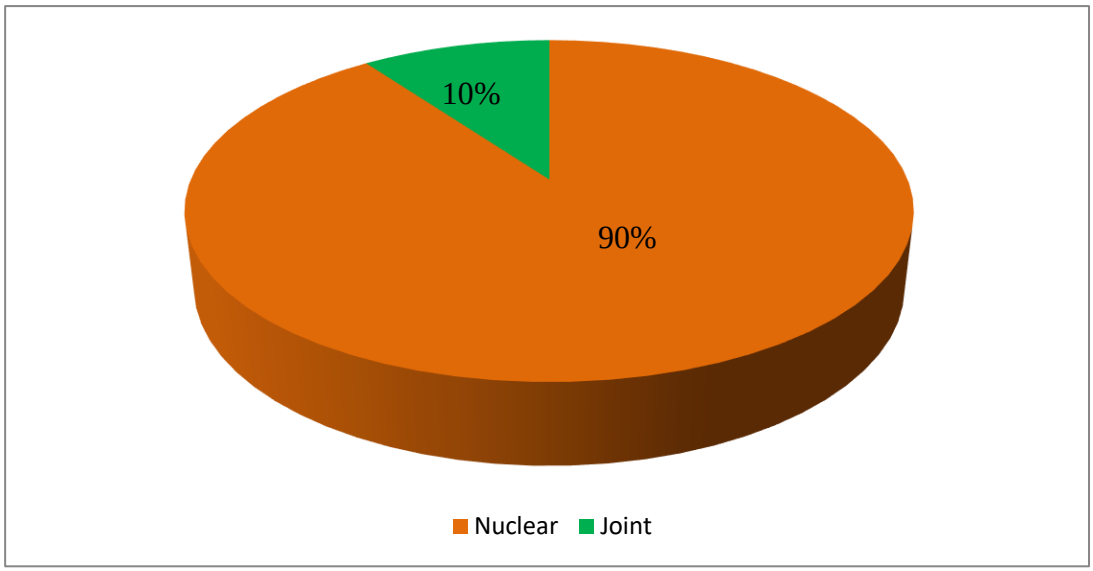


Figure 6 Distribution of EDP trainees based on family type

4.1.5 Family size

Family size referred to the number of members in a family living together under one roof and having common mode of cooking, eating and resource pooling. The results on family size are presented in Table 4.5.

Table 4.5 Distribution of EDP trainees based on family size (n=100)

Sl. No.	Family size (no.)	Category	Percentage
1.	Upto 4	Small	57
2.	5-8 members	Medium	33
3.	Above 8 members	Large	10

It could be observed from Table 4.5 that maximum number of the trainees (57.00 per cent) was found to have small family size of four and below. However, 33.00 per cent and 10.00 per cent of trainees had medium and large categories of family size respectively. Thus, it can be concluded on the basis of the results that majority of the trainees were having small size nuclear families of size four or less. The results were in-line with the findings of Sushma (2007), Deepthi (2016), Sinha (2016)and Gajendra (2017) who reported similar results that majority of the EDP trainees' were from small families in their respective studies. A comparative description of the results is given as Figure 7.

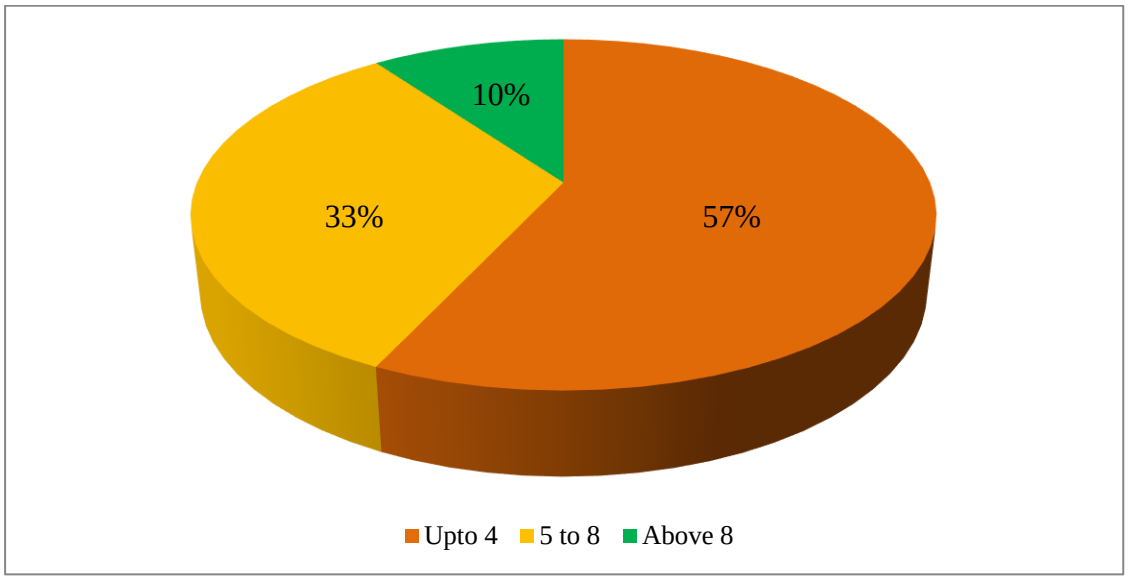


Figure 7 Distribution of EDP trainees based on family size

4.1.6 Educational status

The results in Table 4.6 indicated that majority of the respondents (60%) had acquired high school level of education. There was 34.00 per cent of trainees who possessed educational qualification up to college and 6 per cent had acquired middle school qualifications. There were no illiterates among the respondents and it is worth mentioning that majority who had undergone training and adopted entrepreneurship as their profession were educationally well qualified. Due to adequate educational qualifications the trainees were equipped with good technical knowledge and skills in their respective fields. The illustrations of the results are presented in Figure 8.

Table 4.6 Distribution of EDP trainees based on educational status (n=100)

Sl. No.	Education level	Percentage
1.	Illiterates	0
2.	Primary school	0
3.	Middle school	6
4.	High school	60
5.	College/JOC	34

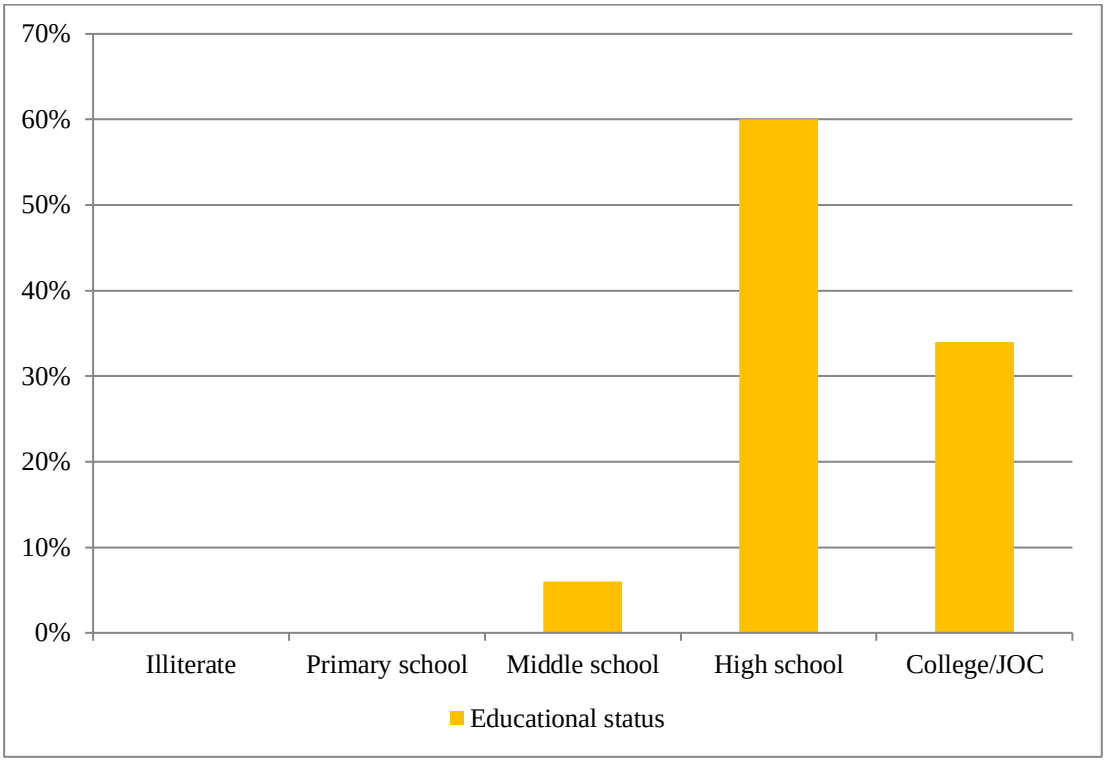


Figure 8 Distribution of EDP trainees based on educational status

The results were in concurrence with the findings of Singh (2004) and Pandey (2017). Issacs *et al*. (2007) also reported that higher level of education was associated with better entrepreneurial performance leading to higher rates of enterprise development. Similar findings were also described by Sabira (2016) and Geethu (2019) who found that there were no illiterates among those who attended training programme of KVKs. The trainees with high school and collegiate education were reported to be high in their studies also.

4.1.7 Occupational status

Results presented in Table 4.7showed that majority of the respondents (61%) had business as their primary occupation and were not involved in any farming. However, 35 per cent of the respondents had business along with farming as their vocation. The remaining 4 per cent of the respondents were engaged in service oriented jobs along with farming. But there were none who had agriculture as the exclusive vocation. The interesting inference from the results is that many entrepreneurs have chosen agriculture sector. Moreover, more than one third of the trainees (35%) were farmers who had ventured into agriculture enterprises. These indicated the potential agriculture sector holds in improving their living standards. The results were in line with the findings of Shehrawat (1998). A graphical depiction of the results is included as Figure 9.

Table 4.7 Distribution of EDP trainees based on occupational status (n=100)

Sl. No.	Occupational status	Percentage
1.	Agriculture (farming)	0
2.	Farming + Business	35
3.	Farming +Service jobs	4
4.	No-farming only business	61
5.	Any other	0

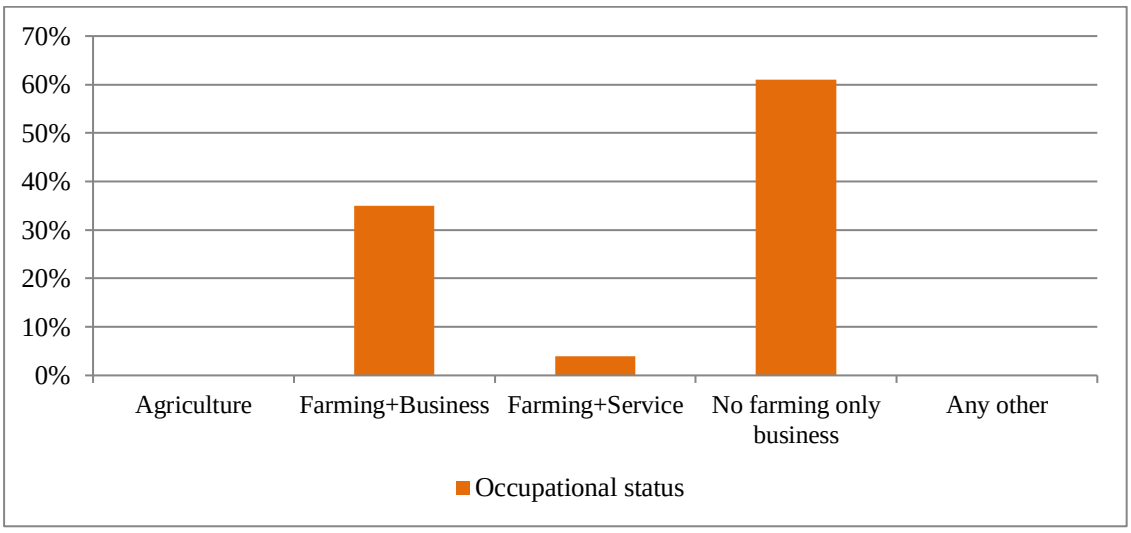


Figure 9 Distribution of EDP trainees based on occupational status

4.1.8 Extension contact

As mean and median did not coincide and the normality assumption of distribution could not be applied, quartile scores Q_1, Q_2, and Q_3 were used to categorise the respondents. It could be derived from the results given as Table 4.8 that more than half (53.00 %) of the EDP trainees had median (Q_2) scores between50-74.37and 25.00 per cent of the trainees had high level of extension contact scores above Q_3 value 74.37. But about 22.00 per cent of the EDP trainees were having low extension contact with scores below Q1 score of 50. The probable reason for such a result could be the fact that most of trainees were aware about the existence of extension agencies in their localities and were all well acquainted with the facilitators of extension agencies. This was in-line with the findings of Pandey (2017) who revealed that majority of the dairy entrepreneurs who attended entrepreneurship development trainings were having medium to high levels of extension contact.

Table 4.8 Distribution of EDP trainees based on extension contact (n=100)

Sl. No.	Level of extension contact	Quartile score	Percentage
1.	Low (<Q_1)	50	22
2.	Medium (Q_1 to Q_3)	50-74.37	53
3.	High (>Q_3)	74.37	25
Q_1=50, Q_3=74.37, Range=65			

4.1.9 Mass media exposure

Respondents were categorised on mass media exposure based on quartile scores and the results are presented in Table 4.9. It could be observed from the table that 54.00 per cent of the EDP trainees had medium exposure and 25.00 per cent had high exposure to mass media. Thus a significant majority (79.00 %) of the respondents had medium to high exposure to mass media. This could be due to the popularity of mass media aids like television and radio as a source of information and entertainment among the respondents. Similarly, the relatively higher education level of the trainees also would have influenced their orientation to the regular use of

newspapers, magazines, leaflets, bulletins etc. However, mass communication modes like melas, exhibitions and demonstrations did not receive the same acceptance as that of TV, radio and print media. There was only a small group of 21.00 per cent of the trainees who recorded low mass media exposure scores. The findings of the study confirmed the results of Pandey (2017) who reported that 86.67 per cent of the trainees who attended dairy based entrepreneurship development trainings had medium to high level of mass media exposure.

Table4.9 Distribution of EDP trainees according to their mass media exposure (n=100)

Sl. No.	Category	Quartile score	Percentage
1.	Low (< Q_1)	5	21
2.	Medium(Q_1 to Q_3)	5-9.75	54
3.	High(>Q_3)	9.75	25
Q_1=5, Q_3=9.75, Range=9			

4.1.10 Land holding

Categorization of respondents based on land holdings are given in Table 4.10. The results revealed that the majority (72%) of the KVK EDP trainees were marginal land holders with holding size less than 1.00 ha. There were also 19.00 per cent, 7.00 per cent and 2.00 per cent of the trainees who owned small, medium and large land holdings respectively. The results were supported by the findings of Sinha (2016) who found that irrespective of the type of EDP, majority of trainees came from families' that owned marginal land holdings. Pie graph showing the distribution of EDP trainees according to land holding is depicted as Figure 10.

Table 4.10 Distribution of EDP trainees based on land holdings (n=100)

Sl. No.	Farmer categories	Land holding (ha)	Percentage
1.	Marginal farmer	< 1.0	72
2.	Small farmer	1.0 – 2.0	19
3.	Medium farmer	2.1 – 4.0	7
4.	Large farmer	>4.0	2

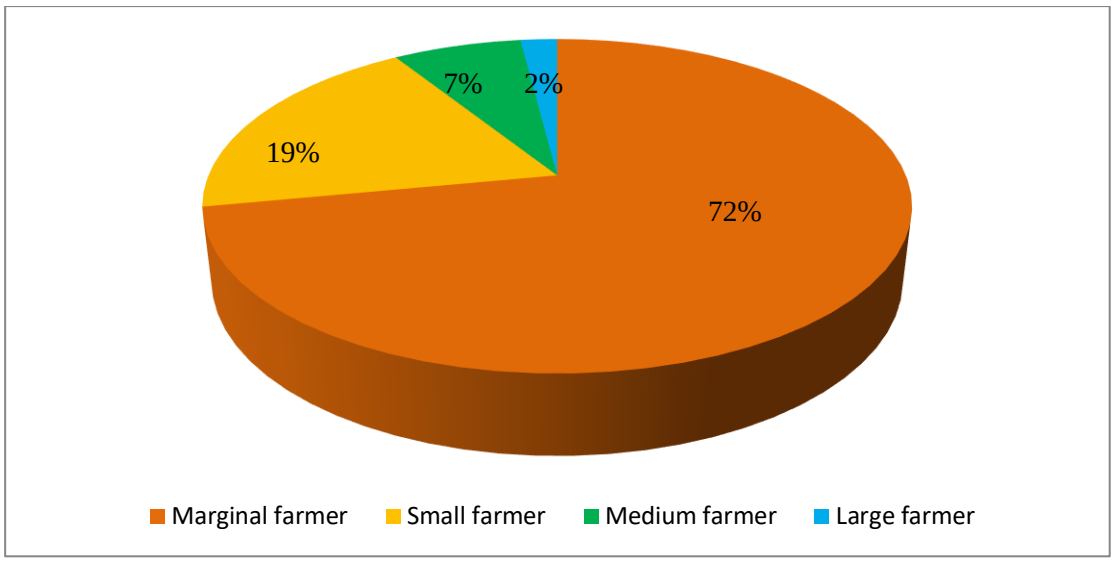


Figure 10 Distribution of EDP trainees based on land holding

4.1.11Annual income

Results in Table 4.11 indicated that the major income group of 28.00 per cent had annual income more than three lakh rupees whereas 21.00 percent and 16.00 per cent of the trainees had income between two and 2.5 lakh rupees and rupees 2.5 and three lakhs respectively. As majority of trainees were entrepreneurs it is quite normal to find 65 per cent in the annual income group of above two lakhs rupees. This indicates that most of trainees were showing good interest towards their respective venture as a source of income. About 13.00 per cent of the trainees had annual income between one and 1.5 lakhs and 11.00 per cent with income between 1.5 and 2 lakhs. Remaining 10.00 per cent were having annual income between 50,000 and one lakh. Only 1.00 per cent was having a lower annual income less than 50,000

Table 4.11 Distribution of EDP trainees based on annual income (n=100)

Sl. No.	Annual income (Rs)	Percentage
1.	Less than 50000	1
2.	50000 to 100000	10
3.	100000 to 150000	13
4.	150000 to 200000	11
5.	200000 to 250000	21
6.	250000 to 300000	16
7.	More than 300000	28

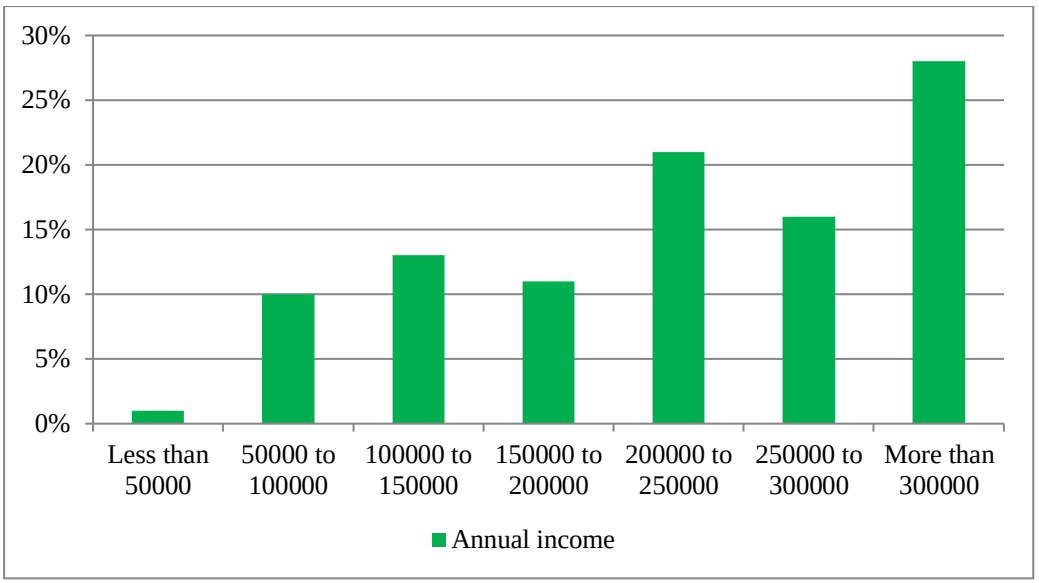


Figure 11 Distribution of EDP trainees based on annual income

4.1.12 Entrepreneurial intention

A categorisation of EDP trainees based on Quartile scores of entrepreneurial intention is presented in Table 4.12. It can be established from the table results that the entrepreneurial intention of majority (51%) of the trainees comes under medium category of quartile score range 70-91.50. There were 25 per cent of the trainees who showed high level of entrepreneurial intention and 24 per cent came under the low category. The results implied that around three-fourth of the respondents had medium to high level of entrepreneurial intention. This could infer that the soft skill part of EDP trainings had positive influence on the majority and had impact on the psychological preparedness of the trainees about entrepreneurship.

Table 4.12 Distribution of EDP trainees based on entrepreneurial intention (n=100)

Sl. No.	Level of entrepreneurial intention	Quartile scores	Percentage
1.	Low (< Q_1)	70.00	24
2.	Medium($Q_1$to Q_3)	70.00-91.50	51
3.	High(>Q_3)	91.50	25
Q_1=70, Q_3=91.50, Range=62			

The findings of Sinha (2016) also had similar results which revealed that the entrepreneurial intention of nearly half of the trainees (53.3 %) who attended EDP training from Ghaziabad centre of RUDSETI were of medium level.

4.1.13 Entrepreneurial need

The results on categorisation of EDP trainees on entrepreneurial need are given in the Table 4.13. The results revealed that 51 % of the trainees had medium entrepreneurial need, followed by 25 per cent with high levels of entrepreneurial needs. There was another 24 per cent who belonged to the low entrepreneurial need category. The results implied that majority of the respondents had high need for achievement, power and entrepreneurship which in turn reflected their successful entrepreneurs.

This could also be considered as an indicator of the entrepreneurial quality of the respondents as supported by the findings of Sinha (2016).

Table 4.13 Distribution of EDP trainees based on entrepreneurial need (n=100)

Sl. No.	Level of entrepreneurial need	Quartile score	Percentage
1.	Low (< Q_1)	56.00	24
2.	Medium ($Q_1$to Q_3)	56.00-83.67	51
3.	High (> Q_3)	83.67	25
Q_1=56, Q_3=83.67, Range=60			

4.1.14 Entrepreneurial capacity

The distribution of the trainees based on their entrepreneurial capacity is presented in Table 4.14. It can be observed from the table that half of the trainees had medium level of entrepreneurial capacity and 25 per cent each for low and high categories. The result implied that three-fourth of the trainees had medium to high level of entrepreneurial capacities. This could mostly be attributed to the experiential learning situations provided in the EDP trainings attended by the respondents.

Entrepreneurial capacity is considered an essential skill required to manage the enterprises effectively. The results were supported by the findings of Sinha (2016).

Table 4.14 Distribution of EDP trainees based on entrepreneurial capacity (n=100)

Sl. No.	Level of entrepreneurial capacity	Quartile score	Percentage
1.	Low (< Q_1)	57.50	25
2.	Medium ($Q_1$to Q_3)	57.50-89.17	50
3.	High (> Q_3)	89.17	25
Q_1=57.5, Q_3=89.17, Range=60			

4.1.15 Innovativeness

It is evident from the results given in Table 4.15 that the KVK trainees with low and high innovativeness were 21.00 per cent each. The remaining more than half (58%) of the trainees were found to be medium in their level of innovativeness. The study further showed that a significant majority of the respondents (79.00 %) had medium to high level of innovativeness meant that newer technologies were readily acceptable to them. This is in line with the findings of Shehrawat (1998), Nagesha (2005) and Kumar (2008).

Table 4.15 Distribution of EDP trainees based on innovativeness (n=100)

Sl. No.	Level of innovativeness	Quartile scores	Percentage
1.	Low(<Q_1)	20.00	21
2.	Medium($Q_1$to Q_3)	20.00-45.00	58
3.	High(>Q_3)	45.00	21
Q_1=20, Q_3=45, Range=45			

4.1.16 Achievement motivation

The distribution of EDP trainees based on the measure of their achievement motivation is given as Table 4.16. The results showed that the respondents with high and low levels of achievement motivation were 29.00 per cent and 20.00 per cent

respectively. However, about half (51%) of the respondents were found to have medium level of achievement motivation. The results were in conformity with McClelland's achievement motivation theory which states that the entrepreneurs who performed things in a new and better way under risks and uncertainty is bound to have high levels of achievement motivation. It could also be observed that it is the comparatively higher levels of achievement motivation which enabled the entrepreneurs to reach the challenging goals set by them in life. The findings of Bhupendra (2016) and Deepthi (2016) which reported that the aspirations to excel among entrepreneurs stem from their medium to high levels of achievement motivation were in line with the results.

Table 4.16 Distribution of EDP trainees based on achievement motivation (n=100)

Sl. No.	Level of achievement motivation	Quartile score	Percentage
1.	Low ($<Q_1$)	20	20
2.	Medium ($Q_1$to Q_3)	20-45	51
3.	High($>Q_3$)	45	29
Q_1=20, Q_3=45, Range=45			

4.1.17 Decision making ability

Categorization of EDP trainees based on the measure of their decision making ability is presented in Table 4.17. It could be observed from the results that 49 per cent of the trainees had medium decision making ability scores. The trainees with high and low decision making ability were 29 per cent and 22 per cent respectively. The results showed that majority of the entrepreneurs had medium level of decision making ability which was an essential quality for the successful conduct of any business venture. The results are in accordance with the findings of Taufiq *et al*. (2011), Jayarani *et al*. (2013), Bhupendra (2016) and Deepthi (2016).

Table 4.17 Distribution of EDP trainees based on decision making ability (n=100)

Sl. No.	Decision making ability	Frequency	Percentage
1.	Low($< Q_1$)	25.00	22
2.	Medium(Q_1 to Q_3)	25.00 -58.33	49
3.	High($>Q_3$)	58.33	29
Q_1=22, Q_3=58.33, Range=58			

4.1.18 Risk orientation

It is obvious from the results presented in Table 4.18 that around half of the respondents (51 %) had medium level of risk orientation followed by 34% who possessed high level of risk orientation. There were another 15.00 per cent of the respondents who were found to have low level of risk orientation. It could be observed from the results that a significant majority of the respondents (85 %) have medium to high level of risk orientation. This indicates that there is more scope to launch new entrepreneurship development programmes among these respondents. This is in line with the findings of Bhagyalaxmi *et al.* (2003), Taufiq *et al.* (2011) and Sindhu (2015).

Table 4.18 Distribution of EDP trainees based on risk orientation (n=100)

Sl. No.	Risk orientation level	Quartile score	Percentage
1.	Low(<Q_1)	10.00	15
2.	Medium (Q_1 to Q_3)	10.00-33.33	51
3.	High(>Q_3)	33.33	34
Q_1=15, Q_3=34, Range=36.67			

4.1.19 Self confidence

Distribution of EDP trainees according to their level of self-confidence is given as Table 4.19. The results indicated that a majority of 59 per cent of the KVK trainees had medium level of self-confidence with quartile scores between 25.00 and 48.44. The distribution of trainees in groups of high and low self confidence levels was observed to be 25 and 16 per cent respectively. The results reinstate the theoretical proposition that indicate self-confidence as an important entrepreneurial quality and is in line with the findings of Chaudhari (2006) and Medhi (2017).

Table 4.19 Distribution of EDP trainees based on level of self confidence

Sl. No.	Category	Quartile scores	Percentage
1.	Low(<Q_1)	25.00	16
2.	Medium (Q_1 to Q_3)	25-48.44	59
3.	High(>Q_3)	48.44	25
Q_1=25, Q_3=48.44, Range=43.75			

4.1.20 Cosmopoliteness

Results from Table 4.20 revealed that more than half of the respondents (64 %) had medium level of cosmopoliteness followed by21 % and15% with to low and high levels of cosmopoliteness. This medium to high level of cosmopoliteness showed that the sphere of interest of majority of trainees extended beyond the limits of their immediate geographical locations. In fact they were in touch with sources that enabled them to know the latest innovations and techniques that could be effectively adopted in their enterprises. This is in line with the findings of Shehrawat (1998), Patel *et.al* (2003) and Dayananda (2016).

Table 4.20 Distribution of EDP trainees based on cosmopoliteness (n=100)

Sl. No.	Level of cosmopoliteness	Quartile scores	Percentage
1.	Low (<Q_1)	33.33	21
2.	Medium (Q_1 to Q_3)	33.33-60.00	64
3.	High (>Q_3)	60.00	15
Q_1=21, Q_3=60, Range=53.33			

4.1.21 Economic motivation

Results in Table 4.21 depicted majority of the respondents (56 %) in the medium level of economic motivation, followed by 27 per cent belonging to low economic motivation category. It was found that only 17 per cent of the trainees had high levels of economic motivation. Theoretically economic motivation is a prerequisite for all entrepreneurs as supported by the findings of Chauhan and Patel (2003), Bhagyalaxmi *et al*. (2003) and Dayananda (2016).

Table 4.21 Distribution of EDP trainees based on economic motivation (n=100)

Sl. No.	Level of economic motivation	Quartile scores	Percentage
1.	Low (<Q_1)	26.67	27
2.	Medium (Q_1 to Q_3)	26.67-60.00	56
3.	High (>Q_3)	60.00	17
Q_1=26.67, Q_3=60, Range=60			

4.1.22 Empowerment gain

Table 4.22 Empowerment of EDP trainees before and after undergoing training programmes in KVKs (n=30)

Sl. No.	Empowerment	Mean		t-value
		Before training	After training	
A. Psychological empowerment				
1.	Self confidence	2.18	2.60	7.85*
2.	Courage	2.10	2.50	7.50*
3.	Self-reliance	1.63	2.43	13.27*
4.	Feeling of security	1.63	2.40	12.82*
B. Social empowerment				
1.	Interaction with people outside the family	2.12	2.38	5.89*
2.	Participation in decision making	1.93	2.34	7.97*
3.	Possessing desired social status	1.86	2.26	7.52*
4.	Access to modern technology	1.35	2.24	16.23*
C. Economic empowerment				
1.	Power to invest/save	1.77	2.41	12.25*
2.	Power to sale/purchase of produce	1.48	2.39	20.15*
3.	Operating personal account in bank	1.20	1.60	7.27*
4.	Participation in decision about marketing of produce	1.50	2.22	14.58*
D. Political empowerment				
1.	Awareness of human rights	1.92	1.97	2.28*
2.	Awareness of legislation	1.60	1.61	1.0
3.	Awareness of political institution	1.50	1.52	1.42
4.	Awareness about laws	1.93	1.97	2.03*

*significant at 5 per cent level

Table 4.22 showed the empowerment gain calculated based on pre and post data collected from the additional thirty EDP trainees who had undergone training programme during the study period (2019-20). Empowerment gain was measured on four components namely psychological, social, economic and political empowerment. The psychological empowerment like self-reliance had high significance at 5 per cent level after undergoing training followed by feeling of security, self-confidence and courage. Social and economic empowerment status of the trainees also increased after attending the training programmes. This was supported by the findings of Masur (2014).With respect to political empowerment; trainees had increased awareness about human rights and laws due to social participation. But regarding awareness about legislation and political institutions, there was no significant difference after the training.

4.1.23 Employment gain

The data in Table 4.23 indicated that 43 per cent recorded 131 to 250 days of employment gain, whereas 19 per cent got upto 130 days of employment and 38 per cent had above 250 days of employment gain. Thus it can be inferred that maximum trainees who received EDP trainings in various aspects were having medium employment gains (131 to 250 days). This was in-line with the findings of Choudhary (2011), Rana (2010) and Jain (2013).Pie graph showing the employment gain of trainees is depicted as Figure 12.

Table 4.23 Distribution of EDP trainees according to their employment gain (n=100)

Sl. No.	Employment gain (days)	Category	Percentage
1.	Upto 130	Low	19
2.	131 to 250	Medium	43
3.	Above 250	High	38

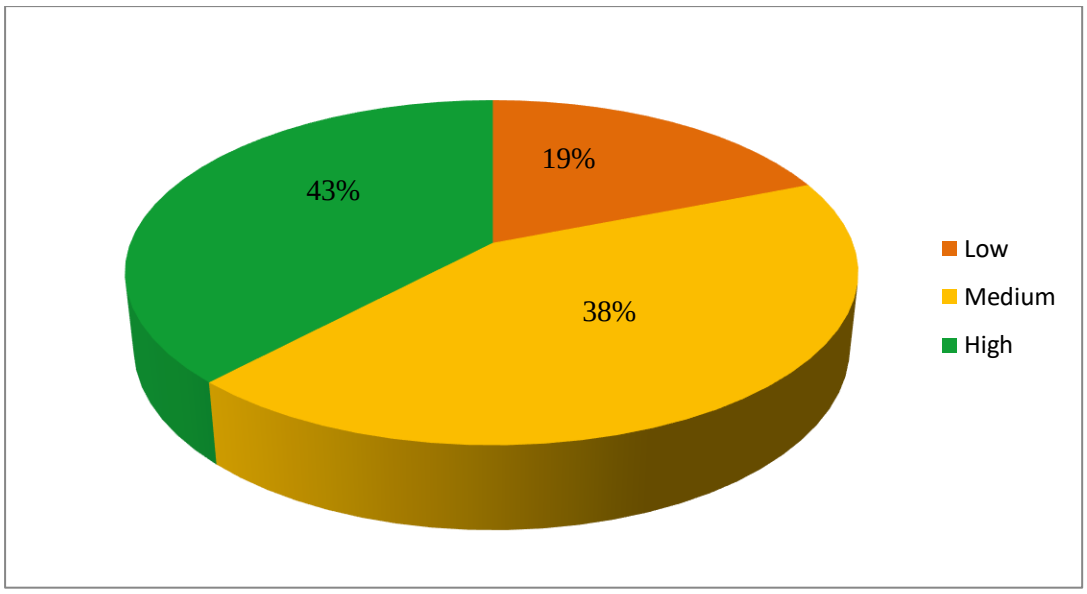


Figure 12 Distribution of EDP trainees based on employment gain

4.1.24 Adoption of technology from training

Table 4.24 Distribution of respondents based on rate of adoption of technology from training (n=100)

Sl. No.	Adoption of technology (scores)	Category	Percentage
1.	47-59	Low	18
2.	60-88	Medium	57
3.	89-100	High	25

The results from Table 4.24 indicated that 57% trainees belonged to the category of medium level adoption of technologies in enterprises. Nearly 25 per cent of the trainees were having high level of adoption and the remaining 18 per cent had low level of adoption. Each EDP training comprised of different component technologies and some of the components were more relevant and needed by the trainees. These technologies were fully adopted by the trainees whereas some were only partially adopted or not adopted at all. Replacement of technologies was another factor for the medium to low level adopters. Even though the trainings by KVKs helped in rapid transfer of technology to majority of the trainees, the factors like income and risk associated with the adoption of new technologies made the others

reluctant to adopt or discontinue the technology used. This was supported by the findings of Medhi *et al.* (2017)and Geethu (2019).The results are also illustrated in Figure 13.

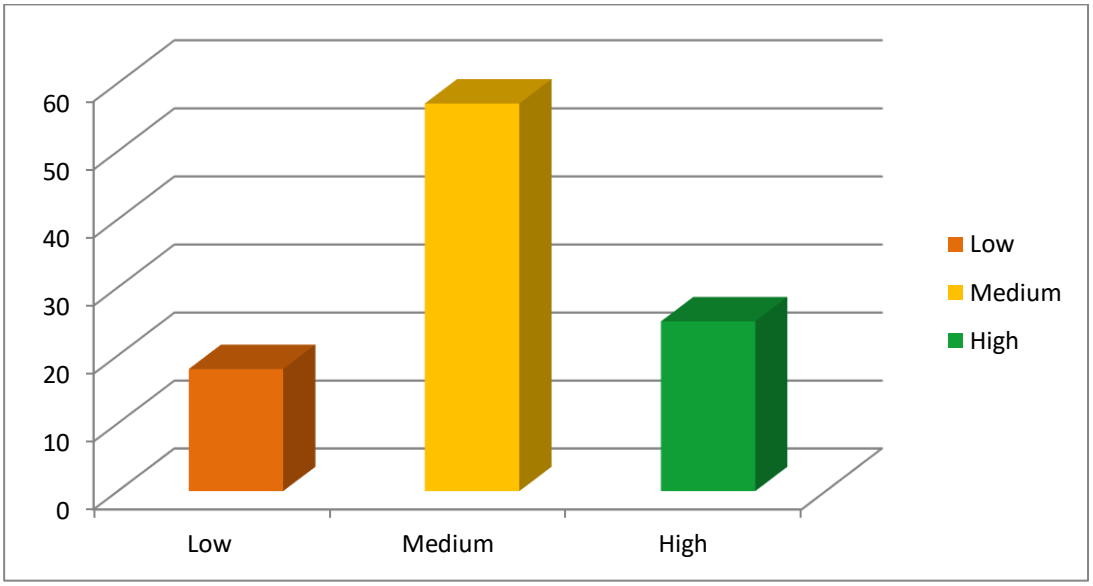


Figure 13 Distribution of EDP trainees based on rate of adoption of technology

4.1.25 Credit support

The findings in Table 4.25 revealed that out of 100 KVK trainees, for majority (42 %) credit was not available and 35 per cent had only partial credit availability. Only 20 per cent of the respondents reported that they had sufficient credit availability. This implied that majority of the trainees do not have sufficient credit support for the establishment and maintenance of their enterprises. The results were in agreement with the findings of Sharma (2013).A comparative description of the results is given as Figure 14.

Table 4.25 Distribution of trainees based on credit support availability

Sl. No.	Credit support	Percentage
1.	Not available	42
2.	Partial	38
3.	Sufficient	20

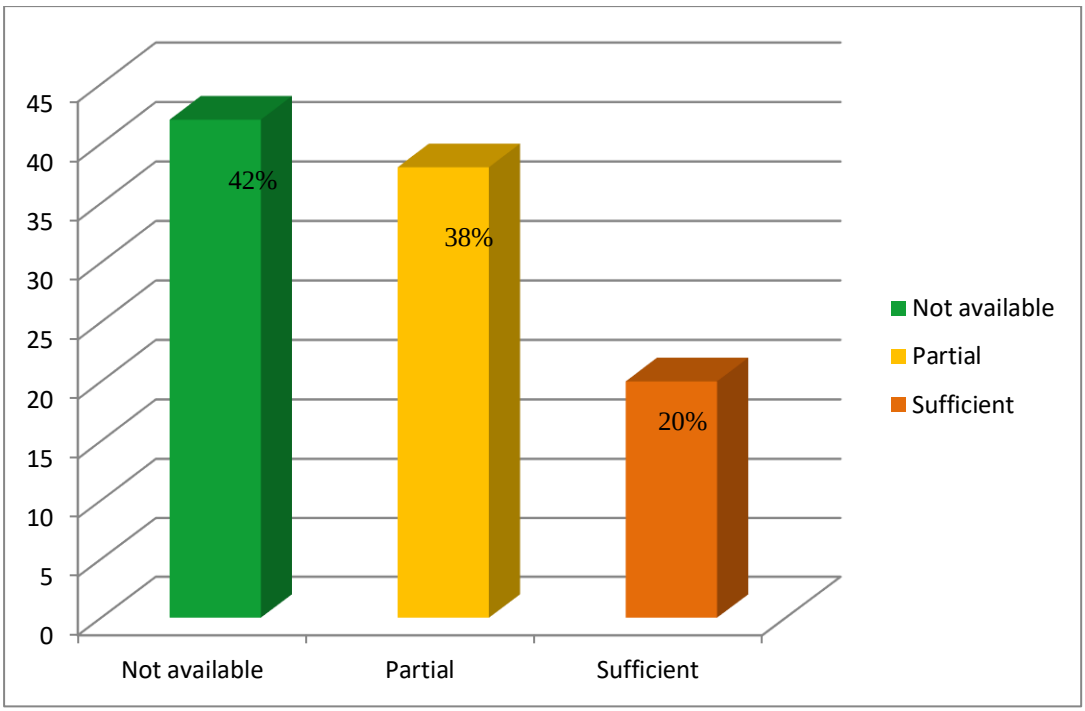


Figure 14 Distribution of EDP trainees based on credit support

4.2. Perceived entrepreneurial training needs of EDP trainees of KVKs

Entrepreneurship development training is one of the key inputs that helped in facilitating the augmentation of entrepreneurship qualities in an individual. Thus it enabled to achieve development and change through planned efforts. EDP training was required for both potential and existing entrepreneurs to increase their entrepreneurial spirit, skill and competencies for generating change that leads to rapid economic growth. The entrepreneurial training needs of KVK trainees was evaluated in terms of entrepreneurial status at the time of training, utility of trainings attended and preferred areas of training for future. The findings are presented under the respective sub-heads below.

4.2.1 Perceived utility and interest in future trainings by KVKs

The results depicted in Table 4.26showed that 83.00 per cent respondents had received entrepreneurship development trainings from KVK before the start of enterprise which indicated that the training was instrumental in motivating them to take up the entrepreneurship. However, there were 17.00 per cent of the trainees who

had established the entrepreneurship units on their own initiative. They had attended training at KVK after the establishment of their enterprise to update their knowledge and skill in the respective fields.

The utility of EDP training programmes as reported by the trainees was analysed and the results are represented in Table 4.26. The findings from the table indicated that 89.00 per cent and eight per cent of the respondents who received trainings from KVKs rated the trainings as very much useful and useful respectively in establishing their enterprises. There were only two per cent of the trainees who found the KVK trainings as not useful. The results implied that majority of the trainees used the knowledge and skills imparted by the trainings in establishing their enterprises. They confirmed the learning to have enabled them in effectively increasing the production and improving the quality of their products. It could also be inferred that trainings were of great importance for increasing the entrepreneurs' profit margins. Therefore, the results implied that more number of entrepreneurship development oriented training programmes by KVKs can directly contribute to better entrepreneurship development in agricultural sector. The findings were in conformity with the results of Shehrawat (1998) and Singh (2004).

The future training need was assessed in terms of the EDP trainees' willingness to attend new training programmes from KVKs and the results are also included in Table 4.26. It was found from the results that a significant majority of the trainees (86 %) had expressed their interest in obtaining future trainings from KVKs. However, a minority of 14 per cent of trainees reported that they were not interested in obtaining more training in future. The major reasons projected by them for their disinterest were lack of time for attending trainings, inappropriate timings and unsuitable duration of trainings, distance of the training venue and lack of incentives after attending training. Similar findings were earlier reported by Shehrawat (1998), Singh (2004) and Haneef (2015).

The results were indicative that the training should be designated in such a way that they were useful to the entrepreneurs to update their current knowledge and

should also be designated to fill their existing knowledge and skill gaps. The training should also address the emerging knowledge and skill needs of entrepreneurs.

Table 4.26. Perceived utility & need of KVK - EDP trainees for future trainings

Perceived utility & need for future trainings (N=100)						
Entrepreneurial phase of training (%)		**Perceived usefulness of training received (%)**			**Interest for further trainings (%)**	
Before start	After start	Very Useful	Useful	Not useful	Interested	Not required
83	17	89	08	02	86	14

4.2.2 Training need on preferred areas of entrepreneurship

List of EDP trainings was used to select three major thrust areas focussed by all the five selected KVKs during the past five years. Accordingly mushroom cultivation, apiculture and value addition were the training areas selected. The data collected was used to calculate Training Need Index (TNI) and the training programs of KVKs were ranked based on TNI. The results on training need based on TNI of respondents in the three major thrust areas selected are presented under the following subheads.

4.2.2.1. Training need in mushroom production

The training need index (TNI) of respondents in the area of mushroom production is depicted in Table 4.27. The results in the table revealed that packaging and marketing of mushroom with TNI score 91.10 and post-harvest handling and value addition (TNI 90) were the areas that were ranked first and second respectively among the needed training areas. Marketing of mushroom is one of the biggest constrain in mushroom cultivation. This was in-line with the findings of Singh (2001) who suggested that specialized training about these aspects should be provided to the mushroom growers. The other areas in the order of ranking were information on nutritive value of mushroom (86.67), cultivation technology (82), spawn production (78), substrate preparation (76), pest and disease management (71), infrastructure

requirement (60), economics of mushroom (58) and management of spent compost (56).

Table 4.27.Preferred areas of training in mushroom production based on training need index (TNI) (n=30)

Sl. No.	Training areas	TNI	Rank
1.	Packaging and marketing	91.10	I
2.	Post harvest handling and value addition	90.00	II
3.	Nutritive value of mushroom	86.67	III
4.	Cultivation technology of mushroom	82.00	IV
5.	Spawn production	78.00	V
6.	Substrate preparation	76.00	VI
7.	Pest and disease management	71.00	VII
8.	Infrastructure requirement	60.00	VIII
9.	Economics of mushroom	58	IX
10.	Management of spent compost	56	X

4.2.2.2. Training need in apiculture

Preferred areas of training in apiculture based on training need index (TNI) is presented as Table 4.28. A perusal of results in Table 4.28 revealed that among the different aspects of beekeeping, honey extraction and essential operations with TNI score of 90 was perceived as the most needed area of training in apiculture. Honey extraction required skilled labour and therefore training should be imparted to beekeepers to handle skilfully honey extraction and other essential operations of beekeeping. This was in-line with the findings of Rania (2006) who revealed that large number of beekeepers required training need on these aspects. This was followed by marketing and business of honey bees and value addition of honey with respective TNI scores of 86.60 and 85.00.This could be credited to the fact that many beekeepers wanted to adopt beekeeping as a commercial venture due to their high market demand attributed to its medicinal value. The other areas in the order of perceived importance based on TNI scores of the trainees were apiary management during different seasons (81.00), bee keeping aspects of site selection and equipments

(70.00), bee biology which included life cycle of bees, their rearing, pollination etc. (69) and bee enemy and disease management (68.80). Therefore, it was inferred that the KVKs must concentrate on these aspects to make the beekeepers experts in their respective field. Export of honey (53.30) and purity testing (52.22) where least training areas needed by the respondents.

Table 4.28 Preferred areas of training in apiculture based on training need index (TNI) (n=30)

Sl. No.	Training areas	TNI	Rank
1.	Honey extraction and essential operations	90.00	I
2.	Marketing and business of honey bees	86.60	II
3.	Value addition of honey	85.00	III
4.	Apiary management during different seasons	81.00	IV
5.	Bee keeping aspects	70.00	V
6.	Bee biology	69.00	VI
7.	Bee enemy and disease management	68.80	VII
8.	Bee keeping equipment	54.40	VIII
9.	Export of honey	53.30	IX
10.	Purity testing	52.22	X

4.2.2.2. Training need in value addition

The data from Table 4.29 revealed the training need of respondents in the area of value addition of fruits and vegetables in the following preferred order of choice viz. technology upgradation (92.5), packaging and marketing techniques (88.33), advertising of products and brand promotion (85), financial management and credit support (84), production technology (83), and manufacturing and preservation techniques of different products (75). Procurement of raw materials (74), quality control and management (72.5), export promotion techniques (69) and hygiene, pollution control and environmental management (60) were in the lowest order of ranking preference. Technology upgradation was perceived as the most important training need by the respondents and could be attributed to the perception that sophisticated technology helped the entrepreneurs in manufacturing quality products

at low cost. Therefore it was felt necessary by the entrepreneurs to update themselves with the latest technical know-how to get higher price of the products and to survive in a competitive market as reported by Singh (2004). Problems of marketing and packaging were very serious in enterprises as confirmed by Shehrawat (1998). Therefore entrepreneurship development programmes including different areas of technology upgradation, packaging and marketing, advertising and brand promotion should be organised for entrepreneurs so that they could gain the knowledge and skills in these areas. A detailed review of the results revealed that hygiene, pollution control and environmental management where the least needed areas.

Table 4.29. Preferred areas of training in value addition based on training need index (TNI) (n=40)

Sl. No.	Training areas	TNI	Rank
1.	Technology upgradation	92.50	I
2.	Packaging and marketing techniques	88.33	II
3.	Advertising of products and brand promotion	85.00	III
4.	Financial management and credit support	84.00	IV
5.	Production technology	83.00	V
6.	Manufacturing and preservation techniques of different products	75.00	VI
7.	Procurement of raw materials	74.00	VII
8.	Quality control and management	72.50	VIII
9.	Export promotion techniques	69.00	IX
10.	Hygiene, pollution control and environmental management	60.00	X

4.2.3 Comparison of training need of EDP trainees from different KVKs

The result of non-parametric Kruskal-Wallis H test was used to determine whether the training needs differed among the selected KVKs and the results are

presented as Table 4.30. Since the p value (0.39) is greater than 0.05, the test was not significant which indicated that there was no significant difference between the training needs of trainees from different KVKs.

Table 4.30. Kruskal-Wallis test statistics for training need

Test statistics	Values
Chi-Square	4.12
df	4
p value	0.39

Mean rank based on training need of the respondents extracted using Kruskal-Wallis H test are given as Table 4.31. The mean ranks for KAU hosted KVK Malappuram and KVK Kottayam were 56.90 and 55.98 respectively. The NGO hosted KVK Trivandrum had the mean rank of training need as 51.00. Mean ranks obtained for ICAR KVKs, KVK Alappuzha and KVK Kasaragod were 47.80 and 40.83 respectively. According to the p value it could be inferred that there was no difference between the mean ranks of training needs expressed by the trainees of different KVKs. Therefore, it could be observed that the EDP training need in agriculture remained almost the same throughout all the selected districts of the state.

Table 4.31 Mean ranks of training needs as per Kruskal-Wallis H test

Sl. No.	KVK	N	Mean Rank
1.	KVK Trivandrum	20	51.00
2.	KVK Alappuzha	20	47.80
3.	KVK Kasaragod	20	40.83
4.	KVK Kottayam	20	55.98
5.	KVK Malappuram	20	56.90
	TOTAL	100	50.50
$\chi 2$= 4.116, p value= 0.391, df=4			

4.3 Effect of personal attributes on Training Need

An attempt was made to elucidate the effect of personal attributes of trainees on their training need index (TNI) scores. The results based on Spearman correlation

coefficient (r_{sp}) are given in Table 4.32. It could be inferred from the results in the table that almost all the variables studied had significant relationship with training need except age, gender, marital status, family type, family size, occupational status and land holding. The personal attributes and their influence on TNI are described here in detail under separate subheads

Table 4.32.Relationships of selected personal characteristics with training needs of trainees (N=100)

Sl. No.	Personal attributes of trainees	Correlation coefficient (r_{sp})
1.	Age	0.19
2.	Gender	-0.24
3.	Marital status	-0.08
4.	Family type	0.003
5.	Family size	0.13
6.	Educational status	0.30**
7.	Occupational status	-0.32**
8.	Land holding	0.19
9.	Annual income	0.63**
10.	Extension contact	0.70**
11.	Mass media exposure	0.60**
12.	Entrepreneurial intention	0.72**
13.	Entrepreneurial need	0.71**
14.	Entrepreneurial capacity	0.68**
15.	Innovativeness	0.77**
16.	Achievement motivation	0.80**
17.	Decision making ability	0.62**
18.	Risk orientation	0.77**
19.	Self confidence	0.75**
20.	Cosmopoliteness	0.71**
21.	Economic motivation	0.76**

** Correlation is significant at the 0.01 level (2-tailed)

4.3.1 Age and training needs

The r_{sp} value from Table 4.32with respect to age revealed that the training needs of respondents had no significant correlation with age. This could be attributed to the fact that, the training need was more dependent upon the situation, knowledge and need of the respondent irrespective of their age. These findings were in line with the results of Udday (2007), Borbon (2007) and Prashanth (2013).

4.3.2 Gender and training need

The relationship between gender and training need was found to be negative and non-significant. It indicated that the training need of respondents was not influenced by the gender of the respondents. This leads to the conclusion that the variable gender had no bearing on the training needs of the respondent with respect to entrepreneurship development. This observation is in-line with the findings of Mohammed *et al.* (2017).

4.3.3 Marital status and training needs

The relationship between marital status and training needs was found to have non-significant negative correlation with r_{sp} value -0.08. This indicated that the training needs of the respondents were not influenced by their marital status. This observation is in-line with the findings of Mohammed *et al.* (2017).

4.3.4. Family type and training need

Family type also had a positive non-significant correlation with the training needs of the respondents with r_{sp} value at 0.003. This finding was supported by the results of Patil *et al.* (2009) who reported that family type was positively and non-significantly correlated with the training needs of dairy farmers of Nagpur district. Similar findings were also reported in the studies by Thakur (2017) and Shahjar *et al.* (2018).

4.3.5. Family size and training needs

Family size was positively and non-significantly correlated with the training needs of the respondents. (r_{sp} =0.13). Similar findings were reported by Shahjar *et al.* (2018) who found that family size had a positive and non-significant correlation with

training needs of dairy farmers of Jammu and Kashmir. Similar findings were also reported by Patil *et al.* (2009).

4.3.6. Educational status and training needs

The results in Table 4.32 showed that there is positive and significant correlation (r_{sp}=0.30) between educational qualification and training needs of respondents. This positive trend of correlation revealed that as the educational level of EDP trainees increased, their need for training also increased. These findings were in line with those of Shehrawat (1998) who reported that educational status had positive and significant correlation with the training needs of entrepreneurs of agro-processing industries in Haryana. These findings were also supported by those of Singh (2004), Borbon (2007), Patil *et al.* (2009) and Prashanth (2013).Similar results were reported by Wankhar (2019) who revealed that education imparted greater knowledge, skill and desire to learn and acquire new information as reflected in the positive and significant correlation between education and training need.

4.3.7. Occupational status and training needs

Occupational status was another personal attribute that showed negative but significant correlation with the training needs of the respondents' with r_{sp} value -0.32. This implied that higher the occupational status of the respondents his training need was low. This could mostly be attributed to the indulgence in diverse tasks as part of the job which widen the knowledge and occupational skills of an individual in different areas reducing the need and time available for trainings. Hence, the respondents with higher occupational status felt lower training need as compared to those having lower occupational status. These findings were supported by those of Wankhar (2019).

4.3.8. Land holding and training needs

It can be seen from the results in Table 4.32that the relationship between land holding and training needs of the respondents was positive and non-significant with r_{sp}0.19. Larger land holding was mostly related to farming as a subsidiary or primary vocation which gave little spare time for attending any training. However, the positive relation implied the presence of need for training but not significant enough

to be realised as a felt need. These findings were supported by those of Patil (2009) who reported that variables like age and land holding were found to be positively but non-significantly correlated with the training needs of dairy farmers of Nagpur district. Similar relation was also reported by Udday (2007).

4.3.9 Annual income and training needs

The relationship between annual income and training needs of respondents as given in Table 4.32was found to be positive and significant with r_{sp} value 0.63.The finding implied that more annual income prompted individuals to indulge in diverse activities with the purpose of earning more profit out of their enterprise. New activities also brought with them newer challenges that necessitated them to gain more knowledge and skill through training. These findings were in line with those of Patil (2009) and Raghuvanshi (2017). Rathod (2017) also reported that the annual income and education was positively and significantly related to the training needs of dairy entrepreneurs in Latur district.

4.3.10 Extension contact and training needs

Extension contact was positively and significantly correlated with the training needs of respondents with r_{sp} value at 0.70 (Table 4.32). It indicated that with increase of scores on extension contact, there was increase in the tendency to gain more knowledge and skill through trainings. It could be inferred from the finding that an individual having good contact with extension agencies will perceive more training needs as they had the latest information from extension personnel and considered training as an important input in their enterprise. These findings were in line with those of Shehrawat (1998) and Sangeetha (2004).

4.3.11 Mass media exposure and training needs

Mass media exposure was another variable that showed significant positive correlation with the training needs of respondents. As per the results in Table 4.32 the r_{sp} value of the relation between the two variables was 0.60. The result revealed that with increase in mass media exposure the respondents' need for training also increased. This implied that awareness which the respondents gained through

different mass media sources created the inquisitiveness to know more about it. A clear understanding through training would provide for better opportunities in utilizing it in his enterprise for getting better income. These findings were in line with those of Shehrawat (1998) and Sangeetha (2004), Borbon (2007) and Thakur (2017).

4.3.12 Entrepreneurial intention and training needs

According to the results in Table 4.32 entrepreneurial intention of the respondents had positive and significant correlation with the training needs of the respondents with r_{sp} value 0.72. This revealed that people with higher entrepreneurial intentions will have the desire to expand their enterprise after obtaining trainings in the respective field. This was in agreement with the findings of Sinha (2016).

4.3.13 Entrepreneurial need and training needs

It was observed from the results given in Table 4.32 that there existed a significant positive correlation between economic motivation and training needs of the respondents with r_{sp} value 0.71. The results indicated that higher the entrepreneurial needs of the trainees, the more was their training needs. This was in agreement with the findings of Sinha (2016).

4.3.14 Entrepreneurial capacity and training needs

The relationship between entrepreneurial capacity and training needs of the respondents were found to be positive and significant with r_{sp} 0.68 (Table 4.32). This revealed that with increase in entrepreneurial capacity, respondents' need for training also increased which was in agreement with the findings of Sinha (2016).

4.3.15 Innovativeness and training needs

A perusal of results in Table 4.32 indicated that respondent's innovativeness was positively and significantly correlated with the training needs of the respondents with r_{sp} value 0.77. It implied that respondents with higher degree of innovativeness showed more need for training to perceive new ideas and practices. This was in line with the findings of Shehrawat (1998), Sangeetha (2004), Borbon (2007)and Raghuvanshi (2017).

4.3.16 Achievement motivation and training needs

The respondent's achievement motivation was positively and significantly correlated with his training needs and had r_{sp} value of 0.80 (Table 4.32). The finding implied that respondents with higher achievement motivation needed more training for better accomplishments and income. The result was in line with the findings of Sangeetha (2004) and Haneef (2015).

4.3.17 Decision making ability and training needs

It could be observed from Table 4.32that there was a positive and significant correlation between decision making ability and training needs of the respondents with r_{sp} value 0.62. It implied that respondents with higher degree of decision making ability had more need of training. This was in concurrence with decision theories that suggest decisions involving new activities needed clear understanding so that uncertainty and risks involved were reduced. This could be achieved through trainings and as such reduced the cognitive dissonance and enabled balanced decisions. This was in line with the findings of Prashanth (2013).

4.3.18. Risk orientation and training needs

Risk orientation was positively and significantly correlated with the training needs as per the results in Table 4.32 which showed r_{sp} value of 0.77. It could be inferred from the results that the respondents with higher risk orientation tried to gain more knowledge with respect to latest technologies and innovations. As their knowledge level increased, their need for training also increased so that they could acquire the practice knowledge for implementation. This was in line with the findings of Sangeetha (2004) and Borbon (2007).

4.3.19. Self-confidence and training needs

Self-confidence is considered as a key quality for entrepreneurial success. Lack of self-confidence made an individual easily demoralized, frustrated and resentful in situations of uncertainty in business. This was reflected in the expressed relationship between self-confidence and training needs of the respondents which was found to be positive and significant with r_{sp} value 0.75. This was in line with the findings of Thakur (2017).

4.3.20 Cosmopoliteness and training needs

Cosmopoliteness was positively and significantly correlated with the training needs of respondents and the r_{sp} value 0.71 as depicted in Table 4.32. A positive and highly significant relationship between respondents' cosmopoliteness and training need indicated that respondents who were not localite had strong tendency for obtaining need-based EDP trainings from sources outside their immediate contacts. This was in line with the findings of Shehrawat (1998) and Borbon (2007).

4.3.21 Economic motivation and training needs

It could be observed from the results presented in Table 4.32that there was positive and significant correlation between economic motivation and training needs of the respondents with r_{sp} value 0.76.The results implied that the respondents with higher degree of economic motivation wanted to improve their income from their enterprise. This created the need for better awareness on the latest developments in the respective fields and depended on training to gain this. It indirectly provided them with opportunities to become better equipped in technologies and processes for application in their enterprises leading to better returns. The results were in line with the findings of Sangeetha (2004), Borbon (2007), Raghuvanshi (2017) and Thakur (2017).

4.4. Evaluation of the entrepreneurial development training modules of KVKs

An evaluation of the EDP training modules of selected KVKs was done to find out the extent to which the modules could meet the training needs of the trainees. The evaluation of the training module is presented under the following subheads.

4.4.1. Trends in EDP training programmes of KVKs

4.4.2. Content analysis of EDP modules of KVKs

4.4.3 Comparison of EDP modules with the training needs

4.4.1. Trends in EDP training programmes of KVKs

Trends in training programmes were operationally defined as a pattern of gradual change in training programmes to move in certain direction overtime. The

trends in training programmes of KVKs selected for a period of 5 years from 2014-15 to 2018-19 was analysed and presented under the following sub-heads:

4.4.1.1. Number of training programmes per year

4.4.1.2. Number of EDP training programmes organized by KVKs

4.4.1.3. Year wise categorization of EDP under different thrust areas

4.4.1.1. Number of training programmes per year

Results in Table 4.33 revealed the number of training programmes conducted by the selected KVKs during the period of five years from 2014-15 to 2018-19. The observed trend based on the total number of training programmes conducted by each KVK during the period has also been presented as graphs in Fig. 15 and Fig. 16.

Table 4.33: Distribution of training programmes of KVKs from 2014-15 to 2018-19

Sl. No.	Institutions	Year wise categorisation of trainings (Number)				
		2014-15	2015-16	2016-17	2017-18	2018-19
1.	KVK Trivandrum (NGO)	54	57	126	154	192
2.	KVK Alappuzha (ICAR)	100	139	99	115	131
3.	KVK Kasaragod (ICAR)	139	137	121	116	110
4.	KVK Kottayam (KAU)	279	127	155	166	99
5.	KVK Malappuram (KAU)	112	114	118	119	110

KVK Trivandrum showed a continuously increasing trend in the number of trainings during the period 2014-15 to 2018-19. However, in the case of KVK Alappuzha, there was a drop in the total number of training programmes to 99 during the year 2016-17, but recorded continuous improvement thereafter to 131 training programmes in 2018-19. It was observed that the number of trainings indicated a continuously declining trend with respect to KVK Kasaragod from 2014 to 2019. The number of trainings conducted by KVK Kottayam recorded undulating trend with the number of trainings reduced to half during 2015-16 which increased to 166 in the

succeeding year to again fall to 99 during 2018-19.The total number of trainings by KVK Malappuram remained almost consistent over the years from 2014 to 2019.

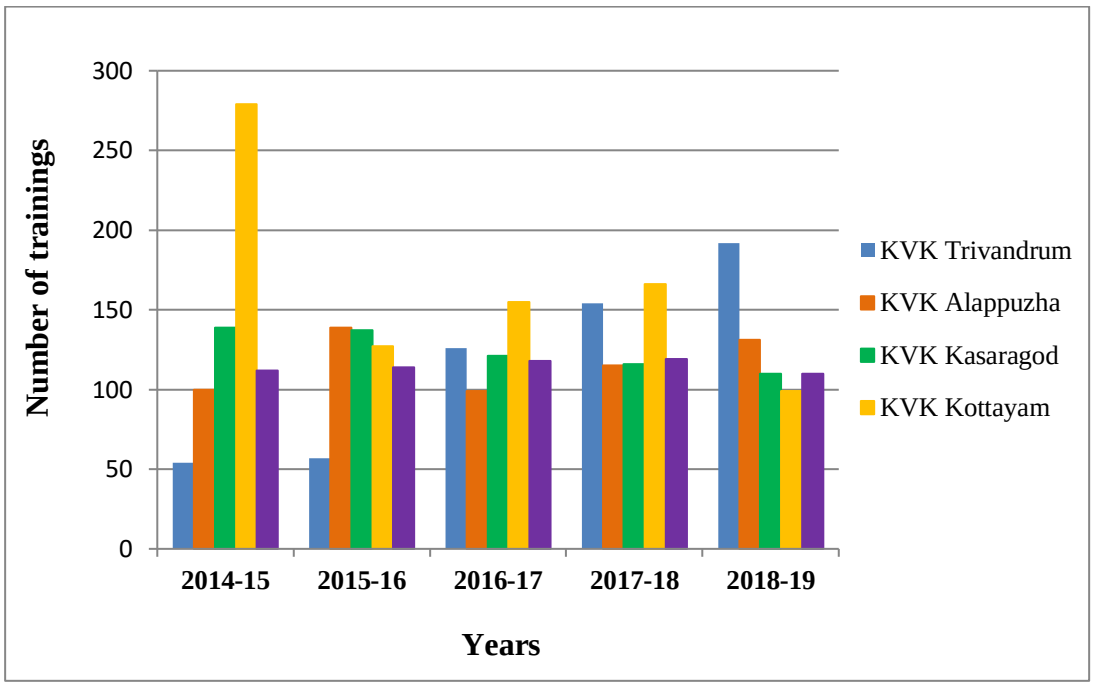


Figure 15 Trends in annual number of training programmes organized by KVKs

4.4.1.2. Number of EDP training programmes organized by KVKs

Results presented in Table 4.34showed the annual number of EDP training programmes organized by the selected KVKs from 2014-15 to 2018-19. KVK Trivandrum showed increasing trend in the total number of EDP training programmes conducted over the years from 16 in 2014-15 to 45 in 2018-19. Though there was fluctuation in the number of EDP trainings carried out per year by KVK Alappuzha and KVK Kasaragod, the trainings conducted by KVK Alappuzha doubled from 27 in 2014-15 to 57 in 2018-19. Whereas in KVK Kasaragod, the number reduced to almost half, from 61 in 2014-15 to 37 in 2018-19. The total number of EDPs by KVK Kottayam is almost consistent over the years, except with a decrease to 18 in 2018-19. Though trainings conducted by KVK Malappuram were less compared to other KVKs, an increasing trend could be observed. The study also revealed that the total number of EDP trainings conducted by the ICAR KVKs was higher compared to KAU and NGO KVKs. This was in line with the findings of Kumar (2004) who

revealed that out of the 4 selected KVKs (1 ICAR KVK, 2 SAU KVKs and 1 NGO KVK) the ICAR-KVK had organized more EDP trainings as compared to NGO-KVK and SAU-KVKs.

Table 4.34 Distribution of EDP training programmes of KVKs from 2014-15 to 2018-19

Sl. No.	Institutions	Year wise categorisation of EDP (Number)				
		2014-15	2015-16	2016-17	2017-18	2018-19
1.	KVK Trivandrum (NGO)	16	19	33	15	45
2.	KVK Alappuzha (ICAR)	27	47	39	40	57
3.	KVK Kasaragod (ICAR)	61	61	38	55	37
4.	KVK Kottayam (KAU)	31	24	32	39	18
5.	KVK Malappuram (KAU)	15	13	14	26	23

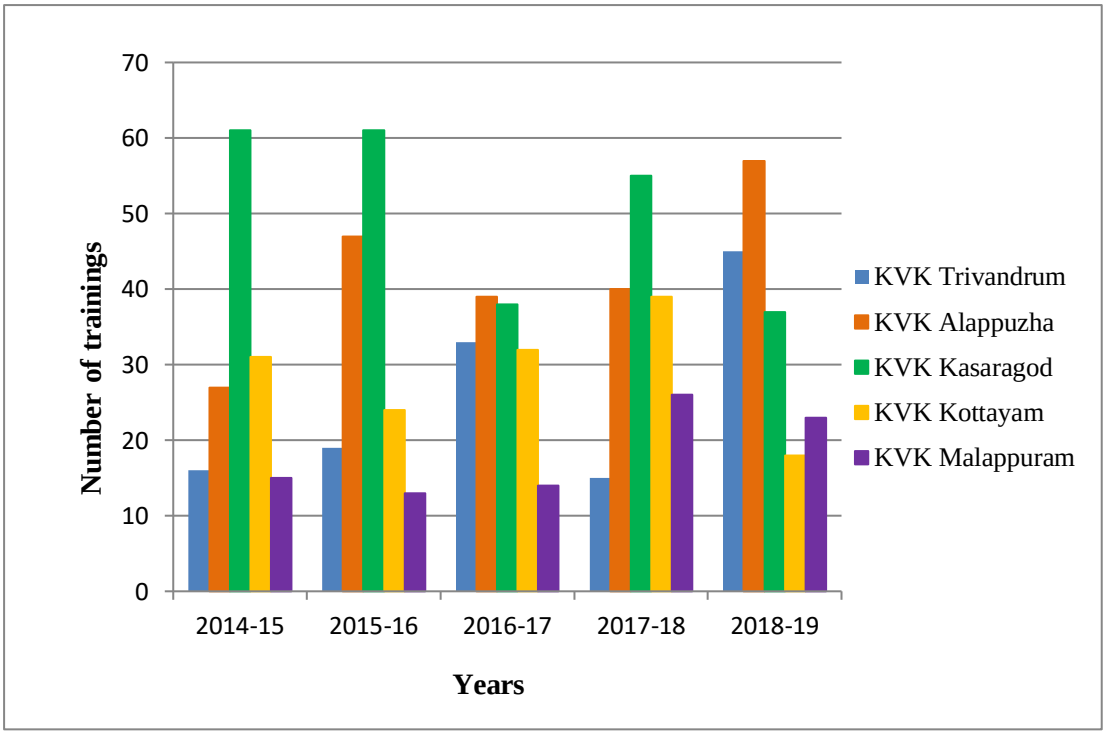


Figure 16 Trends in annual number of EDP training programmes organized by KVKs.

4.4.1.3. Year wise categorization of EDP under different thrust areas

Results in Table 4.35represented the types of EDP trainings and the number of courses carried out by the selected KVKs from 2014-19. It was interesting to observe that despite the planned action plan focussed on identified thrust areas of each district, EDP trainings shared similar theme areas in almost all KVKs. Common themes of EDP trainings were Mushroom, Apiculture and Value addition. Mostly variations observed in EDPs under value addition organized by the KVKs were based on the local input availability and other customised preferences.

In KVK Trivandrum, 45 mushroom EDP, seven apiculture EDP and 68 value addition EDP and eight courses on friends of coconut were conducted in the study period. The KVK provided value addition EDP on fruits, vegetables and tubers. A total of 55 mushroom EDP, five apiculture EDP and 150 value additions EDP on fruits, vegetables, plantation crops were conducted in KVK Alappuzha. KVK Kasaragod organized123 value addition EDP trainings on fruits, vegetables, plantation crops, pulses and honey, 48 mushroom EDP and 81 apiculture EDP.

In KVK, Kottayam, value addition on fruits, vegetables, plantation crops, spices, tuber and fish were provided. It could be observed that only two apiculture trainings were organised in 2017-18. However, there were 33 mushroom EDP programs under the KVK during the period. In KVK, Malappuram,55 mushroom trainings, 5 apiculture EDP and 150 value addition EDP were conducted during the period. The table also revealed that except in KVK Kasaragod, the number of trainings on apiculture EDP was very low compared to other EDP themes. The KVK also provided separate trainings on honey value addition. This indicated the popularity of apiculture as an entrepreneurial venture in the district owing to the presence of large tree cover and forest lands

Therefore, it could be inferred that there was similarity in the topics among the EDP programs which were mostly aimed to suit the local availability of inputs and also the thrust areas in which the KVKs worked. However, the number of trainings organized showed undulating trend among the KVKs which could be the result of other major programs taken up by the KVKs in the respective years. The major

inference that could be drawn from the results was that despite the multiple functions in which the KVKs were involved EDP trainings formed a major skill development program in all the KVKs throughout the study period.

Table 4.35 Distribution of types of EDP trainings by KVKs from 2014-15 to 2018-19

Sl. No.	Institution	Type of EDP	Year wise categorisation of EDP types (number)					
			2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	Total
1.	KVK Trivandrum (NGO KVK)	Mushroom	9	6	10	12	8	45
		Apiculture	-	-	1	3	3	7
		Value addition (fruits, vegetables, tubers)	7	9	18	-	34	68
		Friends of coconut	-	4	4	-	-	8
2.	KVK Alappuzha (ICAR KVK)	Mushroom	10	10	10	13	12	55
		Apiculture	-	-	-	-	5	5
		Value addition (fruits,vegetables, plantation crops)	26	35	26	25	38	150
3.	KVK Kasaragod (ICAR KVK)	Mushroom	13	15	11	9	-	48
		Apiculture	16	17	14	23	11	81
		Value addition (fruits, vegetables, plantation crops, pulses, honey)	32	29	13	23	26	123
4.	KVK Kottayam (KAU KVK)	Mushroom	8	3	10	8	4	33
		Apiculture	-	-	-	2	-	2
		Value addition (fruits, vegetables, plantation crops, spices, tuber, fish)	18	22	23	29	17	103
5.	KVK Malappuram (KAU KVK)	Mushroom	8	5	6	3	7	29
		Apiculture	1	2	1	2	2	8
		Value addition (fruits, vegetables, plantation crops, 1milk)	6	6	7	21	14	54

4.4.2. Content analysis of Entrepreneurship development training programmes of KVKs

Content analysis was carried out through classification, tabulation and evaluation to assess the comparative orientation and importance given to different topics under the major EDP trainings by the selected KVKs.

4.4.2.1Content analysis of EDP trainings of NGO KVK

Results in Table 4.36 revealed the content coverage based on duration of mushroom EDP by NGO KVK, Trivandrum. The results indicated that of the total 300 minutes of mushroom EDP, 23.33 per cent time was devoted for spawn production, 15 per cent time for substrate preparation, and 11.67 per cent time for cultivation technology of mushroom. Shed construction and value addition of mushroom shared 10 per cent each whereas harvest, packaging and marketing had 8.33 per cent of the total time. A brief idea about types of mushroom, pest and disease management and management of spent compost were also provided under the EDP. An in-depth class of 5 days duration dealing with mushroom spawn production and value addition were provided only to successful entrepreneurs.

Table 4.36Content coverage based on duration in mushroom EDP by NGO KVK

Sl. No.	Mushroom	Time consumed	
		Duration (minutes)	Percentage
1.	Introduction to mushroom	20	6.67
2.	Types of mushrooms	15	5.00
3.	Cultivation technology of mushroom	35	11.67
4.	Substrate preparation	45	15.00
5.	Spawn production	70	23.33
6.	Shed construction	30	10.00
7.	Harvest, packaging and marketing	25	8.33
8.	Pest and disease management	15	5.00
9.	Value addition of mushroom	30	10.00
10.	Management of spent compost	15	5.00
11.	TOTAL DURATION	300minutes (1 day)	100

The results presented in Table4.37 showed that the KVK usually conducted apiculture as a two days training programme in which 26.68 per cent of time was devoted to seasonal management of honey colonies followed by 25 per cent time for honey extraction and essential operations. It could also be observed that 13.33 per

cent time was spend on bee-keeping aspects. However, the time spent on marketing and business of honey and its value addition together was less than seven per cent (Table 4.36). The NGO KVK also successfully carried out a one year apiculture training programme in 2018-19 under Agricultural Skill Council of India (ASCI) covering all aspects of the topics in-depth.

Table 4.37 Duration based on content coverage in apiculture EDP by NGO KVK

Sl. No.	Apiculture	Time consumed	
		Duration (minutes)	Percentage
1.	Suitability of apiculture	20	3.33
2.	Bee types seen in India and Kerala	30	5
3.	Life cycle of bees, different species and types	20	3.33
4.	Bee-keeping aspects	80	13.33
5.	Seasonal management of honey colonies	160	26.68
6.	Honey extraction and essential operations	150	25
7.	Bee keeping equipments	60	10
8.	Pest and disease management	40	6.67
9.	Marketing and business of honey	20	3.33
10.	Different products from honey and bee wax	20	3.33
	TOTAL	600 minutes (2 days)	100

Value addition EDP is conducted as a one 1 day training by the KVK. Table4.38 shows that out of the 360 minutes, maximum time was devoted for production technology and manufacturing of the products. About 8.33 per cent time

was devoted for packaging and labelling and 5.55 per cent for FSSAI licensing. The training module also covered about government schemes, subsides and loans.

Table 4.38 Duration based on content coverage in value addition EDP by NGO KVK

Sl. No.	Value addition	Duration (minutes)	Percentage
1.	Introduction-Nutritive value of the product	15	4.17
2.	Production technology	100	27.78
3.	Manufacturing of the product	120	33.33
4.	Preservation aspects	40	11.11
5.	Packaging and labelling design	30	8.33
6.	Food Safety and Standards Authority of India (FSSAI) license: registration and guidance	25	6.94
7.	Scopes of marketing	20	5.55
8.	Availability of government schemes, subsidies and loans	10	2.79
	TOTAL DURATION	360 minutes (1 day)	100

4.4.2.2 Content analysis of EDP trainings of ICAR KVKs

The findings given in Table 4.39depicts the time consumed and its percentage for Mushroom EDP training programme conducted by the ICAR KVKs. In total 360 minutes (6 hours) mushroom training programme by KVK Alappuzha, 27.77 per cent time was devoted to spawn production, 16.66 per cent time for different substrates and its selection, and 9.72 per cent time for shed designing. Similarity, in KVK Kasaragod, out of the total 600 minutes (100 %), 28.33 per cent time was devoted for spawn production, 25 per cent time for substrate selection and 20 per cent time for shed construction. KVK Alappuzha focused more on aspects about harvesting and packaging (11.72 %) and pest and disease management (9.72 %) in mushroom than KVK Kasaragod. However, both the ICAR KVKs devoted less than 5 per cent time

for covering important topics like nutritive value, marketing and value addition of mushroom and management of spent compost. Value addition of mushroom was dealt as a separate training to only the successful entrepreneurs (3 days training) in both the KVKs.

Table 4.39Content coverage based on duration in mushroom EDP trainings by ICAR KVKs

Sl. No.	Topics covered mushroom EDP	KVK Alappuzha		KVK Kasaragod	
		Time consumed		Time consumed	
		Minutes	Percent	Minutes	Percent
1.	Mushroom morphology and growth stages	15	4.16	-	-
2.	Types of mushrooms	10	2.77	30	5
3.	Raw materials for mushroom cultivation	20	5.55	25	4.16
4.	Nutritive value of mushroom	10	2.77	20	3.33
5.	Different substrates and its selection	60	16.66	150	25
6.	Cultivation technology of mushroom and spawn production	100	27.77	170	28.33
7.	Shed construction	35	9.72	120	20
8.	Harvest and packaging of mushroom	40	11.17	30	5
9.	Pest and disease management	35	9.72	10	1.68
10.	How to spent substrate (Composting)	15	4.16	20	3.33
11.	Marketing of mushroom	10	2.77	10	1.68
12.	Value addition of mushroom	10	2.77	15	2.5
	TOTAL DURATION	360 (1 day)	100	600 (2 days)	100

KVK Alappuzha carried out only one training programme on apiculture for five days duration in the entire study period. The table 4.40 shows that out of the total 1500 minutes training, 32 per cent time was spent on colony inspection, colony

division and honey extraction, followed by 30 per cent time on bee-keeping aspects and seasonal management of honey colonies and 19.33 per cent time on bee keeping equipments and tools. Similarity, KVK Kasaragod also focuses mainly on these areas. Value addition of honey and purity testing are not covered by KVK Kasaragod during this 2 days training. Value addition of honey is carried out as a separate training module by the KVK. Both the KVKs devote very less time on marketing and business of honey.

Table 4.40: Content coverage in apiculture based on duration of EDP training by ICAR KVKs

Sl. No.	Topics covered Apiculture	KVK Alappuzha		KVK Kasaragod	
		Time consumed		Time consumed	
		Minutes	Percent	Minutes	Percent
1.	Introduction to Apiculture- Know your bee hive	40	2.66	15	2.5
2.	Honey bee biology-morphology, species	60	4	20	3.33
3.	Bee types seen in India and Kerala	50	3.33	30	5
4.	Bee-keeping aspects and seasonal management of honey colonies	450	30	120	20
5.	Bee keeping equipments and tools	290	19.33	120	20
6.	Colony inspection, colony division and honey extraction	480	32	240	40
7.	Honey and bee wax products-	50	3.33	-	-
8.	Pest and disease management	50	3.33	40	6.67
9.	Purity testing	10	0.66	-	-
10.	Marketing and business of honey	20	1.36	15	2.5
	TOTAL DURATION	1500 (5 days)	100	600 (2 days)	100

The results in Table 4.41 indicate that with regard to value addition, both the ICAR KVKs focus more on practical than theory. KVK Alappuzha spent 35.60 per cent time on manufacturing and processing of products, 20 per cent time on production technology and 11.15 per cent time on preservation and quality maintenance in the 900 minutes training programme. KVK Kasaragod also focuses more on these areas, along with packaging and labelling in their 990 minutes programme. Machineries and its working are dealt in depth by the KVK Alappuzha. Very less time is devoted for marketing, finance and support linkages in both the KVKs. And KVK Alappuzha does not procurement of raw materials in their training module.

Table 4.41. Duration based on content coverage in value addition EDP by ICAR KVKs

Sl. No.	Topics covered in value addition	KVK Alappuzha		KVK Kasaragod	
		Time consumed		Time consumed	
		Minutes	Percent	Minutes	Percent
1.	Introduction-Nutrient composition of product	15	1.55	35	3.89
2.	Procurement of raw materials	-	-	20	2.22
3.	Production technology	180	20	160	17.78
4.	Manufacturing and processing of products	320	35.60	300	33.33
5.	Preservation and quality maintenance	100	11.15	120	13.33
6.	Packaging and labelling	60	6.70	120	13.33
7.	FSSAI licensing and registration	90	10	60	6.67
8.	Engineering aspects: Machineries and its working	120	13.33	45	5
9.	Marketing, finance and support linkages	15	1.67	40	4.45
	TOTAL DURATION	900 minutes 3 days		900 minutes 3 days	

4.4.2.3 Content analysis of EDP trainings of KAU KVKs

The results depicted in Table 4.42 revealed that KVK Kottayam usually conducted mushroom EDP as a 2 days training programme in which maximum time was allotted for spawn production (30.30 %). Substrate selection (27.27%), shed construction (11.37%), harvest and packaging of mushroom (6.81 %) and pest and disease management (6.06 %) were also included in the training module as important areas. In mushroom training conducted by KVK Malappuram, 40 per cent of the time was devoted to spawn production followed by 25 per cent time for substrate preparation. This included both theoretical and practical aspects. The module devoted 6.67 per cent time for pest and disease management and 5.83 per cent time for nutritive value of mushroom. Other topics like value addition, marketing and shed construction were covered in less than 10 minutes. An in-depth skill development program for 3 days dealing with mushroom spawn production and value addition were also provided exclusively to successful entrepreneurs.

Table 4.42Content coverage in mushroom EDP based on duration byKAU KVKs

Sl. No.	Topics covered in Mushroom EDP	KVK Kottayam		KVK Malappuram	
		Time consumed		Time consumed	
		Duration	Percent	Duration	Percent
1.	Mushroom morphology and growth stages	20	3.03	30	5
2.	Types of mushrooms	15	2.27	20	3.33
3.	Nutritive value of mushroom	30	4.55	35	5.83
4.	Different substrates and its selection	180	27.27	150	25
5.	Cultivation technology of mushroom and spawn production	200	30.30	240	40
6.	Shed construction	75	11.37	20	3.33
7.	Harvest and packaging	45	6.81	30	5
8.	Pest and disease management	40	6.06	40	6.67
9.	Spent substrate composting	10	1.52	5	0.83
10.	Marketing of mushroom	15	2.27	20	3.33
11.	Value addition of mushroom	30	4.55	10	1.68
	TOTAL DURATION	600 minutes (2 days)	100	600 minutes (2 day)	100

The results in Table 4.43 show that in KVK Kottayam, two trainings on apiculture were organized during 2017-18. In the training, out of 360 minutes, 33.32 per cent time was devoted for colony inspection, colony division and honey extraction. Beekeeping aspects and beekeeping equipments were covered in 16.67 per cent of time each. Less than 5 per cent time each was allotted for value addition and marketing of honey. Similarly, KVK Malappuram also focused mainly on colony inspection, colony division and honey extraction (30 %), bee-keeping aspects (20 %) and beekeeping equipments (15%) in apiculture EDP. A brief idea about pest and disease management, value addition, marketing and business of honey were also covered.

Table 4.43.Content coverage in apiculture EDP based on duration byKAU KVKs

Sl. No.	Topics covered in apiculture EDP	KVK Kottayam		KVK Malappuram	
		Time consumed		Time consumed	
		Duration	Percentage	Duration	Percentage
1.	Introduction to Apiculture	15	4.17	15	5
2.	Honey bee biology- morphology, species	30	8.33	20	6.67
3.	Bee types seen in India and Kerala	15	4.17	15	5
4.	Bee-keeping aspects	60	16.67	60	20
5.	Bee keeping equipments and tools	60	16.67	45	15
6.	Colony inspection, colony division and honey extraction	120	33.32	90	30
7.	Honey and bee wax products- Basics	15	4.17	20	6.67
8.	Pest and disease management	30	8.33	20	6.67
9.	Purity testing	-	-	-	-
10.	Marketing and business of honey	15	4.17	15	5
	TOTAL DURATION	300 minutes (1 day)	100	300 minutes (1 day)	100

The results in Table4.44 indicated that in value addition EDP of total 300 minutes (100 %) conducted by KVK Kottayam, 24.24 per cent time was devoted for manufacturing and processing of the products followed by 18.18 per cent time for machineries and its working. Production technology and preservation and quality maintenance was covered in 15.15 per cent time each and 12.12 per cent of time was spent for licensing and registration of product. An idea about availability of raw materials, packaging and labelling of the product, marketing, finance and support agencies were also dealt in the3 day's skill development training programme. The KVK also provided an exclusive one day training programme on packaging and labelling during 2018-19 and was rated as highly successful. In KVK Malappuram, out of the 660 minutes in value addition EDP major focus was on manufacturing and processing, preservation and production technology. A brief idea about machineries, marketing and finance support were also provided.

Table 4.44.Content coverage in value addition EDP based on duration by KAU KVKs

Sl. No	Topics covered in value addition EDP	KVK Kottayam		KVK Malappuram	
		Time consumed		Time consumed	
		Duration	Percentage	Duration	Percentage
1.	Nutrient composition and production trends	40	4.04	40	6.06
2.	Procurement of raw materials	20	2.02	-	-
3.	Production technology	150	15.15	120	18.19
4.	Manufacturing and processing of products	240	24.24	180	27.27
5.	Preservation and quality maintenance	150	15.15	180	27.27
6.	Packaging and labelling	60	6.06	60	9.09
7.	FSSAI licensing and registration	120	12.12	40	6.06
8.	Machineries and its working	180	18.18	20	3.03
9.	Marketing, finance and support linkages	30	3.04	20	3.03
	TOTAL DURATION	990 minutes (3 days)	100	660 minutes (2 day)	100

4.4.3. Comparison of EDP training modules with the training needs of EDP trainees

In mushroom EDP training module, maximum time was allotted for cultivation technology, spawn production, substrate preparation and selection, and shed construction in all the five KVKs. Cultivation technology with rank IV (TNI=82), spawn production with rank V (TNI=78), substrate preparation with rank VI (TNI=76) and infrastructure requirement with rank VIII (TNI=60) were dealt in depth in all the KVKs. Packaging and marketing with TNI score of 91.10 (Rank=I) was perceived as the most needed area of training in mushroom EDP, followed by value addition (TNI= 90.00; Rank II) and nutritive value of mushroom (TNI= 86.67; Rank III). Though these areas were covered in the KVKs, the time allotted to cover these topics in the trainings was very less. Pest and disease management with rank VII (TNI=71) was covered well in KVK Alappuzha (9.72 % time), KVK Malappuram (6.67 % time) and KVK Kottayam (6.06 % time). Economics of mushroom (TNI=58; Rank=IX) was not covered in any KVK.

An evaluation of the preferred areas of training in apiculture based on training need index showed honey extraction and essential operations as the most preferred area by the trainees with TNI=90 (Rank=I), followed by marketing and business of honey bees (TNI=86.60; Rank=II) and value addition of honey (TNI=85; Rank=III).In the training modules of KVKs maximum time was allotted for colony division, colony inspection and honey extraction, thereby meeting the training need of the trainees. But module less than 5 % time each was allotted for marketing and business of honey and value addition of honey in all the KVKs. In the training modules, bee-keeping aspects and bee-keeping equipments having TNI=70 (Rank=V) and TNI= 54.40 (Rank=VIII) respectively were taken as major topics covering more time. Bee biology aspect with TNI=69.00 (Rank= VI) and bee enemy and disease management with TNI=68.80 (Rank=VII) was covered in the training modules. But export of honey (TNI=53.30; Rank=IX) and purity testing of honey (TNI=52.22; Rank=X) was not included in the modules.

In value addition EDP training module, maximum time was allotted for production technology, manufacturing and processing of products and preservation and quality control in all the KVKs. Production technology with rank V (TNI=83.00), manufacturing and processing techniques with rank VI (TNI= 75.00) and quality control and management with rank VIII (TNI=72.50) were dealt in depth in all the KVKs. Technology upgradation with TNI=92.50 (Rank=I) was perceived as the most needed area of training by the trainees in value addition EDP, followed by packaging and marketing techniques (TNI= 88.33; Rank II), advertising and brand promotion (TNI= 86.67; Rank III) and financial management and credit support (TNI=84.00; Rank=IV).Though packaging and labelling, FSSAI licensing and registration were dealt in all the KVKs, the time slot allotted for marketing, finance and support linkages was comparatively less. Engineering aspects: machineries and its working which helped in technology upgradation of the trainees was devoted 18.18 per cent time by KVK Kottayam and 13.33 per cent time by KVK Alappuzha. But less than 5 per cent time was devoted to the topic by KVK Kasaragod and KVK Malappuram. In KVK Trivandrum engineering aspects were not included in the module. Procurement of raw materials (TNI=74.00; Rank=VII) was covered only in KVK Kasaragod (2.22 % time) and KVK Kottayam (2.02% time). Export promotion techniques (TNI=69.00; Rank=IX) and hygiene, pollution control and environmental management (TNI=60.00; Rank=X) was not included in the modules.

4.5. Effectiveness of EDP trainings of KVK

Evaluation of training effectiveness of EDP trainings organized by the KVKs was undertaken based on four selected dimensions of training viz. training output, teaching quality, availability of physical facilities and training content. The results and interpretation are presented as respective subheads with relevant supporting evidence from research literature.

4.5.1 Evaluation of EDP training effectiveness based on training output

A perusal of results in Table 4.45 shows that with regard to training output, the training effectiveness scores (TES) ranged from 70 to 89 per cent, which shows that the training output was perceived as very much effective by the respondents.

It could be inferred from the results that the KVKs were effective in providing need based trainings that enabled the trainees to start entrepreneurship. The respondents felt that KVKs, to be more effective need to focus more on disseminating new technologies that helped the trainees increase their knowledge that resulted in quality output from the enterprises. The trainings from KVK also helped the respondents to know about different agencies involved with entrepreneurship development. The results are on par with the findings of Dubey *et al.* (2007) and Devi *et al.* (2016).

Table 4.45 Training effectiveness based on perceived benefits of training output

Sl. No.	Training outputs	Degree of perception					
		SA	A	D	TS	EPR	TES
1	KVK training was need based	80	18	2	178	0.89	89
2	KVK training increased knowledge on EDP	57	42	1	156	0.78	78
3	KVK training helped to know new technologies	42	56	2	140	0.7	70
4	KVK training helped to start entrepreneurship	66	34	0	166	0.83	83
	AVERAGE SCORE	61.25	37.5	1.25	160	0.80	80

4.5.2Evaluation of EDP training effectiveness based on teaching quality

The findings depicted in Table 4.46 showed that with respect to teaching quality, the training effectiveness scores (TES) for individual aspects indicating the relative effectiveness ranged from 70 to 91.5 per cent (Table 4.46). The respondents felt that more number of subject matter specialists may be needed in the KVKs. This was in-line with the findings of Senthilkumar (2014). The respondents perceived that the KVK staffs mingled freely with trainees and taught in simple manner. It can be inferred that Subject matter specialists are not adequate for teaching about EDP in the

KVKs. These finding were supported by the findings of Dubey *et al.* (2007) and Sarma *et al.* (2013)

Table 4.46 Training effectiveness based on perceived benefits of teaching quality

Sl. No.	Teaching quality	Degree of perception					
		SA	A	D	TS	EPR	TES
1	KVK staffs are adequate to provide EDP trainings	61	36	3	158	0.79	79
2	KVK staff taught in simple manner	83	17	0	183	0.92	91.5
3	More number of SMS are not needed to teach about EDP in KVK	44	52	4	140	0.7	70
4	KVK staff mingled freely with trainees	75	24	1	174	0.87	87
	AVERAGE SCORE	**65.75**	**32.25**	**2**	**163.75**	**0.81**	**81.75**

4.5.3. Evaluation of EDP training effectiveness based on availability of physical facilities

The average training effectiveness scores (76) for the physical facilities were assessed in terms of transportation and lodge facilities. The total effectiveness score under physical facilities ranged from 55 to 92 per cent (Table 4.47). The effectiveness with regard to the lecture hall and audio-visual aids were perceived as high by the respondents. However, the transport and lodging facilities provided during training programme were not satisfactory. Effective use of transport and lodging facilities might further increase the effectiveness of the training. This was supported by the findings of Devi *et al.*(2016) who reported that effective transport facilities by KVKs might increase the training effectiveness.

Table 4.47 Training effectiveness based on perceived benefits of available physical facilities

Sl. No.	Physical facilities	Degree of perception					
		SA	A	D	TS	EPR	TES
1	Lecture hall	84	16	0	184	0.92	92
2	Audio-visual aids	78	22	0	178	0.89	89
3	Transport facilities	51	35	14	137	0.69	68.5
4	Lodging facilities	31	49	20	111	0.55	55
	AVERAGE	61	30.5	8.5	152.5	0.76	76

4.5.4Evaluation of EDP training effectiveness based on training content

Table 4.48 Training effectiveness based on perceived benefits of training content

Sl. No.	Training content (coverage of topics)	Degree of perception					
		SA	A	D	TS	EPR	TES
1	Production technology	89	11	0	189	0.945	94.5
2	Manufacturing techniques of different products	83	17	0	183	0.915	91.5
3	Knowledge on new technology	64	36	0	164	0.82	82
4	Quality control and management	48	48	4	144	0.72	72
5	Entrepreneurial motivation, business opportunities and guidance	50	43	7	143	0.72	71.5
6	Financial management and credit support	80	20	0	180	0.9	90
7	Marketing management	51	41	8	143	0.72	71.5
8	Knowledge on subsidies, government schemes, and support agencies	40	48	12	128	0.64	64
	AVERAGE	63.12	33	3.87	159.25	0.79	79.62

It could be observed from Table 4.48 that with respect to the coverage of topics, the total effectiveness scores ranged from 64 to 94.5. In the coverage of topics, the lowest effectiveness score was for topics like Entrepreneurial motivation, business opportunities and guidance, Marketing management and Knowledge on subsidies, government schemes, support agencies and other linkages. Therefore, to improve the effectiveness of training, the KVKs must stress more on these topics. Hence, reorientation of the syllabus according to the need expressed by the trainees would increase the effectiveness. This was in line with the findings of Dubey *et al.* (2007).

4.5.5. Perceived overall effectiveness of EDP training of KVKs

It can be observed from the Table 4.49 that out of the four dimensions taken, the total effectiveness score for the factor of perceived teaching quality was 81.75, followed by training output (80), coverage of topics (79.62) and physical facilities (76). Further, it could be observed that the overall training effectiveness score of the EDP training programmes was worked out to be 79.45 per cent. The results revealed that the trainees of the KVKs were satisfied with the training output, quality of teaching and coverage of topics. However, the trainees perceived that the physical facilities provided by the KVKs were not sufficient. Though considerable efforts are taken in the training, there still remains a lacuna which needs to be filled and the KVKs must re-orient their trainings to improve their effectiveness.

Table 4.49 Perceived overall effectiveness of EDP trainings of KVKs (N=100)

Sl. No.	Dimensions training effectiveness	Training effectiveness score
1.	Training output	80
2.	Training quality	81.75
3.	Physical facilities	76
4.	Coverage of topics	79.62
	Overall effectiveness score	79.45

4.5.6. Comparison of perceived effectiveness scores of KVK EDPs

Non-parametric Kruskal-Wallis H test was used to determine whether any difference lies between the selected KVKs regarding the perceived training effectiveness scores of their respondents. Kruskal-Wallis test statistics is presented in Table 4.50.Since the p value (0.41) is greater than 0.05 probability level of significance, there was no difference between the training effectiveness of different KVKs.

Table 4.50 Kruskal-Wallis test statistics for perceived effectiveness scores

Test statistics	Values
Chi-Square	3.996
df	4
p value	0.41

Perceived effectiveness was also compared based on mean ranks obtained in the analysis using Kruskal-Wallis H test depicted as Table 4.51. The results from the table showed that the KVK Kottayam and KVK Alappuzha had the highest scores of were 57.78 and 56.08respectively. The mean rank score for NGO KVK, Trivandrum was 48.80. Mean ranks scores for KVK Malappuram and KVK Kasaragod were 47.65 and 42.20 respectively. Thus the mean rank was highest for KVK Kottayam (KAU KVK) followed by KVK Alappuzha (ICAR KVK).

Table 4.51 Mean ranks of KVKs based on perceived effectiveness scores

Sl. No.	Name of KVK	Sample size (n)	Mean Rank
1.	KVK Trivandrum	20	48.80
2.	KVK Alappuzha	20	56.08
3.	KVK Kasaragod	20	42.20
4.	KVK Kottayam	20	57.78
5.	KVK Malappuram	20	47.65
	TOTAL	100	
$\chi 2$= 4.116, p value=.391, df=4			

1.6. Relationship between personal attributes of trainees and training effectiveness

In order to ascertain the relationship between the selected independent variables and the training effectiveness Spearman correlation coefficient was used and the findings are presented in Table 4.52.

Table 4.52 Correlation of independent variables on Training effectiveness

Sl. No.	Characteristics	Correlation coefficient(r_{sp})
1.	Age	0.25*
2.	Gender	-0.29**
3.	Marital status	-0.14
4.	Family type	0.08
5.	Family size	0.12
6.	Educational status	0.29**
7.	Occupational status	-0.39**
8.	Land holding	0.29**
9.	Annual income	0.76**
10.	Extension contact	0.82**
11.	Mass media exposure	0.69**
12.	Entrepreneurial intention	0.76**
13.	Entrepreneurial need	0.74**
14.	Entrepreneurial capacity	0.72**
15.	Innovativeness	0.79**
16.	Achievement motivation	0.78**
17.	Decision making ability	0.72**
18.	Risk orientation	0.77**
19.	Self confidence	0.81**
20.	Cosmopoliteness	0.70**
21.	Economic motivation	0.83**
22.	Employment gain	0.67**
23.	Empowerment gain	0.628
24.	Adoption of technology from training	0.95**
25.	Credit support	0.61**

*significant at 0.10 and ** at 0.05

The results from the table revealed the nature of relationship between the dependent variable and the twenty five independent variables. The r_{sp} values indicated

significant correlation of training effectiveness with all selected variables except marital status, family type, family size and entrepreneurial gain. There was significant and positive relation between the variables educational status, land holding, annual income, extension contact, mass media exposure, entrepreneurial intention, entrepreneurial need, entrepreneurial capacity, innovativeness, achievement motivation, decision making ability, risk orientation, self confidence, cosmopoliteness, economic motivation, employment gain, adoption of technology from training, credit support and training effectiveness at 5 per cent level of significance. Age also recorded positive correlation with training effectiveness but at 10 per cent significance level. Though gender and occupational status had significant correlation the direction of relation was negative. The results were indicative of the relevance of the selected variables in analysing the training effectiveness and the result was subjected to Principal Component Analysis (PCA) to classify it into related dimensions.

4.6. Factors affecting EDP training effectiveness

Effectiveness was defined as the degree to which the objectives of the Entrepreneurship Development Programmes (EDP) were achieved and the extent to which intended results were produced. The factors affecting the training effectiveness are variables that are highly correlated to the training effectiveness. In order to categorise these influential factors into specific dimensions of training effectiveness, Principal Component Analysis (PCA) was used. Delineation of major components that influenced the training effectiveness was undertaken using PCA and the results are discussed.

4.6.1 Confirmatory tests for Principle Component Analysis (PCA)

Prior to proceeding with the PCA, an evaluation of the appropriateness of the variables to be used as the inputs in the PCA was done. Kaiser-Meyer-Olkin (KMO) which measured sampling adequacy and the Bartlett's test were performed for this and the results are presented in Table 4.53. The values of Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) varied between 0 and 1, and values closer to 1.0 are considered better. A minimum value of 0.6 is the suggested criterion for

acceptance of the PCA method for analysis. The results in Table 4.53 indicated KMO sampling adequacy measure of 0.942 which is high enough for the suitability of using PCA.

Bartlett's Test of Sphericity was used to test the null hypothesis that the correlation matrix is an identity matrix. An identity matrix is a matrix in which all of the diagonal elements are 1 and all off diagonal elements are 0.The null supposition that the inter-correlation matrix came from a population in which the variables to be used in the PCA are all non-collinear (an identical matrix) was checked using the Bartlett's test of sphericity. The result from this test presented in Table 4.53 revealed a significant test ($\chi 2$=1914.992; p value=0.000; df=171) suggesting that the variables used for PCA have identical matrix. Accordingly the null hypothesis was rejected asserting the suitability for PCA confirmed. The results together proved that the variables selected conformed to the minimum criterion set for the conduct of principal components analysis.

Table 4.53 Evaluation tests used to find the appropriateness of the PCA variables

Test and statistic used	**Test statistics**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.942
Bartlett's Test of Sphericity	
Approx. Chi-Square	1914.99
df	171
Sig.	0.000

4.6.2 Major components of training effectiveness

Results of PCA analysis using covariance matrix on selected variables are included as Table 4.54. The results in the table showed 14 components which had Eigen value greater than one and they together explained a cumulative variance of 99.96 per cent. However, the variability explained by components 1 and 2 were 76.54 and 5.88 per cent respectively. These two components which together explained 82.42 per cent of total variance were used for further analysis.

Table 4.54 Components of training effectiveness based on PCA

Component	Eigen value	Variance (%)	Cumulative variance (%)
1	2500.07	76.54	76.54
2	192.27	5.88	82.42
3	105.83	3.24	85.66
4	95.61	2.93	88.59
5	77.36	2.37	90.96
6	67.70	2.07	93.03
7	49.42	1.51	94.54
8	43.54	1.33	95.87
9	41.42	1.27	97.14
10	28.40	0.87	98.01
11	22.45	0.69	98.70
12	21.31	0.65	99.35
13	18.42	0.56	99.91
14	1.31	0.04	99.95

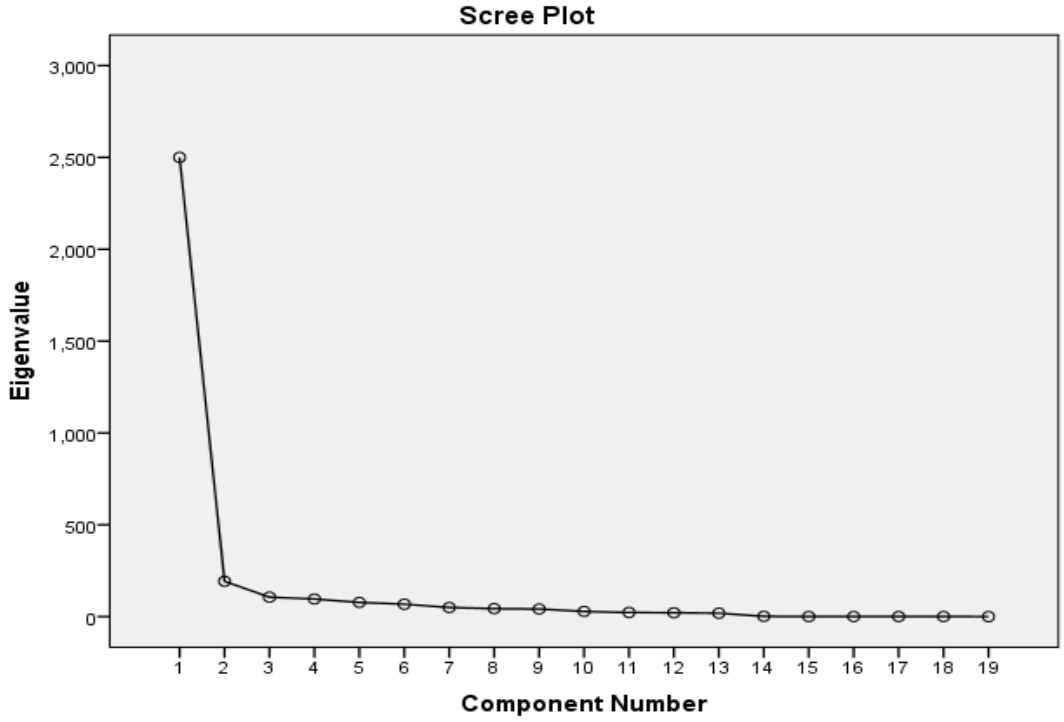


Figure 17 Scree plot graph

An overview of the results is presented as scree plot graph in Fig. 17. The graph indicated the curve to flatten out after the second component. Based on this the dimensions of training effectiveness were extracted and the rotated component matrix of these components is presented in Table 4.55. The communalities score (h^2) in the table gave the proportion of each variable's variance that could be explained by the principal component. It represented the sum of squared factor loadings and variables with high values were expected to be well represented in the common factor space, while variables with low values were not well represented.

It was evident from the results in Table 4.55 that the highest component loading on first component was for decision making ability of the trainees. This indicated that the variable decision making ability contributed maximum variation to the first principal component and was the most important factor affecting the effectiveness of EDP training programme. The other entrepreneurial attributes like economic motivation, extension contact, achievement motivation, mass media exposure, innovativeness, cosmopoliteness, self-confidence, risk orientation, entrepreneurial intention and entrepreneurial capacity were found to have high factor loadings in the first component delineated. Adoption of technology also has high factor loadings in the first component delineated. Technology adoption by the trainees also figured in the extracted component that influenced the training effectiveness. Factors related to economic sustainability of enterprises such as credit support, annual income and employment generation were also found to have high loading on component one. Hence the first component was interpreted as a primary measure of the trainees' entrepreneurial attributes, technology use and economic sustainability of the enterprise. Based on the attributes which indicated highest factor loadings on components 1 and 2, they were named as techno-personal capabilities and entrepreneurial qualities respectively. The result was supported by the findings of Nyachome (2012) who reported that the trainees' decision making ability, entrepreneurial intention, economic motivation, innovativeness, risk orientation and other psychological variables had a major influence on the effectiveness of entrepreneurship training programmes. Makkar (2018) also revealed that employment generation increased after availing training programmes and was an important indicator of effective training. Bell (2007) also reported that the effectiveness of

training was moderated by factors such as the nature of training content, the delivery technology utilised/adopted and the characteristics of the trainees. He also revealed that the quality of technology adopted exhibited a relationship with the training effectiveness.

Table 4.55 Rotated component matrix showing major components of training effectiveness

Variables	Communalities scores(h^2)	
	Component 1	**Component2**
Decision making ability	14.80	7.96
Economic motivation	12.33	11.21
Extension contact	11.66	10.00
Achievement motivation	11.37	8.10
Mass media exposure	11.09	4.91
Adoption of technology	10.89	9.33
Innovativeness	10.28	8.37
Cosmopoliteness	9.36	9.73
Self confidence	8.47	6.75
Risk orientation	8.47	6.54
Entrepreneurial intention	6.05	13.98
Entrepreneurial capacity	5.94	15.36
Entrepreneurial need	-	15.31
Credit support	0.37	0.33
Employment gain	0.33	0.35
Annual income	1.02	0.90
Educational status	-	0.18

It could also be noted that in the first component extracted the influence of credit, employment gain and annual income was comparatively lesser compared to the entrepreneurial attributes of the trainees. Annual income, employment gain, credit support along with employment gain was the factors that were observed to have large positive association with training effectiveness under the second component. Based

on these factors it could be construed that the long term economic stability of the enterprise also had influence on the training effectiveness.

The personal attributes of trainees viz. age and land holding were not included in both the delineated components and as such no observed relation was credited to these variables with training effectiveness. The finding thus indicated that human capital had less importance on training effectiveness compared to the trainees' techno-personal capabilities and entrepreneurial qualities. However, educational status had loading on component two and thus had some influence on training effectiveness.

It could be concluded from the results that entrepreneurial attributes of trainees, technology adoption and stable economic base of enterprise were the dimensions that could influence the training effectiveness in entrepreneurship development programs. Therefore in order to improve the effectiveness of EDP trainings, the KVKs must devise strategies to select trainees based on these parameters. The results are also depicted as component plot in rotated space (Fig. 18) that gave a visual representation of the loadings plotted. The plot showed how closely related the items were to each other and to the two components indicating the strong interrelations.

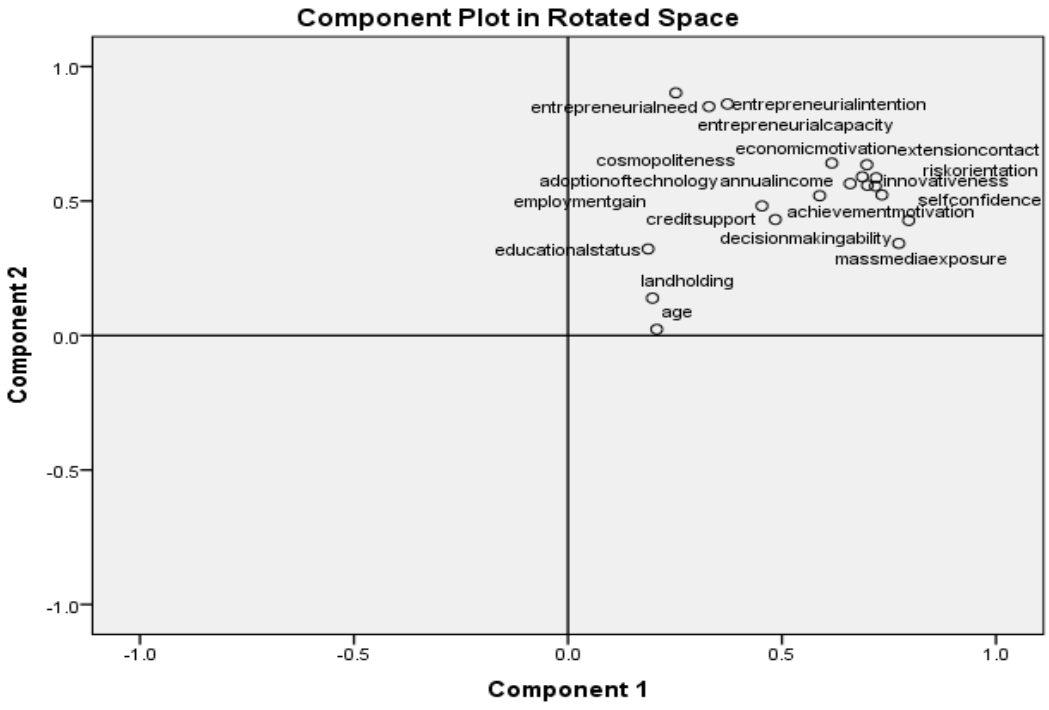


Figure 18 Component plot in rotated space

4.8. Recommendations for improving the EDP training programmes

In order to improve the policy and practice of EDP training programs through KVKs, the first line transfer of technology (TOT) centres of the country, the following recommendations are put forth based on the research findings of the study.

- Focus on products with short-term payoff was found to be serious limitations of the EDP trainings. This was reflected in the predominance of microenterprises developed as a result of KVK training. This needed redress by accounting for the need of sufficient lead time in the design of training so that larger-scale production methods can be included. Therefore, skills for immediate and medium-term use need to be combined with longer-term skills in the process to enhance the sustainability and effectiveness of training.
- Entrepreneurial qualities of trainees were identified in the study as a major dimension that influenced the training effectiveness of EDP training. It was also observed that most of the KVK training focussed on technical skills needed to start and run a profitable farm business and often neglected the required managerial and entrepreneurial skill sets. This called for the design of management skill modules as integral part of all EDP training. Also use of specific entrepreneurial quality assessment scales in the selection of trainees is recommended which would help to meet the precondition of entrepreneurial mindset for running successful enterprises.
- A curriculum based Farm Business School (FBS) model of training is recommended to build farmers' entrepreneurial capacity. The FBS would enable to impart farm-based practical exercises conducted at different phases of production covering the entire season.
- Trainings exclusively focussed on product commercialization skills, such as market analysis, distribution and business management is recommended to support small and marginal farmers that would help their better participation in agripreneurship.

- Providing trainees with the opportunity to select a combination of training programmes spread over a prescribed time schedule (1-2 years) would enable trainees to accumulate a portfolio of skills that meets the needs of various phases of entrepreneurship development and supply/value chain management.
- Training need assessment followed in most KVKs remained limited to knowledge assessment using pre-assessment quizzes and post evaluation exit feedback cards. The pre-training test based need evaluation of the targeted group provided limited opportunities to articulate their comprehensive needs, and therefore recommended to be replaced with technology integrated online tools specifically designed for the purpose. The use of training apps will also serve as a transparent measure of training evaluation which could be used for quality ranking of trainings.
- KVK training environment has to be augmented to facilitate sharing and networking among trainees so that groups around shared production interests could emerge and lead to the development of group enterprises federated at district and state levels that could address the scale inadequacies.
- Ensure training programs and governance linkages for continued evaluation and participation of trainees in follow up support and mentoring which enable EDP to be a continuing process.
- Supporting partnerships and networking with other development organizations, institutional credit services and technology backstopping from research institutes can provide better convergence of resources and training outcomes.
- Study visits and observational study tours can be integrated into training programs as useful means to expose farmers to 'good practices.
- PRAXIS learning model that involve the process of planning, acting and reflecting; wherein the trainees are informed of new ideas and different ways of doing it, learn them by practice, and jointly reflect on the outcomes is recommended for all EDP training programs This provides problem solving opportunity within the training context.

Summary and conclusion

CHAPTER 5

SUMMARY AND CONCLUSION

Recent years have seen the emergence of Entrepreneurship development programmes (EDP) as a major extension intervention in income and employment generation in agriculture and allied sectors. Entrepreneurship Development Programmes are mainly concerned with enabling a person in developing his/her entrepreneurial skills, motives and capabilities which are essential for playing his entrepreneurial role effectively. It is an effective technique for the development of human resources. . It results in proper utilization of local resources, employment generation and promotion of small scale units and overall development of individuals. A lot of effort has been undertaken by both government and non government organizations to promote entrepreneurial development in the country through Entrepreneurship Development Programmes (EDP). In this regard, many agencies and institutions are working towards organizing EDP. And one such institution is the Krishi Vigyan Kendras (KVKs), the first line transfer of technology (TOT) centres of the Indian Council of Agricultural Research (ICAR). As nodal agricultural resource centres at the district level, they have significant role in improving the farmers' income by facilitating entrepreneurship development.

The study was conducted on analysis of Entrepreneurship Development Trainings of Krishi Vigyan Kendras (KVKs) in Kerala. The state of Kerala formed the study area. Out of the 14 KVKs working under different host organizations in Kerala viz. Kerala Agricultural University (KAU), Indian Council of Agricultural Research (ICAR) and Non-governmental organizations (NGOs) a total of 5 KVKs (2 KAU KVKs, 2 ICAR KVKs and 1 NGO KVK) to represent southern, central and northern regions of the state were randomly selected. List of trainees who have undergone entrepreneurship training programs for the last 3 years from the selected KVKs was used for the selection of respondents. Random sampling was be used to select 20 trainees from each of the selected KVK to make a total sample of 100 trainees.

For primary data collection, each respondent was interviewed individually with a semi structured interview schedule prepared under the guidance of advisory

committee and expert consultancy. Secondary data was collected from the training documents, registers and farm records of the institutions.

The study entitled *Analysis of Entrepreneurship Development Trainings of Krishi Vigyan Kendras (KVKs) in Kerala* had the following objectives:

1. To analyse the perceived entrepreneurial needs of KVK trainees
2. To evaluate the extent to which the entrepreneurial development training modules meet the needs of the trainees
3. To delineate the factors affecting the effectiveness of entrepreneurship development trainings
4. To evolve recommendations for improving the entrepreneurship development training programs

Salient findings of the study are presented below:

Profile of EDP trainees of KVKs

- Majority (47%) of the respondents belonged to the middle age group of 36 to 50 years, followed by 39.00 per cent and 14.00 per cent belonging to old and young age group respectively.
- Participation of women in EDPs was higher (60.00%) compared to men which was only 40.00 per cent. Maximum distribution of respondents was found in the married category (88%) with only 12% in the unmarried group.
- A significant majority (90.00%) of the EDP trainees had nuclear family with only 10.00 per cent having joint family. Majority of the trainees (57%) were having small size nuclear families of size four or less. 33.00 per cent and 10.00 per cent of trainees had medium and large categories of family size respectively.
- About 60% of the respondents had acquired high school level of education. 34.00 per cent of them possessed educational qualification up to college and 6 per cent had acquired middle school qualifications. There were no illiterates among the respondents.
- Majority of the respondents (61%) had business as their primary occupation and was not involved in any farming. 35 per cent of the respondents had business

along with farming as their occupation. Remaining 4 per cent of the respondents were engaged in service oriented jobs along with farming.

- More than half (53.00 %) of the EDP trainees had medium level of medium extension contact and one-fourth (25.00 %) of the trainees had high level of extension contact. But about 22.00 per cent of the EDP trainees were having low contact with extension agencies.
- About 54.00 per cent of the EDP trainees had medium exposure and 25.00 per cent had high exposure to mass media. A small group of 21.00 per cent of the trainees who recorded low mass media exposure scores.
- Seventy two percent of the KVK EDP trainees were marginal land holders with holding size less than 1.00 ha. 19.00 per cent, 7.00 per cent and 2.00 per cent of the trainees owned small, medium and large land holdings respectively. Major income group of 28.00 per cent had annual income more than three lakh rupees whereas 21.00 percent and 16.00 per cent of the trainees had income between two and 2.5 lakh rupees and rupees 2.5 and three lakhs respectively.
- The entrepreneurial intention of majority (51%) of the trainees comes under medium category. 25 per cent of the trainees who showed high level of entrepreneurial intention and 24 per cent came under the low category. Fifty one per cent of the trainees had medium entrepreneurial need, followed by 25 per cent with high levels of entrepreneurial needs and 24 per cent belonged to the low entrepreneurial need category. Half of the trainees had medium level of entrepreneurial capacity and 25 per cent each for low and high categories.
- More than half (58%) of the respondents were found to be medium in their innovativeness. The respondents with low and high innovativeness were 21.00 per cent each.
- About half (51%) of the respondents were found to have medium level of achievement motivation. The respondents with high and low levels of achievement motivation were 29.00 per cent and 20.00 per cent respectively.
- Forty nine per cent of the trainees had medium decision making ability scores. The trainees with high and low decision making ability were 29 per cent and 22 per cent respectively.

- Around half of the respondents (51%) had medium level of risk orientation followed by 34 per cent who possessed high level of risk orientation and 15.00 per cent of the respondents who were found to have low level of risk orientation.
- Majority of 59 per cent of the respondents had medium level of self-confidence. The distribution of trainees in groups of high and low self confidence levels was observed to be 25 and 16 per cent respectively.
- Sixty four per cent of the trainees had medium level of cosmopoliteness followed by 21 per cent and 15 per cent with to low and high levels of cosmopoliteness.
- Majority of the respondents (56 %) had medium level of economic motivation; followed by 27 per cent belonging to low economic motivation category and 17 per cent of the trainees had high levels of economic motivation.
- The psychological empowerment like self reliance had high significance at 5 per cent level after undergoing training followed by feeling of security self confidence and courage. Social and economic empowerment status of the trainees has also increased after attending the training programmes. With respect to political empowerment; trainees have increased awareness about human rights and laws due to social participation.
- Maximum percentage (43%)of respondents who received EDP trainings in various aspects were having medium employment (131 to 250 days). 19 per cent were getting up to 130 days of employment and 38 per cent were getting above 250 days employment.
- More than half of the trainees (57%) belonged to the category of medium level adopter category. Nearly 25 per cent of the trainees were having high level of adoption and remaining 18 per cent were having low level of adoption.
- Majority of the respondents (42 %) had credit not available, 35 per cent had partial credit availability. Only 20 per cent of the respondents had sufficient credit availability.

Perceived entrepreneurial training needs of EDP trainees of KVKs

- ❖ Eighty three per cent respondents had received entrepreneurship development trainings from KVK before the start of enterprise while 17.00 per cent of the trainees who had established the entrepreneurship units on their own initiative had attended training at KVK after establishing their enterprise.
- ❖ Rating on usefulness of KVK EDP found 89.00 per cent and 8 per cent of the respondents who received trainings from KVKs rated the trainings as very much useful and useful respectively in establishing their enterprises. There were only 2.00 per cent of the trainees who found the KVK trainings as not useful.
- ❖ A significant majority of the trainees (86 %) had expressed their interest in obtaining future trainings from KVKs. However, a minority of 14 per cent of trainees reported that they were not interested in obtaining more training in future.
- ❖ In mushroom production, packaging and marketing of mushroom with TNI score 91.10 and post harvest handling and value addition with TNI score 90 were the areas that were ranked first and second among the needed training areas. Whereas economics of mushroom (TNI=58) and management of spent compost (TNI=56) were the least preferred areas by the mushroom trainees
- ❖ In apiculture beekeeping, honey extraction and essential operations with TNI score of 90 was perceived as the most needed area of training. This was followed by marketing and business of honey bees and value addition of honey with respective TNI scores of 86.60 and 85.00.Export of honey (TNI=53.30) and purity testing (52.22) where least training areas needed by the respondents.
- ❖ In the area of value addition of fruits and vegetables, technology upgradation (TNI=92.5) and packaging and marketing techniques (TNI=88.33) were the most preferred areas by the trainees. Export promotion techniques (TNI=69) and hygiene, pollution control and environmental management (TNI=60) were perceived as the least important training need by the respondents.

Effect of personal attributes on training needs

- ❖ Personal variables like educational status and annual income, communication variables like extension contact and mass media exposure and entrepreneurial

variables like entrepreneurial intention, entrepreneurial need, entrepreneurial capacity, innovativeness, achievement motivation, decision making ability, risk orientation, self confidence, cosmopoliteness and economic motivation had a positive and significant correlation with the training need.

- ❖ Age, family size, family type and land holding were positively and non significantly correlated to the training need.
- ❖ Gender and marital status had negative and non significant correlation with the training need of the trainees. Whereas occupational status was negatively and significantly correlated to the training need. This implied that higher the occupational status of the respondents his training need will be low.

Evaluation of the entrepreneurial development training modules of KVKs

- ❖ The total number of EDP trainings conducted by the ICAR KVKs was higher compared to KAU and NGO KVKs.
- ❖ In mushroom EDP training module, maximum time was allotted for cultivation technology, spawn production, substrate preparation and selection, and shed construction in all the five KVKs. Packaging and marketing with TNI score of 91.10 in training need assessement was covered well in all KVKs. Economics of mushroom with TNI=58 was not covered in any KVK.
- ❖ In apiculture EDP training module, maximum time was allotted for colony division, colony inspection and honey extraction, thereby meeting the training need of the trainees. But export of honey with TNI=53.30 and purity testing of honey with TNI=52.22 in training need assessment was not included in the modules.
- ❖ In value addition EDP training module, maximum time was allotted for production technology, manufacturing and processing of products and preservation and quality control in all the KVKs. Export promotion techniques (TNI=69.00) and hygiene, pollution control and environmental management (TNI=60.00) was not included in the modules.

Effectiveness of EDP trainings of KVK

- ❖ With regard to training output, the training effectiveness scores (TES) ranged from 70 to 89 per cent. The KVKs were found to be very effective for providing need based trainings and for helping the trainees start entrepreneurship. The respondents felt that KVKs, to be more effective need to focus more on disseminating new technologies and on helping the trainees increase their knowledge on EDP as the training output.
- ❖ In case of teaching quality, the training effectiveness scores (TES) for individual aspects indicating the relative effectiveness ranged from 70 to 91.5 per cent. The respondents felt that more number of subject matter specialists may not be needed in the KVKs. The respondents perceived that the KVK staffs mingled freely with trainees and taught in simple manner.
- ❖ The average training effectiveness scores (76) for the physical facilities were assessed in terms of transportation and lodge facilities. The total effectiveness score under physical facilities ranged from 55 to 92 per cent. The transport and lodging facilities provided during training programme were not satisfactory.
- ❖ In the coverage of topics, the lowest effectiveness score was for topics like entrepreneurial motivation, business opportunities and guidance, marketing management and knowledge on subsidies, government schemes, support agencies and other linkages. Therefore, to improve the effectiveness of training, the KVKs must stress more on these topics.
- ❖ Out of the four dimensions taken, the total effectiveness score for the factor of perceived teaching quality was 81.75, followed by training output (80), coverage of topics (79.62) and physical facilities (76).
- ❖ The overall training effectiveness score of the EDP training programmes by KVKs was worked out to be 79.45.
- ❖ Kruskal-Wallis H test showed that there was no significant difference between the effectiveness of different KVKs.

Relationship between personal attributes of trainees and training effectiveness

- Correlation between age, educational status, land holding, annual income, extension contact, mass media exposure, and employment gain, adoption of technology from training, credit support and training effectiveness was found to be positive and significant.
- The entrepreneurial attributes like entrepreneurial intention, entrepreneurial need, entrepreneurial capacity, innovativeness, achievement motivation, decision making ability, risk orientation, self-confidence, cosmopoliteness, economic motivation was positively and significantly correlated to training effectiveness.
- Gender and occupational status of the trainees had negative and significant correlation with the training effectiveness. Whereas marital status had negative and non significant correlation with training effectiveness.
- Family size and family type was positively and nonsignificantly correlated with the training effectiveness of the trainees.

Factors affecting EDP training effectiveness

- In order to categorise the influential factors into specific dimensions of training effectiveness, Principal Component Analysis (PCA) analysis using covariance matrix was used and two principal components with eigen values greater than one which were used for further analysis.
- Fourteen components had Eigen value greater than one and they together explained a cumulative variance of 99.96 per cent.
- The variability explained by components 1 and 2 were 76.54 and 5.88 per cent respectively and these two components which together explained 82.42 per cent of total variance were used for further analysis.
- The highest component loading on first component was for decision making ability of the trainees and thus indicated that it was the most important factor affecting the effectiveness of EDP training programme.

- ❖ Adoption of technology and factors related to economic sustainability of enterprises such as credit support, annual income and employment generation also have high factor loadings in the first component delineated.
- ❖ Based on the attributes which indicated highest factor loadings on components 1 and 2, they were named as techno-personal capabilities and entrepreneurial qualities respectively.
- ❖ Personal attributes of trainees' viz. age and land holding were not included in both the delineated components and as such no observed relation was credited to these variables with training effectiveness
- ❖ Thus entrepreneurial attributes of trainees, technology adoption and stable economic base of enterprise were the dimensions that could influence the training effectiveness in entrepreneurship development programs.

Conclusion

- ❖ Training need assessment in most KVKs was limited to knowledge assessment using pre-assessment quizzes and use of post evaluation exit cards. The pre-training test based need evaluation of the targeted group provided limited opportunities to articulate their comprehensive needs.
- ❖ The results of content analysis to find out the extent to which the entrepreneurial development training modules meet the needs of the trainees also revealed that some of the areas needed by the trainees were just included in the module. And the coverage of topics was still not sufficient.
- ❖ The trainees of the KVKs were satisfied with the training output, quality of teaching and coverage of topics. However, the trainees perceived that the physical facilities provided by the KVKs were not sufficient. Thus providing suitable physical facilities for conducting the EDP trainings can be provided for improvement in the functioning of the KVKs.
- ❖ The entrepreneurial attributes of trainees, technology adoption and stable economic base of enterprise were the dimensions that could influence the training effectiveness in entrepreneurship development programs. As a result, to improve the effectiveness of EDP trainings, the KVKs must devise strategies to select trainees accordingly.

Recommendations for improving the EDP training programme

- Design and use of better training need assessment tools: Technological integration for need based trainings
- Integration of long term skill needs along with immediate and medium term skills in EDP modules to enhance the sustainability and effectiveness of training
- Design of management skill modules as integral part of all EDP training
- Induction of curriculum based Farm Business School (FBS) models in EDP training
- Include facilitatory market analysis, distribution and business management in module
- Use of specific entrepreneurial quality assessment scales in the selection of trainees
- Provide trainees the opportunity to select a combination of training programmes spread over a prescribed time schedule
- Augment sharing and networking among trainees so that groups that shared production interests could emerge and lead to the development of group enterprises that could address the sale inadequacies.
- Ensure training programs with governance linkages for continued evaluation and participation of trainees
- Support partnerships and networking with other development organizations, institutional credit services and technology backstopping from research institutes
- Study visits and observational study tours to expose farmers to good practices
- PRAXIS model of experiential learning is recommended for the design of KVK-EDP trainings

PLATE 1: PHOTOS TAKEN DURING SURVEY

Interview with Apiculture EDP KVK Trainees

Interview with Mushroom EDP KVK Trainees

Interview with Value addition EDP KVK Trainees

References

REFERENCES

Ahmad, N., Singh, S.P., and Parihar, P. 2012.Farmers assessment of KVK training programme. *Econ. Affairs*. 57(2):165-168.

Awasthi, H.K. 2000. Content analysis and usefulness of agricultural coverage on T.V. as perceived by rural tele viewers in Jabalpur T.V. orbit, M.Sc. (Ag) thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, 106p.

Bell, B.S., and Kozlowski, S.W.J. 2007. Advances in technology-based training. *J.Managing human resources in North America: Current issues and perspectives*. 7: 27-43

Bhabar, R.S. 2012. A study on empowerment of rural women under district poverty initiatives project (DPIP) in Barod block of Shajapur district in Madhya Pradesh. M.Sc. (Ag) thesis, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyala, Gwalior, 180p.

Bhagyalaxmi, K., Gopalakrishnarao, V., and Sudarshanreddy, M. 2003. Profile of the rural women micro-entrepreneurs. *J. Indian Res.* 31(4): 51-54.

Bhatt, P.M., Patel, H.B., and Patel, N.P. 2011. Perception of Farmers Regarding Selected Aspects of Training Programme Conducted by SSK. *Gujarat J. Ext. Educ.* 22: 14-16.

Bhattacharyya, S., and Mukherjee, A. 2019. *Importance of Skill Development in Indian Agriculture*. Today and tomorrow's Printers and Publishers, New Delhi, 306p.

Bhavana, G. 2010. Dynamics of entrepreneurship development for income and employment generation of farm enterprises. M.Sc. (Ag) thesis, Sher-e-Kashmir University of Agricultural Sciences and Technology, Jammu, 200p.

Bhupendra, K. 2016. Entrepreneurial Behaviour of Women Entrepreneurs of Ima Market Manipur. M.Sc. (Ag) thesis, Mahatma Phule Krishi Vidhyapeeth, Maharashtra, 126p.

Bolton, W.K. and Thompson, J.H. 2000.*Entrepreneurs: talent, temperament, technique* (2nd Ed.). Butterworth Heinemann, Oxford, 415p.

Borban, S. 2007. A study on training needs as perceived by the farmers of Krishi Vigyan Kendra betul district of Madhya Pradesh. M.Sc. (Ag) thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, 151p.

Bird, B. 1988. Implementing entrepreneurial ideas: the case for intention. *Acad. Manag. Rev.* 13(3): 442-453.

Biswas, N. 2009. Researches in extension education B. H. U- a content analysis. M.Sc. (Ag) thesis, Banaras Hindu University, Varanasi, 102p.

Cantillon, R. 1730. Essai Sur la Nature Commerce EnGeneral (Originally published in French language in 1730), Quoted from Mishra, P.N., development banks and the new entrepreneurship in India, New Delhi, National publishing house, 88 p.

Chandargi, A.M. 1994. An experimental study on the impact of training on knowledge and adoption behaviour of farm women in Dharwad, Belgaum and Karwar districts of Karnataka state. M.Sc. (Ag) thesis, University of Agricultural Sciences, Bangalore, 180p.

Chandra, R. 2013. *Entrepreneurship: An Ideal Way of Success*. BookRix Publishers, Kolkata, 83p.

Chandrasekhar, B.B. and Vanisree, M. 2018. Assiduousness of the ground-breaking entrepreneurs in their allegiance and concocts for the country's predestination. *Adv. Econ. Business Manag.* 3(2): 194-199.

Channal, P., and Natikar, K.V. 2018. Impact of entrepreneurship development programmes in North Karnataka. *Agric. Update.* 13(1): 1-8.

Chaudhari, R.R. 2006. A study on entrepreneurial behaviour of dairy farmers. M.Sc. (Ag) thesis, University of Agricultural Sciences, Dharwad, 189p.

Chaudhary, K (2011). A study on the impact of vocational training programme conducted by Krishi Vigyan Kendras on rural women for income and employment generation in Narsinghpur district M.P. M.Sc. (Ag) thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, 120p.

Chauhan, N.B., and Patel, R.C. 2003. Entrepreneurial uniqueness of poultry entrepreneurs. *Rural India*. 66(12): 236-239.

Clarysse, B., Tartari, V., and Salter, A. 2011. The impact of entrepreneurial capacity, experience and organizational support on academic entrepreneurship. Res. Policy. 40(11): 1084-1093.

Datt, S. 2016. 8 step procedure to conduct qualitative content analysis in research [on-line]. Available: https://www.projectguru.in/publications/qualitative-content-analysis-research/ [09 March 2019].

Daya, R., and Chaudhary, K.P. 2012. Socio-economical and psychological characteristics of women entrepreneurs. *Technofame J. Multidisciplinary Advance Res*. 2(1): 67-73.

Dayananda, K.U.2016. Entrepreneurial behaviour of women dairy cooperative members in Tumkur district Karnataka. M.Sc.(Ag Extn) thesis, National Dairy Research Institute, Karnal, 117p.

Deepthi, V. 2016. A critical study on entrepreneurial behaviour of agripreneurs in Andhra Pradesh. M.Sc. (Ag) thesis, Acharya N.G Ranga Agricultural University, Guntur, 166p.

Devi, D., Ram, D., Singh, K.S., and Singh, N.O. 2016. Assessment of training programmes through perception of kvk: a profile of trainees. *Agriways*. 4(2): 145-154.

Devi, G.M., Kumar, A., and Kumar, D.S. 2017. Impact analysis of trainings and front line demonstrations in black gram (*Vigna mungo*) cultivation. J. Krishi Vigyan. 6(1): 97-100.

Dhanabhakyam, M. and Mufliha, S. 2013. A study on the impact of training on unemployed women and changes in their attitude for starting a kudumbasree unit for their livelihood [with special reference to palakkad municipality]. *The SIJ Transactions Ind. Financial Business Manag.* 1(5): 142-149.

Doan, W., Vane, J., and Kyle, E. 2011. An organizing framework for entrepreneurial intention research: an integration and extension of dominant intent based models using social cognitive career theory. *Small Business J*. 12: 25-28.

Driskell, J.E. 2011. Effectiveness of deception detection training: A Meta analysis. *Psychol. Crime Law.* 10: 1-19.

Drucker, P. F. 1985. *Innovation and entrepreneurship*. Harper Business, New York, 288p.

Dubey, A.K., Srivastva, J.P., Singh, R.P. and Sharma, V.K. 2008. Impact of KVK training programme on socio-economic status and knowledge of trainees in Allahabad district. *Indian Res. J. Ext. Edu*. 8(2&3): 60-61.

Dubey, A.K., Srivastava, J.P., Singh, R.P., and Sharma, V.K. 2008. Attitude of respondents towards KVK training programmes. *Indian Res. J. Extn.Edu.* 8(2): 78-80.

Gade, Y.R.2011. A study of adoption of milk production practices by dairy entrepreneurs. M.Sc. (Ag) thesis, Anand Agricultural University, Anand, 122p.

Gajendra, T.H. 2017. Impact of entrepreneurship training in dairying: A case of Rudseti. M.Sc. (Ag Extn) thesis, National Dairy Research Institute, Karnal, 161p.

Geethu, A.M. 2019. Comparative analysis of vocational training programmes of Krishi Vigyan Kendras M.Sc. (Ag) thesis, Kerala Agricultural University, Thrissur, 138p.

Gupta, S.K. and Sood, S.K. 2012. Agriculture gateways Krishi Vigyan Kendras (KVKs): touching new horizons in Himachal Pradesh [abstract]. In: Abstract,

National Conference of Agricultural Libraries and User Communities; December, 2012, Dr. YS Parmar University of Horticulture and Forestry, Nauni, Himachal Pradesh, p.4.

Haneef, S. R. 2015. Training needs of Agricultural Assistants working in the state department of agriculture. M**.** Sc (Ag) thesis, Mahatma Phule Krishi Vidhyapeeth,

Haslinda, A., and Mahyuddin, M.Y. 2009. The effectiveness of training in the public service. *American J. Sci. Res.* 6: 39-51.

Hisrich, R.D., Peters, M.P., and Shepherd, D.A. 2010. *Entrepreneurship* (8th Ed.). McGraw-Hill/Irwin, New York, 624p.

Issac, E., Visser, K., Friedrich, C., and Brijlal, P. 2007. Entrepreneurship education and training at the further education and training (FET) level in South Africa. *South Africa J. Educ.* 27(4): 613-629.

Jain, P. 2013. A study on the impact of vocational training conducted by KVK on income generation among women in Jabalpur district of M.P., M.Sc. (Ag) thesis, Jawaharlal Nehru KrishiVishwaVidyalaya, Jabalpur, 113p.

Jayarani, L., Singh, M.K., Chaudhary, K.P., and Ram, D. 2013. Entrepreneurial behaviour of women entrepreneurs in Imphal of Manipur. *Indian Res. J. Ext. Edu*. 13(2): 213-216.

Katole, S.B., Bhatt, J.H., and Patel, G.G. 2017. Impact analysis of activities of Krishi Vigyan Kendra. *Guj. J. Ext. Educ.* 28(2): 267-270.

Kaur, R., Kaur, C., and Aulakh, G.S. 2014. A review of training needs among rural women. *Agric. Update*. 9(3): 445-449.

Kerlinger, F.N. 1964. Foundations of Behavioural Research. S. Chand Company Ltd, New Delhi, 1008p.

Khanka, S. S. 2010. *Entrepreneurial Development*. Chand Publishing House, New Delhi, 300p.

Kothari, C. R. 2017. Research methodology: methods and techniques. New Age International Publishers, New Delhi, 196p.

Krippendorff, K. 1980. Content analysis: an introduction to its methodology. Sage Publications, Beverly Hills, California, 441p.

Krishnaveni, G., Haika, M., Veeranjaneyulu, K., Naik, V., and Shankar, R. M. 2017. Role of Krishi Vigyan Kendra in promoting entrepreneurship amongst rural women in Nalgonda district- experiences of KVK Kampasagar. *Agric. Update* [online].Available:12(TECHSEAR6)1625;DOI:10.15740/has/au/12.TECHSEAR (6)2017/1625-1628.[Accessed 15 Jan. 2019].

Kshash, B. 2016. Training Needs of Rice Farmers in Mahanawiyah District, AL-Qadisiya Province, Iraq. *Turkish J. Agric. - Food Sci. Technol.*4(12): 1072-1076

Kumar, B. 2018. Activities of Krishi Vigyan Kendra in Samastipur district of Bihar: an evaluative study. M.Sc.(Ag) thesis, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur, 131p.

Kumar, H.M. 2017. Role of Entrepreneurial development programmes in growth of entrepreneurship in India. *Int. J. latest Technol. Eng. Manag. Appl. Sci.* 6(6): 22-26.

Kumar, M. 2004. Comparative study of farmers training programmes organized by Krishi Vigyan Kendras in Rajasthan. Ph. D thesis, Rajasthan Agricultural University, Bikaner, 262p.

Kumar, R. 2008. Entrepreneurial behaviour of dairy farmers of Tamil Nadu. Ph.D. thesis, Ranga Agricultural University, Hyderabad, 169p.

Lau, V.P. 2002. Developing and validating the entrepreneurial career success scale and testing its antecedents and consequences in the context of Southeast Asian values. Ph. D. Thesis, The Hong Kong Polytechnique University, Hong Kong, 297p.

Levie. J. and Autio, E. 2008. A theoretical grounding and test of GEM model. *Small Business Econ.* 31(3): 235-263.

Lopez, A.R., and Souto, J, E. 2020. Empowering entrepreneurial capacity: training, innovation and business ethics. *Eurasian Business Review.* 10(1): 23-43.

Makkar, A.M. 2018. Impact of rural self employment training institute (RSETI) on employment generation. M.Sc. (Ag) thesis, Punjab Agricultural University, Ludhiana, 76p.

Masur, Y.V. 2014. Impact of entrepreneurship development programmes on women of Dharwad District. M.Sc. (Ag) thesis, M.Sc. (Ag) thesis, University of Agricultural Sciences, Dharwad, Karnataka, 104p.

Mamata, B., and Renuka, T. 2012. Role of RUDSETI in empowering women through entrepreneurship-A study of Bijapur district. *IJEBE*. 1(2): 208-222.

McClelland, D.C. 1961. *The Achieving Society*. Free press, Van Nostrand, Princeton, 532p.

Medhi, S., Singh, A.K., Singh, R., and Singh, R.J. 2017. Effectiveness of training programmes of Krishi Vigyan Kendra (KVK) towards socio-economic development of farmers in Meghalaya. *Econ. affairs*. 62(4): 677-682.

Meena, B.S. and Singh, B. 2013. Perceived constraints and suggestions for effective functioning of Krishi Vigyan Kendras. *Agric. Update*. 8(3): 332-335.

Meena, L.L. 2015. Impact of KVK training towards socio-economic upliftment of farmers in Jagatsinghpur district Odisha. M.Sc. (Ag) thesis, Orissa University of Agriculture and Technology, Bhubaneswar, 126p.

Mishra, D.C. 1990. New direction in extension training. Directorate of extension, Ministry of Agriculture. New Delhi.

Mitra, A. 2018. *Reflecting on India's Development- Employment, Skill and Health*. Springer Nature Singapore Pte Ltd., Singapore, 347p.

MOAFW [Ministry of Agriculture and Farmers Welfare]. 2019. *Annual Report* 2018-2019. Ministry of Agriculture and Farmers Welfare, New Delhi, 39p.

Mohammad, A. 2006. Study of perceived training needs of the dairy entrepreneurs of Murshidabad district West Bengal. M.Sc. (Ag) thesis, National Dairy Research Institute, Karnal, 102p.

Mohammed, S.J., Norsida, M., Garba, M.B., Al-Lahibi, Z.F.H., and Jasim, M.S. 2017. Analyses of training needs to improve job performance using model borich need assessement with theory of self-efficacy. *Asian Res. J. Agric.* 3(3): 1-16.

Mohan, S. and Revathi, R. 2012. Impact of training on entrepreneurial development. *Int. J. Eng. Manag. Res.* 2(6): 1-6.

Nagesha, M. 2005. Study on entrepreneurial behaviour of vegetable seed producing farmers in Kaveri district of Karnataka. M.Sc. (Ag) thesis, University of Agricultural Sciences, Dharwad, Karnataka, 170p.

Narayan, T.G. 2005. An analysis of poultry entrepreneurs' knowledge about poultry management practices. M.Sc. (Ag) thesis, Anand Agricultural University, Gujarat 156p.

Nashine, R., Bharadaj, N., and Esakkimuthu, M. 2015. Impact of Krishi Vigyan Kendra on empowerment of tribal women: a study in Bastar district of Chhattisgarh. *Home Sci. Commun. Manag.* 2(1): 22-27.

Nazir, T., Vaida, N., and Dar, M.A. 2013. Role of Krishi Vigyan Kendras for the empowerment of rural women through vocational trainings. *Basic Res. J. Agric. Sci. Review.* 2(3): 51-56.

NILERD [National Institute of Labour Economics Research and Development]. 2017. Evaluation of Krishi Vigyan Kendras(KVK) for categorization into A, B, C & D categories 2017 [on-line].Available: https://icarrcer.in/wp-content/uploads/KVK-Final-2017-print.pdf[24 April 2020].

Nychome, P. 2012. Factors influencing the effectiveness of entrepreneurship training programmes: a case of financial knowledge for Africa' Kenya. M.Sc. thesis, University of Nairobi, Kenya, 88p.

Onuoha, G. 2007. Entrepreneurship. *AIST Int. J.* 10: 20-32.

Palaniappan, G., Ramanigopal, C.S., and Mani, A. 2012. A study on problems and prospects of women entrepreneurs with special reference to erode district. *Int. J. Social Sci.* 2(3): 220-229.

Pandey, A., Bhargav, K.S., Kumar, M., Gupta, N., and Patel, N. 2018. Evaluation of Krishi Vigyan Kendra training programme on mushroom cultivation. *Plant Archives.* 18(2): 1655-1658.

Pandey, P. 2017. Effectiveness of dairy based entrepreneurial development programmes. M.Sc. (Ag Extn) thesis, National Dairy Research Institute, Karnal, 82p.

Pandey, S., Kumar, P.R., Srivastava, P., Singh, R., and Kumar, B.A. 2018. KVK's trainings: effective tool for empowering rural women. Int. J. Agric. Sci. 10(9): 5990-599.

Patel, M., Sanoria, Y.C., and Chatterjee, M. 2003. Communication factors and entrepreneurial behaviour of sugarcane growers. J. Res. 31(3): 62-67.

Patel, H.B., Patel, P.C., and Patel, G.G. 2017. Attitude of the farmers towards training programme organized by KVK Devataj. *Guj. J. Ext. Educ.* 28(1): 68-70.

Patel, S.S and Kokate, K.D. 2011. Training needs assessment of subject matter specialists of Krishi Vigyan Kendras. *Indian Res. J. Ext. Educ*. 11 (1): 18-22.

Patil, A.P., Gawande, S.H., Gobade, M.R., and Nande, M.P. 2009. Training needs of dairy farmers in Nagpur district. *Veterinary World.* 2: 187-190.

Patowary, M. 2012. Women entrepreneur and EDP trainings with special emphasis on north eastern region of India. [abstract]. In: Abstracts, North Eastern Regional Institute of Science and Technology Conference; June, 2012, North Eastern Regional Institute of Science and Technology, Arunachal Pradesh, p.2.

Peng, Z., Genshu, L., and Kang, H. 2012. Entrepreneurial Intentions and its influencing factors: a survey of the university students in Xian china. *Creative Educ.* 3(8): 95-100.

Prasad, B. D. 2008. Content Analysis: a method in social science research. Rawat, New Delhi, 193p.

Prashanth, P.M., Reddy, J.M., Rao, S.I. 2013. Training needs of cotton farmers on organic cotton production technologies in Andhra Pradesh. *Agric. Update.* 8(2): 14-18.

Punia, B.K., and Kant, S. 2013. A review of factors affecting training effectiveness vis-à-vis managerial implications and future research directions. *Int. J. Adv. Res. Manag. Social Sci.* 2(1): 151-164.

Raghuvanshi, M. 2017. Training Needs Assessment of Dairy Farmers in Kolaras Block of Shivpuri District Madhya Pradesh. M.Sc. (Ag) thesis, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior, 79p.

Rajini, N., and Sarada, D. 2008. Women entrepreneurship and support systems. *Stud. Home Comm. Sci*. 2(2): 107-112.

Raju, P. N. 2017. Entrepreneurial behaviour of agripreneurs of KAU technology. M.Sc. (Ag) thesis. Kerala Agricultural University, Thrissur, 85p.

Rana, K.K. 2010. An analytical study of vocational training programme conducted by Krishi Vigyan Kendra for rural youth of Sohagpur block in Shahdol

district, M.P. M.Sc. (Ag) thesis, Jawaharlal Nehru KrishiVishwaVidyalaya, Jabalpur, 120p.

Rana, K.K., Rajan, P., and Singh, S.R.K. 2018. Assessing impact of Krishi Vigyan Kendra on employment generation of rural youth. *Int. J. Microbiol. Appl. Sci.* 6: 2822-2826.

Rana, S. 2017. Empowering rural women through entrepreneurship training programmes. *Asian J. Home Sci.* 12 (1): 155-158.

Rania, V. 2006. Training needs of beekeepers in Haryana. M.Sc. (Ag) thesis, Chaudhary Charan Singh Haryana Agricultural University, Hisar, 148p.

Ranjan, R., Ansari, M.A., Verma, A.P., Shekhar, S., and Rashit, S. 2017. Farmers' perception towards effectiveness of KrishiVigyan Kendra (KVKs): A study in Uttarakhand, India. *Int. J. Curr. Microbiol. Appl. Sci.* 6(3): 878-890.

Ranjitha, G., Teza, J., and Veeraiah, A. 2018. An impact study on vocational training programme on milky mushroom farming. *Int. J. Curr. Microbiol. App. Sci*. 7(11): 1475-1484.

Rao, P. 2008. Environmental initiatives taken by entrepreneurs in the Philippines. *J. Entrepreneurship* 17(1): 73-81.

Rathod, J.S. 2017. Training needs of dairy farmer in latur district. . M.Sc. (Ag) thesis, Vasantrao Naik Marathwada Krishi Vidhyapeeth, Parbhani, 69p.

Sabira, M.P. 2016. Effectiveness of training interventions of Krishi Vigyan Kendra (KVK), Thrissur in adoption of cool season vegetables. M.Sc. (Ag) thesis, Kerala Agricultural University, Thrissur, 216p.

Sangeetha, V. 2014. Training needs of cotton growers of Madurai district of Tamil Nadu. M.Sc. (Ag) thesis, Acharya N.G. Ranga Agricultural University, Rajendranagar, Hyderabad, 190p.

Saina, J. S. 2009. *Entrepreneurship development programmes and practices*. Deep and Deep Publications, New Delhi, 404p.

Sajeev, M.V., Singha, A.K., and Venkatasubramanian, V. 2012. Training needs of farmers and rural youth: An analysis of Manipur state, India. *J. Agric. Sci*. 3(2): 103-112.

Sarma, H., Talukar, R.K., and Mishra, P.2013. Impact of training on knowledge level of integrated rice-fish farming practices. *Indian J. Ext. Edu.* 11(1): 87-90

Sathiabama, K. 2010. Rural women empowerment and entrepreneurship development [Online]. Available: http://www.microfinancegateway.org/ga [August 15, 2010].

Schreier, M. 2012. Qualitative content analysis in practice. Sage Publications, Thousand Oaks, California, 280p.

Senthilkumar, K., Devaki, K., and Subramanian, R. 2014. Assessment of effectiveness of training programmes through perception of Krishi Vigyan Kendra Trainees. *Indian Res. J. Ext. Educ.* 14(1): 96-98.

Shahi, V., Shahi, B., Kumar, V., Singh, K. P. and Kumari, P. 2018. Impact study on mushroom cultivation for micro entrepreneurship development and women empowerment. *J. Pharmacogn. Phytochem.* 4(1): 01-04.

Shahjar, F., Khadi, S.A., Bafanda, R.A., Bhushan, B., and Khateeb, A.M. 2018. Study of the relationship between socio-economic profile and perceived training needs of dairy farmers in the Jammu district of Jammu and Kashmir, India. *The Pharma Innovation J.* 7(11): 71-76

Sharma, N., Arora, R. K., and Kher, S. 2013. Attitude of farmers towards KVK training programmes and their impact. *Agric. Update*. 8: 31-34.

Sharma, N.K. 2013. A Study on attitude of rural women towards agro based enterprise under District Poverty Initiatives Project (DPIP) in Rewa block of

Rewa district (M.P.). M.Sc. (Ag) thesis, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, 143p.

Shehrawat, P.S. 1998. Training needs of entrepreneurs for modernization of small scale agro-processing industries in Haryana. PhD. (Ag) thesis, Haryana Agricultural University, Haryana, 180p.

Sindhu, K. 2015. A study on entrepreneurial behaviour of agripreneurs in Visakhapatnam district of Andhra Pradesh. M.Sc. (Ag) Thesis, Acharya N.G. Ranga Agricultural University, Guntur, 192P.

Singh, J. 2004. Training needs of entrepreneurs for modernization of small-scale oil-processing industries in Rajasthan. PhD. (Ag) thesis, Maharana Pratap University of Agriculture, Udaipur, 124p.

Singh, P. 2001. A Study on Production and Marketing of Mushroom in Haryana. PhD. (Ag) thesis, College of Agriculture Chaudhary Charan Singh Haryana Agricultural University, Hisar, 79P.

Sinha, B.K. 2016. Assessment of Capacity Building Programmes of RUDSETI for Self-employment among Rural Youth, Ph. D. thesis, Indian Agricultural Research Institute, New Delhi, 132p.

Sitoula, T. 2015. Challenges and prospects of youth entrepreneurship in Kathmandu. M.Sc. thesis, University of Nordland, Boho, Norway, 122p.

Supe, S.V. and Singh, S.N. 1969. *Dynamics of Rational Behaviour of Indian Farmers*, New Heights Publishers and Distributers, New Delhi, India, 290p.

Sushma, K.C. 2007. An analysis of entrepreneurship development in women through EDP training. M.Sc.(Ag) Thesis, University of Agricultural Sciences, Dharwad, 120p.

Suresh, J. 2004. Entrepreneurship: Concept and Development. *Third Concept.* 17(203): 39-42.

Suresh, K. 2004. Entrepreneurial behaviour of milk producers in Chitoor district of Andhra Pradesh- a critical study. M.Sc.(Ag) Thesis, Acharya N.G. Ranga Agricultural University, Hyderabad, 140p.

Tabasum, N., Naheed, V., and Dar, M.A. 2013. Role of Krishi Vigyan Kendra for empowerment of rural women through vocational trainings. *Basic Res. J. Agric. Sci. Rev.* 2(3): 51-56.

Taufiq, A., Shamsul, H., and Haneef, R. 2011. Entrepreneurial characteristics of the agripreneurs under the scheme of agri clinics and agri business centres. *J. Community Mobilization Sustain. Dev.* 6(2): 145-149.

Thakur, N. 2017. Vocational training needs as perceived by the farmers' sons in Anand taluk of Gujarat. M.Sc. (Ag) thesis, College of Agriculture Anand Agricultural University, Anand, 127P.

Thilagam, J. 2012. Indicators of agri entrepreneurship and evaluation of business planning and development unit- A diagnostic study. Ph. D Thesis, Tamil Nadu Agricultural University, Coimbatore, 178p.

Thompson, E.R. 2009. Individual entrepreneurial intent: construct clarification and development of an internationally reliable metric. *Entrepreneurship: Theory & Practice*. 33(3): 669-694.

Tyagi, A.K., and Tyagi, B.D. 2014. Assessments of effectiveness of training programmes through perception of Krishi Vigyan Kendra trainees. *Agriways* 2 (2): 73-76.

Udday, A. 2007. A study on the training needs of women vegetable growers in Panagar block of Jabalpur district (M.P.). M.Sc. (Ag) thesis, Jawaharlal Nehru KrishiVishwaVidyalaya, Jabalpur, 117p.

Upadhyay, S. 2010. A study on participation of dairy entrepreneurs in animal husbandry occupation. M.Sc. (Ag) thesis, Anand Agricultural University, Anand, 189p.

Veena, B. 2009. Entrepreneurship development through value added products from soya. Ph.D. thesis, University of Agricultural Sciences GKVK, Bangalore, 268p.

Venkattakumar, R., Senthilkumaran, G., and Atheequlla, G.A. 2015. Training needs of KVK personnel and farmers of NEH region in horticulture. J. Ext. Educ. 27(4): 5546-5550.

Vidhya, V., Tayde, R., and Chole, R. 2010. Empowerment appraisal of rural women in Marathwada region of Maharashtra state. *J. Ext. Edu.* 10:33-36.

Wankhar, J.B. 2019. Identification of training needs of ninag megha farmers in east khasi heels district of Meghalaya. M.V.Sc thesis, West Bengal University of Animal and Fishery Sciences, West Bengal, 98p.

Weber, R. P. 1990. Basic Content Analysis. Sage University Paper Series on Quantitative Applications in the Social Sciences, Series no. 07-049. Sage Publications, California, 97p.

Zwan, P., Thurik, R., Verheul, I., and Hessels, J. 2016. Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. *Eurasian Business Rev.* 6(3): 273-295.

Appendices

APPENDIX

KERALA AGRICULTURAL UNIVERSITY

COLLEGE OF HORTICULTURE

Department of Agricultural Extension

Analysis of entrepreneurship development trainings of Krishi Vigyan Kendras (KVKs) in Kerala

Interview schedule

I. GENERAL INFORMATION

1. **Name of the respondent:**
2. **Village:**
3. **Block:**
4. **District:**

II.SOCIO-ECONOMIC PROFILE OF KVK EDP TRAINEES

1. **Age:** years
2. **Gender:**
3. **Marital status:** Married/Unmarried
4. **Family type:** Nuclear/Joint
5. **Family size:**

Adults:	Children:	Total:

6. **Educational status**

Illiterate	Primary school	Middle school
High school	College/JOC	

7. **Occupational status:**

a. Agriculture (farming)
b. Farming + Business
c. Farming +Service
d. No-farming only business
e. Any other (specify)

8. Land holding(in hectares):

Type of land	Dry land	Irrigated	Garden	Total
Area (hectares)				

9. Source of annual income:

Sl. No.	Enterprise	Income (Rs.)
1.	Agriculture	
2.	Non –agriculture a. Enterprise/business	
3.	Others (specify)	
	Total annual income (Rs.)	

10. Extension contact:

Please indicate your response in appropriate alternatives by putting a tick (W-Weekly, FN-Fortnightly, M-Monthly, HY-Half yearly, Y- Yearly)

Sl. No.	Extension personnel/ agency	W 5	FN 4	M 3	HY 2	Y 1
1.	VLW					
2.	Extension officer					
3.	Subject matter specialist					
4.	Agricultural scientist					
5.	Training centres					
6.	University/ Research station					
7.	District agricultural officer					
8.	Krishi Vigyan Kendras					

11. Mass media exposure:

Please indicate your response in appropriate alternatives by putting a tick

Sl. No.	Mass media	Regularly	Occasionally	Never
1.	Newspaper, magazines, leaflets, bulletins			
2.	Radio			
3.	Television			
4.	Melas			
5.	Exhibitions			
6.	Demonstrations			

III. Indicators to measure the characteristics of entrepreneur

12. Innovativeness:

State yes or no with the following statements

Sl. No.	Statements	Yes (1)	No (2)
1.	Attending training at KVK was your idea		
2.	Did you further tried to collect relevant information on your own		
3.	Do you always look forward to the new ways of enterprise management?		
4.	Do you think such trainings would be beneficial for your future?		
5.	Do you think you can take advantage of the opportunities provided (courtesy 'trainings' being imparted) and apply the same in the practical situations?		
6.	Do you think that commercialization of the products adds to its economic value?		
7.	Have you ever come across any new ideas while working in your company?		
8.	Have you ever thought about the role of these trainings in entrepreneurship development?		
9.	In order to gain some benefits vis-a-vis your domain of work, if you are asked to change/modify your present 'lifestyle' would you go for it?		
10.	Do you think that investigating in research and development is very crucial for any enterprise		

13. Achievement motivation:

Everybody has the desire to achieve desired things in life. Here are some statements pertaining to desire to do something well for its own sake rather to gain power or recognition. Please give your response...

A. In accomplishing a task, I like...
   - To do it much better than others
   - To finish it before time

B. My desire is to be...
   - A successful earner/entrepreneur/businessman
   - An average income earner/entrepreneur/businessman

C. I feel my success depends on:
   - My hard work in my business
   - On my parents and relatives

D. I like:
   - To earn more profit
   - To satisfy my minimum need

E. After 10 years I will be:
   - A well known entrepreneur/businessman
   - My status will be the same

14. Economic motivation:

State agree, undecided or disagree for the following statements

Sl. No.	Statement	Agree (2)	Undecided (1)	Disagree (0)
1.	You should work towards economic profit.			
2.	A most successful is the one who makes the most profit.			
3.	You should produce more/ provide more services to increase monetary profits.			
4.	It is very difficult to make good start unless you are provided with economic assistance.			
5.	You should try new practices which may earn you more money			

15. Decision making ability:

Please give your opinion about the statements

Sl. No.	Decision criteria	After consulting others	After consulting experts	Self decision
1.	Idea of attending training at KVK			
2.	If you want to start a new enterprise, how do you decide?			
3.	How do you decide about procedures/methods suggested for the enterprise is advantageous or not?			
4.	If you find it advantageous, how do you decide about its adoption at your own level?			
5.	Suppose you want to sell the products from your enterprise, how do you take the final decision?			
6.	Investment of money in any new enterprise, how do you decide on it?			
7.	During financial crisis, how do you take a final decision to cope up with it?			
8.	Suppose your present service is not economically viable, how do you take the decision to opt for the new one/continue the same?			

16. Risk orientation:

State agree, undecided or disagree for the following statements

Sl. No.	Statements	Agree (2)	Undecided (1)	Disagree (0)
1.	An entrepreneur should take greater risk than average farmer			
2.	An entrepreneur/trainer should try new practices only after successfully used by other entrepreneurs			
3.	Trying on entirely new practices in the enterprise involves risk but it is a worth			
4.	Enterprise management is full of risk			
5.	An entrepreneur should sustain risk in development of his enterprise			
6.	An entrepreneur should make new products/adopt new services instead of traditional ones			

17. Self confidence:

Please give your opinion about the statements

Sl. No.	Statements	Yes (1)	No (0)
1.	Do you always feel that you can achieve the things you wish?		
2.	Do you care so much for what others think of you?		
3.	Do you have difficulty in saying the right option at right time?		
4.	Do you frequently feel unworthy?		
5.	Can you adjust readily to the new situation?		
6.	Do you feel hard to keep your mind on task/job?		
7.	Do you have enough faith on yourself to make profit in enterprise?		
8.	Do you rely on others to carry out all the activities?		

18. Cosmopoliteness:

State agree, undecided or disagree for the following statements

Sl. No.	Statement	Agree (2)	Undecided (1)	Disagree (0)
1.	There is need to collect additional information from outside the village for successful entrepreneur			
2.	An entrepreneur should keep good contacts with professionals like KVK head, SMS, extension persons etc.			
3.	Trainings on enterprise, field visits helps to gather recent information			
4.	An entrepreneur should try to get information on new techniques in enterprise management from outside of his village by using mass media facilities			
5.	Keeping contact with progressive entrepreneurs is useful for managing the enterprise			

19. Entrepreneurial capacity

State your degree of agreement or disagreement with the following statements. (SA-Strongly agree, A-Agree, UD-Undecided, DA-Disagree, SDA-Strongly disagree)

S. No.	Statements	SA	A	UD	DA	SDA
1	Start a firm and keep it working is very easy for me.					
2	I am prepared to start a viable business.					
3	I can control the creation process of new firm.					
4	I know the necessary practical details to start a new firm.					
5	I know how to develop an entrepreneurial project.					
6	If I tried to start a firm, I would have a high probability of succeeding.					

20. Entrepreneurial Intention:

State your degree of agreement or disagreement with the following statements (SA-Strongly agree, A-Agree, UD-Undecided, DA-Disagree, SDA-Strongly disagree)

Sl. No	Statements	SA	A	UD	DA	SDA
1	I am ready to do anything to be an entrepreneur.					
2	My professional goal is becoming an entrepreneur.					
3	I will make every effort to start and run my own business.					
4	I am determined to create a business in near future.					
5	I have very seriously thought in starting a firm.					
6	Being an entrepreneur has more advantages than disadvantages to me.					
7	A career as entrepreneur is attractive to me.					
8	If I had opportunity and resources, I would like to start a firm.					
9	Being an entrepreneur entail great satisfaction for me.					
10	Among various options, I would be rather entrepreneur					

21. Entrepreneurial Needs:

State your degree of agreement or disagreement with the following statements (SA-Strongly agree, A-Agree, UD-Undecided, DA-Disagree, SDA-Strongly disagree)

S. No.	Statements	SA	A	UD	DA	SDA
1	I try very hard to improve on my past performance at work.					
2	I enjoy competing and winning.					
3	I often find myself talking to those around me about non-work matters.					
4	I enjoy a difficult challenge.					
5	I enjoy bringing change.					
6	I want to be liked by others.					
7	I want to know how I am progressing as I complete tasks.					
8	I confront people who do things I disagree with.					
9	I tend to build close relationship with my co-workers					
10	I enjoy setting and achieving realistic goals.					
11	I enjoy influencing other people to get my way.					
12	I enjoy belonging to groups and organizations.					
13	I enjoy the satisfaction of completing a difficult task.					
14	I often gain more control over the events around me.					
15	I enjoy working with others than working alone.					

IV. ABOUT THE EDP TRAININGS FROM KVK:

1. Training programmes attended at KVK:

Name of the KVK:

Sl. No.	Training programme Title	Year and month of trainings	Duration of trainings	Main course content areas

Total number of training programmes attended:

2. How the training programme attended by you at KVK helped you?

3. What are all the information provided in the training programmes

a.
b.
c.
d.

4. Adoption of technology from training:

Please indicate your response in appropriate alternatives by putting a tick (FA-Fully adopted, PA-Partially adopted, DE-Disenchantment, NA-Not adopted)

Sl. No.	Items	FA	PA	DE	NA
	Mushroom cultivation				
1.	Mushroom production				
2.	Spawn production				
3.	Value addition of mushroom				
4.	Spent composting				
	Value addition				
1.	Value addition of fruits				
2.	Value addition of vegetables				
3.	Storage and packaging techniques				
4.	Quality control measures				
	Apiculture				
1.	Apiary management				
2.	Honey extraction				
3.	Value addition of honey				
4.	Bee keeping equipments				

5. **Name of the enterprise started:**

6. **When did you start the enterprise:**

7. **Gap between training taken and starting of the enterprise:**

   What are the activities carried out during this period?

8. **Type of the enterprise:** Production/Business

9. **Product/ service:**

10. **Volume of the enterprise:**

    Production (No. of units):

    Business (investment):

11. **Employment gain:**

    Upto 130 days

    131 to 250 days

    Above 250 days

12. **Credit support:**

    Not available

    Partial

    Sufficient

13. **Any Subsidies/incentives received:**

14. **Product/services offered by KVK:**

15. **In your opinion the training undergone is..**.....

Highly effective	Effective	Not effective

16. Details of empowerment gain

Please indicate your response in appropriate alternatives by putting a tick

Sl. No.	Particulars	Before training			After training		
A.	Psychological empowerment	Low	Medium	High	Low	Medium	High
1.	Self confidence						
2.	Courage						
3.	Self reliance						
4.	Feeling of security						
B.	Social empowerment						
1.	Interaction with people outside the family						
2.	Participation in decision making						
3.	Possessing desired social status						
4.	Access to modern technology						
C.	Economic empowerment						
1.	Power to invest/save						
2.	Power to sale/purchase of produce						
3.	Operating personal account in bank						
4.	Participation in decision about marketing of produce						
D.	Political empowerment						
1.	Awareness of human rights						
2.	Awareness of legislation						
3.	Awareness of political institution						
4.	Awareness about laws						

17. Effectiveness of entrepreneurship development training programme:

Please give your degree of perception about effectiveness of the training aspects

Sl. No.	Perceptional factors	Degree of perception		
		SA (2)	A (1)	DA (0)
	Training output			
1	KVK training was need based			
2	KVK training increased knowledge on EDP			
3	KVK training helped to know new technologies			
4	KVK training helped to start entrepreneurship			
	Teaching quality			
1	KVK staffs are adequate to provide EDP trainings			
2	KVK staff taught in simple manner			
3	More number of SMS(other than KVK staffs) are needed to teach about EDP in KVK			
4	KVK staff mingled freely with trainees			
	Physical facilities			
1	Lecture hall			
2	Audio-visual aids			
3	Transport facilities			
4	Lodging facilities			
	Coverage of topics			
1	Production technology			
2	Manufacturing techniques of different products			
3	Knowledge on Technology upgradation			
4	Quality control and management			
5	Entrepreneurial motivation, business opportunities and guidance			
6	Financial management and credit support			
7	Marketing management			
8	Knowledge on subsidies, government schemes, support agencies and other linkages			

18. Training need of KVK EDP Trainees

(According to their type of enterprise- Mushroom/Apiculture/Value addition)

- **When did you attend the entrepreneurship training:**
  Before start of enterprise After start of enterprise
- **Usefulness of training received:**
  Very useful Useful Not useful at all
- **Are you interested for future training: Yes/No**
- **Please state about your training need**

19. Given below is the list of areas for trainings of entrepreneurs. Please specify the areas which should be most needed, needed or not needed in the training

Sl. No.	**Training areas in Mushroom EDP**	**Training need**		
		Most needed (3)	**Needed (2)**	**Not needed (1)**
1.	Cultivation technology of mushroom			
2.	Spawn production			
3.	Substrate preparation			
4.	Infrastructure requirement			
5.	Pest and disease management			
6.	Post harvest handling and value addition			
7.	Nutritive value of mushroom			
8.	Economics of mushroom			
9.	Packaging and marketing			
10.	Management of spent compost			

Sl. No.	Training areas in Apiculture EDP	Training need		
		Most needed (3)	Needed (2)	Not needed (1)
1.	Bee biology			
2.	Bee keeping aspects			
3.	Bee keeping equipments			
4.	Apiary management during different seasons			
5.	Bee enemy and disease management			
6.	Honey extraction and essential operations			
7.	Purity testing			
8.	Marketing and business of honey bees			
9.	Value addition of honey			
10.	Export of honey			

Sl. No.	Training areas in Value addition EDP	Training need		
		Most needed (3)	Needed (2)	Not needed (1)
1.	Production technology			
2.	Manufacturing and preservation techniques of different products			
3.	Procurement of raw materials			
4.	Technology upgradation			
5.	Advertising of products and brand promotion			
6.	Packaging and marketing techniques			
7.	Financial management and credit support			
8.	Quality control and management			
9.	Export promotion techniques			
10.	Hygiene, pollution control and environmental management			

ANALYSIS OF ENTREPRENEURSHIP DEVELOPMENT TRAININGS OF KRISHI VIGYAN KENDRAS (KVKs) IN KERALA

By

GAYATHRI B. R.

(2018-11-112)

Abstract of the thesis

Submitted in partial fulfilment of the

requirement for the degree of

Master of Science in Agriculture

Faculty of Agriculture

Kerala Agricultural University, Thrissur

DEPARTMENT OF AGRICULTURAL EXTENSION

COLLEGE OF HORTICULTURE

VELLANIKKARA, THRISSUR – 680656

KERALA, INDIA

2020

ABSTRACT

Recent years have seen the emergence of Entrepreneurship development programmes (EDP) as a major extension intervention for income and employment generation in agriculture and allied sectors. Both government and non-government organizations are working towards organizing EDP in agricultural sector of which, Krishi Vigyan Kendras (KVKs) assumed great significance. KVKs are the first line transfer of technology (TOT) centres of the Indian Council of Agricultural Research (ICAR). They served as nodal agricultural resource centres at the district level, and had significant role in farmers' socio-economic development.

It was in this pretext, the present study was undertaken to analyse the perceived entrepreneurial needs of KVK trainees, to evaluate the extent to which the entrepreneurial development training modules met the needs of the trainees, to delineate the factors affecting the effectiveness of entrepreneurship development trainings and evolve recommendations for improving the entrepreneurship development training programs of KVKs. The inputs from the results of the study can be used to improve the EDP trainings of KVKs and in turn ensure sustainable agricultural development.

All the 14 districts of Kerala had a KVK which worked under different host organizations viz. Kerala Agricultural University (KAU), Indian Council of Agricultural Research (ICAR) and Non-governmental organizations (NGOs). Among the 14 KVKs a total of 5 KVKs (2 KAU KVKs, 2 ICAR KVKs and 1 NGO KVK) to represent southern, central and northern regions of the state were selected for the study. Random sampling was followed in each region to select KVK, Kasaragod (ICAR) and KVK Malappuram (KAU) from northern region, KVK, Alappuzha (ICAR) and KVK, Kottayam (KAU) from central and KVK Trivandrum (NGO) from the southern region. Respondent selection also followed random sampling technique to select 20 EDP trainees from each of the selected KVKs to make a total sample of 100 trainees.

The results on the profile of KVK EDP trainees showed that majority (47%) of the respondents belonged to the middle age group (36 to 50 years) and 60 per cent of

them had acquired high school level of education while 34.00 per cent of them possessed educational qualification up to college level.

The perceived entrepreneurial needs of KVK trainees quantified using Training Need Index (TNI) indicated highest training need for packaging and marketing (TNI=91.10) followed by value addition (TNI =90) in mushroom EDP. Apiculture trainees had honey extraction and essential operations (TNI =90) followed by marketing and business of honey (TNI =86.60) as the most sought after areas in apiculture EDP. Technology upgradation (TNI=92.5) and packaging and marketing techniques (TNI=88.33) were the areas that showed maximum need for training in value addition EDP. Further Kruskal-Wallis test performed to compare the training need of EDP trainees from different KVKs showed that there was no significant difference in the TN among the trainees. The results of content analysis to delineate the extent to which the entrepreneurial development training modules met the needs of the trainees revealed that though the training content and the training need coincided with respect to some areas, there were many areas that needed concerted attention. Moreover, the duration of coverage of topics in the different modules needed reorientation so that more time is allotted to subjects based of the training need.

The effectiveness of EDP trainings quantified using Training Effectiveness Score (TES) showed that the KVK EDP trainees perceived that the training output, quality of teaching and coverage of topics were effective. However, the physical facilities provided by the KVKs were perceived as not sufficient. The overall training effectiveness score of the EDP training programmes was worked out to be 79.45.Kruskal-Wallis test performed to compare the perceived effectiveness scores of EDP trainings showed that there was no significant difference among the KVKs in training effectiveness.

Age, educational status, land holding, annual income, extension contact, mass media exposure, employment gain, adoption of technology from training, credit support and entrepreneurial attributes of the trainees had a positive and significant correlation with training effectiveness. In order to categorize these influential

variables into specific dimensions of training effectiveness Principal Component Analysis (PCA) analysis using covariance matrix was carried out. The results of PCA revealed that the entrepreneurial attributes of trainees, technology adoption and stable economic base of enterprise were the dimensions that could influence the training effectiveness in entrepreneurship development programs. Therefore, in order to improve the effectiveness of EDP trainings, the KVKs must devise strategies taking these factors into consideration.

The recommendations for improving the EDP trainings based on the study included the design and use of technology integrated online tools for effective training need assessment, integration of long term skill needs such as market analysis, supply chain and business management in the EDP module, design of management skill modules as integral part of all EDP training and induction of curriculum based Farm Business School (FBS) models in EDP trainings. Another suggestion included the use of specific entrepreneurial quality assessment scales in the selection of trainees and also providing trainees an opportunity to select a combination of training programmes to accumulate their portfolio of skills in entrepreneurship development and value chain management. PRAXIS model of experiential learning recommended for KVK-EDP trainings.