GENDER PARTICIPATION AND DECISION MAKING IN SERICULTURE: A STUDY IN RAMANAGARA DISTRICT OF KARNATAKA STATE

SHIVANANDAGOWDA, G.R.

PAMB 0154

DEPARTMENT OF AGRICULTURAL EXTENSION
UNIVERSITY OF AGRICULTURAL SCIENCES
BANGALORE

2022

GENDER PARTICIPATION AND DECISION MAKING IN SERICULTURE: A STUDY IN RAMANAGARA DISTRICT OF KARNATAKA STATE

Thesis submitted to the

University of Agricultural Sciences, Bangalore

In partial fulfillment of the requirements for the Degree of

Master of Science (Agriculture)

in

AGRICULTURAL EXTENSION

By

SHIVANANDAGOWDA, G.R.

PAMB 0154

UNIVERSITY OF AGRICULTURAL SCIENCES BANGALORE

2022

DEPARTMENTOF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE, GKVK, BENGALURU
UNIVERSITY OF AGRICULTURAL SCIENCES
BANGALORE

CERTIFICATE

This is to certify that the thesis entitled "**Gender Participation and Decision making in Sericulture: A Study in Ramanagara district of Karnataka state"** submitted in partial fulfillment of the requirements for the degree of **Master of Science (Agriculture)** in **Agricultural Extension** to the University of Agricultural Sciences, Bangalore is a record of *bona fide* research work carried out by **SHIVANANDAGOWDA,G. R., PAMB 0154** during the period of his study in this University, under my guidance and supervision. The Thesis has not previously formed the basis for the award of any degree, diploma, associateship, fellowship or other similar titles.

(M.T. LAKSHMINARAYAN)
Major Advisor

Bengaluru
December, 2022

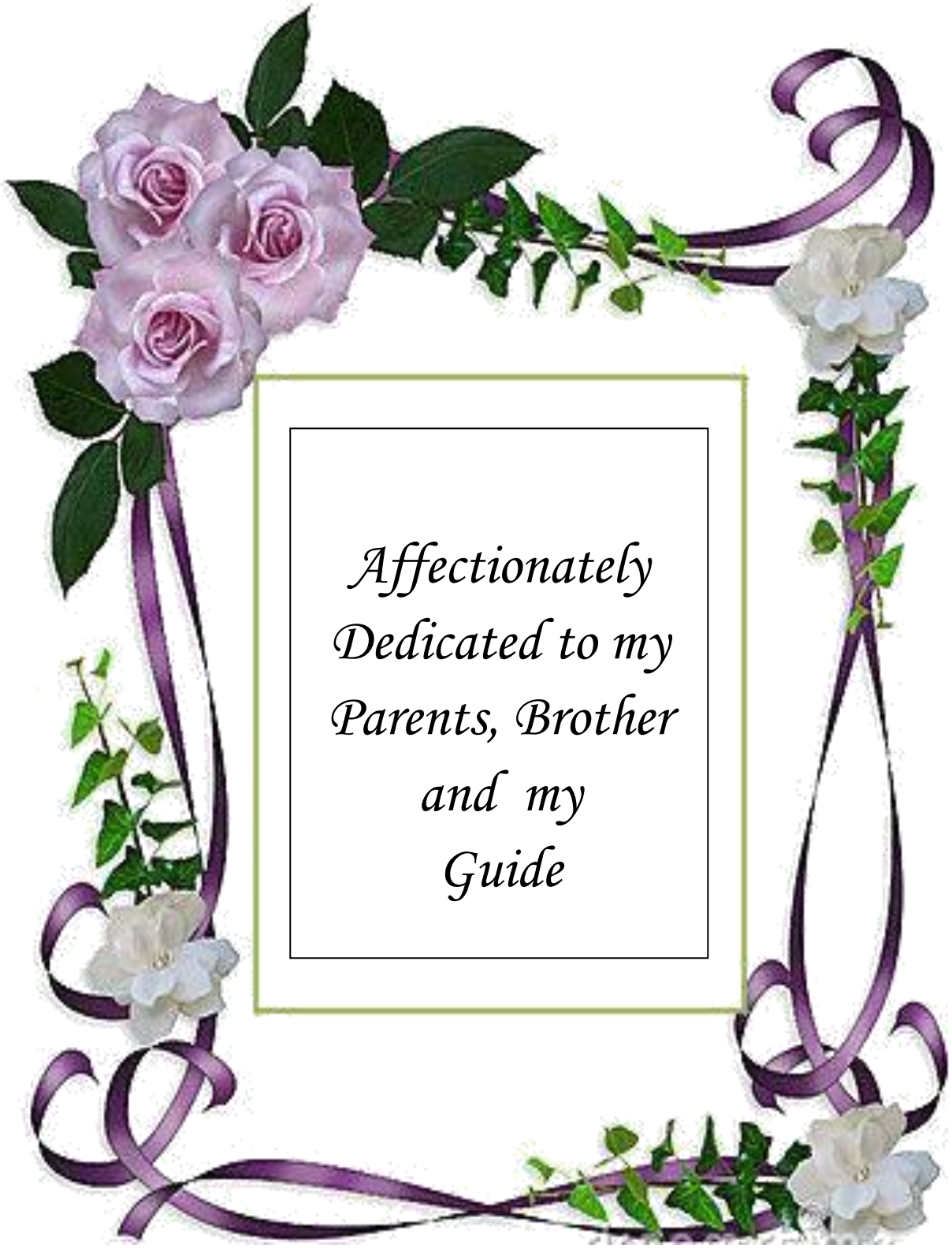
Approved by:

Chairperson : **(M.T. LAKSHMINARAYAN)**

Members : 1. **(K.G. BANUPRAKASH)**

: 2. **(K.S. VINODA)**

: 3. **(VINAY KUMAR)**


Affectionately
Dedicated to my
Parents, Brother
and my
Guide

ACKNOWLEDGEMENT

In every one's life, the day arises when one has to shape the feelings in words. Sometimes, the words become unable to express the feelings of the mind, because the feelings of heart are beyond the reach of the words. When, I come to complete this manuscript, so many memories have rushed through my mind which is full of gratitude to those who encouraged and helped me at various stages of this research. It gives me immense pleasure to record my feelings at this place.

I wish to express my sincere gratitude and respect to Dr. M. T. Lakshminarayan, Associate Professor of Agricultural Extension and Assistant Controller of Examinations, University Examination Centre, University of Agricultural Sciences, GKVK, Bengaluru for his esteemed stewardship, enabling guidance, cherishable counselling and personal affection for which I am greatly indebted to him. It was really a great pleasure and privilege for me to be associated with him during my M. Sc. Degree Programme.

It gives me an immense pleasure to express my heartfelt thanks to the members of my Advisory Committee, Dr. K. G. Banuprakash Associate Professor of Sericulture and Scientific Officer Directorate of Post Graduate Studies, University of Agricultural Sciences, Bengaluru, Dr. K. S. Vinoda Assistant Professor Department of Sericulture, University of Agricultural Sciences, Bengaluru, and Dr. R Vinay Kumar Assistant Professor (Agricultural Extension), Project Planning and Monitoring cell, University of Agricultural Sciences, Bengaluru, for their valuable counsel, noteworthy guidance and cordial cooperation during the course of investigation.

I thank all the teachers of the Department of Agricultural Extension, University of Agricultural Sciences, GKVK, Bengaluru, for their valuable suggestions and support during the degree programme.

The thesis must surely bear the imprint of the love and affection showered on me by my family members. I am greatly beholden of vocabulary and owe deep sense of honour to my beloved parents Sri. Rajegowda and Smt. Bharathi, younger brother Sadanandagowda for their endurance, abundant love and affection, moral encouragement, constant support and personal sacrifice during the academic career.

I avail this opportunity to sincerely thank my dearest classmates Sidram Pyati, Raghavendra, Nagesh, Suraj, Vinod, Ravi, Shivangowda, Praveen, Thoufiq, Vinay, Manjunath, Shridhar, Deepa, Gunashree, ChavaArundathi, Gouthami, Reshma and Tejashree for their lovely friendship, help and care and for making the two years study more enjoyable and memorable. I also thank my co- batchmates Manoj, Siddaramesh and Santhosh for their encouragement and support in completing my study.

On a personal note, I am thankful to my seniors Dr. Prethi, Jagadhish, D.K Suresh, Chandangowda, Dharma Raj, Rajesh, Chaitra, Abhishek Jadav, Prahalad Bhat and Junior Gajanand for their constant support, words of encouragement and timely help.

My cordial thanks to Mr. Subramani and Mr. Chethan, for their support and help they offered during data collection in Ramanagara district.

I am overwhelmed with gratitude to the farmers and their family members without whose whole hearted co-operation, this study would not have been completed.

BANGALORE **(SHIVANANDAGOWDA)**

December, 2022

Decision Making Pattern of Farm Men and Women in Silkworm Rearing Practices

SHIVANANDAGOWDA G R, PAMB 0154

DEPARTMENT OF AGRICULTURAL EXTENSION

UNIVERSITY OF AGRICULTURAL SCIENCES, GKVK, BENGALURU-560065

INTRODUCTION

Sericulture is an agro-based industry, which is suitable for rural-based farmers, entrepreneurs, and artisans. Sericulture industry in the country provides employment to approximately eight million persons in rural and semi-urban areas. Of these, a sizeable number of workers belong to economically weaker sections of the society, including women. Sericulture can generate employment up to 11 persons for every one kg of raw silk produced. Out of which, more than six persons are women and the others are farm men.

In this back-drop, the present study is carried out with following specific objectives.

OBJECTIVES

1. To analyse the decision making pattern of farm men and women in silkworm rearing practices.
2. To know the extent of extension agency contact of farm men and women

METHODOLOGY

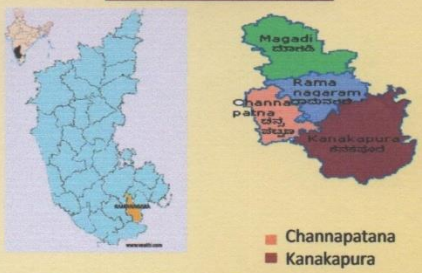
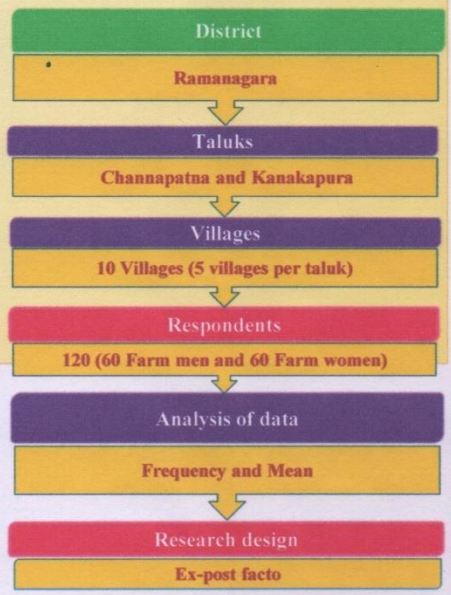


Fig. 1: Map indicating the study area



RESULTS

Table 1: Decision making pattern of farm men and women in silkworm rearing practices **(n=120)**

Sl. No.	Silkworm rearing practices	Farm men (%)	Farm women (%)	Both (%)
1.	Use of disinfectants	45.00	20.00	35.00
2.	Temperature maintenance at rearing house	85.00	10.00	5.00
3.	Relative humidity maintenance at rearing house	80.00	10.00	10.00
4.	Selection of silkworm breed	95.00	0.00	5.00
5.	Feeding of silkworms	12.50	47.50	40.00
6.	Bed spacing	20.00	10.00	70.00
7.	Bed cleaning	0.00	90.00	10.00
8.	Moulting care	22.50	32.50	45.00
9.	Pest management	65.00	10.00	25.00
10.	Disease management	60.00	10.0	30.00
11.	Cocoon harvesting	26.66	10.00	63.34
12.	Transportation & marketing of cocoons	60.00	20.00	20.00

DISCUSSION

Table 1 reveals that decisions on selection of silkworm breeds (95%), maintanance of temperature (85%) and relative humidity (80%) at rearing house (80%), pest management (65%), disease management (60%) and transportation and marketing of cocoons (60%) were taken exculsively by farm men alone. While, an overwhelming majority of 'farm women alone' had taken decision on the bed cleaning (90%). The decisions on bed spacing (70%) and cocoon harvesting (63.34%) were taken by both farm men and women, while decisions on moulting care (45%) and use of disinfectants (35%) were taken by more than one-third of both farm men and women. .

Farm women deliberately do not take part in decision making because men put blame on them if something goes wrong. Lack of knowledge on the silkworm rearing practices among farm women might be also the reason for the farm men for not involving farm women in making decisions.

It is observed from Fig 2. that Sericulture Assistants, Sericultural Extension officers, University scientists and Private input dealers were the sources consulted for obtaining information on silkworm rearing practices by both farm men and women.

GRAPH AND PHOTOGRAPHS

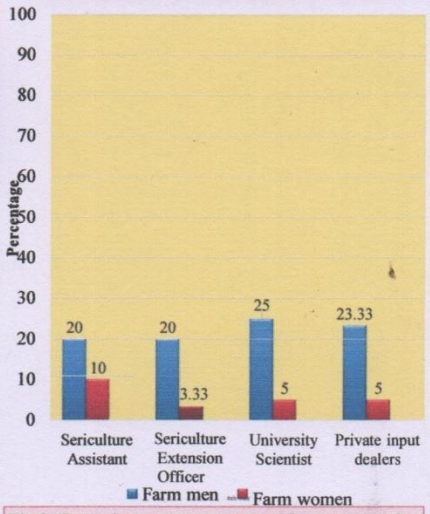


Fig 2. Extension agency contact of farm men and women.

Fig 3. Data collection by researcher

SUMMARY

It could be inferred from the study results that farm women are not considered in the forefront when it comes to decision making with respect to silkworm rearing practices. Therefore, the Sericulture extension personnel and University scientists should educate the farm men to encourage women in the decision making process and also it should motivate farm women to involve in decision making and participate actively in silkworm rearing practices.

Hence, both farm men and women can profitably engage themselves in silkworm rearing practices.

ADVISORY COMMITTEE

Chairperson: Dr.M.T.Lakshminarayan

Members: Dr.K.G.Banuprakash
Dr.K.S.Vinoda
Dr.R.Vinaykumar

GENDER PARTICIPAITON AND DECISION MAKING IN SERICULTURE: A STUDY IN RAMANAGARA DISTRICT OF KARNATAKA STATE

SHIVANANDAGOWDA G.R.

ABSTRACT

The present study was undertaken in Kanakapura and Channapatana taluks of Ramanagara district in Karnataka state to analyze the gender participation and decision making pattern in sericulture technologies. Sixty farm men and 60 farm women formed the sample of the research study. The results revealed that farm men (63.34%) were belonging to high decision category, while 20.00 and 16.66 per cent of a majority of farm men were belonging to medium and low decision category of sericulture technologies, respectively. In respect of women, a majority were belonging tolow decision category (60.00%) followed by 26.66 and 13.34 per cent of farm women belonging to medium and high decision category, respectively.

Forty-five per cent of farm men were having high level of participation in sericulture activities, while 30.00 per cent and one-fourth (25.00%) of farm men were having medium and low level of participation. More than one-thirdof farm women(35.00%) were having medium level of participation followed by one-third (33.34%) and 31.66 per cent of farm women werehaving high and low level of participation in sericulture activities. Further, the results revealed that age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, attitude towards sericulture, farming commitment, economic motivation, training in sericulture, extension agency contact, extension participation, mass media exposure, and farm scientist contact of both farm men and women had significant association with their decision making and participation level.

December,2022

Department of Agricultural Extension (Lakshminarayan. M.T.)
UAS,GKVK, Bangalore-65Major Advisor

gÉÃµÉäPÀÈ¶AiÀÄ°è °AUÀvÀé ¨sÁUÀªÀ»¸ÀÄ«PÉ ªÀÄvÀÄÛ vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ
wÃªÀiÁð£À:
PÀ£ÁðlPÀgÁdåzÀgÁªÀÄ£ÀUÀgÀf¯ÉèAiÀÄ°èMAzÀÄCzsÀåAiÀÄ£À
²ªÁ£ÀAzÀ UËqÀf.Dgï.
¸ÁgÁA±À

¥Àæ¸ÀÄÛvÀCzsÀåAiÀÄ£ÀªÀ£ÀÄßgÉÃµÉä PÀÈ¶ ZÀlÄªÀnPÉUÀ¼À°è °AUÀvÀé ¨sÁUÀªÀ»¸ÀÄ«PÉ ªÀÄvÀÄÛwÃªÀiÁð£À vÉUÉzÀÄ¼ÉÆ¼ÀÄî«PÉAiÀÄ£ÀÄß CxÉÊð¹PÉÆ¼Àî®Ä PÀ£ÁðlPÀgÁdåzÀgÁªÀÄ£ÀUÀgÀf¯ÉèAiÀÄPÀ£ÀPÀ¥ÀÄgÀ ªÀÄvÀÄÛZÀ£Àß¥ÀlÖt vÁ®ÆPÀÄUÀ¼À°è PÉÊUÉÆ¼Àî¯Á¬ÄvÀÄ. F ¸ÀA±ÉÆÃzsÀ£ÉUÉCUÀvÀåªÁzÀ ªÀiÁ»wAiÀÄ£ÀÄß 120 gÉÊvÀjAzÀ (60 gÉÊvÀgÀÄ ªÀÄvÀÄÛ 60 gÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀÄ) ¸ÀAUÀæ»¸À¯Á¬ÄvÀÄ.

F CzsÀåAiÀÄ£À¢AzÀPÀAqÀÄ§AzÀAvÉ±ÉÃPÀqÁ63.34 gÀµÀÄÖgÉÊvÀgÀÄC¢üPÀ ¥ÀæªÀiÁtzÀ°èwÃªÀiÁð£À vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ ªÀUÀðPÉÌ ¸ÉÃjzÀÝgÀÄ, DzÁUÀÆåPÀæªÀÄªÁV ±ÉÃPÀqÁ 20.00 ªÀÄvÀÄÛ ±ÉÃPÀqÁ16.66 gÀµÀÄÖgÉÊvÀgÀÄ ªÀÄzsÀåªÀÄ ªÀÄvÀÄÛPÀrªÉÄ ªÀÄlÖzÀ°èwÃªÀiÁð£À vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ ªÀUÀðPÉÌ ¸ÉÃjgÀÄvÁÛgÉ. EzÀgÀAvÉ, ºÉZÀÄÑ gÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀÄ ±ÉÃPÀqÁ 60.00 gÀµÀÄÖPÀrªÉÄ ¥ÀæªÀiÁtzÀ°èwÃªÀiÁð£À vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ ªÀUÀðPÉÌ, PÀæªÀÄªÁV ±ÉÃPÀqÁ26.66 ªÀÄvÀÄÛ13.34 gÀµÀÄÖgÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀÄ ªÀÄzsÀåªÀÄ ªÀÄvÀÄÛPÀrªÉÄ ªÀÄlÖzÀ°èwÃªÀiÁð£ÀªÀ£ÀÄß vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ ªÀUÀðPÉÌ ¸ÉÃjzÁgÉAzÀÄ ¥sÀ°vÁA±À¢AzÀPÀAqÀÄ §A¢gÀÄvÀÛzÉ.

±ÉÃPÀqÁ45.00 gÀµÀÄÖgÉÊvÀgÀÄ, gÉÃµÉä PÀÈ¶ ZÀlÄªÀnPÉUÀ¼À°è C¢üPÀ ¥ÀæªÀiÁtzÀ°è ¨sÁUÀªÀ»¸ÀÄwzÀÄÝ, ±ÉÃPÀqÁ30.00 ªÀÄvÀÄÛ £Á®Ì£ÉÃ MAzÀÄ ¨sÁUÀgÀµÀÄÖgÉÊvÀgÀÄ (25.00%) ªÀÄzsÀåªÀÄ ªÀÄvÀÄ ÛPÀrªÉÄ ªÀÄlÖzÀ°è ¨sÁUÀªÀ»¸ÀÄwzÀÝgÀÄ. ªÀÄÆgÀ£ÉÃMAzÀQÌAvÀC¢üPÀgÀµÀÄÖgÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀÄ (35.00%) ªÀÄzsÀåªÀÄ ªÀÄlÖzÀ°è ºÁUÀÆ PÀæªÀÄªÁV±ÉÃPÀqÁ33.34 ªÀÄvÀÄÛ ±ÉÃPÀqÁ31.66 gÀµÀÄÖgÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀÄ C¢üPÀ ªÀÄvÀÄÛPÀrªÉÄ ªÀÄlÖzÀ°è ¨sÁUÀªÀ»¸ÀÄwzÁÝgÉAzÀÄ¥Àæ¸ÀÄÛvÀCzsÀåAiÀÄ£À¢AzÀ¸ÀàµÀÖªÁVzÉ.
ªÀÄÄAzÀÄªÀgÉzÀÄ, ªÀAiÀÄ¸ÀÄì, «zÁå¨sÁå¸À, gÉÃµÉäPÀÈ¶AiÀÄ°è£ÀC£ÀÄ¨sÀªÀ, £Á«£ÀåvÉ, ¸ÁzsÀ£ÉAiÀÄ ¥ÉæÃgÀuÉ, ¤ªÀðºÀuÉzÀÈ¶ÖÖPÉÆÃ£À, C¥ÁAiÀÄzÀzÀÈ¶ÖÖPÉÆÃ£À, gÉÃµÉä PÀÈ¶ PÀqÉUÉ ªÀvÀð£É, PÀÈ¶ §zÀÝvÉ, DyðPÀ ¥ÉæÃgÀuÉ, gÉÃµÉäPÀÈ¶AiÀÄ°èvÀgÀ¨ÉÃw, «¸ÀÛgÀuÁ ¸ÀA¸ÉÜÀ¼À ¸ÀA¥ÀPÀð, «¸ÀÛgÀuÁZÀlÄªÀnPÉAiÀÄ°è ¨sÁUÀªÀ»¸ÀÄ«PÉ, ¸ÀªÀÄÆºÀ ªÀiÁzsÀåªÀÄzÀ ªÀiÁ£ÀåvÉ, PÀÈ¶ «eÁÕ¤ ¸ÀA¥ÀPÀð EªÀÅUÀ¼ÀÄ gÉÊvÀ ªÀÄvÀÄÛgÉÊvÀ ªÀÄ»¼ÉAiÀÄgÀwÃªÀiÁð£À vÉUÉzÀÄ¼ÉÆ¼ÀÄîªÀ ªÀÄvÀÄÛ ¨sÁUÀªÀ»¸ÀÄ«PÉAiÀÄ ªÉÄÃ¯É UÀªÀÄ£Á¤Àð ¥Àæ¨sÁªÀ«zÉJAzÀÄ w½zÀÄ §A¢gÀÄvÀÛzÉ.

r¸ÉA§gï, 2022
PÀÈ¶ «¸ÀÛgÀuÁ «¨sÁUÀ (®Qëöä£ÁgÁAiÀÄt.JA.n)
PÀÈ.«.«., UÁ.PÀÈ.«.PÉÃA., ¨ÉAUÀ¼ÀÆgÀÄ-65 ¥ÀæzsÁ£À
¸À®ºÉUÁgÀgÀÄ

CONTENTS

LIST OF TABLES

LIST OF FIGURES

I INTRODUCTION

Sericulture is a big industry that spans a variety of agricultural, artistic, and technological fields, as well as textiles. It is valued as an agricultural industry by rural and resource-constrained farmers who cultivate mulberry and rear silkworms, but it is also viewed as a financial venture by other stakeholders. Since sericulture is a multipurpose agro-based industrial sector that serves all types of people worldwide, it appears to provide answers to the majority of concerns when most farmers have limited production resources, such as land and funds to spend on agriculture. Next to China, India is the second-largest producer of raw silk in the world. India produced 34900 MT of raw silk during the year 2020–21. India was the world's largest consumer of raw silk as well as it is a greatest importer. Majority of the country's silk is produced in Karnataka, Andhra Pradesh, Assam, Bodoland, West Bengal, Jharkhand, and Tamil Nadu. In all these states mulberry sericulture is primarily practised by the people.

Sericulture is a high-yielding and highly profitable enterprise which offers regular and all-year-round attractive returns in the country's tropical states. When a farmer has one acre of mulberry plantation and uses family labour, the net returns are projected to be around Rs 48,000/. This is significantly more than that of other tropical crops. Moreover, nothing is wasted in sericulture, where its by-products are used for various purposes. Cattle eat the leaves and shoots of mulberry that the silkworms leave behind, which boosts their milk production. Thepupae are used to make dog treats like oil and biscuits. The bakery and soap industries can both benefit from the protein powder and oil that can be recovered from dead pupae, besides it is a rich food source for pigs, fish, and fowl. Excreta from silkworms could be used as manure. The sensible use and disposal of these by-products aids sericulturists in maximising their financial rewards and it is reported that an acre of irrigated mulberry can produce up to one lakh rupees annually through the sale of cocoons,besides providing full employment to at least five people

Sericultural operations are typically limited to small or medium scale due to labour-intensive nature and individualised care is required for silkworm rearing operations, with most of the mulberry holdings in India ranging from 0.5 acres to 2 acres. Large-scale or commercial farming is now economically viable and popular, particularly among progressive farmers and educated people. This is because improved technologies developed by the country's research

institutes have increased crop stability and reduced the labour dependence of silkworm rearing operations significantly. Large-scale sericultural cultivation is thought to be distinguished by high productivity, cost effectiveness, and quality. The generation of cocoons is regarded as sericulture's key output, increasing farmers' income and serving as a source of raw materials for the silk industry. In addition to cocoons, which are the main product of the silk industry, there are a variety of useful secondary products, such as moths, trash, and proteins from silkworms that can be processed for use in animal feed. By putting money into sericulture, about 30 million families worldwide will benefit.

Rural women shoulder a lot of responsibility and carry out a variety of tasks, including managing the family, keeping the house in order, attending to farm work, carrying out a number of farm tasks, caring for domestic animals, and lending a helping hand in rural artisanship and handicrafts. However, their economic contribution has not been acknowledged. This condition is prevalent practically everywhere in poor nations. In India, women's enormous contribution to household food security is largely unrecognized. However, according to the Food and Agriculture Organization, "women produce between 60 and 80 percent of the food in most developing nations and are responsible for producing half of the world's food supply. “Even though majority of women in India's economy work in agriculture, most of them lack access to land. "Our society says that only men can be farmers”.

Women are heavily active in agriculture as co-owners, employees, family farm workers, and female farm managers. Women make up about 38 per cent of the family workers in agriculture. The core of our nation's agricultural labour force are what are known as "invisible farmers." They carry out the most laborious tasks in agricultural production and actively participate as partners in almost all unit operations, splitting the work between them in the range of 20 to 80 percent. They help with most agricultural tasks, such as fertilizing, preparing the land, planting setts, transplanting, weeding, applying fertilizer, harvesting, and so on. The contribution produced by farm women is largely what determines whether a farm succeeds or fails. However, despite the fact that they make a considerable contribution to local and community development, they still play a minor part in decision-making and share a different jobs and obligations in both on-and off-farm activities.

Since housewives are mainly responsible for managing household affairs, they play a significant part in the decision-making process in the farming sector as well. Their dissatisfaction with the meagre resources available to them motivates them to persuade the male family members to adopt cutting-edge techniques and high-yielding plant varieties, which will enable them to enhance their farm income. It is found that, there is still a male predominance in familial and economic decision-making. Despite their active participation and substantial contributions, they have not received the proper acknowledgement and are disregarded during the decision-making process. Farm women are key decision-makers in a variety of farm tasks. Some decisions are made by farm women alone, some are made by farm men alone, some are made jointly by farm men and women, and others are made with family members. When making decisions, farm women's thoughts and opinions should also be considered.

In most homes, women take care of both domestic chores and silkworm rearing tasks, including chopping leaves, making beds, feeding silkworms, maintaining personal cleanliness, selecting ripe worms, mounting them, and so forth. According to calculations, out of the 4,225 labour days produced annually by all sericulture activities per hectare of irrigated mulberry, 2,575 work days, or almost 60 per cent are generated by women. Sericulture offers opportunities for women to participate directly in the production process and decision-making for bettering their economic circumstances and to elevate their status within the family and community.

Due to their unique work ethic, women are generally favoured in sericulture. They work on a grainage, a silkworm farm, or a mulberry garden. Their role in post-cocoon technologies, starting with the silk reeling, weaving, and clothing manufacturing industries, is larger. According to recent studies, 10 million people rear silkworms; half a million people work in the silk industry; and Asia is the world's top silk-producing continent, accounting for 95 per cent of the world's total output. Fifty-eight countries produce silk, with China, India, Japan, Brazil, and Korea among the top producers. For every kilogramme of raw silk produced, sericulture can also create up to six jobs to women out of 11 new jobs.

The sericulture business employs about eight million people in semi-urban and rural areas in India. A sizable portion of these employees are drawn from the economically underprivileged groups of society, including women. Sericulture is a profession performed by and for women because women perform more than 60 per cent of the labour and consume 80 per cent of the silk.

In this backdrop, it is essential to analyse the knowledge, decision making pattern and participation level of farm men and women in sericulture technologies, hence the present study is carried out with the following specific objectives:

1. To assess the knowledge level of farm men and women regarding recommended sericulture technologies
2. To analyse the decision making pattern of farm men and women in sericulture technologies
3. To study the extent of participation of farm men and women in sericulture activities
4. To understand the association of profile characteristics of farm men and women with their knowledge, decision making and participation level
5. To document the drudgeries faced by farm men and farm women in sericulture activities

Hypothesis of the study

1. There is no difference in the knowledge level in sericulture technologies between farm men and women.
2. There is no difference in the decision-making pattern in sericulture technologies between farm men and women.
3. There is no difference in the extent to which farm men and women participate in sericulture technologies.
4. There is no association between the profile characteristics of farm men and women and their knowledge, decision making and participation in sericulture technologies /activities.

Scope of the research

The research study allows to analyse the knowledge, decision-making pattern and participation in sericulture technology among the farm men and women. The study will shed light on the finding the association and extent of contribution of the profile characteristics of farm men and women on their knowledge, decision making pattern and participation level in sericulture technologies/activities. This study will help in identifying the manipulable independent variables (profile characteristics of respondents) for improving/bettering the knowledge, decision making, and participation in sericulture technologies/activities. Furthermore, the research findings of the

study aid in the identification of drudgery-related activities in mulberry cultivation and silkworm rearing by both farm men and women.

Limitations of the study

Due to the student researcher's limited time and other resources, the research study was limited to only two taluks in Ramanagar district of Karnataka state. Furthermore, the respondents' expressed opinions on the study's various issues may be tainted by personal bias and prejudice. As a result, the study findings cannot be extrapolated beyond the scope of the research.

The research study has been designed as an ex-post-facto design, hence the problem of recall by the sericulturists cannot be ruled out. The present study is formulated as a part of the postgraduate degree programme. The constraints of time, funds, and other resources are inevitable. This limitation also determined the restricted purposive selection of one district. Hence, the generalisation of results can be applied to the wider context only where a similar situation prevails. Though care was taken to collect and interpret the relevant information, there could be some distortion in the interpretation of the responses. The opinion of the respondents may also not be free from an individual’s biases and prejudices.

Presentation of the study

The thesis is divided into six chapters. The first chapter is devoted to the "Introduction’, wherein the objectives, score and limitations of the research study are presented. The second chapter, "Review of Literature," deals with the review of previous research findings relevant to the study in light of the current investigation. The third chapter delves into the "methodology" employed during the investigation process. This chapter discusses the study area, the sampling procedure, the quantification of the variables chosen for the study, the statistical tests used, and so on. The fourth chapter contains the study's "Results and Discussion’, wherein the reasons for the study results are highlighted. The fifth chapter ‘Summary” briefs about the importance of the research problem, methodology, salient findings, implications and future line of work. The sixth and the last chapter indicate the ‘References’ followed by the ‘Appendices’.

II REVIEW OF LITERATURE

A brief review of literature is an integral part of any investigation, as it not only gives an idea on the work done in the past, but also provides the basis of interpretation and discussion of the findings. A brief review of the earlier research work relating to the objectives of the present study is presented under the following headings.

2.1 Profile characteristics of farmers

2.2 Knowledge of farmers regarding improved cultivation practices

2.3 Decision making pattern of farmers in agriculture and allied activities

2.4 Extent of participation of farmers in agriculture and allied activities

2.5 Association between profile characteristics of farmers with their knowledge, decision making and participation in agriculture and allied activities

2.6 Drudgeries faced by farmers is agriculture and allied activities

2.1 Profile characteristics of farmers

2.1.1 Age

Morwal*et al.* (2019) observed that majority of the pomegranate growers (52.00%) were in the middle age group, while 26.00 per cent of them were in the young age group and the remaining 22.00 per cent of the respondents were belonging to old age group.

Rahul (2021) reported that 35.00 per cent of the rose cut flower growers were of middle age, followed by 45.00 and 20.00 of them were of young and old age, respectively.

Shinde Rohini Sharad *et al.* (2021) reported that a majority of the pomegranate growers were of middle aged (60.00%), followed by an equal proportion of them (20.00%) each were of young and old age.

Sampraja (2022) reported that 51.11 per cent of the farmers belonged to middle aged group, followed by 43.33 per cent belonged to young aged and the remaining 6.67 belonged to old aged group.

Sathish (2022) reported that a considerable percentage of redgram growers (46.67%) were in the middle age group, followed by 36.67 per cent in the old age group, and theremaining 16.66 per cent in the young age group

2.1.2 Education

Manjunath and Bai (2019) observed that one-fourth of the mango growers (25.00 %) had studied upto high school education and 22.50 per cent of the respondents had studied up to middle school. Whereas, 20.83 per cent of the respondents were illiterates, followed by 1.66 per cent of the respondents had studied up to primary school, 12.50 per cent had studied up to higher secondary education and the remaining 17.51 per cent of the respondents had completed graduation.

Mishra (2019) reported that 32.50 per cent of the banana growers had completed middle school education, whereas 22.50, 12.50, 10.83 and 7.50 per cent had studied upto primary school, high school, higher secondary and graduation, respectively. Further, as many as 14.17 per cent of the respondents were illiterates.

Samantaray*et al.* (2019) observed that a little more than one-third of the mango growers (33.65%) had studied matriculation and above, while 48.09 per cent of the respondents had studied up to primary school. It was also observed that 18.26 per cent of the respondents were illiterates.

Sampa*et al.* (2019) observed that a little more than one-third of the mango growers (33.65 %) had studied matriculation and above, while 48.09 per cent of the respondents had studied up to primary school. It was also observed that 18.26 per cent of the respondents were illiterates.

Tanweer (2019) found that 29.16 per cent of organic farmers were graduates, 26.66 per cent were illiterates, 20.00 per cent of organic farmers had high school education, 12.50 per cent

of them studied up to pre university and an equal percentage (5.83% each) of farmers had studied up to primary school education and post-graduation.

2.1.3 Experience in farming

ChandanKumar (2019) reported that a majority of farmers (52.00%) belonged to moderate farming experience category, whereas 39.00 and nine per cent of them belonged to high and low farming experience category, respectively.

Jyothi and Devarani (2019) found that 62.00 per cent of the farmers from Imphal East district, 64.00 per cent from Thoubal district and 60.20 per cent from Bishnupur district of Manipur had medium level of experience in farming ranging from 10-20 years.

Kamar (2019) indicated that majority of the farmers (70.00%) had medium level of experience in coconut cultivation, whereas 17.50 and 12.50 per cent of the respondents had low and high level of farming experience.

Tanweer (2019) observed that half of the farmers (50.00%) had high farming experience followed by 34.16 and 15.83 per cent having medium and low level of farming experience, respectively.

Shivani Dechamma *et al.* (2020) reported that 46.66 per cent of the farmers belonging to medium category of farming experience, while 30.01 and 23.33 per cent of the farmers were belonging to high and low category of farming experience, respectively.

2.1.4 Innovativeness

ImrankhanJiragal (2018) reported that majority of sericulturists (47.50%) belong to medium level of innovativeness followed by high (45.00%) and low (7.50%) level of innovativeness, respectively.

Mutteppa (2018) reported that majority of turmeric growers (43.33 %) belonged to medium level of innovativeness followed by 30.00 and 26.67 per cent belonging to low and high level of innovativeness, respectively.

Swami Puja (2018) reported that majority of the sericulturists (67.50%) were having medium level of innovativeness on sericulture technologies, whereas 17.50 and 15.00 per cent of the respondents were having high and low level of innovativeness respectively.

Tanweer (2019) revealed that 57.50 per cent of the organic farmers had high level of innovativeness followed by low (23.33%) and medium (19.17%) level of innovativeness.

Dhaneshwari Sahu*et al.* (2020) reported that 46.67 per cent of the farmers belonged to high degree of innovativeness followed by 38.33 per cent of the respondents in medium category and 15.00 per cent of them were observed in the low category of innovativeness.

2.1.5 Achievement motivation

Tanweer (2019) revealed that 43.33 per cent of the organic farmers had medium level of achievement motivation, 36.67 per cent of organic farmers had high level of achievement motivation and the remaining 20.00 per cent of them had low achievement motivation.

Shivani Dechamma, *et al.* (2020) observed that half of the farmers (50.00%) had medium level of achievement motivation, whereas, 36.70 and 13.30 per cent of them had low and high level of achievement motivation, respectively.

Vikas (2020) reported more than two-fifth (43.33 %) of maize growers were having medium level of achievement motivation followed by low (31.67 %) and high (25.00 %) level of achievement motivation, respectively.

Rahul (2021) revealed that nearly half of the rose cut flower growers were belonging to high achievement motivation category (48.34%), while 28.88 and 23.33 per cent of them were having medium and low level of achievement motivation, respectively.

Sampraja (2022) reported that the degree of achievement motivation was low (56.67%), medium (36.67%) and high (6.66%) with 56.67, 36.67 and 6.66 per cent, among farmers, respectively.

2.1.6 Management orientation

Chaitra (2020) observed that majority of the farmers (56.67%) had high management orientation followed by medium (30.00%) and low (13.33%) level of management orientation.

Chandan Kumar (2019) reported that more than two-fifth of the farmers (41.00%) belonged to medium level of management orientation followed by 36.00 per cent belonging to high and 23.00 per cent belonging to low level management of orientation, respectively.

Shivani Dechamma *et al.* (2020) revealed that 43.30 per cent of the farmers were having low level of management orientation, followed by 36.70 and 20.00 per cent were having high and medium level of management orientation, respectively.

Vikas (2020) found that over two-fifth (44.17%) of maize growers had medium level of management orientation followed by high (29.16%) and low (26.67%) level of management orientation, respectively.

Rahul(2021) reported that as high as 46.67 per cent of the rose cut flower growers were falling under high level of management orientation group followed by 30.00 per cent and less than one-fourth (23.33%) of the rose cut flower growers were having medium and low level of management orientation, respectively.

2.1.7 Risk orientation

Chandan Kumar (2019) reported that 45.00 per cent of farmers belonged to medium level of risk orientation category followed by 44.00 per cent who belonged high and 11.00 per cent werehaving low level risk orientation category, respectively.

Tanweer (2019) observed that a majority of 54.17 per cent of organic farmers had high level of risk orientation, whereas one fourth (25.83%) of farmers had low level and the remaining 20.00 per cent of the farmers had medium level of risk orientation.

Chaitra (2020) revealed that more than half of the farmers (53.33%) had high of risk orientation followed by low (25.00%) and medium (21.67%) level of risk orientation.

Rakesh (2020) reported that majority of the farmers had medium (46.00%) level of risk orientation followed by low (31.67%) and high (21.33%) level of risk orientation.

Sathish (2022) reported that 40.00 per cent of redgram growers had medium level of risk orientation, whereas 31.67 per cent and 28.33 per cent of the respondents were having low and high level of risk orientation, respectively.

2.1.8 Economic motivation

Darji (2018) reported that 57.50 per cent of the farmers had high level of economic motivation, while 24.17 per cent of them had high level of economic motivation, 14.17 per cent had medium and 3.33 per cent of them had low level of economic motivation. Only 0.83 per cent of the farmers had very low level of economic motivation.

Archana (2019) reported that two-fifth of dairy farm women (40.83%) were belonging to high economic motivation category, whereas 30.00 per cent of them had low level of economic motivation and 29.17 per cent had medium level of economic motivation.

Chaitra (2020) revealed that majority of the farmers (66.67%) belonged to high level of economic motivation, while one-fifth (20.00%) of the respondents belonged to medium level and the remaining 13.33 per cent of the farmers belonged to low level of economic motivation.

Rakesh (2020) reported that 45.00 per cent of farmers had high level of economic motivation followed by medium (33.33%) and low (21.67%) level of economic motivation.

Sathish (2022) reported that more than half of redgram growers (46.67%) had medium level of economic motivation followed by low (28.33%) and high (25.005) level of economic motivation, respectively.

2.1.9 Credit orientation

Solanki and Soni (2004) revealed that 44.82 per cent of potato growers belong to medium category followed by 31.11 per cent in high category and the remaining 24.07 per cent belonging to low category of credit orientation.

Lakshmi Narayani (2009) reported that 45.00 per cent of small farmers,65.00 per cent of medium farmers and 35.00 per cent of big farmers had medium level of credit orientation.

Sharma *et al.* (2014) found that majority of the potato growers (61.11 %) had medium level of finance based orientation, 21.11 per cent of them had high level of finance based orientation and only 17.78 per cent of the respondents had low level of finance based orientation.

Shirur (2015) observed that an equal number of farmers were categorized under low, medium and high category (33.33% each) under credit orientation.

Yashodhara (2015) reported that 51.10 per cent of farmers had high level of credit orientation, 27.80 per cent medium and 21.10 per cent low level of credit orientation. More number of small farmers (46.70%) had high credit orientation followed by low (30.00 %) and medium (23.30%) level of credit orientation. Regarding medium farmers, 46.70 per cent had high level of credit orientation, followed by low (30.00 %) and medium (23.30 %) level of credit orientation. Sixty per cent of large farmers had high orientation, 30.00 per cent had low and the remaining ten per cent had high level of credit orientation.

2.1.10 Social participation

Pankaj Kumar Meghwal*et al.* (2017) reported that a majority of 70.00 per cent of the farmers had low level of social participation, whereas 28.33 and 1.67 per cent of the respondents were having high and medium level of social participation, respectively.

Rashmi (2018) revealed that more than one third of tomato growers (38.33%) had medium level of social participation followed by respondents belonging to high (32.50%) and low (29.17%) level of social participation category.

Dhaneshwari Sahu*et al.* (2020) observed that half of the tomato growers (50.00%) were belonging to medium level of social participation, while an equal number of respondents (25.00% each) were belonging to low and high level of social participation.

Rahul (2021) revealed that 45.01 per cent of the rose cut flower growers were belonging to high level of social participation, whereas 28.33 and 26.66 per cent of them were belonging to medium and low level of social participation, respectively.

Shinde Rohini Sharad *et al* (2021) reported that most of the pomegranate growers (39.16%) had high level of social participation, followed by respondents belonging to medium (36.67%) and low (24.17%) level of social participation.

2.1.11Cosmopoliteness

Shivani Dechamma *et al.* (2020) revealed that half of the farmers (50.00%) were belonging to medium level of cosmopoliteness followed by one third (33.3%) and 16.70 per cent of the farmers belonging to low and high level of cosmopoliteness, respectively.

Vikas (2020) observed that an equal number of maize growers (40.83% each) of the maize growers belonged to medium and low cosmopoliteness groups. While, 18.34 per cent were belonging to high cosmopoliteness group.

Rahul (2021) reported that a greater percentage of rose cut flower growers (46.67%) were belonging to high level of cosmopoliteness, while 28.33 and one fourth (25.005) of the respondents were belonging to medium and low level of cosmopoliteness, respectively.

Sampraja (2022) reported that 47.78 per cent of the farmers had medium level of cosmopoliteness, followed by low (28.89 %) and high (23.33 %) level of cosmopoliteness.

Sathish (2022) reported that two-fifth (40.00%) of the redgram growers belonged to low cosmopoliteness group. While, 36.67and 23.33 per cent were belonging to medium and high cosmopoliteness groups, respectively.

2.1.12Deferred gratification

Maraddi (2006) found that majority of the sugarcane growers (55.55%) had medium level of deferred gratification followed by high (25.56%) and low (18.89%) level of deferred gratification.

Sowmya (2009) found that 40.83 per cent of rural women had high level of deferred gratification followed by 30.00 and 29.17 per cent of rural women having medium and low level of deferred gratification, respectively.

Shirur (2015) observed that 45.00 per cent of the farmers had medium level of deferred gratification, whereas 31.67 and 23.33 per cent of the respondents had high level and low level of deferred gratification, respectively.

Naresh (2018) reported that nearly half of the farm youth belonged to low (45.00%) level of deferred gratification followed by medium (31.25%) and high (23.75%) level of deferred gratification, respectively.

Riza (2021) observed that a greater proportion of cassava growers (41.67%) had medium level of deferred gratification followed by high (30.83 %) and low (27.50%) level of deferred gratification.

2.1.13Attitudetowards farming

Seema (1986) revealed that majority of women (68.16%) in Nadar community were found having high level of attitude towards farming. While, 22.40 and 9.44 per cent were having medium and low level of attitude towards farming, respectively.

Shailaja (1990) reported that most of the farm women (42.33%) had favourable attitude towards mixed farming. Whereas, 32.84 and 24.83 per cent of them had neutral and unfavourable attitude towards mixed farming, respectively.

Lakshminarayan (1996) reported that 42.00 per cent of sugarcane farmers had more favourable attitude towards sustainable sugarcane farming practices. While, 29.50 and 28.50 per cent of the farmers had favourable and unfavourable attitude towards sustainable sugarcane farming practices, respectively.

Sujay Kumar (2012) found that a large number of rural youth (45.00%) had more favourable attitude towards organic farming followed by 38.33 and 16.67 per cent having less favourable attitude towards organic farming, respectively.

Rahul (2021) revealed that 45.00 per cent of the rose growers had more favourable attitude towards rose cultivation, while 35.00 and 25.00 per cent of them possessed favourable and less favourable attitude towards rose cultivation, respectively.

2.1.14 Massmedia exposure

Kamar (2019) observed that majority of the coconut growers (65.00 %) had medium level of mass media exposure, followed by 19.17 and 15.83 per cent having high level and low level of mass media exposure, respectively.

Morwal*et al.* (2019) reported that a majority of pomegranate growers (54.00%) had medium level of mass media exposure, whereas 24.00 and 22.00 per cent of them had high and low level of mass media exposure, respectively.

Tanweer (2019) revealed that 45.00 per cent of the organic farmers had high level of mass media exposure followed by 30.83 and 24.17 per cent of organic farmers belonging to medium and low category of mass media exposure, respectively.

Chaitra (2020) reported that a significant number of farmers (43.33%) had high mass media exposure level followed by medium (35.00%) and low (21.67%) level of mass media exposure level.

Sathish (2022) reported that two-fifth (40.00%) of the redgram growers had medium level of massmedia exposure, whereas 35.00 and 25.00 per cent of the respondents had low and high mass media exposure, respectively.

2.1.15 Training in agriculture

Prashanth (2011) found that half of the organic farmers (50.00%) belong to medium level of training followed by high (38.33%) and low (11.66%) level of training.

Rokonuzzamana (2013) revealed that 51.58 per cent of farmers had not received training at all on agriculture and 38.95 per cent had short training experience and the remaining (9.47%) had medium level of training in agriculture.

Tamagond (2013) found that 60.00 per cent of the farmers belonged to high level of training undergone followed by medium (30.00%) and low (10.00%) category of training undergone.

Naresh (2018) indicated that a majority of the rural youth (83.13%) have undergone training on agriculture and allied agricultural activities and the other 16.87 per cent have not undergone training.

Tanweer (2019) found that the farmers belonged to high category of training experience followed by medium (21.67%) and low (19.16%) category of training experience in agriculture.

2.1.16 Extension agency contact

Kamar (2019) revealed that majority of the coconut growers (75.83 %) had medium level of extension contact followed by 12.50 per cent respondents having low and 11.67 per cent having high level of extension contact.

Chaitra (2020) revealed that a larger proportion of the farmers (43.33%) belonged to high level of extension contact followed by low (33.33%) and medium (23.34%) level of extension contact.

Rahul (2021) revealed that 46.67 per cent of rose cut flower growers were belonging to high level of extension agency contact group followed by 30.00 and 23.33 per cent of the rose cut flower growers were belonging to medium and low level of extension agency contact groups, respectively.

Shinde Rohini Sharad *et al* (2021) reported that 42.50 per cent of the farmers had medium level of extension contact, followed by low (32.50%) and high (25%) level of extension contact.

Sathish (2022) reported that two-fifth of the redgram growers (40.00%) had medium level of extension contact followed by high and low level of extension contact with 31.67 and 28.33 per cent, respectively.

2.1.17 Extension participation

Tanweer (2019) observed that more than half of organic farmers (59.17%) had high level of extension participation while 25.00 per cent of them had medium level of extension participation and the remaining 15.83 per cent of them had low level of extension participation.

Chaitra (2020) revealed that more than one third (35.00%) of the farmers had high level of extension participation followed by low (33.33%) and medium (31.67%) level of extension participation.

Rahul (2021) reported that less than half of the rose cut flower growers (48.33%) exhibited high level of extension participation followed by medium (26.67 %) and low (25.00 %) level of extension participation.

Riza (2021) found that, 36.67 per cent of cassava growers had medium level of extension participation followed by low (35.00%) and high (28.33%) level of extension participation.

Sathish (2022) reported that more than two-fifth of redgram growers (41.67%) belonged to medium level of extension participation. While, 33.33 and 25.00 per cent of the redgram growers belonged to low and high of extension participation, respectively.

2.2 Knowledge of farmers regarding improved cultivation practices

Chavan Kishore (2015) revealed that majority of the mango growers (50.00%) had medium level of knowledge followed by high (30.00%) and low (20.00%) level of knowledge regarding improved cultivation practices.

Vijaya Kumari and Ranjan (2015) revealed that among the mulberry technologies, Chawki Rearing Centres (CRC) owners had full knowledge level about mulberry variety (75.00%), farmyard manure (55.00%), fertilizer and spacing (40.00%), plant protection (20.00%), and leaf harvesting (15.00%). After chawki training, CRC owners had full knowledge level among the mulberry technologies was noticed in mulberry variety (100.00%) followed by

farmyard manure (75.00%), fertilizer and spacing (50.00%), plant protection (40.00%), leaf harvest (25.00%) and pruning (5.00%).

Kharde (2016) revealed that a majority of the guava growers (55.84%) had medium level of knowledge about high density plantation technology followed by 25.00 and 19.16 per cent of the respondents having high and low level of knowledge, respectively.

Anu (2017) observed that 41.00 per cent of the farmers had high level of knowledge followed by medium (31.00%) and low (28.00%) level of knowledge regarding improved technologies.

Hadimani et al. (2017) revealed that more than half of the sericulturists (54.00%) belonged to medium knowledge level category. While, 26.00 per cent of the respondents possessed low level of knowledge and the remaining 20.00 per cent of the respondents were having high level of knowledge about improved sericulture production technologies.

Zahoor Ahmed Shah *et al.* (2017) revealed that 71.66 per cent of the apple growers were having medium level of knowledge, followed by 15.00 per cent of apple growers, who had low level of knowledge and 13.44 per cent of apple growers were having high level of knowledge regarding the plant production aspect of apple cultivation.

Mutteppa (2018) observed that nearly half of the turmeric farmers (48.33 %) had high level of knowledge about improved cultivation practices followed by medium (30.00%) and low (21.67%) level of knowledge about improved turmeric cultivation practices.

Subhash (2018) revealed that majority of the farmers had medium level of knowledge (66.67%) regarding wheat improved cultivation practices, while 20.00 and 13.33 per cent of the farmers had high and low level of knowledge regarding improved cultivation practices, respectively.

Chandan Kumar (2019) reported that a little less than two-third (63.00%) of the sericulturists belonged to higher knowledge category in mulberry cultivation practices followed by medium (21.00%) and low (16.00%) category of knowledge, respectively.

Kamar (2019) observed that majority of coconut growers (55.83 %) had medium level of knowledge about coconut production technology followed by 25.84 per cent in high and 18.33 per cent in low level, respectively.

Yedida Sudhamini (2019) revealed that majority of coconut growers possessed medium level of knowledge (70.00 %) followed by high (16.00 %) and low (14.00 %) level of knowledge about recommended package of practices.

Sathish (2022) reported that more than two-fifth of redgram growers had medium (46.67%) knowledge level with respect to climate smart technologies followed by low (33.33%) and high (20.00%) knowledge level on climate smart technologies.

2.3.Decision making pattern of farmers in agriculture and allied activities

Premavati and Netaji Seetharaman (2002) revealed that the farm women were involved in decision making in the case of fixing wages for agricultural labourers (58.00%), storage (40.00%), weeding (34.00%), thinning (33.00%) and gap filling (33.00%).

Suresh (2004) observed that majority of farmers (65.83%) were belonging to medium level of decisions making category, followed by respondents belonging to low (21.67%) and high (12.50%) category of decision making.

Vidhyanand (2004) revealed that a majority (64.00%) of farm women were involved in decision making on deciding crops to be grown.

Bharat Kumar (2010) reported the decision making pattern between men and women horticulture farmers in the activities. Decision on land preparation, removal of crop residues, ploughing and stubble collection were fully taken by men alone (100.00%). Decision on practices such as, manure application, fertilizer application, irrigation and pesticide application were taken by men and women jointly. Whereas, women alone were not taking any decisions on horticultural activities.

RajulaShanthy (2010) reported that in the activities like type of labour to be engaged, fixing rate for jaggery and deciding the market for selling jaggery, the decision is taken either by men themselves or jointly in consultation with their wives or elders.

Upayan Singh *et al.* (2010) revealed that majority of dairy women members (55.00%) were in high category of decision making, followed by medium (32.50%) and low category (12.50%).

Yavana Priya (2010) reported that 45.00 per cent of farm women involved in decision by considering all the personal, social and situational dimensions of the decision area in the first situation and 42.50 per cent of them are undecided or totally dependent on external source for making decision.

Nataraju (2012) revealed that nearly half of farm women (48.33%) were belonging to the medium level of decision making category in dairy activities. whereas 30.83 per cent of them, were belonging to high category of decision making and the remaining 20.83 per cent of them, were belonging to low category of decision making ability.

Madhushree (2014) reported that 51.86 and 45.83 per cent of the farm women reveal that decisions were taken by husband alone in groundnut and ragi cultivation, respectively. To a greater extent, 39.55 per cent and 30.00 per cent of decisions were taken jointly with husband or any other family member in ragi and groundnut crop cultivation. Only 2.98 per cent of farm women take self -decision in ragi and 1.66 per cent in groundnut crop. The decision makes exclusively by others category was 21.66 per cent and 5.61 per cent with respect to groundnut and ragi practices, respectively.

Naik *et al*. (2016) revealed that more than one-third(40.56%) of the farmers were in better category of decision-making. Whereas 40.00 per cent of the respondents were in medium category of decision-making and 19.43 per cent of them, were in low category of decision-making.

Nishitha (2016) revealed that all the decisions regarding the sugarcane cultivation activities such as land preparation, irrigation and source and application of plant protection chemicals were taken exclusively by ‘farm men alone’.

Archana (2019) revealed that less than half of dairy farm women (48.33 %) were belonging to medium decision making category in dairy activities, whereas 29.17 and 22.50 per cent of them belonging to high and low decision making category, respectively.

Natarajue*t al.,* (2019) revealed that both farm men and women were taking decisions jointly in the pre and post-harvest agriculture activities.

2.4 Extent of participation of farmers in agriculture and allied activities

Sarah Jehu Autae*t al*. (2010) reported that majority of the rural youth (79.00%) were involved in farming activities producing various crops for subsistence and sale. Thirty per cent of rural youth were involved in livestock farming, while 13.90 per cent were engaged in poultry keeping.

Lakshminarayane*t al.* (2011) revealed that majority of the farm youth participated in dairying activities like feeding, calf rearing, health care and marketing of the milk.

Savitha (2011) reported that majority (80.00%) of the rural male youth participated in ploughing, followed by FYM broadcasting (73.33%), cleaning (60.00%), levelling (53.33%) and clod crushing (31.67%).

Nataraju (2012) revealed that, large number of the farm women had an average level of participation (58.00%) in dairy management activities. Whereas 23.00 per cent of them had high level of participation and 19.00 per cent of them, had poor participation level in improved dairy management practices.

Sujay Kumar (2012) reported that a larger number (43.33%) of rural youth of Cauvery Command Area of Karnataka belonged to medium category of participation, while 33.34 and 23.33 per cent of rural youth belonged to high and low categories of participation in organic sugarcane cultivation, respectively.

Hadagali Vishwanath (2013) found that majority of rural youth practising agriculture had ‘regularly’ participated in marketing (84.16%), inter cultivation (71.66%), spraying of chemicals (71.66%) and irrigation (71.66%), sowing (70.00%), land preparation (67.50%), manure and

fertilizer application (60.83%), transportation (60.00%) and harvesting (50.83%), whereas one-third of the rural youth had participated 'occasionally' in the activities like harvesting (25.00%) and transportation (25.00%). About one-fourth of rural youth never participated in harvesting of crop (24.17%).

Lakshminarayan*et al*. (2013) reported that over three-fourth of women sericulturists were participating in silk worm feeding activities (96.00%), distribution of worms to tray (96.00%), decocooning (95.00%), disinfection (93.00%), mounting (94.00%), bed spacing (88.00%), shoot rearing (80.00%) and chawki rearing activities (80.00%).

Nirmala (2013) reported that, majority of dairy farm women were found in average level of participation category (40.00%) while 35.00 and 25.00 per cent were found in high and low categories of participation, respectively.

Hadagali Viswanath *et al*. (2014) reported that a considerable number of rural youth (40.00%) practicing sericulture had medium level of participation, while 37.14 and 22.86 per cent of the rural youth were having high and low level of participation in sericulture activities, respectively.

Hadagali Viswanath *et al*. (2015) observed that majority of rural youth practising dairy had regularly participated in management of milch animals (75.00%), care of sick animals (72.72%), maintenance of dairy shed (70.45%), feeding of animals (68.18%), collection of fodder of cattle (63.63%) and milking (52.27%).

Nishitha (2016) reported that a majority of farm men participated in the activities such as gap filling (96.67%), spraying weedicide (93.34%), guiding irrigation water (96.66%), earthing up (96.66%), detrashing and mulching (96.66%), mixing plant protection chemicals (94.00%), rouging the affected clumps (95.00%) and cutting the cane (95.00%).

Archana (2019) reported that 39.16 per cent of farmers belong to average level of participation in agricultural activities followed by better (33.34%) and poor (27.50%) participation categories.

Rakesh (2020) reported that 51.70 per cent of the head reach farmers had moderate level of participation followed by poor (28.30 %) and better (20.00 %) level participation in the farming activities of water users association. Whereas in tail-end location, 55.00 per cent of tail-end farmers had moderate level of participation followed by 27.70 per cent had better and 17.30 per cent had poor level of participation in the farming activities of water users association.

2.5 Association between profile characteristics of farmers with their knowledge, decision making and participation level

2.5.1 Association between profile characteristics of farmers with their knowledge level

Thippeswamy (2011) revealed that education, mass media exposure, extension contact, annual income and social participation had highly positive and significant relationship with knowledge level of coconut growers regarding improved cultivation practices, while age and land holding had nonsignificant relationship with the knowledge level.

Koli (2012) reported that education, mass media exposure, extension contact, annual income, social participation, risk orientation, farming experience and land holding had highly positive and significant relationship with knowledge level of coconut growers regarding improved cultivation practices. Whereas, age, family size and area of cultivation had non significant relationship with the knowledge level of coconut growers.

Lakshminarayan *et al.* (2013) observed a non-significant relationship between age, and family size of women sericulturists with their knowledge level on sericulture rearing practices.

Anu (2017) observed that farming experience, land holding and area of cultivation had highly positive and significant relationship with knowledge level of organic coconut growers regarding organic farming practices, while age and education had non significant relationship with the knowledge level of organic coconut growers.

Farm size, land holding and extension contact of farmers had a significant relationship with their knowledge level regarding Bt cotton cultivation practices (Prabuilliger *et al.,* 2017)

Mutteppa (2018) observed a significant association between education, annual income, achievement motivation, economic motivation and scientific orientation, land holding, extension contact, extension participation, risk orientation, market orientation, farming experience, and innovativeness of turmeric growers with their knowledge level of improved cultivation practices.

Subhash (2018) revealed that age, caste, family type and family size of wheat growers were not associated with the knowledge level of farmers on agricultural technologies.

Vikas (2020) indicated that education, annual income, farming experience, achievement motivation, management orientation, risk orientation, innovative proneness, cosmopoliteness, scientific orientation, extension contact, extension participation and mass media exposure had highly positive and significant relationship with knowledge level of farmers regarding improved maize cultivation practices.

Sathish (2022) reported that the farming experience, extension contact, extension engagement, and mass media exposure of red gram growers had significant association with their knowledge on improved red gram cultivation practices.

2.5.2 Association between profile characteristics of farmers with their decision making level

Alka Patki *et al.,* (2000) revealed that the land holding was significantly and negatively associated with the involvement of farm women in decision making regarding animal husbandry practices.

Anita Kumari (2002) revealed that innovation proneness of women was found a potential predictor towards the role of rural women in money management decision making.

Anitha (2002) found that potential predictors for women participation in decision making were family education status and innovative proneness.

Manjula Malgi (2003) reported that a non-significant association exist between age, mass media participation, extension contact and extension participation of the farm women with their extent of involvement in decision making in various watershed development activities. Further,

the study revealed association between education and extent of involvement of farm women in decision making as non-significant.

Vidhyanand (2004) revealed a significant association between age and farming experience of the farm women with their decision making in agriculture and homestead gardening.

Bharath Kumar (2010) reported that age, education and land holding were highly significantly associated with decision making among male and female farmers.

Yavana Priya (2010) reported that management orientation of farm women was significantly associated with the decision making.

Suradkar and Nirban (2011) revealed that age had highly significant association with the extent of participation of farm women in decision making in farming. Further, it was revealed that education had non-significant association with the extent of participation of farm women in decision making in farming.

Simin Naseri (2012) revealed that a non-significant association exist between land holding status with decision making pattern of farm women in farming activities.

Nishitha (2016) reported that education, innovativeness and extension participation of farm men and women had a positive and significant association with their decision making pattern at one per cent level of probability. Whereas, age, farming experience, scientific orientation, management orientation, achievement motivation, economic motivation, mass media participation and extension agency contact of farm men and women were found to be having a positive and significant association with their decision making pattern at five per cent level of probability.

Nataraju *et al.,* (2019) reported that age, education, farm size, farm family, cosmopoliteness, achievement motivation, material possession, mass media exposure, extension agency contact and extension participation of farmers had significant association with their decision making on agricultural activities.

2.5.3 Association between profile characteristics of farmers with their participation level

Hiremath (2000) reported significant association between extension participation, extension contact and mass media utilization of rural youth with their participation in farm activities.

Rani *et al*. (2001) revealed that age had a significant association with the participation of farm women in homestead activities.

Padmavathi (2002) revealed that age, experience as farm women labourer, and annual income of farm women labourers did not have significant association with their participation in rice farming operations.

Nethravathi (2008) observed significant association between education, size of land holding, annual income, mass media use and economic orientation of farm women with their participation in post-harvest technologies.

Sarah Jehu Auta *et al.,* (2010) found that education and extension contact were found to exercise significant effect on participation of rural youth in agriculture activities.

Farahat (2011) reported significant association between education level and extension participation of male and female rural youth.

Nataraju (2012) reported that the characteristics of women dairy farmers, namely, education, income, dairy experience, mass media participation, extension participation and economic motivation had positive and significant association with the participation of women in dairy farming. Whereas age, family type and landholding did not establish any significant association with the participation of women dairy farmers.

Simin Naseri (2012) reported that there was no significant association between land holding status with the participation of farm women in overall participation of farm women in crop farming activities.

Sujay Kumar (2012) reported that education, extension contact, extension participation and attitude towards organic farming were positive and significantly associated with

participation. Whereas, family type, land holding, experience in organic farming and mass media exposure were found to have a non-significant association with participation of rural youth in organic sugarcane cultivation.

Nirmala (2013) reported that age, education, mass media participation, achievement motivation and extension contact had highly significant association with participation of women members in Milk Producers Co-operative Societies (MPCS) activities. Whereas land holding, dairy experience and extension participation had significant association with participation of women members in MPCS activities while, annual income was not associated with participation.

Hadagali Viswanath *et al*. (2014) found that education, land holding, annual income, mass media utilization, extension contact, extension participation and innovativeness of rural youth practicing sericulture had significant association with their participation in sericulture activities.

Nishitha (2017) revealed that age, education, family size, achievement motivation, management orientation, deferred gratification, cosmopoliteness, innovativeness, extension agency contactand extension participation of farmers had significant relationship with their participation in sugarcane cultivation activities.

Natarajue*t al.,* (2019) reported that age, education, family size, cosmopoliteness, achievement motivation, material possession, innovativeness, aspiration, economic motivation, credit orientation, mass media exposure, extension agency contact and extension participation of farmers had significant relationship with their participation in agricultural activities.

2.6 Drudgeries faced by farmers in agriculture and allied activities

Verma and Sinha (1991) reported that on an average more drudgery prone task or operations are performed by women in case of wheat cultivation, whereas men perform more drudgery ridden task in case of paddy cultivation. Yet the total drudgery suffered by women in both the cases was higher than men because women perform more hours of work than men in cultivation of both wheat and paddy.

Elizabeth and Ingle (1995) observed that majority of the women labor faced drudgery in several rubber plantation activities. The most common drudgery was backache due to work in

scorching sun, head load, transplantation and continuous bending. Nasal infection during spraying of chemicals, poisoning while use of herbicide and intoxication during spraying and dusting of chemicals were also common. Most of the women faced drudgeries by mechanical hazards while operating rollers.

Saroj and Indu (1997) reported that the physical constraints faced by farm women were aberrations while pruning of grape wine and aberrations due to weeds and pillars.

Kulkarni (1998) revealed that most of the women felt moderate physical strain in harvesting (82.50%), application of fertilizer and manure (77.50%), sowing drying and stubble collection (62.50%). In operations like threshing and weeding women felt moderate fatigue (90.00%). While, 87.50 per cent of women expressed moderate fatigue in thinning and harvesting operations. In operations like stubble collection, sowing, application of manure and fertilizer, 75.00, 72.50 and 65.00 per cent of women reported moderate fatigue, respectively.

Padmavathi (2002) reported the major problems faced by farm women in rice farming. They were manual weeding causing scratching and itching, seedling transplantation causing severe backache and seed bed preparation causing physical strain.

Anonymous (2003) revealed that selected ergonomic cost of selected activities shows that physiological work load for collecting and bringing fodder and milking animals under dairy activities was found above permissible work load. Muscular stress for performing the selected farm, dairy and house hold activities was also found high due to the unnatural posture (bending and squatting) adopted by the farm women. Due to the poor posture adopted while performing the activities, women felt severe to very severe pain in the neck, shoulder, joints, low back, knee, upper thigh and feet and changed posture frequently to get relief from the unbearable pain.

Singh *et al.* (2005) reported that farm women experienced preparatory tillage, seed treatment, maize dehusking, drying and storage operation as light level of drudgery. FYM application in field, sowing, spraying as light-medium level of drudgery, intercultural operation threshing, shelling operation as medium level of drudgery and harvesting as heavy level of drudgery.

Bharath Kumar (2010) revealed that majority of women perceived drudgery in cultivating horticultural crops. Tasks like field preparation (55.00%), carrying FYM (58.33%), preparation of field (63.33%), seed treatment (55.00%) and use of implements (63.33%) involved drudgery.

Rajula Shanthy (2010) reported that detrashing and hand weeding in sugarcane farming are very tedious operations as it leads to skin irritation and back pain due to continuous bending posture.

Zaidi and Munir (2014) reported that in sugarcane cultivation, majority of farm women face problems pertaining to fatigue, headache, restlessness and unhygienic conditions in the field.

Nishitha (2016) reported that over one-third of farm men experienced 'neck pain' while carrying out operations like harvesting of canes (35.00%) and application of plant protection chemicals (34.00%). Very few number of farm men were experiencing 'neck pain' while carrying out the activities such as application of farm yard manure (16.66%) and fertilizer (15.00%). About one-third (33.34%) of the farm women experienced 'neck pain' while applying fertilizers to the sugarcane crop. Less number of farm women were experiencing 'neck pain' while performing operations such as harvesting the canes (5.00%) and application of farm yard manure (3.33%).

Malek *et al.*, (2019) observed that a majority off arm women faced drudgery in land preparation, sowing practices, crop protection, irrigation, intercultural operation, harvest and postharvest activities and marketing.

Biradar (2021) revealed that land preparation activities such as levelling and making ridges and furrows (98.33%), clod breaking (95.83%), digging (94.16 %) and ploughing (92.50%) were perceived as difficult to perform activities by majority of the farm women. Under Sowing, transplanting activities such as sowing (89.16%), planting (89.16%) and transplanting (87.50%) were perceived as difficult to perform by majority of the farm women while, layout and seed bed preparation (85.00 %) and seed production (75.00%) were perceived as moderate activities by majority of the farm women.

III METHODOLOGY

In this chapter, the description of the research methods and procedures adopted in the study has been presented under the following sub-headings:

3.1 Locale of the study

3.2 Research design

3.3 Research variables

3.4 Operationalization and measurement of dependent variables

3.5 Operationalization and measurement of independent variables

3.6 Drudgeries faced by farm men and women in sericulture activities

3.7 Collection of data

3.8 Analysis of data

3.9 Conceptual model of the study

3.1 Locale of the study

3.1.1 Selection of the district

The study was conducted in Ramanagara district of Karnataka State during 2021-22. Ramanagarais a well known as Silk City and Sericulture is one of the main occupation in the district. In Karnataka, Ramanagara district stands third position in the cocoon production in terms of mulberry area (18975 ha), cocoon production (19662 tons) and cocoon productivity (89 kg/100 dfls) during 2020-21 next to Chikkaballapura and Kolar districts (Anonymous 2021a).

3.1.2 Selection of the taluks

During the year 2020-21, mulberry was grown in 9528, 3609, 2691 and 311 ha of Kanakapura, Channapatna, Ramanagara and Magadi taluks of Ramanagara district, respectively. The study waspurposively conducted in Kanakapura(9525 ha) and Channapatna (3609 ha) taluks,

since mulberry is grown in more areas among the four taluks of Ramanagara district (Anonymous, 2021b)

3.1.3 Selection of the villages and respondents

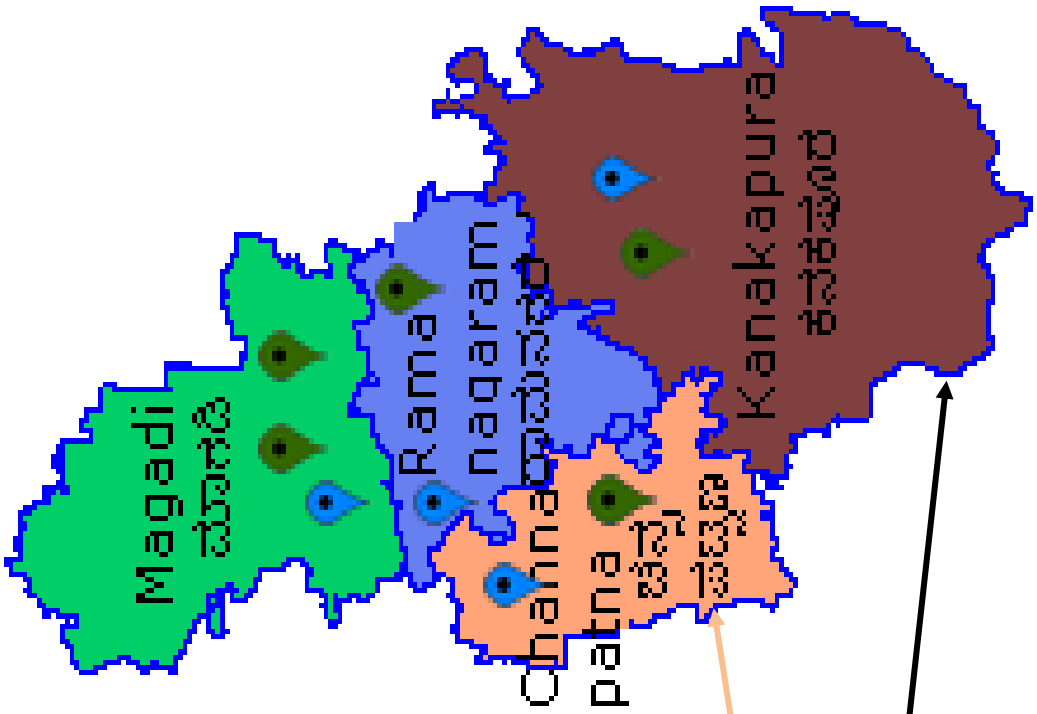
Five villages were randomly selected for the study from each of the two sampled taluks. Small and marginal farmers rearing silkworms were interviewed for the study since farm women of small and marginal farmers are more involved in decision making and participation in sericulture activities. From each village, six farm households practicing sericulture were randomly selected. Relevant data were collected from the head of the family and his spouse. Thus, the final sample constituted 120 respondents (60 farm men and 60 farm women) from ten villages of Kanakapura and Channapatnataluks of Ramanagara district. The details of the villages and number of respondents selected for the study are presented in Table A. Fig.1 represents the map showing the locale of the study.

3.2 Research design

Expost-facto research design was adopted for conducting the study. This design was considered appropriate because the phenomenon has already occurred and the researcher does not have direct control over independent variables.

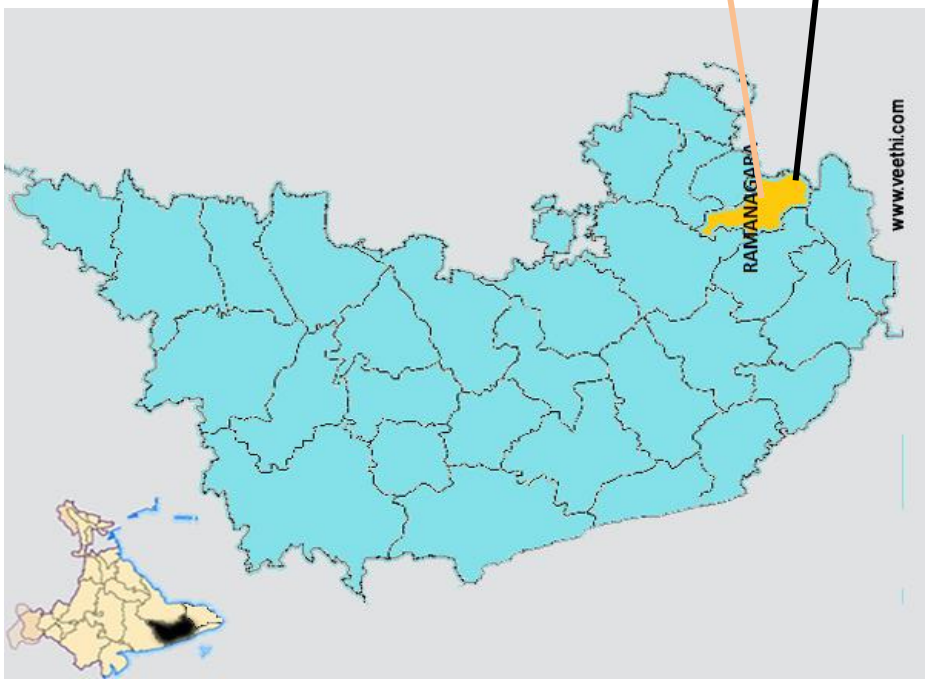
Table A: Villages and respondents selected for the study

District	Taluks	Village	No. of respondents	
			Farm men	Farm women
Ramanagara	Kanakapura	1. Kanchanahalli	6	6
		2. Guruvinapura	6	6
		3. Sathanur	6	6
		4. Kabbalu	6	6
		5. Chikkegowdanadhoddi	6	6
	Channapatna	1. Guvvapura	6	6
		2. Nidagodi	6	6
		3. J. Byadarahalli	6	6
		4. Samandipura	6	6
		5. Yelethotadahalli	6	6
Total		10	60	60



Ramanagara District

Fig 1: Map showing the study area



Karnataka State

3.3 Research variables

Knowledge, decision making pattern and extent of participation were considered as dependent variables in the present investigation. Nineteen independent variables (profile characteristics) were selected for the study. The details of variables selected and the techniques employed for measurement are presented in Table B.

Table B: Variables selected and their empirical measurement

Sl. No	Variables	Empirical measurement
A.	**Dependent variables**	
1	Knowledge regarding the recommended sericulture technologies	Schedule was developed
2	Decision making pattern on sericulture technologies	Schedule was developed
3	Participation in sericulture activities	Procedure followed by Rajula Shanthy (2010)
B.	**Independent variables**	
1	Age	Chronological age of respondents
2	Education	Procedure followed by Hiremath (2000)
3	Experience in sericulture	Schedule was developed
4	Innovativeness	Scale developed by Feaster (1968) and modified by Prasad (1983)
5	Achievement motivation	Scale developed by Singh (1977)
6	Management orientation	Scale developed by Samantha (1977)
7	Risk orientation	Procedure followed by Supe (1969)
8	Economic motivation	Scale developed by Supe (1969)
9	Credit orientation	Scale developed by Mishra (1979)
10	Social participation	Procedure followed by Trivedi and Pareek (1963)
11	Cosmopoliteness	Procedure followed by Sahana (2003)
12	Deferred gratification	Scale developed by Ramegowda (1991)
13	Attitude towards sericulture	Scale developed by Joy Mathew and Nagi Reddy (1990)
14	Farming commitment	Scale developed by Ramegowda (1991)
15	Mass media exposure	Procedure followed by Nagananda (2005)
16	Training in sericulture	Schedule was developed
17	Extension agency contact	Procedure followed by Kikon (2010)
18	Farm scientist contact	Procedure followed by Lakshminarayan (1996)
19	Extension participation	Procedure followed by Nagesh (2006)

3.4 Operationalization and measurement of dependent variables

3.4.1 Knowledge regarding the recommended sericulture technologies

Knowledge level of farm men and farm women regarding recommended sericulture technologies is operationalized as 'the quantum of scientific information known to the respondents about the recommended sericulture technologies (mulberry cultivation and silkworm rearing practices)'.A total of 55 recommended sericulture technologies (31 recommended mulberry cultivation and 24 silkworm rearing practices) were included to know the knowledge level of farm men and women. To assess the knowledge level of farm men and women, the respondents were given a score of 0 and 1 for having 'in correct knowledge and 'correct knowledge', respectively on each of the sericulture technologies. Thus, a minimum and maximum score one can get was 0 and 55, respectively. Based on the total score obtained for the 55 activities of sericulture technologies, the respondents were classified as low, medium and high level of knowledge using mean and half standard deviation as a measure of check.

Category	Criteria	Farm men	Farm women
A. Mulberry cultivation			
Low	<(Mean – ½ SD)	<24.21	<19.98
Medium	(Mean ± ½SD)	24.21 to 28.45	19.98 to 23.28
High	> (Mean + ½ SD)	> 28.45	> 23.28
Mean		26.33	21.63
Standard deviation		4.24	3.31
A. **Silkworm rearing practices**			
Low	<(Mean – ½ SD)	<18.58	<17.51
Medium	(Mean ± ½SD)	18.58 to 21.83	17.51 to 20.53
High	> (Mean + ½ SD)	> 21.83	> 20.53
Mean		20.21	19.02
Standard deviation		3.25	3.02
B. **Sericulture technologies**			
Low	<(Mean – ½ SD)	<42.80	<37.49
Medium	(Mean ± ½SD)	42.80 to 50.28	37.49 to 43.81
High	> (Mean + ½ SD)	> 50.28	> 43.81
Mean		46.54	40.65
Standard deviation		7.49	6.33

3.4.2 Decision making pattern

Decision making pattern refers to the 'extent of involvement of farm men and women in deciding various sericulture technologies/ activities that needs to be performed'. A total of 25sericulture technologies (14 mulberry cultivation and 11 silkworm rearing technologies/ activities) were included to know the decision making pattern of farm men and women. To analyze the extent of decision making of farm men, the respondents were given a score of 3, 2 and1 for the decisions taken by 'farm men alone', 'farm women alone' and both/together with family members respectively. A score of 3, 2 and 1 for decisions taken by 'farm women alone', 'farm men alone' and both/together with family members, respectively, were assigned to know the extent of decision making of farm women. The minimum score and maximum score one could get was 25 and 75, respectively.

Based on the total score obtained for the 25 sericulture technologies/ activities of the respondents, they were grouped into low, medium and high considering mean and half standard deviation.

Category	Criteria	Farm men	Farm women
A. Mulberry cultivation			
Low	<(Mean – ½ SD)	<11.67	<3.06
Medium	(Mean ± ½SD)	11.67 to 14.28	3.06 to 4.27
High	> (Mean + ½ SD)	>14.28	>4.27
Mean		12.98	3.67
Standard deviation		2.61	1.21
B. **Silkworm rearing practices**			
Low	<(Mean – ½ SD)	<8.10	<2.48
Medium	(Mean ± ½SD)	8.10 to 10.09	2.48 to 3.50
High	> (Mean + ½ SD)	>10.09	>3.50
Mean		9.10	2.99
Standard deviation		1.99	1.01
C. **Sericulture technologies**			
Low	<(Mean – ½ SD)	<19.78	<5.55
Medium	(Mean ± ½SD)	19.78 to 24.38	5.55 to 7.77
High	> (Mean + ½ SD)	>24.38	>7.77
Mean		22.08	6.66
Standard deviation		4.60	2.22

3.4.2 Extent of participation

Extent of participation is defined as 'the degree to which the farm men and women have participated in various sericulture activities. It was measured using the procedure followed by Rajula Shanthy (2010) with slight modification. A list of 21 sericulture activities (10 mulberry cultivation and 11 silkworm rearing activities) were presented to the respondents to know their extent of participation. To analyze the extent of participation of the participants a score of 0 and 1 were assigned for non-participation and participation in the sericulture activities, respectively. The minimum and maximum score one could get was 0 and 21, respectively. And 2 was assigned to 'farm men alone' and 'farm women alone' respectively. Based on the total score by the respondents on all the 21 sericulture practices, they were categorized into low, medium and high level of participating considering mean and half standard deviation.

Category	Criteria	Farm men	Farm women
A. Mulberry cultivation			
Low	<(Mean – ½ SD)	<7.14	<6.38
Medium	(Mean ± ½SD)	7.14 to 9.06	6.38 to 7.60
High	> (Mean + ½ SD)	>9.06	>7.60
Mean		8.10	6.99
Standard deviation		1.92	1.22
B. **Silkworm rearing practices**			
Low	<(Mean – ½ SD)	<7.37	<7.32
Medium	(Mean ± ½SD)	7.37 to 9.31	7.32 to 8.65
High	> (Mean + ½ SD)	>9.31	>8.65
Mean		8.34	7.99
Standard deviation		1.94	1.33
C. **Sericulture technologies**			
Low	<(Mean – ½ SD)	<14.51	<12.70
Medium	(Mean ± ½SD)	14.51 to 18.37	12.70 to 15.26
High	> (Mean + ½ SD)	>18.37	>15.26
Mean		16.44	13.98
Standard deviation		3..86	2.55

3.5 Operationalization and measurement of independent variables

3.5.1 Age

Category	Age (years)
Young	Less than 35 years
Middle	35 to 50 years
Old	More than 50 years

It refers to the chronological age of farm men and women in completed years at the time of investigation. Based on the completed years the respondents were classified as follows.

3.5.2 Education

It is operationalized as the number of years of formal educational of the respondents. The education was quantified by using the items and weights used by Hiremath (2000). The scoring procedure followed for different levels of education and their weights are as follows:

Level of education	Score
Illiterate	0
Primary school	1
Middle school	2
High school	3
Higher secondary	4
Diploma	5
Graduation	6

3.5.3 Experience in sericulture

It is the total numbers of years a farmer has practiced sericulture. Schedule was developed to measure the experience in sericulture of the respondents

Category	Experience in sericulture (years)
Less	Up to 5
Moderate	5 to 10
More	10 and above

3.5.4 Innovativeness

Innovativeness was operationalized as socio-psychological orientation of an individual to get linked or closely associated with change, adopting innovative ideas and scientific practices. The innovativeness scale developed by Feaster (1968) and as modified by Prasad (1983) was used in this study. Eight statements with first four positive and next four negative constituted the scale. The responses were obtained on a three point continuum viz., 'yes', 'undecided' and 'no' with a scoring pattern of 2, 1 and 0, respectively, for positive statements and 0, 1 and 2 for negative statements, respectively. The summated score indicated the innovativeness of the farmers. The maximum possible score was 16 and minimum possible was 0. Later the respondents were grouped into low, medium and high based on mean and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 7.82	Below 7.21
Medium	(Mean $\pm$ ½SD)	7.82 to 9.38	7.21 to 8.63
High	> (Mean + ½ SD)	Above 9.38	Above 8.63

3.5.5 Achievement motivation

It is defined as the degree to excel regardless of social rewards. It is the desire to do well not so much for the sake of social recognition or prestige, but to attain an inner feeling of personal accomplishment. In the present study, the achievement motivation is defined as the value associated with an individual that drives him to excel in farming and related field and there by attain a sense of personal accomplishment.

The achievement motivation scale developed by Singh (1977) was used in the present study. The scale had six statements in the form of questions. The questions 1, 3, 4 and 6 were grouped under positive statements with scores of 2, 1 and 0 for three alternative answers *viz*., 'agree', 'undecided' and 'disagree'. The negative questions were 2 and 5 and reverse scoring of 0, 1 and 2 was followed for alternate answers. The total score of the respondents indicate the level of achievement motivation they had. The total score ranged from 0 to 12. To assess the level

of achievement, the respondents were categorized as low, medium and high based on mean and half standard deviation as a measure of check.

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 7.96	Below 7.24
Medium	(Mean ± ½SD)	7.96 to 9.62	7.24 to 8.72
High	> (Mean + ½ SD)	Above 9.62	Above 8.72

3.5.6 Management orientation

In the present study, the management orientation has been operationally defined as the degree to which a farmer is oriented towards scientific farm management comprising of planning, production and marketing functions of the farm. The management orientation of the respondents was measured by adopting the scale developed by Samanta (1977). The scale consists of totally 18 statements, six statements for each of planning, production and marketing aspects. The management orientation scale has two responses for each statement as 'agree' and 'disagree'. The orientation of scoring was conceptually unidirectional. The positive statements were given a score of one for agree and zero for disagree. The range of scores for the scale is from 0 to 18. The groupings for the total obtained scores of the farmers were classified as low, medium and high responses using the mean and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 8.25	Below 7.97
Medium	(Mean ± ½SD)	8.25 to 10.07	7.97 to 9.74
High	> (Mean + ½ SD)	Above 10.07	Above 9.74

3.5.7 Risk orientation

Risk orientation refers to the degree to which the activity of sericulture practices were oriented towards encountering risks and uncertainty in practicing new ideas in farming. The scale

developed by Supe (1969) was used for the present study. The scoring procedure followed for the research study is as follows.

Response	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Score for positive items	5	4	3	2	1
Score for negative item	1	2	3	4	5

The scale consisted of six items. The above scoring pattern was followed for positive and negative items. The scores obtained for all the items by an individual were summed up to get the total score of risk orientation. Thus, the maximum score of an individual could be 30, while minimum could be six. Further, the respondents were grouped into three categories viz., low, medium and high by using mean and half standard deviation as a measure of check.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 8.07	Below 7.98
Medium	(Mean $\pm$ ½ SD)	8.07 – 9.88	7.98 – 9.77
High	> (Mean + ½ SD)	Above 9.88	Above 9.77

3.5.8 Economic motivation

Economic motivation refers to the values or attitude for which the activities of sericulture practices attached greater importance to profit maximization. This was quantified by using the scale developed by Supe (1969). The scale consists of six items, with agree and disagree response to each statement. A score of 2 and 1 was given to 'agree' and 'disagree' responses, respectively. The minimum and maximum score one could get was 6 and 12, respectively. By considering the total score obtained by each respondent, they were divided into three groups as low, medium and high level of economic motivation based on mean and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 8.26	Below 7.96
Medium	(Mean $\pm$ ½ SD)	8.26 – 10.09	7.96 – 9.73
High	> (Mean + ½ SD)	Above 10.09	Above 9.73

3.5.9 Credit orientation

It is operationalized as the degree to which the farmers are oriented to take advantage of loans. Farmers borrowing behavior has been studied in particular to know the extent to which they utilized the credit facilities available from different organizations or agencies. It is measured with the help of a scale developed by Mishra (1979). The scale consisted of five statements and the responses were recorded in twopoint continuum namely 'Yes' or 'No' with assigned score of 2 and 1, respectively. Minimum and maximum score once could get was 5 and 10, respectively. On the basis of score obtained, the respondents can be classified into low, medium, and high by keeping mean and standard deviation as measure check.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 8.24	Below 7.96
Medium	(Mean $\pm$ ½ SD)	8.24 – 10.05	7.96 – 9.72
High	> (Mean + ½ SD)	Above 10.05	Above 9.72

3.5.10 Social participation

It refers to the participation of respondents in the activities of village organisations as a member or an offfice bearer or it is the degree of involvement of the respondents from membership to organizational positions and his/her active participation in the activities of local organizations.

This was quantified using the method followed by Trivedi and Pareek (1963). The organizations considered in the present study included gram panchayats, taluk panchayat, zilla panchayats, co-operative societies, youth clubs, raita sanghas and selfhelp groups. The items and weights used were as under.

Sl. No.	Items	Weight
1	Not member in any of the organizations	0
2	Member in any one of the organizations	1
3	Office bearer in any one of the organizations	2

Based on the score obtained by the respondents, they were categorized into three groups based on mean and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 8.37	Below 7.24
Medium	(Mean ± ½ SD)	8.37 – 10.19	7.24 – 8.73
High	> (Mean + ½ SD)	Above 10.19	Above 8.73

3.4.2.11Cosmopoliteness

It is the degree to which an individual is oriented towards the outside social system in order to obtain information on sericulture technologies etc. The procedure followed by Sahana (2003) was followed to know the level of cosmopoliteness of the sericulturists. ies. The respondents were asked to give information regarding frequency of visit to the nearest town and the scoring patterns followed are given below:

Sl. No.	Frequency of visit	Score
1	Seldom	1
2	Once a month	2
3	Once in 15 days	3
4	Once a week	4
5	Twice in a week	5
6	Daily	6

The minimum and maximum score one could get was 1 and 6, respectively. Further, the respondents were categories into three groups based on mean and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 2.50	Below 1.69
Medium	(Mean ± ½ SD)	2.50 – 4.10	1.69 – 2.70
High	> (Mean + ½ SD)	Above 4.10	Above 2.70

3.4.2.12 Deferred gratification

This was operationalized as the postponement of immediate satisfaction by activities of sericulture practices in anticipation of future rewards. A scale developed by Ramegowda (1991) was employed in this study. The scale consisted of ten statements, having the continuum of strongly agree, agree, undecided and disagree with the scoring of 3, 2, 1and 0, respectively for

positive statements and reverse scoring pattern was followed for negative statements. There were five positive and five negative statements in the scale. Minimum and maximum score one could get was 0 and 30, respectively. Based on the total score obtained by the respondents, they were grouped into three categories based on the mean and half standard deviation of the total score.

Category	Criteria	Score	
		Farm men	Farm women
Low	< (Mean- ½ SD)	Below 7.08	Below 6.86
Medium	(Mean ± ½ SD)	7.08 – 11.18	6.86 – 10.84
High	> (Mean + ½ SD)	Above 11.18	Above 10.84

3.4.2.13Attitudetowards sericulture

Attitude scale developed by Joy Mathews and Nagi Reddy (1990) was followed to measure the attitude of respondents towards sericulture. The scale with six positive and six negative statements was administered to the respondents. The responses were obtained on three point continuum namely, 'agree', 'undecided' and 'disagree'. The scoring was in the order of 3, 2 and 1, respectively for positive statements and the reverse scoring for negative statements. Minimum and maximum score one could get was 12 and 36, respectively. The individual score for each of the respondent was obtained by summing up the responses on all items. Based on total scores of the respondents, they were grouped into three categories based on mean score and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Less favourable	<(Mean – ½ SD)	Below 21.09	Below 19.80
Favourable	(Mean ± ½SD)	21.09 to 22.90	19.80 to 21.55
More favourable	> (Mean + ½ SD)	Above 22.90	Above 21.55

3.4.2.14 Farming commitment

It is defined as the degree to which an individual is committed to farming as a profession. Farming commitment scale developed by Ramegowda (1991) was followed to measure the commitment of sericulturists towards farming. The scale with four positive statements and four negative statements was administered to the respondents. The responses were obtained on

fourpoint continuum namely, ‘strongly agree’, ‘agree’, ’undecided’ and ’disagree’. The scoring was in the order of 3, 2, 1 and 0 respectively for positive statements and the reverse scoring for negative statements. Minimum and maximum score a respondent could get was 0 and 24, respectively. The individual score for each of the respondent was obtained by summing up the responses on all items. Based on total scores of the respondents, they were grouped into three categories based on mean score and half standard deviation.

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 14.49	Below 13.67
Medium	(Mean ± ½SD)	14.49to 17.71	13.67 to 16.73
High	> (Mean + ½ SD)	Above 17.71	Above 16.73

3.4.2.15 Mass media exposure

It refers to the frequency of using mass media (newspapers, radio, television and farm publications) used by the respondents. The sericulture farmers were asked to indicate their degree of participation in terms of listening habit, viewing habit and reading habit. The variables were quantified on the basis of procedure followed by Nagananda (2006). The description of the items and scoring procedure followed in the study are mentioned below:

Sl.No	Items	Scores
1	**News paper**	
	Subscriber	1
	Non-subscriber	0
	Read daily	2
	Read occasionally	1
	Never read	0
	Each article contributed and published	1
2	**Radio**	
	Owned	1
	Non-owned	0
	Listened regularly	2
	Listened occasionally	1
	Never listened	0
	Each radio talk given by respondent	1
3	**Television**	
	Owned	1
	Non-owned	0
	Viewed regularly	2

	Viewed occasionally	1
	Never viewed	0
	Each programme participated by respondent	1
4	**Farm magazines**	
	Subscriber	1
	Non-subscriber	0
	Read daily	2
	Read occasionally	1
	Never read	0
	Each article contributed and published	1

The minimum and maximum score one could get was 0 and 18, respectively. Later, based on the total score obtained by the sericulture farmers on mass media exposure, they were grouped into three categories namely, low, medium and high considering based on mean and half standard deviation.

Category	**Criteria**	**Score**	
		Farm men	**Farm women**
Low	<(Mean – ½ SD)	Below 7.81	Below 7.23
Medium	(Mean $\pm$ ½SD)	7.81 to 9.48	7.23 to 8.65
High	> (Mean + ½ SD)	Above 9.48	Above 8.65

3.4.2.16 Training in sericulture

Information regarding whether the respondent had attended the training programme on sericulture or not was documented. The score of one was assigned to the respondents who received training on sericulture activities and a score of zero was given to the respondents who had not undergone any training on sericulture activities.

Training	**Score**
Did not undergo training	0
Undergone training	1

3.4.2.17 Extension agency contact

The extension agency contact refers to the frequency of contact of respondents with the sericulture extension personnel for seeking information about improved cultivation practices, agricultural programmes etc. The procedure followed by Kikon (2010) was followed in the present study to know the extension agency contact of the sericulture farmers. The frequency of

contact of sericulture farmers with sericulture extension personnel and the scoring pattern followed in the research study are as follows:

Frequency of contact	Score
Contacted once in a week	3
Contacted once in a fortnight	2
Contacted when problem arose	1
Never contacted	0

Based on the total score obtained by the sericulturists, they were classified into low, medium and high level of extension agency contact considering mean and half standard deviation as a measure of check

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 7.82	Below 6.83
Medium	(Mean ± ½SD)	7.82 to 9.28	6.83 to 8.21
High	> (Mean + ½ SD)	Above 9.28	Above 8.21

3.4.2.18 Farm scientist contact

It is the degree and extent of contact by the farmers with the farm scientists to seek information on farm enterprises. To measure this variable awareness, frequency of contact and purpose of contact of the farm scientists by the farmers were considered. To measure the farm scientist contact the procedure followed by Lakshminarayan (1998) was used. The scoring patterns followed in the study are presented under.

Item response	Score
1.Awareness of farm scientists	
Not aware	0
Aware	1
2.Frequency of contacts	
Never	0
Sometimes	1
Regularly	2
3.Purpose of contact	
Casual	1
For technical assistant	2

Sum of all these items formed the farm scientist contact score of the farmers. The minimum and maximum score one can get is 0 and 5 respectively. The farmers' farm scientist contact level was classified into low, medium and high based on the mean and half standard deviation as follows;

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 2.38	Below 1.50
Medium	(Mean ± ½SD)	2.38 to 3.60	1.50 to 2.52
High	> (Mean + ½ SD)	Above 3.60	Above 2.52

3.4.2.19 Extension participation

The procedure followed by Nagesh (2006) was used in the present research study. The extension participation refers to the extent of participation of the sericulture farmers in different extension activities viz., meetings/discussion, demonstrations, field visits, farm school, field days, exposure visits, krishimela, fairs, exhibitions and kissan gostis. A score of one and zero was assigned to the participation and non-participation of sericulture farmers in each of the extension activities, respectively. The minimum and maximum score one could obtained was 0 and 10, respectively. Based on the total score obtained, the sericulture farmers were grouped into three categories, namely low, medium and high of extension participation based on mean and half standard deviation as a measure of check.

Category	Criteria	Score	
		Farm men	Farm women
Low	<(Mean – ½ SD)	Below 7.95	Below 7.23
Medium	(Mean ± ½SD)	7.95 to 9.60	7.23 to 8.70
High	> (Mean + ½ SD)	Above 9.60	Above 8.70

3.6 Drudgeries faced by farm men and women in sericulture activities

Drudgeries are the physical problems experienced by farm men and women while carrying out various sericulture activities (mulberry cultivation and silkworm rearing). Respondents were asked to indicate the drudgeries they faced in performing sericulture activities. (mulberry cultivation and silkworm rearing) The collected data was expressed in terms of frequency and percentages.

3.7 Collection of data

Personal interview method was adopted to collect the data from farm men and women. Each question was explained to the respondent during the course of interview. The onlooker's influence was avoided to a considerable extent throughout the study.

3.8 Analysis of data

The collected data was scored, tabulated and analyzed using percentage, frequency, mean, standard deviation, student 't' test, chi-square test and multiple regression analysis.

3.8.1 Arithmetic mean

It is defined as the sum of all values of the observations divided by the total number of observations. It was used for the categorization of respondents on all the variables of the study.

3.8.2 Standard deviation (SD)

It is the positive square root of the squared deviations taken from the arithmetic mean. It was used to find out the variation in the scores on variables and categorization of respondents. Both mean and standard deviation were used to classify the respondents into three categories as follows.

Category	Criteria
Low	<(Mean - $^1/_2$ SD)
Medium	(Mean ± $^1/_2$ SD)
High	>(Mean + $^1/_2$ SD)

3.8.3 Frequencies

A frequency distribution was used to quantify the profile characteristics and druggery faced by farm men and women in sericulture activities.

3.8.4 Percentage

Percentage was used to make the simple comparison of different groups where ever needed.

3.8.5 Student ‘t’ test

Student ‘t’ test was used to compare the two sample means in which observation of one sample can be paired with observations of the other sample. The test was used to compare the mean knowledge, decision making and participation scores of farm men and women.

3.8.6 Chi-square test

The chi-square test was applied to find out the association between independent (19profile characteristics) and dependent (knowledge, decision making pattern and extent of participation) variables

3.9 Conceptual model of the study

Conceptually the independent and dependent variables selected for the study are presented in figure 2. It is conceived that the dependent (knowledge, decision making pattern and participation) are influenced by 19 independent variables (profile characteristics of the respondents).

Fig. 2: Conceptual model of the study depicting the variables selected for the study

IV RESULTS AND DISCUSSION

The findings of the research has been presented on the basis of analysis of data using relevant statistical tools and techniques in relation to the specific objectives set for the study. The results of the study are presented under the following sub headings:

4.1 Knowledge of farm men and women regarding recommended sericulture technologies

4.2 Decision making pattern of farm men and women on sericulture technologies

4.3 Participation of farm men and women in sericulture activities

4.4 Profile characteristics of farm men and women

4.5 Association between profile characteristics of farm men and women with their knowledge, decision making pattern and participation in sericulture technologies/ activities

4.6 Drudgeries faced by farm men and women in sericulture activities

4.1Knowledge of farm men and women regarding recommended sericulture technologies

This section deals with the research results pertaining to the activity-wise knowledge of farm men and women regarding recommended mulberry cultivation (Table 1) and silkworm rearing practices (Table 2).

4.1.1 Knowledge of farm men and women regrading recommended mulberry cultivation practices

It is observed from Table 1 that, a vast majority of farm men had correct knowledge on soil testing (2-3 years once) (96.66%) and soil type (red soil /sandy loam soil/laterite soil/red loamy soil) (93.33%), whereas a majority of farm women had correct knowledge on soil testing (2-3 years once) (60.00%) and soil type (red soil /sandy loam soil/laterite soil/red loamy soil) (61.66%). In respect of land preparation, an overwhelming number of the farm men possessed correct knowledge on deep digging (30-35 cm depth) /ploughing of land (90.00%) and pit size

(1×1×1ft) (91.66%), whereas less than half of the farm women possessed correct knowledge on deep digging (30-35 cm depth) /ploughing of land (46.66%) and pit size (1×1×1ft) (38.34%).

With regard to spacing, it is observed from Table 1 that a majority of farm men had correct knowledge on the spacing provided for paired row system {(3×2ft)+5ft}(61.66%) and pit system (90×90cm) (88.34%), while a little over one-fourth of the farm men (26.66%) had correct knowledge on the spacing provided for the tree system (6×6,8×8,10×10 ft). On the other hand, a lesser number of farm women had correct knowledge on the spacing provided for paired row system {(3×2ft)+5ft} (26.66%) and pit system (90×90cm) (25.00%) and tree system (6×6,8×8,10×10 ft) (15.00 %).

Similarly, the results in Table 1 also reveals that a majority of the farm men had correct knowledge on the pit method (61.66%) and paired row (88.34%) method of planting mulberry cuttings, while 26.66 per cent of the farm men had correct knowledge on the tree type of planting. Less than one-third of the farm women had correct knowledge on pit (26.66%), paired row (25.00%) and tree (15.00%) type of planting mulberry cuttings. Mulberry could be planted in all the three types of planting methods, however the pit system of planting is more popular in Ramanagar district compared to paired row and tree system of planting mulberry cuttings, hence less number of farm men and women possessed correct knowledge on tree system of planting mulberry cuttings.

Almost all the farm men had correct knowledge on the recommended variety of mulberry(V-1 and S36) (98.33%), while a majority of the farm women had correct knowledge on the recommended variety of mulberry (V-1 and S36) (68.33%). In respect of the preparation of mulberry cuttings, a vast majority of the farm men had correct knowledge on mulberry cuttings length (20-22 cm) (95.00%) and age of mulberry saplings to be planted in the main field (4 months old) (86.66%), whereas a majority of the farm women had correct knowledge on mulberry cuttings length (20-22 cm) (60.00%) and age of mulberry saplings to be planted in the main field (4 months old) (53.33%).

A majority of the farm men possessed correct knowledge on the quantity of FYM/compost (20t/ha) (95.00%), quantity of fertilizers (350N:140P:140K/kg/ha) (93.33%) and quantity of micronutrients (2.5 litres of Seriboost/ha or 2.5 litre of poshan in 350 litres of water

/ha) (71.66%) to be applied for mulberry crop, where a majority of the farm women possessed correct knowledge on quantity of FYM/compost (20t/ha) (53.33%) and quantity of fertilizers (350N:140P:140K/kg/ha) (61.66%) to be applied for mulberry crop. A little over one-third of the farm women (38.33%) possessed correct knowledge on the quantity of micronutrients (2.5 litres of Seriboost/ha or 2.5 litre of poshan in 350 litres of water /ha) to the mulberry crop.

In respect of the number of irrigations for mulberry crop, a greater majority of farm men had possessed correct knowledge on surface irrigation(2-3times/week) (86.66%), flood irrigation (2-3 times/week) (95.00%) and drip irrigation (45 time /week) (91.66%). Whereas, more than half of the farm women had correct knowledge on flood irrigation (2-3 times/week) (56.66%) and less than half of the farm women had correct knowledge on surface irrigation (2-3times/week) (36.66%) and drip irrigation (45 time /week) (46.66%). It was noticed during the data collection the mulberry crop is being irrigated by all the three methods of irrigations by the respondents.

With regard to the weeding in mulberry plots, a greater majority of the farm men possessed correct knowledge on number of weedings (15 days once) (96.66%) and application of weedicide (600 l/ha) (98.33%), while a majority of the farm women had correct knowledge on number of weedings (15 days once) (56.66%) and 45.00 per cent of the farm women possessed correct knowledge on application of weedicide (600 l/ha).

With respect to the physical method of controlling pests, as high as 96.66 per cent of the farm men had correct knowledge on the installation of light traps /pheromone traps to attract defoliating pests in mulberry gardens, while 61.66 per cent of the farm women had correct knowledge on the installation of light traps /pheromone traps to attract defoliating pests in mulberry gardens.

In respect of the chemical method of controlling pests, an overwhelming number of farm men possessed correct knowledge on spraying of 0.4% neem oil for managing pink mealy bug (93.33%), application of paste 0.1% malathion for managing stem borer (91.66%), spraying of 0.2% carbendazim mixed with 50% WP(wettable power) to manage leaf spot disease (96.66%), spraying of 0.2%carbendazim with 50% WP(wettable power) to control powdery mildew (98.33%), spraying of 100ppm (parts per million) streptocyclin @1g/10L to manage blast disease (96.66%) and spraying of 0.1% of carbendazim to manage stem canker disease (93.33%),

whereas less than half of the farm women possessed correct knowledge on spraying of 0.4% neem oil for managing pink mealy bug (43.33%), application of paste 0.1% malathion for managing stem borer (41.66%), spraying of 0.2% carbendazim mixed with 50% WP(wettable power) to manage leaf spot disease (35.00%), spraying of 0.2%carbendazim with 50% WP(wettable power) @48EC to control powdery mildew (41.66%), spraying of 100ppm (parts per million) streptocyclin @1g/10L to manage blast disease (40.00%) and spraying of 0.1% of carbendazim to manage stem canker disease (33.33%),

The results pertaining to the biological method of controlling pests, it was found that a vast majority of the farm men had correct knowledge on releasing of eggparasitoid @ 10 tricho cards/ha to control of leaf webber (91.66%), while a little over one-third of the farm women had correct knowledge on releasing of egg parasitoid @ 10 tricho cards/ha to leaf webber (35.00%).

In respect of harvesting of mulberry leaves, the results revealed that all the farm men had correct knowledge on time of harvesting (morning/evening) (100.00%), while a vast majority of them (98.33%) had correct knowledge regarding the period of harvesting of leaves (30 days from DAP (day of pruning)/ 35days from DAP/40days from DAP/ 45days from DAP). On the other hand, almost all the farm women had correct knowledge on time of harvesting (morning/evening) (98.33%) and period of harvesting of leaves (30 days from DAP (day of pruning)/ 35days from DAP/40days from DAP/ 45days from DAP) (96.66%).

Table 1: Knowledge of farm men and women regarding recommended mulberry cultivation practices

Sl. No.	Mulberry cultivation practices	Correct knowledge			
		Farm men (n_1=60)		Farm women (n_2=60)	
		No.	%	No.	%
1	Soil testing (2-3 years once)	58	96.66	36	60.00
2	Soil type (red soil /sandy loam soil/laterite soil/red loamy soil)	56	93.33	37	61.66
3.	Land preparation				
a	Deep digging (30-35 cm depth) /ploughing of land	54	90.00	28	46.66

b	Pit size (1×1×1ft)	55	91.66	23	38.34
c	Spacing				
i	Paired row system {(3×2) +5ft}	37	61.66	16	26.66
ii	Pit system (90×90cm)	53	88.34	15	25.00
iii	Tree system (6×6,8×8,10×10 ft)	16	26.66	09	15.00
d	Planting method				
i	Pit	37	61.66	16	26.66
ii	Paired row	53	88.34	15	25.00
iii	Tree type	16	26.66	09	15.00
4.	Mulberry variety (V-1/S36)	59	98.33	41	68.33
5	Preparation of mulberry cuttings				
a	Mulberry cuttings length (20-22 cm)	57	95.00	36	60.00
b	Age of mulberry saplings to be planted in the main field (4 months old)	52	86.66	32	53.33
6.	Quantity of FYM/compost (20t/ha)	57	95.00	32	53.33
7.	Quantity of fertilizers (350N:140P:140K/kg/ha)	56	93.33	37	61.66
8.	Quantity of micronutrients (2.5 litres of Seriboost/ha or 2.5 litre of poshan in 350 litres of water /ha)	43	71.66	23	38.33
9.	Number of irrigations				
a	Surface irrigation (2-3times/week)	52	86.66	22	36.66
b	Flood irrigation (2-3 times/week)	57	95.00	34	56.66
c	Drip irrigation (1.5-2 liter/day/plant)	55	91.66	28	46.66
10.	Weeding (once after 20 days of Pruning)				
a	Number of weedings (15 days once)	58	96.66	34	56.66
b	Application of weedicide (600 l/ha)	59	98.33	27	45.00
11	Integrated pest and disease management practices				
a	Physical method				
i	Installing light traps /pheromone traps to attract defoliating pests in mulberry garden	58	96.66	37	61.66
b.	Chemical method				

i	Spraying of 0.4% neem oil for managing pink mealy bug	56	93.33	26	43.33
ii	Application of paste 0.1% malathion for managing stem borer	55	91.66	25	41.66
iii	Spraying of 0.2% carbendazim mixed with 50%WP (wettable power) to manage leaf spot disease	58	96.66	21	35.00
iv	Spraying of 0.2% carbendazim with 50%WP (wettable power) to control powdery mildew	59	98.33	25	41.66
v	Spraying of 100ppm (parts per million) streptocyclin @1g/10L to manage blast disease	58	96.66	24	40.00
vi	Spraying of 0.1% of carbendazim to manage stem canker disease	56	93.33	20	33.33
c	Biological method				
i	Releasing of egg parasitoid @10 tricho cards/ac to control of leaf webber	55	91.66	21	35.00
12	Harvesting of mulberry leaves				
a.	Time of harvesting (morning/evening)	60	100.00	59	98.33
b.	Period of harvesting of leaves (30days from DAP (day after pruning)/35days from DAP/40days from DAP/45days from DAP)	59	98.33	58	96.66

The results revealed that almost all the farm men had correct knowledge regarding the recommended mulberry cultivation practices, while less than half of the farmwomen had correct knowledge on deep digging, pit size, spacing, planting method, quantity of micro nutrients applied for mulberry crop, irrigation, application of weedicide, and chemical and biological methods of controlling pests. Due to lack of awareness among the farm women regarding the above technologies, majority of the farm women did not possess correct knowledge on deep digging, pit size, spacing, planting method, quantity of micro nutrients applied for mulberry crop, irrigation, application of weedicide, and chemical and biological methods of controlling pests. The above technologies involve more of physical work and farm women do not regularly perform these operations in the mulberry fields, hence less than half of the farm women lack knowledge on these technologies.

4.1.2. Knowledge of farm men and women regarding recommended silkworm rearing practices

The research data in Table 2 presents the data on the knowledge of farm men and women regarding the recommended silkworm rearing practices.

In respect of the use of disinfectants, a vast majority of the farm men had correct knowledge on disinfectant name (bleaching powder) (81.66%), quantity of disinfectants used (200g/ha) (93.33%) and equipment/appliance used for disinfection (91.66%), while a majority of the farm women also had correct knowledge on disinfectant name (bleaching powder) (55.00%),quantityof disinfectants used (200g/ha) (51.66%) and equipment/appliance used for disinfection (53.33%).

A majority of the farm men possessed correct knowledge on the temperature maintenance at rearing house (85.00%), relative humidity maintenance at rearing house (90.00%), procurement of silkworms through eggs /chawki (85.00%) and the name of the silkworm breed (58.33%). While, more than half of the farm women also possessed correct knowledge regarding the temperature maintenance at rearing (60.00%), relative humidity maintenance at rearing house rearing (58.33%), procurement of silkworms through eggs /chawki (76.66%) and the name of the silkworm breed (63.33%).

With regard to the method of silkworm rearing, almost all the farm men had correct knowledge on tray method (98.33%) and shoot method of rearing silkworm (96.66%). while a majority of the farm women had correct knowledge on the tray method (66.66%) and shoot method of rearing silkworm (51.66%).

The findings with respect to the insta-wise feeding frequency, all the farm men had correct knowledge on the feeding frequency in 1st instar (100.00%), 2nd instar (100.00%) and 3rd instar (100.00%), while 98.33 per cent of the farm men had correct knowledge on the feeding frequency during 4th instar. A greater majority of the farm women had correct knowledge on the feeding frequency in 1st instar (88.33%), 2nd instar (93.33%), 3rd instar (95.00%) and 4th instar (96.66%).

More than half of the farm men possessed correct knowledge regarding bed spacing (100 dfls with breed) (95.00%), bed cleaning (96.66%), incubation of dfls (85.00%), black boxing of

dfls (83.33%), brushing of dfls (70.00%) and density of worms in moulting per unit area (sq.feet) (93.33%). Similarly, more than half of the farm women had correct knowledge regarding bed spacing (100 dfls with breed) (93.33%), bed cleaning (91.66%), incubation of dfls (68.33%), black boxing of dfls (70.00%), brushing of dfls (66.66%) and density of worms in moulting per unit area (sq.feet) (68.33%).

With respect to the disease management of silkworms, an overwhelming number of farm men possessed correct knowledge on use of bed infectants (91.66%) and lime+fungicide (96.66%), Whereas, a majority of the farm women had possessed correct knowledge on use of bed infectants (70.00%) and lime + fungicide (66.66%). In respect of pest management, a vast majority of farm men had correct knowledge on the use of meshes to ventilator or window to control uji fly (96.66%), while 70.00 per cent of the farm women had correct knowledge on the use of meshes to ventilator or window to control uji fly.

A vast majority of the farm men possessed correct knowledge on the number of days required for cocoon harvesting (96.66%) and all the farm men had possessed correct knowledge on the cocoon harvesting (100.00%). Whereas, more than two-third of the farm women had possessed correct knowledge on the number of days required for cocoon harvesting (76.66%) and all the farm women had possessed correct knowledge on the cocoon harvesting (100.00%)

Table 2: Knowledge of farm men and women regarding recommended silkworm rearing practices

Sl. No.	Silkworm rearing practices	Correct knowledge			
		Farm men (n_1=60)		Farm women (n_2=60)	
		No.	%	No.	%
1	Use of disinfectants				
a	Disinfectant name (Bleaching powder)	49	81.66	33	55.00
b	Quantity of disinfectants used (200g/ha)	56	93.33	31	51.66
c	Equipment/appliance used for disinfection	55	91.66	32	53.33
2.	Temperature maintenance at rearing house	51	85.00	36	60.00
3	Relative humidity maintenance at rearing house	54	90.00	35	58.33
4.	Procurement of silkworms through eggs /chawki	51	85.00	46	76.66

5	Name of the silkworm breed	35	58.33	38	63.33
6	Method of silkworm rearing				
a	Tray method	59	98.33	40	66.66
b	Shoot method	58	96.66	31	51.66
7.	Instar-wise feeding frequency				
a	1st instar	60	100.00	53	88.33
b	2nd instar	60	100.00	56	93.33
c	3rd instar	60	100.00	57	95.00
d	4th instar	59	98.33	58	96.66
8.	Bed spacing (100 dfls with breed)	57	95.00	56	93.33
9	Bed cleaning	58	96.66	55	91.66
10	Incubation of dfls	51	85.00	41	68.33
11	Black boxing of dfls	50	83.33	42	70.00
12	Brushing of dfls	42	70.00	40	66.66
13	Density of worms in moulting per unit area (sq.feet)	56	93.33	41	68.33
14	Disease management				
a	Use of bed infectants	55	91.66	42	70.00
b	Use of lime +fungicide	58	96.66	40	66.66
15	Pest management				
a	Use of meshes to ventilator or window to control uji fly	58	96.66	42	70.00
16	Number of days required for cocoon harvesting	58	96.66	46	76.66
17	Cocoon harvesting	60	100.00	60	100.00

It can be inferred from the study results that a majority of the farm men and women possessed correct knowledge on almost all the recommended silkworm rearing practices. Both farm men and women have actively participated in the rearing silkworms, hence they have correct/good knowledge on the recommended silkworm rearing practices.

4.1.3 Overall knowledge of farm men and women regarding the recommended sericulture technologies

The results in Tables3, 4 and 5 presents the data on the overall knowledge of farm men and women regarding the recommended mulberry cultivation, silkworm rearing practices and sericulture technologies, respectively.

4.1.3.1Overall knowledge of farm men and women regarding the recommended mulberry cultivation practices.

It is observed from Table 3and Fig. 3that a large number of farm men had high level of knowledge (48.33%) on recommended mulberry cultivation practices followed by 31.67 per cent and 20.00 per cent of farm men having medium and low level of knowledge on recommended mulberry cultivation practices, respectively. On the contrary, a greater number of farm women were having medium level of knowledge (45.00%) regarding the recommended cultivation practices, followed by 30.00 per cent and one-fourth of the farm women (25.00%) having low and high level of knowledge regarding the recommended mulberry cultivation practices, respectively. The results also revealed that the 't' value (1.77) was found to be significant at five per cent level indicating that there exists a significant difference in the mean knowledge score between the farm men (26.33) and women (21.63) in respect of there commended mulberry cultivation practices. Almost all the farm men had correct knowledge regarding the recommended mulberry cultivation practices, while less than half of the farm women had correct knowledge on deep digging, pit size, spacing, planting method, quantity of micro nutrients applied for mulberry crop, irrigation, application of weedicide, and chemical and biological methods of controlling pests, hence there existed a significant difference in the mean knowledge score between the farm men and women in respect of the recommended mulberry cultivation practices.

Table 3: Overall knowledge of farm men and women regarding the recommended mulberry cultivation practices

Sl.No.	Knowledge category	Number	Per cent	Standard deviation	Mean knowledge score	't' value
A	Farm men (n_1=60)					
1	Low (<24.21 score)	12	20.00	4.24	26.33	1.77*
2	Medium (24.21 to 28.45 score)	19	31.67			
3	High (>28.45 score)	29	48.33			
Total		60	100.00			

B	Farm women (n_2=60)					
1	Low (<19.98 score)	18	30.00	3.31	21.63	
2	Medium (19.98 to 23.28 score)	27	45.00			
3	High (>23.28 score)	15	25.00			
Total		60	100.00			

*Significant at 5%

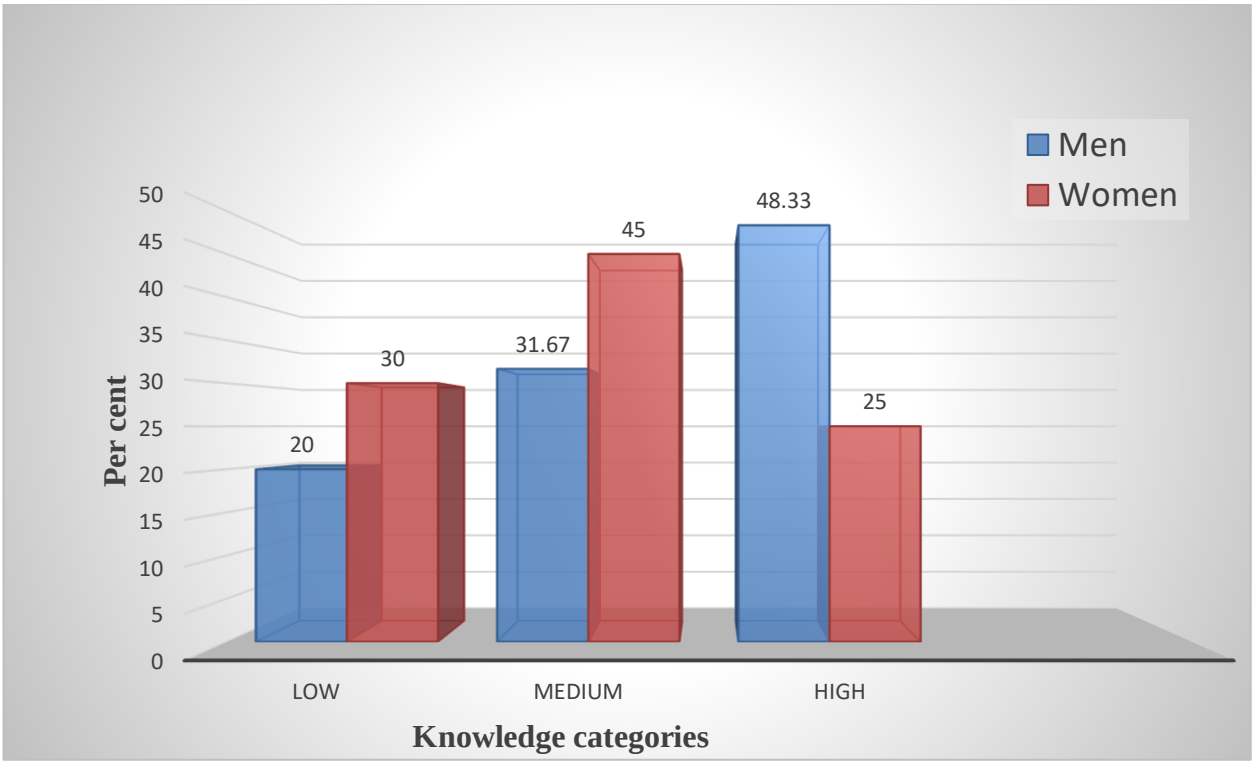


Fig. 3: Overall knowledge level of farm men and women regarding mulberry cultivation practices

4.1.3.2 Overall knowledge of farm men and women regarding the recommended silkworm rearing practices.

It could be seen from Table 4and Fig. 4that nearly half of the farm men (46.47%) possessed high level of knowledge regarding the recommended silkworm rearing practices, whereas 28.33 per cent and one-fourth (25.00%) of the farm men possessed medium and low level of knowledge regarding the recommended silkworm rearing practices, respectively. Likewise, a greater proportion of farm women had possessed high level of knowledge (43.34%) regarding the recommended silkworm rearing practices, while 31.66 per cent and one-fourth (25.00%) of the farm women had possessed medium and high level of knowledge regarding the recommended silkworm rearing practices. The 't' value (0.98) revealed that there existed no significant difference in the mean knowledge score between the farm men (20.21) and women (19.02). Majority of the farm men and women possessed correct knowledge on almost all the recommended silkworm rearing practices and both farm men and women have actively participated in the rearing silkworms, hence both they have good knowledge on the recommended silkworm rearing practices. As a result, there existed no significant difference in the mean knowledge score between the farm men and women inrespect of the recommended mulberry cultivation practices.

Table 4: Overall knowledge of farm men and women regarding the recommended silkworm rearing practices

Sl. No.	Knowledge category	Number	Per cent	Standard deviation	Mean knowledge score	't' value
A	Farm men (n_1=60)					
1	Low (<18.58score)	15	25.00	3.25	20.21	0.98 ^{NS}
2	Medium (18.58 to 21.83 score)	17	28.33			
3	High (>21.83 score)	28	46.67			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low	15	25.00	3.02	19.02	

	(<17.51 score)					
2	Medium (17.51 to 20.53 score)	19	31.66			
3	High (>20.53 score)	26	43.34			
Total		60	100.00			

NS=Non significant

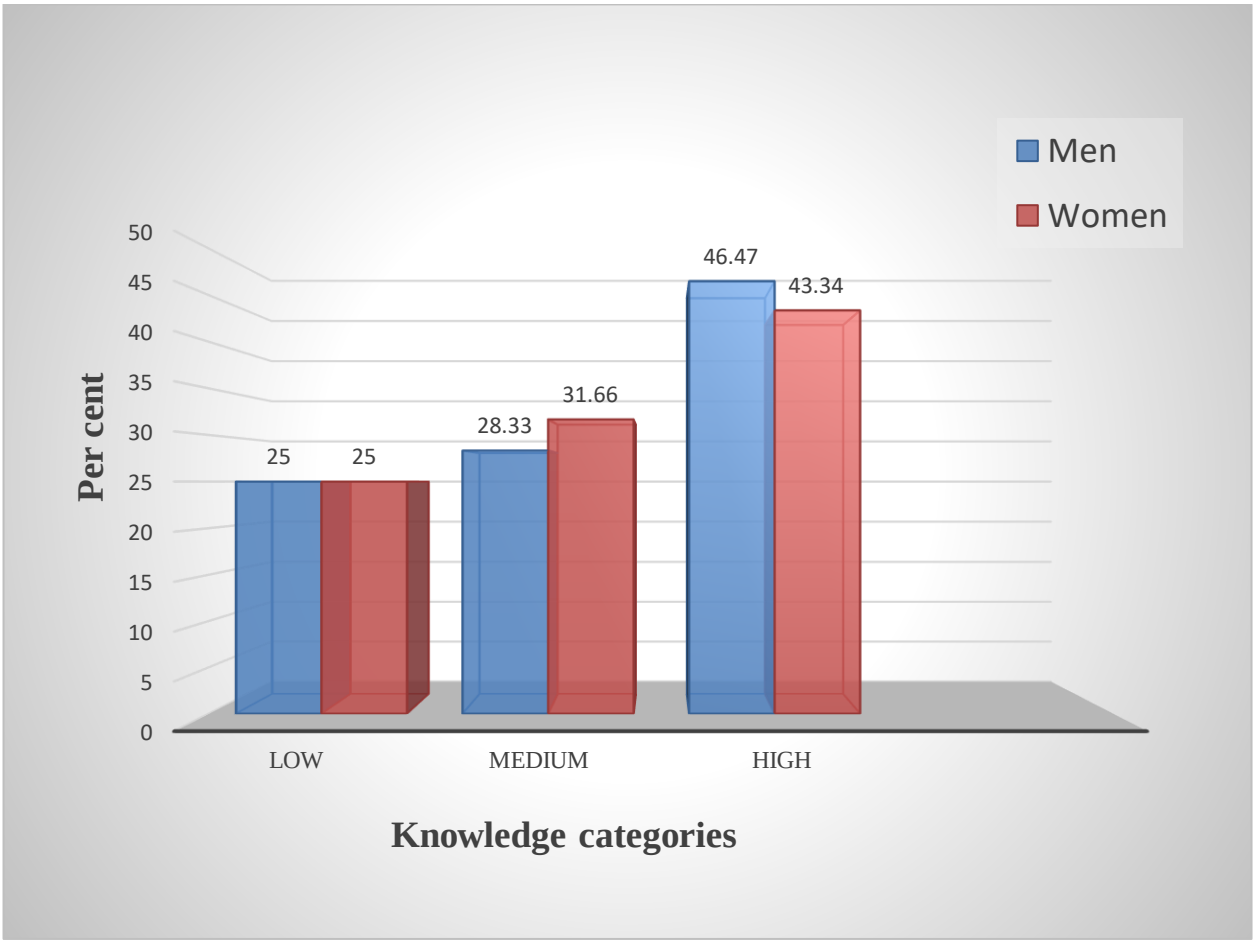


Fig. 4: Overall knowledge level of farm men and women regarding silkworm rearing practices

4.1.3.3 Overall knowledge of farm men and women regarding the recommended sericulture technologies

The findings with respect to the overall knowledge of farm men and women regarding recommended sericulture technologies is presented in Table 5 and Fig. 5. The results revealed that a larger proportion of the farm men (46.66%) were having high level of knowledge regarding improved sericulture technologies, followed by 30.00 and 23.34 per cent of the farm men having medium and low level of knowledge regarding improved sericulture technologies, respectively. On the other hand, a greater number of farm women (35.00%) were having medium level of knowledge regarding recommended sericulture technologies, followed by one-third (33.33%) and 31.67 per cent of the farm women were having high and low level of knowledge regarding recommended sericulture technologies, respectively. It is evident from the results that the 't' value (1.88) was found to be significant at five per cent level indicating that there exists a significant difference in the mean knowledge score between the farm men (46.54) and women (40.65) in respect of the recommended sericulture technologies. Less number of farm women had possessed correct knowledge on the recommended mulberry cultivation practices, hence the 't' value is exhibited a significant difference in the mean knowledge score between the farm men and women in the recommended sericulture technologies. The above findings are in line with the findings reported by Chandan (2019), Karmar (2019), Yedide Sudhamani (2019) and Sathish (2022).

Table 5: Overall knowledge of farm men and women regarding the recommended sericulture technologies

Sl.No.	Knowledge category	Number	Per cent	Standard deviation	Mean knowledge score	't' value
A	Farm men (n_1=60)					
1	Low(<42.80 score)	14	23.34	7.49	46.54	1.88*
2	Medium(42.80 to 50.28 score)	18	30.00			
3	High(>50.28 score)	28	46.66			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low(<37.49 score)	19	31.67	6.33	40.65	
2	Medium(37.49 to 43.81score)	21	35.00			
3	High(>43.81score)	20	33.33			

Total	60	100.00			

*Significant at 5%

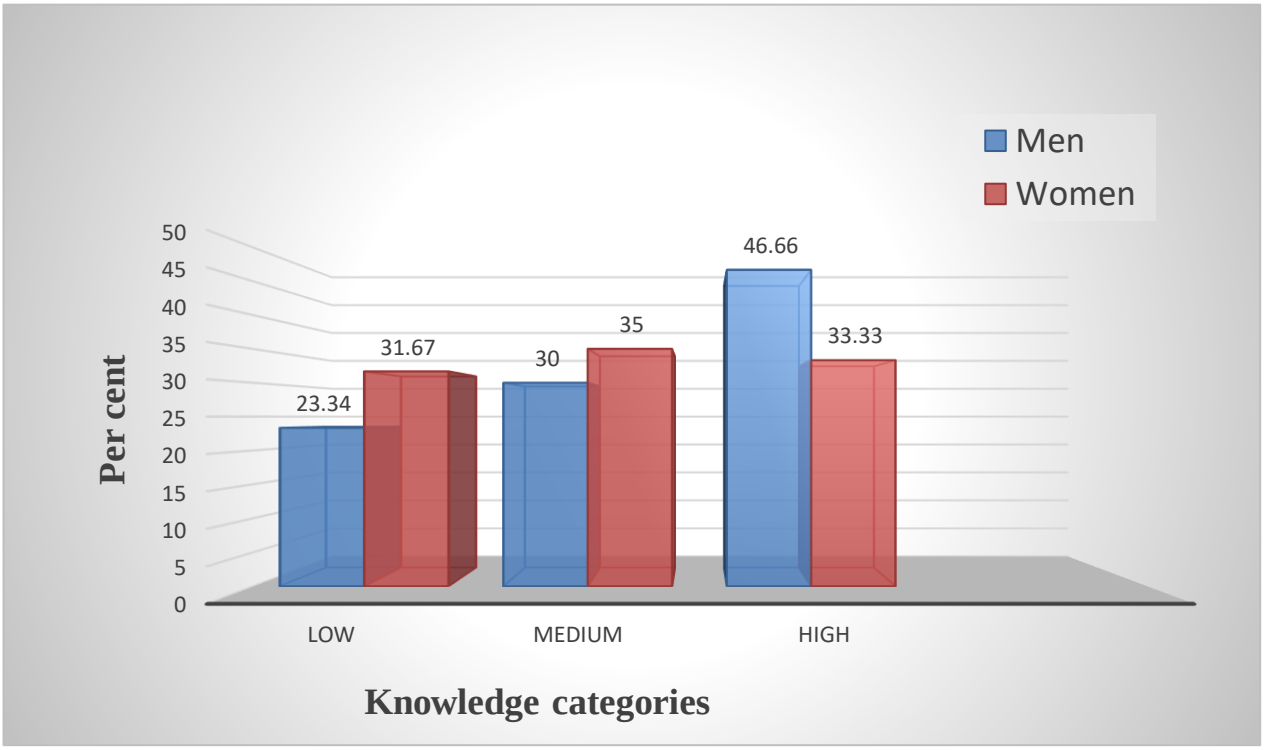


Fig. 5: Overall knowledge level of farm men and women regarding sericulture technologies

Since there is significant difference between farm men and women regarding the knowledge on the recommended sericulture technologies, the null hypothesis set forth for the research study that 'there is 'no difference in the knowledge level of farm men and women regarding the recommended sericulture technologies', is rejected.

4.2. Decision making pattern of farm men and women on sericulture technologies

The findings in respect of the decision making pattern of farm men and women on the mulberry cultivation, silkworm rearing and sericulture technologies are presented in Tables 6, 7 and 8, respectively.

4.2.1. Decision making pattern of farm men and women on mulberry cultivation practices

A glance at Table 6 reveals that cent per cent of the decision on land preparation (100.00%) was taken up by farm men alone, while the decisions on the recommended mulberry

cultivation practices, such as soil testing (86.66%, 3.34% and 10.00%), pruning (86.66%, 6.67%and 6.67%), spacing (80.00%, 10.00% and 10.00%), planting method (83.33%, 3.33% and 13.33%), preparation of mulberry cuttings (90.00%, 5.00% and 5.00%), mulberry variety (90.00%, 6.66% and 3.34%), application of organic manure (83.34%, 13.33% and 3.33%),application of chemical fertilizers (86.66%, 10.00% and 3.34%), application of micronutrients (80.00%, 10.00% and 10.00%), irrigation (80.00%, 8.34% and 11.66%), weeding/inter-cultivation (70.00%, 20.00% and 10.00%), integrated pest management (83.34%, 6.66% and 10.00%) and leaf harvesting (86.66%, 11.66% and 1.68%) were done by farm men alone, farm women alone and by both/together with family members, respectively. It is observed from the above findings that the decisions on all the mulberry cultivation practices were taken by farm men alone.

On the whole, it could be seen that farm women are not considered in the forefront when it comes to decision making with respect to the mulberry cultivation practices. In some cases, farm women deliberately do not take part in decision making because men put blame on them if something goes wrong. Lack of knowledge on the mulberry cultivation practices among farm women and other members of the family might be also the reason for the farm men for not involving farm women and other members of the family in making decisions.

Table 6: Decision making pattern of farm men and women on mulberry cultivation practices (n= 60)

Sl. No.	Mulberry cultivation practices	Decision making pattern					
		Farm men alone		Farm women alone		Both/together with family members	
		No.	%	No.	%	No.	%
1	Soil testing	52	86.66	2	3.34	6	10.00
2	Pruning	52	86.66	4	6.67	4	6.67
3	Land preparation	60	100.00	0	0.00	0	0.00
4	Spacing	48	80.00	6	10.00	6	10.00
5	Planting method	50	83.34	2	3.33	8	13.33
6	Preparation of mulberry cuttings	54	90.00	3	5.00	3	5.00
7	Mulberry variety	54	90.00	4	6.66	2	3.34
8	Application of organic manure	50	83.34	8	13.33	2	3.33
9	Application of chemical fertilizers	52	86.66	6	10.00	2	3.34

10	Application of micro-nutrients	48	80.00	6	10.00	6	10.00
11	Irrigation	48	80.00	5	8.34	7	11.66
12	Weeding/intercultivation	42	70.00	12	20.00	6	10.00
13	Integrated pest management practices	50	83.34	4	6.66	6	10.00
14	Leaf harvesting	52	86.66	7	11.66	1	1.68

4.2.2.Decision making pattern of farm men and women on silkworm rearing practices

The findings in Table 7 indicates that the decision on silkworm rearing practices *viz.*,use of disinfectants (66.66%, 26.66% and 6.68%), temperature maintenance at rearing house (80.00%, 13.33% and 6.67%), relative humidity maintenance at rearing house (83.34%, 13.33% and 3.33%), and selection of silkworm breed (80.00%, 11.66% and 8.34%), feeding of silkworms (86.66%, 10.00% and 3.34%), bed spacing (80.00%, 13.33% and 6.67%), bed cleaning (80.00%, 11.66% and 8.34%), moulting care (76.66%, 15.00% and 8.34%), pest management (96.66%, 0% and 3.34%), disease management (96.66%, 0% and 3.34%) and cocoon harvesting (80.00%, 16.66% and 3.34%)were done by farm men alone, farm women alone and by both/together with family members, respectively. The findings revealed that decisions on all the silkworm rearing practices were taken up by farm men alone. The reasons quoted under item 4.2.1. also holds-good here.

Table 7: Decision making pattern of farm men and women on silkworm rearing practices

(n= 60)

Sl. No.	Silkworm rearing practices	Decision making pattern					
		Farm men		Farm women		Both/ Together with family Members	
		No.	%	No.	%	No.	%
1	Use of disinfectants	40	66.66	16	26.66	4	6.68
2	Temperature maintenance at rearing house	48	80.00	8	13.33	4	6.67
3	Relative humidity maintenance at rearing house	50	83.34	8	13.33	2	3.33
4	Selection of silkworm breed	48	80.00	7	11.66	5	8.34

5	Feeding of silkworms	52	86.66	6	10.00	2	3.34
6	Bed spacing	48	80.00	8	13.33	4	6.67
7	Bed cleaning	48	80.00	7	11.66	5	8.34
8	Moulting care	46	76.66	9	15.00	5	8.34
9	Pest management	58	96.66	0	0.00	2	3.34
10	Disease management	58	96.66	0	0.00	2	3.34
11	Cocoon harvesting	48	80.00	10	16.66	2	3.34

4.2.3. Overall decision making pattern of farm men and women on sericulture technologies

This section deals with the overall decision making pattern of farm men and women on the mulberry cultivation (Table 8), silkworm rearing practices (Table 9) and sericulture technologies (Table 10).

4.2.3.1. Overall decision making pattern of farm men and women on mulberry cultivation practices

The results in Table 8and Fig. 6reveals that a majority of the farm men were belonging to the high decision making category (65.00%), while 20.00 per cent and 15.00 per cent of the farm men were belonging to medium and low decision making category, respectively. On the other hand, 65.00 per cent of the farm women were belonging to low decision making category,

whereas one-fourth (25.00%) and ten per cent of the farm women were belonging to the medium and high decision making category, respectively. The ‘t’ value (4.89) was found to be highly significant at one per cent level indicating that there exists a highly significant difference in the mean decision makingscore between the farm men (12.98) and women (3.67) in respect of the mulberry cultivation practices/technologies.

Table 8: Overall decision making pattern of farm men and women on mulberry cultivation practices

Sl. No.	Decision making category	Number	Per cent	Standard deviation	Mean decision making	‘t’ value

					score	
A	Farm men (n_1=60)					
1	Low (<11.67score)	9	15.00	2.61	12.98	4.89**
2	Medium (11.67 to 14.28score)	12	20.00			
3	High (>14.28score)	39	65.00			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low (<3.06score)	39	65.00	1.21	3.67	
2	Medium (3.06 to 4.27 score)	15	25.00			
3	High (>4.27score)	06	10.00			
Total		60	100.00			

**Significant at 1%

4.2.3.2. Overall decision making pattern of farm men and women on silkworm rearing technologies/activities

A bird's eye view of Table 9and Fig. 7 reveals that as high as 61.67 per cent of the farm men were belonging to high decision making category, while 20.00 and 18.33 per cent of the farm men were belonging to medium and low decision making category, respectively. On the

contrary, a majority of farm women (58.34%) of the farm women were belonging to low decision making category, whereas a little over one-fourth (26.66%) and 15.00 per cent of the farm women were belonging to medium and low decision making category, respectively. The 't' value (3.99) value was found to be highly significant at one per cent level indicating that there is a highly significant difference in the mean decision making score between the farm men (9.10) and women (2.99) in respect of the recommended silkworm rearing practices/technologies.

Table 9: Overall decision making pattern of farm men and women regarding the recommended silkworm rearing practices

Sl. No.	Decision making category	Number	Per cent	Standard deviation	Mean decision making score	't' value
A	Farm men (n_1=60)					
1	Low (<8.10score)	11	18.33	1.99	9.10	3.99**
2	Medium (8.10 to 10.09score)	12	20.00			
3	High (>10.09score)	37	61.67			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low (<2.48score)	35	58.34	1.01	2.99	
2	Medium (2.48 to 3.50score)	16	26.66			
3	High (>3.50score)	09	15.00			
Total		60	100.00			

**Significant at 1%

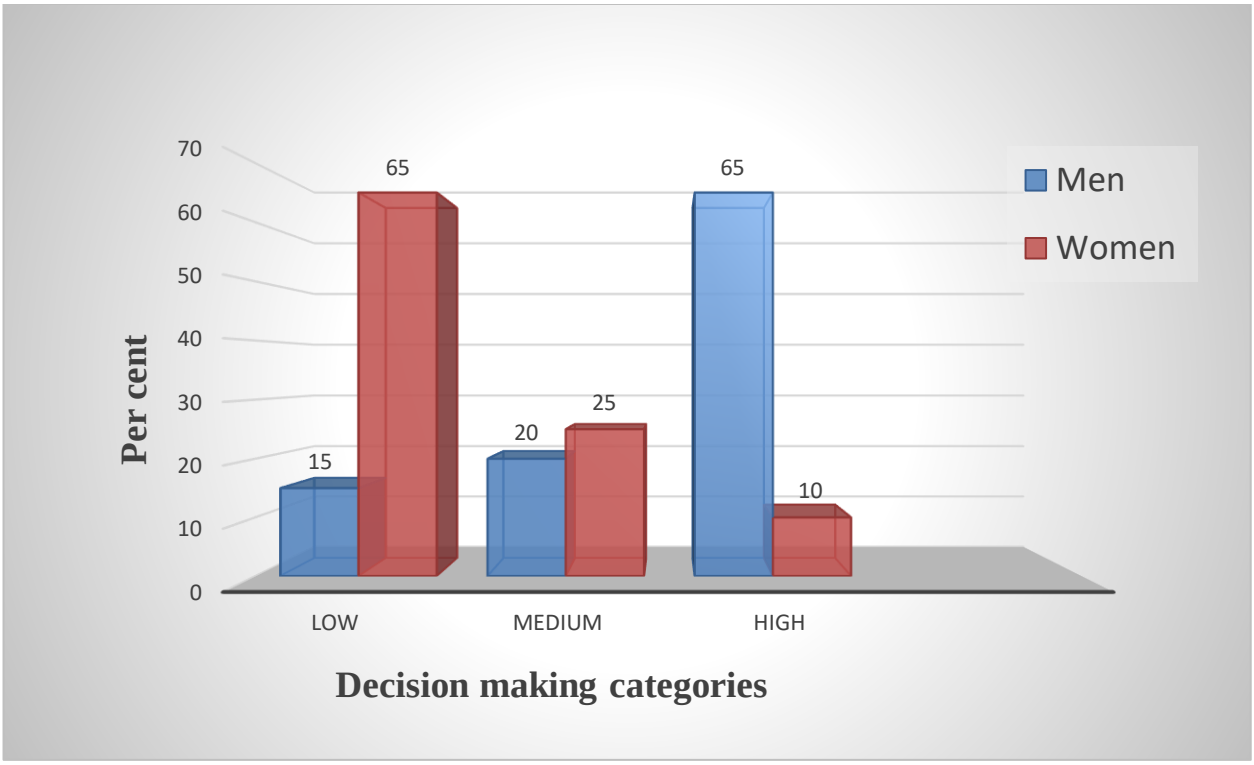


Fig. 6: Overall decision making pattern of farm men and women regarding mulberry cultivation practices

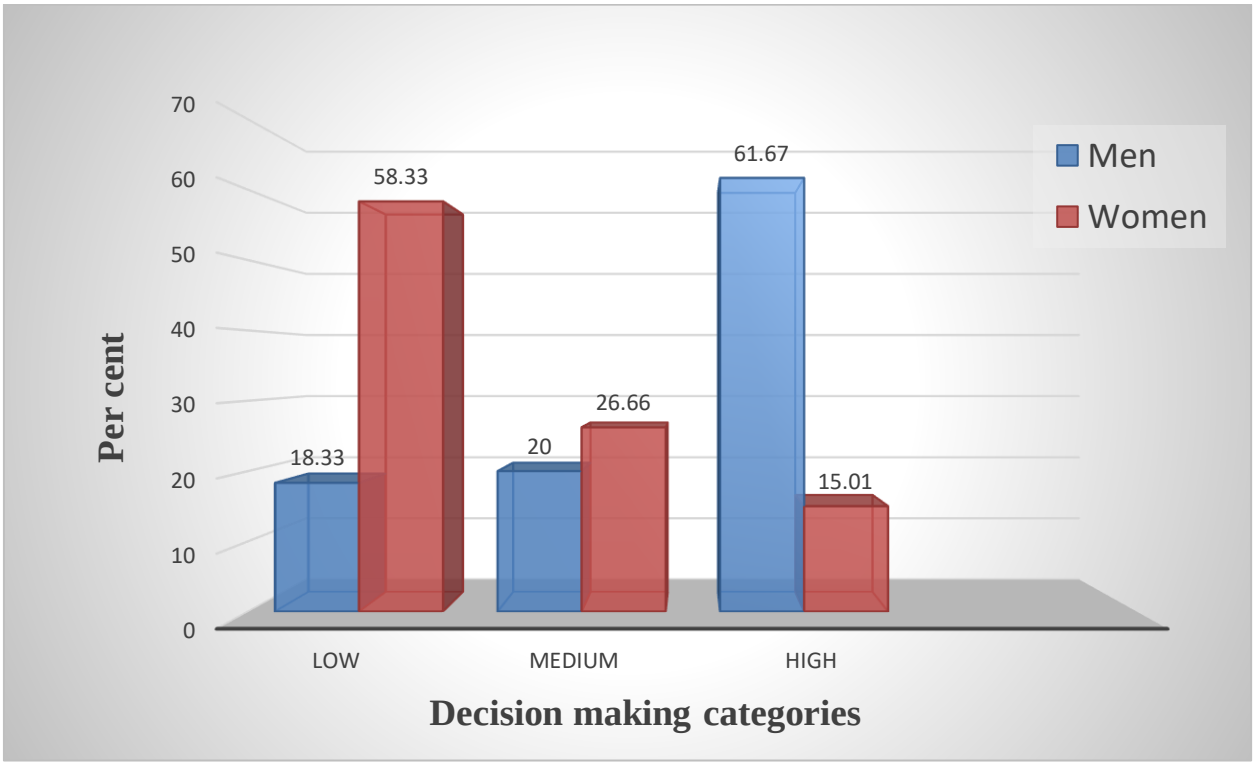


Fig. 7. Overall decision making pattern of farm men and women regarding silkworm rearing practices

4.2.3.3. Overall decision making pattern of farm men and women on sericulture technologies.

The findings in Table 10 and Fig. 8 also reveals that more than two-third of the farm men (63.34%) were belonging to high decision making category, whereas 16.66 and 20.00 per cent of the farm men were belonging to low and medium decision making category, respectively. With respect to the farm women, as high as 60.00 per cent of them were belonging to the low decision making category followed by 26.66 and 13.34 per cent of the farm women were belonging to the medium and high decision making category, respectively. The results of the 't' test (4.22) was found to be highly significant at one per cent level indicating that there exists a highly significant difference in the mean decision making score between the farm men (22.08) and farm women (6.66) in respect of the sericulture technologies/activities. Lack of knowledge on sericulture technologies and hesitance to make decisions on the sericulture technologies and hesitance to make decisions among farm women are the probable reasons for the significant difference in the mean decision making score between the farm men and women. Similar findings were reported by Nishitha (2016) and Archana (2019).

There is significant difference between the farm men and women in respect of decision making pattern regarding the sericulture technologies/activities, hence the null hypothesis set forth for the research study that 'there is 'no difference in the decision making pattern of farm men and women regarding the sericulture technologies', is rejected.

Table 10: Overall decision making pattern of farm menand women regarding the recommended sericulture technologies

Sl. No.	Decision making category	Number	Per cent	Standard deviation	Mean decision making score	't' value
A	Farm men (n_1=60)					
1	Low (<19.78 score)	10	16.66	4.60	22.08	4.22**
2	Medium (19.78 to 24.38 score)	12	20.00			
3	High (>24.38 score)	38	63.34			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low (<5.55 score)	36	60.00	2.22	6.66	
2	Medium (5.55 to 7.77 score)	16	26.66			
3	High (>7.77 score)	20	13.34			
Total		60	100.00			

**Significant at 1%

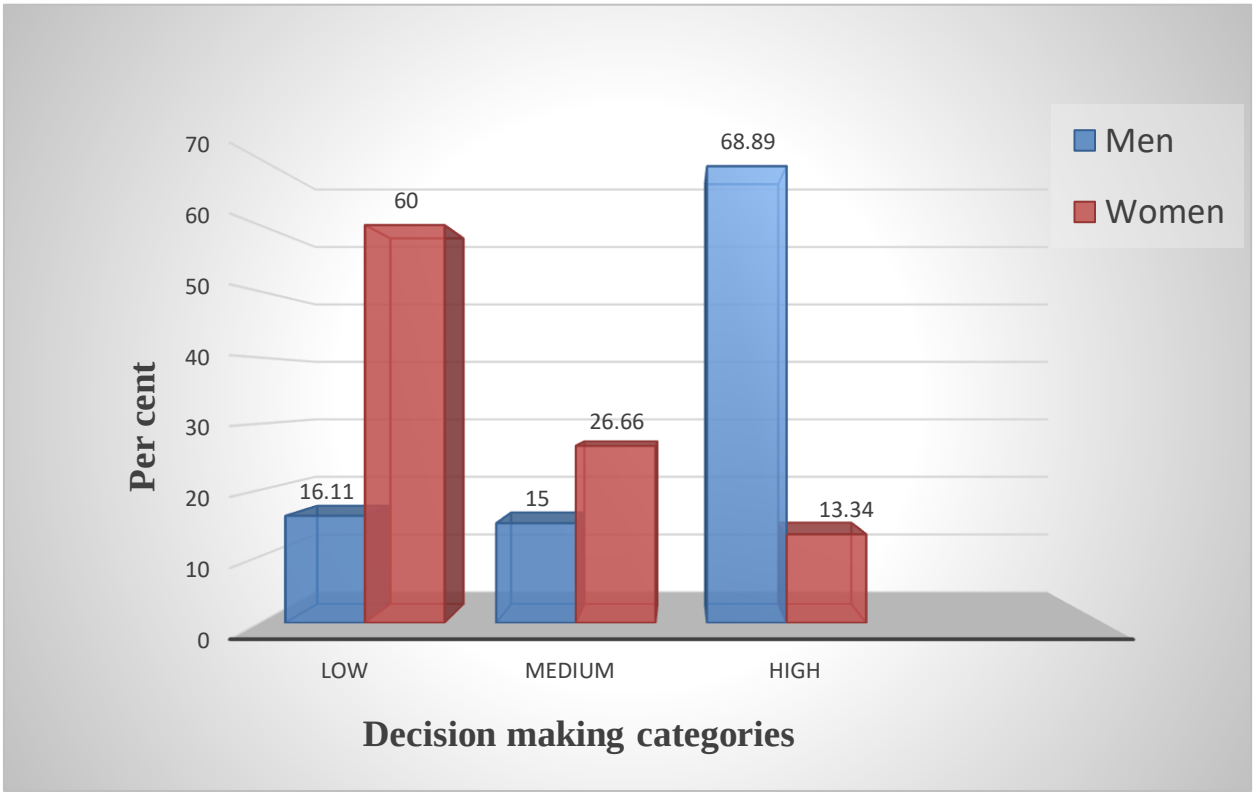


Fig. 8. Overall decision making pattern of farm men and women regarding sericulture technologies

4.3 Participation of farm men and women in sericulture activities

The present section contains research results on the participation of farm men and women in recommended mulberry cultivation (Table 11) and silkworm rearing (Table 12) activities.

4.3.1. Participation of farm men and women in recommended mulberry cultivation activities

Table 11 reveals that all the farm men had participated in deep digging (30-35 cm depth) /ploughing of land (100.00%) in mulberry fields, while none of the farm women had participated in deep digging (30-35 cm depth) /ploughing of land. Whereas, the farm men and women had participated in preparation of mulberry cuttings (80.00% and 53.33%), application of organic manure (95.00% and 30.00%), chemical fertilizers (93.33% and 33.33%) and micro nutrients (71.66% and 33.33%), irrigation (86.66% and 36.66%), weeding/intercultivation (63.33% and 56.66%), integrated pest management practices (96.66% and 13.33%), application of plant protection chemicals (100.00% and 25.00%) and leaf harvesting (93.33% and 68.33%), respectively. Activities like deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation are laborious, tough and cumbersome, hence these activities are performed by majority of the farm men.Preparation of mulberry cuttings and weeding activities are also laborious, but do not demand much physical energy, hence majority of farm women had performed these operations along with farm men.

Table 11: Participation of farm men and women in recommended mulberry cultivation activities

Sl. No.	Mulberry cultivation practices	Participation level			
		Farm men(n_1=60)		Farm women(n_2=60)	
		No.	%	No.	%
1	Deep digging (30-35 cm depth) /ploughing of land	60	100.00	0	0.00
2	Preparation of mulberry cuttings	48	80.00	32	53.33
3	Application of organic manure	57	95.00	18	30.00
4	Application of chemical fertilizers	56	93.33	20	33.33
5	Application of micro-nutrients	43	71.66	20	33.33
6	Irrigation	52	86.66	22	36.66
7	Weeding/intercultivation	38	63.33	34	56.66
8	Integrated pest management practices	58	96.66	08	13.33
9	Application of plant protection chemicals	60	100.00	15	25.00

10	Leaf harvesting	56	93.33	41	68.33

4.3.2. Participation of farm men and women in silkworm rearing activities

The results in Table 12 reveals that the farm men and women had participated in the application of disinfectants (70.00% and 53.33%), maintenance of temperature (58.33% and 61.66%) and relative humidity (58.33% and 60.00%) in rearing house, feeding of silkworms (65.00% and 65.00%), bed spacing (61.66% and 60.00%), bed cleaning (63.33% and 66.66%), incubation of dfls (58.33% and 66.66%), black boxing of dfls (65.00% and 68.33%), brushing of dfls (63.33% and 65.00%), pest management (96.66% and 41.66%) and cocoon harvesting (53.33% and 70.00%), respectively. Activities such as, application of disinfectants, maintenance of temperature and relative humidity in rearing house, feeding of silkworms, bed spacing, bed cleaning, incubation of dfls, black boxing of dfls, brushing of dfls and cocoon harvesting are less laborious and cumbersome, hence these activities are performed by majority of the farm womenalong with farm men.

Table 12: Participation of farm men and women in silkworm rearing activities

Sl. No.	Silkworm rearing practices	Participation level			
		Farm men (n_1=60)		Farm women (n_2=60)	
		No.	%	No.	%
1	Application of disinfectants	42	70.00	32	53.33
2	Temperature maintenance at rearing house	35	58.33	37	61.66
3	Relative humidity maintenance at rearing house	35	58.33	36	60.00
4	Feeding of silkworms	39	65.00	39	65.00
5	Bed spacing	37	61.66	36	60.00
6	Bed cleaning	38	63.33	40	66.66
7	Incubation of dfls	35	58.33	40	66.66
8	Black boxing of dfls	39	65.00	41	68.33
9	Brushing of dfls	38	63.33	39	65.00
10	Pest management	58	96.66	25	41.66
11	Cocoon harvesting	32	53.33	42	70.00

4.3.3 Overall participation of farm men and women in the sericulture activities

This section deals with the overall participation level of farm men and women on mulberry cultivation (Table 13), silkworm rearing (Table 14) and sericulture activities (Table 15).

4.3.3.1. Overall participation level of farm men and women in mulberry cultivation activities

It is observed from Table 13 and Fig. 9 that as high as 46.67 per cent of farm men were having high level of participation, followed by 30.00 and 23.33 per cent of the farm men were having medium and low level of participation in the mulberry cultivation activities. Whereas, more than one-third of the farm women were having low level of participation (35.00%) followed by one-third (33.34%) and 31.66 per cent of the farm women were having high and low level of participation, respectively. The 't' value (1.81) was found to be significant at five per cent level indicating that there exists a significant difference in the mean participation score between the farm men (8.10) and women (6.99) in respect of the mulberry cultivation activities. Most of the mulberry cultivation practices *viz.,* like deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation are laborious, tough and cumbersome, hence these activities were performed by majority of the farm men, while few mulberry cultivation practices/activities like, preparation of mulberry cuttings and weeding activities were performed by majority of farm women had performed these operations. Hence, there existed a significant difference in the mean participation score between the farm men and women.

Table 13: Overall participation level of farm men and women in mulberry cultivation practices

Sl. No.	Participation category	Number	Per cent	Standard deviation	Mean participation score	't' value
A	Farm men (n_1=60)					
1	Low(<7.14 score)	14	23.33	1.92	8.10	1.81*
2	Medium(7.14 to 9.06 score)	18	30.00			
3	High(>9.06 score)	28	46.67			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low(<6.38 score)	21	35.00	1.22	6.99	
2	Medium(6.38 to 7.60 score)	19	31.66			
3	High(>7.60 score)	20	33.34			
Total		60	100.00			

*Significant at 5%

4.3.3.2. Overall participation levelof farm men and women in silkworm rearing activities

A greater proportion of farm men were having high level of participation (43.34%) in the silkworm activities, while 30.00 and 26.66 per cent of the farm men were having medium and low level of participation, respectively. Similarly, 40.00 per cent of the farm women were having high level of participation, followed by 31.66 and 28.34 per cent of the farm women were having medium and low level of participation in recommended silkworm rearing practices/activities, respectively (Table 14 and Fig. 10). The ‘t' value (1.49) was found to benon significantindicating that there is no significant difference in the mean participation score between the farm men (8.34) and women (7.99) in respect of the silkworm rearing practices activities. Most of the silkworm rearing practices/activities are less laborious and cumbersome, hence these activities are performed by majority of both farm men and women. Therefore, the ‘t' value was found to be non -significant indicating that there is no significant difference in the mean participation score between the farm men and women.

Table 14: Overall participation of farm men and women in silkworm rearing practices

Sl. No.	Participation category	Number	Per cent	Standard deviation	Mean participation score	‘t’ value
A	Farm men (n_1=60)					
1	Low (<7.37 score)	16	26.66	1.94	8.34	1.49^{NS}
2	Medium (7.37 to 9.31 score)	18	30.00			
3	High (>9.31 score)	26	43.34			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low (<7.32score)	17	28.34	1.33	7.99	
2	Medium (7.32 to 8.65score)	19	31.66			
3	High (>8.65score)	24	40.00			
Total		60	100.00			

NS= Non significant

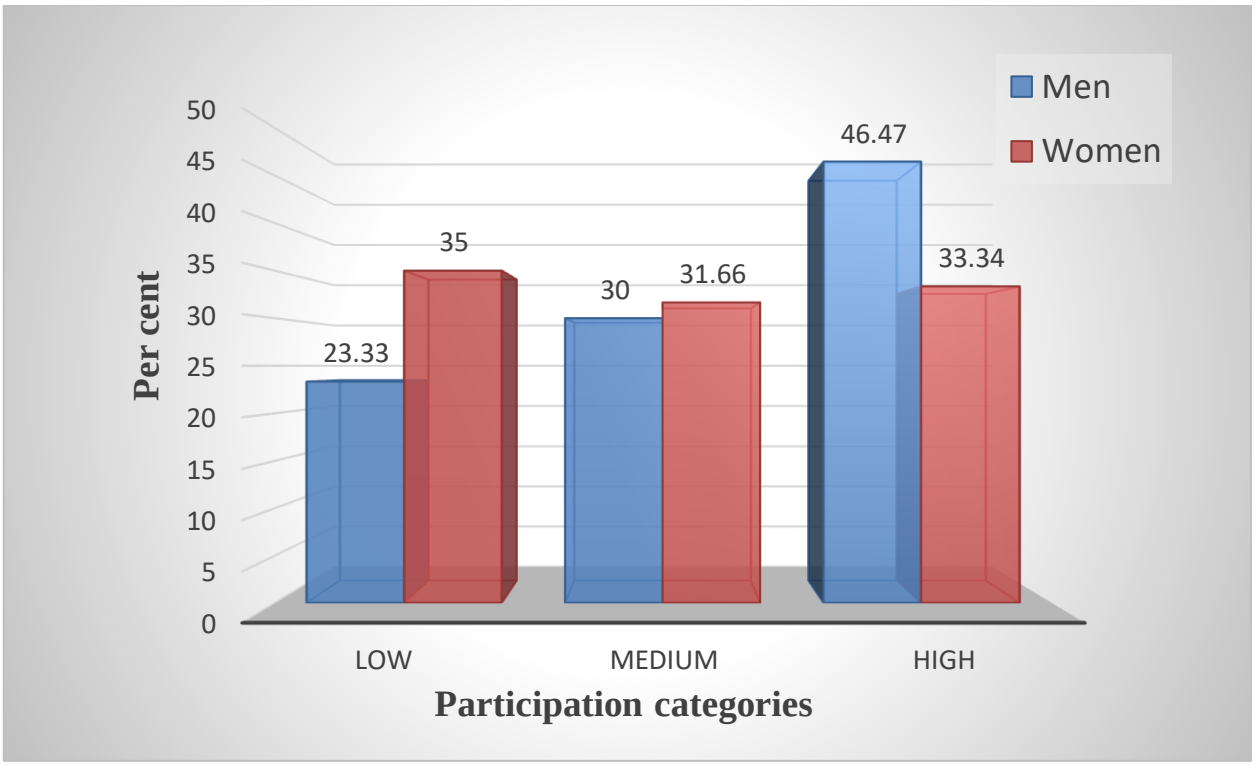


Fig. 9: Overall participation of farm men and women regarding mulberry cultivation practices

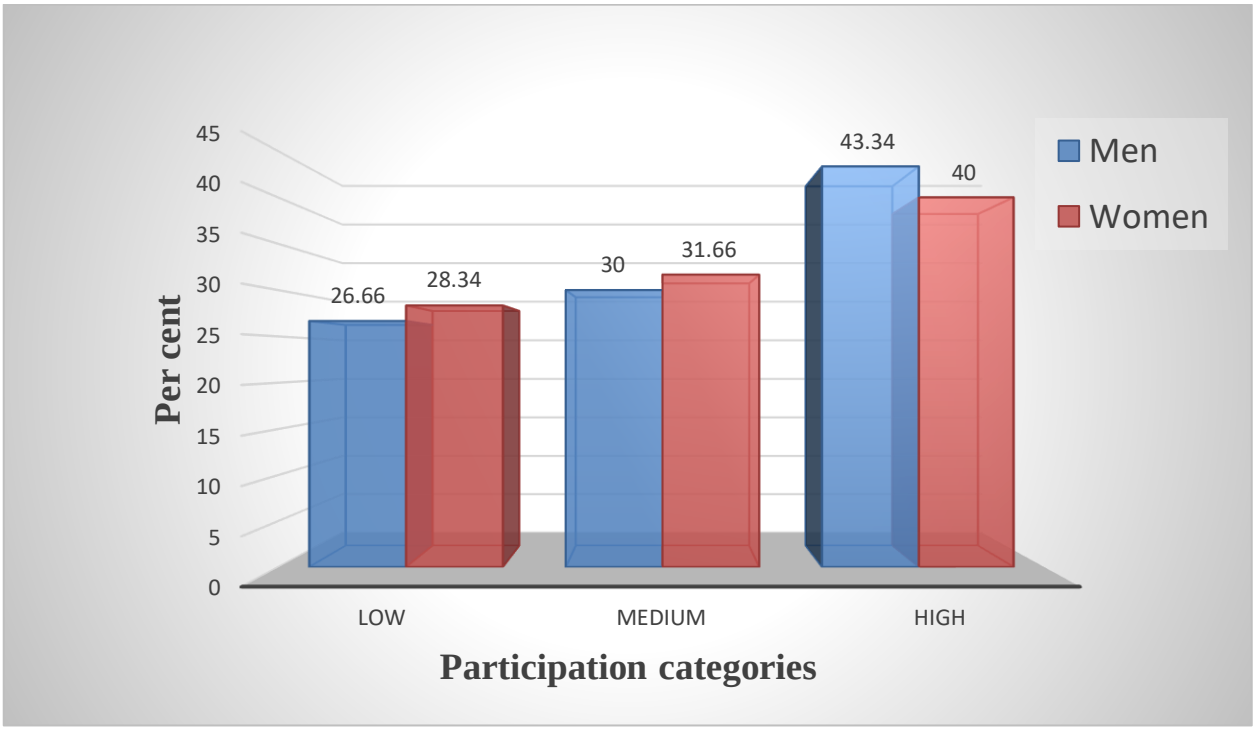


Fig. 10. Overall participation of farm men and women regarding silkworm rearing practices

4.3.3.3. Overall participation of farm men and women regarding the recommended sericulture activities

The research data in Table 15 and Fig. 11 also reveals that 45.00 per cent of the farm men were having high level of participation in the sericulture activities, while 30.00 and one-fourth (25.00%) of the farm men were having medium and low level of participation, respectively. More than one-third of the farm women were having medium level of participation followed by one-third (33.34%) and 31.66 per cent of the farm women were having high and low level of participation in the sericulture activities. The results of the 't' test (1.68) was found to be significant at five per cent level indicating that there exists a significant difference in the mean participation score between the farm men (16.44) and women (13.98) in respect of the sericulture activities. Majority of the farm men had participated in almost all the sericulture activities, while less participation of farm women was observed in mulberry cultivation practices (deep digging, application of manure, micro nutrients and plant protection chemicals and irrigation) and pest management in silkworms. Hence, there is a significant difference in the mean participation score between the farm men and women. The findings reported by Rakesh (2020) is in line with the findings of the present study.

Since there is significant difference between farm men and women regarding the participation level of sericulture activities, the null hypothesis set forth for the research study that 'there is no difference in the participation level of farm men and women regarding the sericulture activities', is rejected

Table 15: Overall participation of farm men and women in sericulture activities

Sl. No.	Participation category	Number	Per cent	Standard deviation	Mean participation score	't' value
A	Farm men (n_1=60)					
1	Low (<14.51 score)	15	25.00	3.86	16.44	1.68*
2	Medium (14.51 to 18.37 score)	18	30.00			
3	High (>18.37 score)	27	45.00			
Total		60	100.00			
B	Farm women (n_2=60)					
1	Low (<12.70 score)	19	31.66	2.55	13.98	
2	Medium (12.70 to 15.26 score)	21	35.00			
3	High (>15.26 score)	20	33.34			
Total		60	100.00			

*Significant at 5%

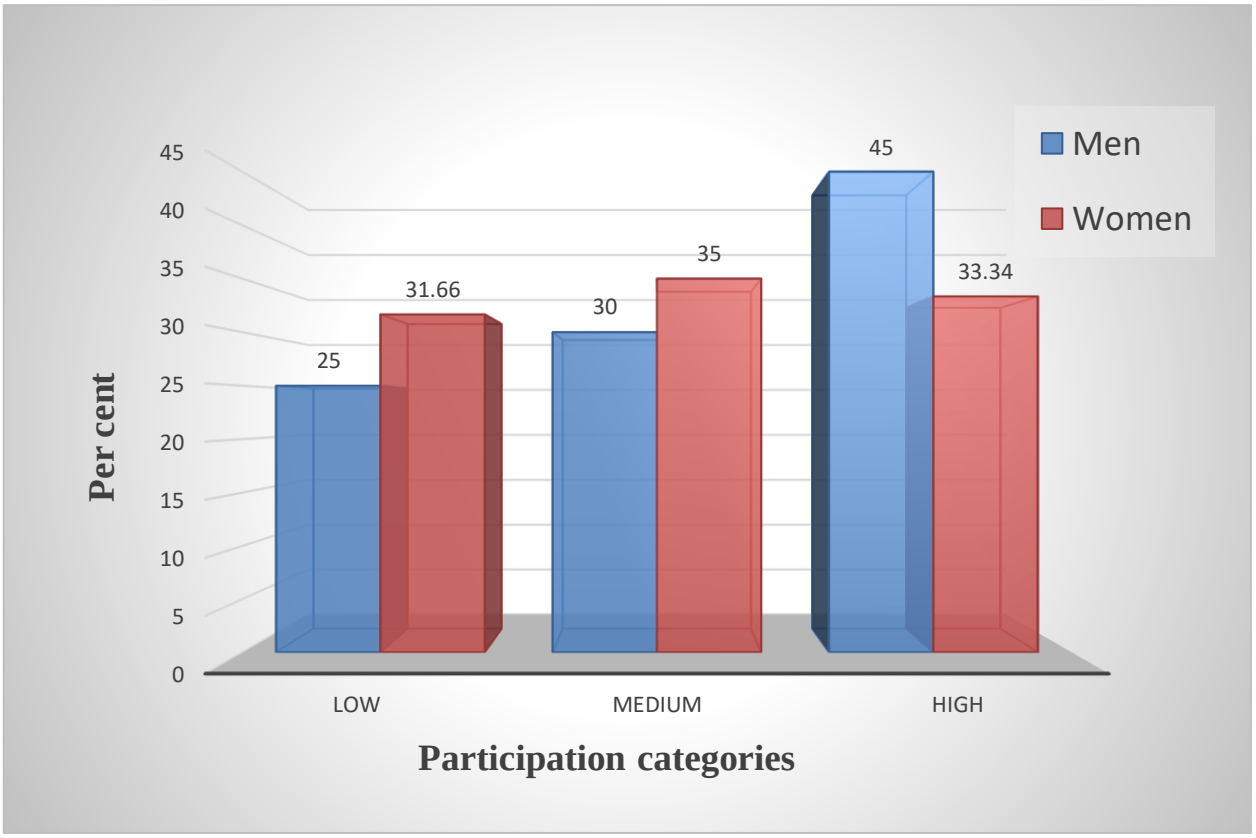


Fig. 11. Overall participation of farm men and women regarding silkworm sericulture technologies

4.4. Profile characteristics of farm men and women

The findings in Table 16 and 17 presents the data on the profile characteristics of farm men and women, respectively.

4.4.1Profile characteristics of farm men

A majority of the farm men (61.68%) were of middle age, while 21.66 and 16.66 per cent of the farm men were of old and young age, respectively. More than one-fourth of the farm men (26.66%) had completed graduation, whereas 23.34, 20.00, 15.00 and 11.66 per cent of the farm men had completed high school, middle school, primary school and higher secondary education, respectively. The remaining 3.34 per cent of the farm men were illiterates.

The findings in Table 16 also reveals that a majority of the farm men (58.33%) were having moderate experience in sericulture, while 28.33 and 13.34 per cent of the farm men were having more and less experience in sericulture, respectively. Forty five per cent of the farm men were having medium level of innovativeness, while 31.66 per cent of them were having high level of innovativeness and the remaining 23.34 per cent of the farm men were having low level of innovativeness.

As high as 43.34 per cent of the farm men were belonging to medium category of achievement motivation, whereas 35.00 and 21.66 per cent of the farm men were belonging to high and low category of achievement motivation, respectively. More than half of the farm men (51.66%) were having high level of management orientation followed by 33.34 and 15.00 per cent of the farm men were having medium and low level of management orientation, respectively.

A perusal of Table 16 also reveals that 46.66 per cent of the farm men were belonging to high category of risk orientation, while 36.67 and 16.67 per cent of the farm men were belonging to medium and low category of risk orientation, respectively. Majority of the farm men (55.00%) had high level of economic motivation, while 31.66 and 13.34 per cent of the farm men had medium and low level of economic motivation, respectively.

Half of the farm men (50.00%) had high level of credit orientation, while 35.00 and 15.00 per cent of the farm men had medium and low level of credit orientation, respectively. More than half of the farm men (56.67%) were having high level of social participation, whereas 36.67 and 6.66 per cent of the farm men were having medium and low level of social participation, respectively.

The findings in Table 16 also reveals that 48.34 per cent of the farm men had high level of cosmopoliteness, while 36.66 per cent of them had medium level of cosmopoliteness and 15.00 per cent of the farm men had low level of cosmopoliteness. Forty-five per cent of the farm men had high level of deferred gratification, whereas 36.66 and 18.34 per cent of the farm men had medium and low level of deferred gratification, respectively.

A bird's eye view of table 16 also reveals that as high as 46.66 per cent of the farm men had more favourable attitude towards sericulture, while 36.67 and 16.67 per cent of the farm men had favourable and less favourable attitude towards sericulture, respectively. Half of the farm men (50.00%) were having high level of farming commitment, whereas 35.00 and 15.00 per cent of the farm men were having medium and low level of farming commitment, respectively.

Table 16: Profile characteristics of farm men

(n=60)

Sl. No.	Characteristics	Mean	Standard deviation	Category	Farm men	
					No.	%
1.	Age	-	-	Young (< 35 years)	10	16.66
				Middle (35 to 50 years)	37	61.68
				Old (> 50 years)	13	21.66
2.	Education	-	-	Illiterate	2	3.34
				Primary school	9	15.00
				Middle school	12	20.00
				High school	14	23.34
				Higher secondary	7	11.66
				Graduation	16	26.66
3.	Experience in sericulture (years)	-	-	Less (up to 5)	08	13.34
				Moderate (6 to 10)	35	58.33
				More (More than 10)	17	28.33
4.	Innovativeness			Low (<7.82 score)	14	23.34

		8.60	1.56	Medium (7.82 to 9.38score)	27	45.00
				High (>9.38score)	19	31.66
5.	Achievement motivation	8.79	1.66	Low (<7.96 score)	13	21.66
				Medium (7.96 to 9.62 score)	26	43.34
				High (>9.62 score)	21	35.00
6.	Management orientation	9.16	1.82	Low (<8.25 score)	09	15.00
				Medium (8.25 to 10.07 score)	20	33.34
				High (>10.07 score)	31	51.66
7.	Risk orientation	8.98	1.81	Low (<8.07 score)	10	16.67
				Medium (8.07 to 9.88 score)	22	36.67
				High (>9.88 score)	28	46.66
8.	Economic motivation	9.18	1.83	Low (<8.26 score)	08	13.34
				Medium (8.26 to 10.09score)	19	31.66
				High (>10.09score)	33	55.00
9.	Credit orientation	9.15	1.81	Low (<8.24score)	09	15.00
				Medium (8.24 to 10.05score)	21	35.00
				High (>10.05score)	30	50.00
10.	Social participation	9.28	1.82	Low (<8.37 score)	04	6.66
				Medium (8.37 to 10.19 score)	22	36.67
				High (>10.19 score)	34	56.67
11.	Cosmopoliteness	3.30	1.61	Low (<2.50 score)	09	15.00
				Medium (2.50 to 4.10score)	22	36.66
				High (>4.10score)	29	48.34
12.	Deferred gratification	9.13	4.10	Low (<7.08)	11	18.34
				Medium (7.08 to 11.18)	22	36.66
				High (>11.18score)	27	45.00
13.	Attitude towards sericulture	22.00	1.81	Less favourable (<21.09score)	10	16.67
				Favourable (21.09 to 22.90score)	22	36.67
				More favourable (>22.90score)	28	46.66

14.	Farming commitment	16.10	3.22	Low (<14.49score)	09	15.00
				Medium (14.49 to 17.71 score)	21	35.00
				High (>17.71 score)	30	50.00
15.	Mass media exposure	8.65	1.67	Low (<7.81 score)	20	33.34
				Medium (7.81 to 9.48 score)	18	30.00
				High (>9.48 score)	22	36.66
16.	Training in sericulture	0.53	-	Not undergone training	28	46.66
				Undergone training	32	53.34
17.	Extension agency contact	8.55	1.46	Low (<7.82 score)	13	21.66
				Medium (7.82 to 9.28 score)	29	48.34
				High (>9.28 score)	18	30.00
18.	Farm scientist contact	2.99	1.21	Low (<2.38 score)	09	15.00
				Medium (2.38 to 3.60 score)	21	35.00
				High (>3.60 score)	30	50.00
19.	Extension participation	8.78	1.65	Low (<7.95 score)	9	15.00
				Medium (7.95 to 9.60 score)	30	50.00
				High (>9.60 score)	21	35.00

More than one-third of the farm men (36.66%) were having high level of mass media exposure, while one-third (33.34%) and 30.00 per cent of the farm men were having low and medium level of mass media exposure, respectively. More than half of the farm men (53.34%) had undergone training in sericulture and the other 46.66 per cent of the farm men had not undergone training in sericulture.

The results also reveals that nearly half of the farm men (48.34%) were having medium level of extension agency contact, while 30.00 and 21.66 per cent of the farm men were having high and low level of extension agency contact, respectively. Half of the farm men (50.00%) had medium level of farm scientist contact, whereas 35.00 and 15.00 per cent of the farm men had high and low level of farm scientist contact, respectively. It could also seen from the table that half of the farm men (50.00%) were having medium level of extension participation, whereas 35.00 and 15.00 per cent of the farm men were having high and low level of extension participation, respectively.

It can be inferred from the findings that a larger number of farm men were of middle age (61.68%), graduates (26.66%), having moderate experience in sericulture (58.33%) with high level of management orientation (51.66%), risk orientation (46.66%), economic motivation (55.00%), credit orientation (50.00%), social participation (56.67%), cosmopoliteness (48.34%), deferred gratification (45.00%), more favourable attitude towards sericulture (46.66%), farming commitment (50.00%), mass media exposure (36.66%) and farm scientist contact (50.00%). A majority of the farm men had undergone training (53.34%) in sericulture, while more number of farm men were having medium level of innovativeness (45.00%), achievement motivation (43.34%), extension agency contact (48.34%) and extension participation (50.00%).

4.4.2Profile characteristics of farm women

The results in Table 17 reveals that a majority of the farm women (63.34%) were of middle age, followed by 21.66 and 15.00 per cent of the farm women were belonging to old and young age, respectively. One-fourth of the farm women (25.00%) were educated up to graduation, while 21.67, 18.33, 13.33 and 13.33 per cent of the farm women had completed high school, middle school, primary school and higher secondary, respectively, while less number of farm men were illiterate (8.34%).

A larger proportion of the farm women were having moderate experience (41.66%) in sericulture, whereas one-third (33.34%) and one-fourth (25.00%) of the farm women were having moderate and more experience in sericulture, respectively. As high as 43.34 per cent of the farm women were having medium level of innovativeness, whereas 35.00 and 21.66 per cent of the farm women were having low and high level of innovativeness, respectively.

Forty-five per cent of the farm women were belonging to medium category of achievement motivation, while 31.66 and 23.34 per cent of the farm women were belonging to low and high level of achievement motivation, respectively. Forty per cent of the farm women were having high level of management orientation followed by 28.34 and 21.66 per cent of the farm women were having medium and low level of management orientation, respectively.

A larger proportion of farm women (38.34%) were belonging to medium category of risk orientation, whereas 35.00 and 26.66 per cent of the farm women were belonging to high and low

category of risk orientation, respectively. An equal percentage of the farm women (38.33% each) had medium and high level of economic motivation, whereas 23.34 per cent of the farm women had low level of economic motivation. Forty per cent of the farm women had medium level of credit orientation, whereas 38.34 and 21.66 per cent of the farm women had high and low level of credit orientation, respectively.

As high as 43.34 per cent of the farm women were having medium level of social participation, while 30.00 and 26.66 per cent of the farm women were having low and high level of social participation, respectively. More than one-third of the farm women had medium (38.34%) and high (36.66%) level of cosmopoliteness, whereas one-fourth of the farm women (25.00%) had low level of cosmopoliteness.

Forty per cent of the farm women had high level of deferred gratification, while 36.66 and 23.34 per cent of the farm women had medium and low level of deferred gratification, respectively. More number of farm women had favourable attitude towards sericulture (48.34%), whereas 30.00 and 21.66 per cent of the farm women had more favourable and less favourable attitude towards sericulture, respectively.

A larger number of farm women were having medium level of farming commitment (38.34%), while 35.00 and 26.66 per cent of the farm women were having low and high level of farming commitment, respectively. More number of farm women were having medium level of mass media exposure (43.34%), whereas 30.00 and 26.66 per cent of the farm women were having low and high level of mass media exposure, respectively.

A majority of farm women (63.34%) had not undergone training in sericulture and the remaining 36.66 per cent of the farm women had undergone training in sericulture. As high as 46.66 per cent of the farm women were having low level of extension agency contact, whereas 40.00 and 13.34 per cent of the farm women were having medium and low level of extension agency contact, respectively.

More than one-third of the farm women (38.34%) had medium level of farm scientist contact, while 35.00 and 26.66 per cent of the farm women had high and low level of farm scientist contact, respectively. More than one-third of farm women were having medium

(38.34%) and (35.00%) level of extension participation, while a little over one-fourth (26.66%) of the farm women were having high level of extension participation, respectively.

On the contrary, a larger number of farm women were of middle age (63.34%), graduates (25.00%) with less/ low level of experience in sericulture (41.66%) and extension agency contact (46.66%). An equal percentage of farm women (38.33% each) were having medium and high level of economic motivation, while a greater proportion of farm women were having medium level of innovativeness (43.34%), achievement motivation (45.00%), risk orientation (38.34%), credit orientation (40.00%), social participation (43.34%), cosmopoliteness (38.34%), more favourable attitude towards agriculture (48.34%), farming commitment (38.34%), mass media exposure (43.34%), farm scientist contact (38.34%) and extension participation (38.34%). Further, more number of farm women had high level of management orientation (40.00%) and deferred gratification (40.00%), while a majority of the farm women (63.34%) did not undergo training in sericulture.

More or less similar findings were reported by Sujay Kumar (2012), Yashodhara (2015), Mutteppa (2018), Naresh (2018), Rashmi (2018), Kamar (2019), Mishra (2019), Tanweer (2019), Chaitra (2020), Rakesh (2020), Vikas (2020), Rahul (2021), Razia (2021), Samraja (2022) and Sathish (2022),

Table 17: Profile characteristics of farm women

(n=60)

Sl. No.	Characteristics	Mean	Standard deviation	Category	Farm women	
					No.	%
1.	Age	-	-	Young (< 35 years)	9	15.00
				Middle (35 to 50 years)	38	63.34
				Old (> 50 years)	13	21.66
2.	Education	-	-	Illiterate	05	8.34
				Primary school	08	13.33
				Middle school	11	18.33
				High school	13	21.67
				Higher secondary	08	13.33
				Graduation	15	25.00
3.	Experience in sericulture (years)	-	-	Less (up to 5)	25	41.66
				Moderate (6 to 10)	20	33.34

				More (More than 10)	15	25.00
4.	Innovativeness	7.92	1.42	Low (<7.21 score)	21	35.00
				Medium (7.21 to 8.63score)	26	43.34
				High (>8.63score)	13	21.66
5.	Achievement motivation	7.98	1.48	Low (<7.24 score)	19	31.66
				Medium (7.24 to 8.72 score)	27	45.00
				High (>8.72 score)	14	23.34
6.	Management orientation	8.86	1.77	Low (<7.97 score)	13	21.66
				Medium (7.97 to 9.74 score)	23	38.34
				High (>9.74 score)	24	40.00
7.	Risk orientation	8.88	1.79	Low (<7.98 score)	16	26.66
				Medium (7.98 to 9.77 score)	23	38.34
				High (>9.77 score)	21	35.00
8.	Economic motivation	8.85	1.77	Low (<7.96 score)	14	23.34
				Medium (7.96 to 9.73 score)	23	38.33
				High (>9.73 score)	23	38.33
9.	Credit orientation	8.84	1.76	Low (<7.96 score)	13	21.66
				Medium (7.96 to 9.72 score)	24	40.00
				High (>9.72 score)	23	38.34
10.	Social participation	7.99	1.49	Low (<7.24 score)	18	30.00
				Medium (7.24 to 8.73 score)	26	43.34
				High (>8.73 score)	16	26.66
11.	Cosmopoliteness	2.20	1.01	Low (<1.69score)	15	25.00
				Medium (1.69 to 2.70score)	23	38.34
				High (>2.70score)	22	36.66
12.	Deferred gratification	8.85	3.98	Low (<6.86score)	14	23.34
				Medium (6.86 to 10.84score)	22	36.66
				High (>10.84score)	24	40.00
13.	Attitudetowards sericulture	20.68	1.75	Less favourable (>19.80score)	13	21.66
				Favourable (19.80 to	29	48.34

				21.55score)		
				More favourable (>21.55score)	18	30.00
14.	Farmingcommitment	15.20	3.06	Low (<13.67 score)	16	26.66
				Medium (13.67 to 16.73 score)	23	38.34
				High (>16.73 score)	21	35.00
15.	Mass media exposure	7.94	1.42	Low (<7.23 score)	18	30.00
				Medium (7.23 to 8.65 score)	26	43.34
				High (>8.65 score)	16	26.66
16.	Training insericulture	0.36	-	Not undergone training	38	63.34
				Undergone training	22	36.66
17.	Extension agency contact	7.52	1.38	Low (<6.83 score)	28	46.66
				Medium (6.83 to 8.21 score)	24	40.00
				High (>8.21 score)	08	13.34
18.	Farmscientist contact	2.01	1.01	Low (<1.50 score)	16	26.66
				Medium (1.50 to 2.52 score)	23	38.34
				High (>2.52 score)	21	35.00
19.	Extension participation	7.97	1.47	Low (<7.23 score)	21	35.00
				Medium (7.23 to 8.70 score)	23	38.34
				High (>8.70 score)	16	26.66

4.5 Association between profile characteristics of farm men and women with their knowledge, decision making pattern and participation in sericulture technologies/activities

Chi square test was applied to know the association between the profile characteristics of farm men and women with their knowledge, decision making pattern and participationin sericulture technologies/activities.

4.5.1. Association between profile characteristics of farm men and women with their knowledge regarding recommended sericulture technologies

4.5.1.1. Association between profile characteristics of farm men with their knowledge regarding sericulture technologies

The results in Table 18and Fig. 12reveals that three independent variables, namely credit orientation, social participation and deferred gratification of farm men had no significant association with the knowledge level, while age, education, experience in sericulture, achievement motivation, management orientation, risk orientation, economic motivation, cosmopoliteness, attitude towards sericulture, farming commitment and mass media exposure had significant association with the knowledge level of farm men at five per cent level of probability. The remaining five independent variables, namely innovativeness, training in sericulture, extension agency contact, farm scientist contact and extension participation were having highly significant association with the knowledge level of farm men.

4.5.1.2. Association between profile characteristics of farm women with their knowledge regarding sericulture technologies

It could be seen from Table 19 and Fig. 13that age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, cosmopoliteness, attitude towards sericulture, farming commitment and mass media exposure of farm women had significant association with the knowledge level, while variables such as, training in sericulture, extension agency contact, farm scientist contact and extension participation were having highly significant association with the knowledge level of farm women. Credit orientation, social participation and deferred gratification of farm women had no significant association with their knowledge on recommended sericulture technologies.

Table 18: Association between profile characteristics of farm men with their knowledge regarding sericulture technologies

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	11.921*	0.441
2	Education	10	19.991*	0.771
3	Experiencein sericulture	4	12.68*	0.462
4	Innovativeness	4	14.012**	0.511
5	Achievement motivation	4	11.022*	0.409

6	Management orientation	4	10.993*	0.409
7	Risk orientation	4	11.971*	0.448
8	Economic motivation	4	12.628*	0.464
9	Credit orientation	4	6.118^{NS}	0.226
10	Social participation	4	5.650^{NS}	0.205
11	Cosmopoliteness	4	10.019*	0.374
12	Deferred gratification	4	8.084^{NS}	0.299
13	Attitudetowards sericulture	4	12.323*	0.458
14	Farming commitment	4	11.222*	0.417
15	Massmedia exposure	4	10.261*	0.386
16	Trainingin sericulture	2	11.011**	0.454
17	Extensionagency contact	4	13.688**	0.506
18	Farmscientistcontact	4	14.297**	0.525
19	Extension participation	4	13.283**	0.494

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

The reasons for the independent variables (age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, cosmopoliteness, attitude towards sericulture, farming commitment, mass media exposure, training in sericulture, extension agency contact, farm scientist contact and extension participation) of farm men and women having significant association with the knowledge of recommended sericulture technologies is explained in ensuring paragraphs.

4.5.1.2.1. Age and knowledge

Age of the farm men and women had a significant association with the knowledge regarding sericulture technologies. Elder farmers will have more experience in sericulture and possess more knowledge on sericulture technologies, hence there exists a significant association of the age with the knowledge level of farm men and women regarding sericulture technologies.

4.5.1.2.2. Education and knowledge

Education and knowledge of farm men and women were having significant association. Education widens the horizon of the individual and the educated farmers will have access to print media, which carries information on improved sericulture technologies, therefore farm men and women with higher education had higher knowledge on sericulture technologies.

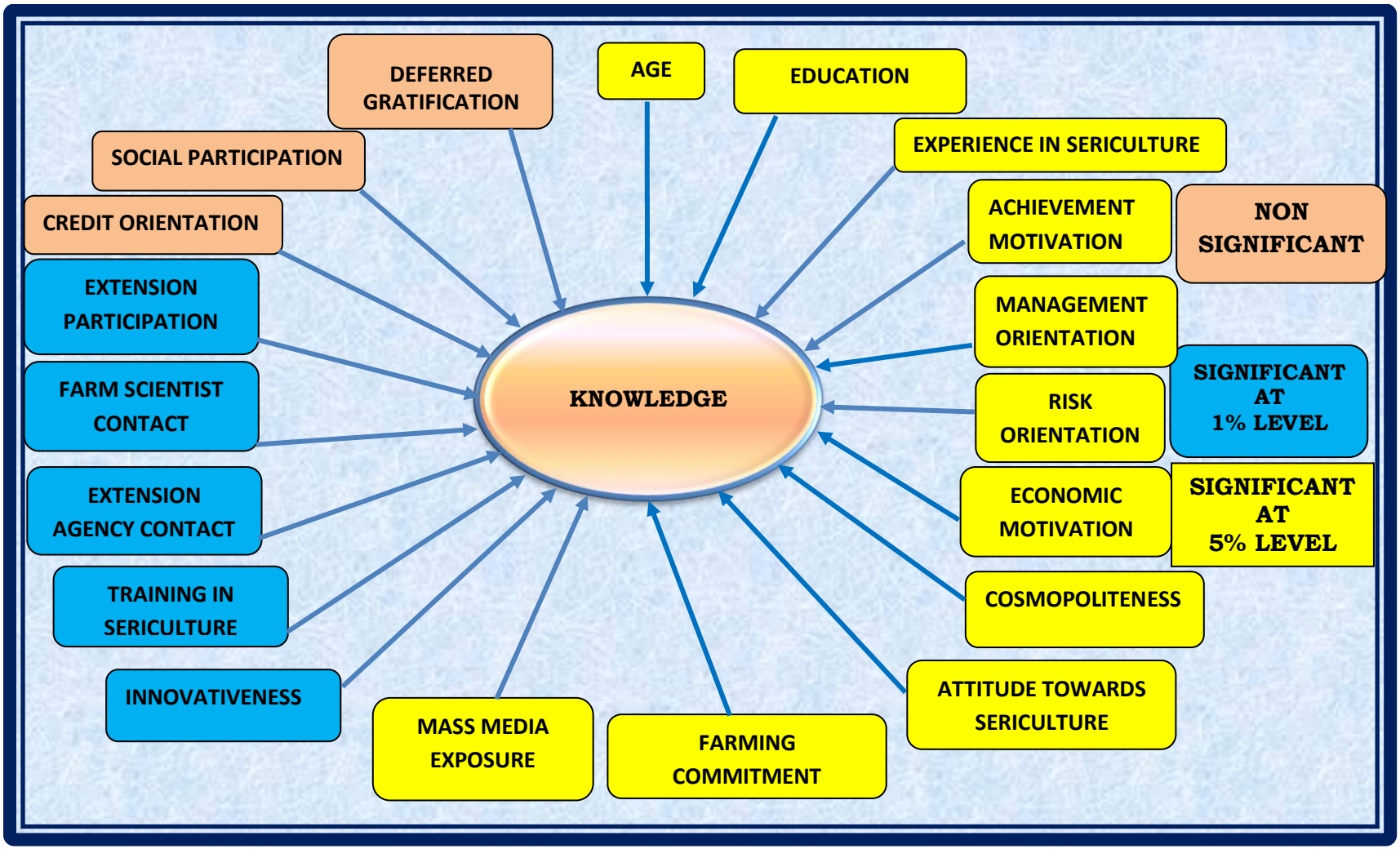


Fig. 12: Association between profile characteristics of farm men with their knowledge regarding sericulture technologies

Table 19: Association between profile characteristics of farm women with their knowledge regarding recommended sericulture technologies

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	10.668*	0.391
2	Education	10	19.691*	0.751
3	Experiencein sericulture	4	12.001*	0.442
4	Innovativeness	4	13.013*	0.482
5	Achievement motivation	4	9.994*	0.371
6	Management orientation	4	10.921*	0.404
7	Risk orientation	4	11.290*	0.412
8	Economic motivation	4	10.019*	0.378
9	Credit orientation	4	2.697 ^{NS}	0.096
10	Social participation	4	3.018 ^{NS}	0.110
11	Cosmopoliteness	4	11.623*	0.434
12	Deferred gratification	4	5.027 ^{NS}	0.187
13	Attitudetowards sericulture	4	11.264*	0.419
14	Farming commitment	4	12.663*	0.463
15	Massmedia exposure	4	13.011*	0.481
16	Trainingin sericulture	2	8.220**	0.329
17	Extensionagency contact	4	13.699**	0.508
18	Farmscientistcontact	4	15.618**	0.579
19	Extension participation	4	14.687**	0.541

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

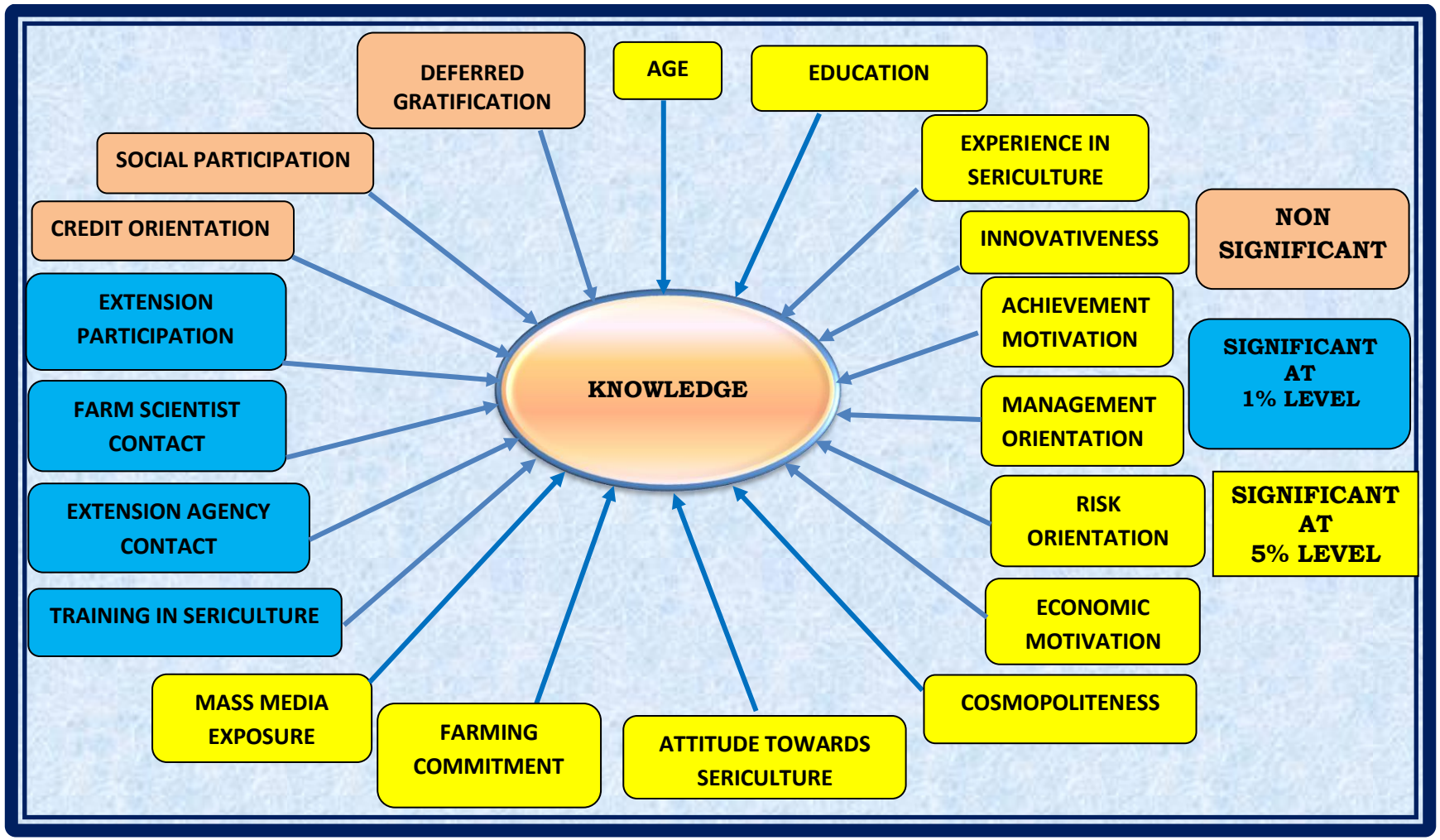


Fig. 13: Association between profile characteristics of farm women with their knowledge regarding sericulture technologies

4.5.1.2.3.Experience in sericulture and knowledge

The experience in sericulture of farm men and women had a significant association with the knowledge regarding the sericulture technologies.As already mentionedelder farmer will have more experience in sericulture and obviously the experienced sericulturists will be having more knowledge on sericulture technologies.

4.5.1.2.4. Innovativeness and knowledge

Sericulturists who are innovative in adopting recommended sericulture technologies try to seek more information on the sericultural technologies by regularly contacting/ participating with/in: (a) farm scientists and sericulture extension personnel, (b) mass media, and (c) participating in extension activities. As a consequence, there exist a significant association between innovativeness of farm men and women with the knowledge level.

4.5.1.2.5 Achievement motivation and knowledge

Achievement motivation of farm men and women had a significant association with the knowledge on sericulture technologies. Sericulturists have excelled in knowing and obtaining the benefits provided to sericulturists by the Karnataka State Department of Sericulture through sericulture extension officers and farm scientists, as a result there is significant association exist between knowledge level and achievement motivation of farm men and women.

4.5.1.2.6 Management orientation and knowledge

The probable reason for management orientation of farm men and women in having significant association with their knowledge regarding sericulture technologies may be attributed to the gaining of managerial abilities with special reference to mulberry cultivation and silkworm rearing practices by involving in extension activities (meetings/discussion, training programmes, field visits, demonstrations, exposure visits, etc) organized by Karnataka State Department of Sericulture and Farm Universities. This has not only enhanced their managerial orientation but has also has helped the farm men and women in gaining good knowledge regarding the sericulture technologies.

4.5.1.2.7 Risk orientation and knowledge

The active participation in extension activities and frequent contact with the farm scientists and sericulture extension personnel enables farm men and women to acquaint them to the recommended sericulture technologies, which gives the confidence for the sericulturists to overcome risk in adopting the sericulture technologies. This may have accounted for the significant association between risk orientation of the farm men and women and knowledge regarding the sericulture technologies.

4.5.1.2.8 Economic motivation and knowledge

A significant association was observed between the economic motivation of farm men and women with their knowledge regarding the sericulture technologies. Getting good income is the major driver to take up any farming activity. Farm Universities, Karnataka State Department of Sericulture, Sericulture Research Institutes etc. recommends the sericulturists to adopt the improved sericulture technologies, which yields optimum yield (mulberry leaves and cocoon) and profit.

4.5.1.2.9 Cosmopoliteness and knowledge

A farmer who is cosmopolite in nature will always try to gather information on sericulture technologies by visiting the Farm Universities, Sericulture Research Institutes, State Department of Sericulture etc., which are generally located in hobli/taluk/district headquarters. Hence, a significant association was observed between cosmopoliteness and knowledge level.

4.5.1.2.10 Attitude towards sericulture and knowledge

It is quite obvious that a farm men or farm women with favourable attitude towards sericulture try to acquire more information on sericulture technologies and adopt the same to get maximum income and profit, hence a significant association was observed between attitude towards sericulture and knowledge level.

4.5.1.2.11 Farming commitment and knowledge

A farmer who is committed to farming always try to maximise his income and profit by using the available resources. In doing so, he/she contacts the extension personnel, farm scientists etc. to

seek information regarding the technology which is suitable for him/her, hence a significant association is seen between farming commitment and knowledge level of farm men and women.

4.5.1.2.12 Mass media exposure and knowledge

It was analysed that mass media exposure of farm men and women and knowledge level had significant association. Print and electronic media carry messages on the improved sericulture technologies and such sericulturists who have greater exposure to these media might have gained more knowledge on the recommended sericulture technologies.

4.5.1.2.13 Training in sericulture and knowledge

Training in sericulture was having a significant association with the knowledge level of farm men and women regarding sericulture technologies Training provides an opportunity to the trainees for gaining knowledge about the sericulture technologies, which leads to the adoption of the same in the farmer's fields to realise increase profits.

4.5.1.2.14 Extension agency contact and knowledge

Extension agency contact of farm men and women had significant association with the knowledge level regarding the sericulture technologies/activities. Frequent contacts of the sericulture extension personnel has helped the sericulturists in knowing about the improved sericulture technologies and the extension personnel may have also facilitated the sericulturists in obtaining the farminputs to the sericulturists, hence a significant association exist between extension agency contact and knowledge level.

4.5.1.2.15 Farm scientist contact and knowledge

Contacts of the farm men and women with the sericulture scientists working in Farm Universities and Sericulture Research Institutes have increased the knowledge on mulberry cultivation and silkworm rearing practices, hence a significant association is seen between farm scientist contact and knowledge level.

4.5.1.2.16 Extension participation and knowledge

Regular participation of the farm men and women in the extension activities carried out by the State Department of Sericulture, Farm Universities, Sericulture Research Institutes etc., have increased the knowledge of sericulturists on recommended sericulture technologies, hence a significant association is exhibited between the extension participation and knowledge level.

The above research findings is in line with the findings reported byAnu (2017), Sathish (2022) and Vikas (2020).

Since many profile characteristics of farm men and women are having significant to highly association with the knowledge regarding recommended sericulture technologies, the null hypothesis set forth for the study that 'there is no association between profile characteristics of farmers and their knowledge level' is partially rejected.

4.5.2. Association between profile characteristics of farm men and women with their decision making pattern on sericulture technologies

4.5.2.1. Association between profile characteristics of farm men with their decision making patternonsericulture technologies

Credit orientation, social participation and deferred gratification of farm men had no significant association with the decision making pattern, while age, education, experience in sericulture, innovativeness, achievementmotivation, management orientation, risk orientation, economic motivation, cosmopoliteness, farming commitment, mass media exposure, extension agency contact and extension participation of farm men had significant association with the decision making pattern.Variables such as, attitude towards sericulture, training in sericulture and farm scientist contact of farm men had highly significant association with the decision making pattern in sericulture technologies(Table 20 and Fig. 14).

Table 20: Association between profile characteristics of farm men with their decisionmaking pattern on sericulture technologies

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	10.111*	0.330
2	Education	10	21.282*	0.712
3	Experiencein sericulture	4	9.993*	0.373
4	Innovativeness	4	11.264*	0.411
5	Achievement motivation	4	9.983*	0.360
6	Management orientation	4	10.665*	0.399
7	Risk orientation	4	11.208*	0.418
8	Economic motivation	4	12.689*	0.467
9	Credit orientation	4	8.617 ^{NS}	0.316
10	Social participation	4	3.620 ^{NS}	0.138
11	Cosmopoliteness	4	9.518*	0.354
12	Deferred gratification	4	5.827 ^{NS}	0.214
13	Attitudetowards sericulture	4	14.867**	0.550
14	Farming commitment	4	10.618*	0.391
15	Massmedia exposure	4	11.284*	0.412
16	Trainingin sericulture	2	13.684**	0.509
17	Extensionagency contact	4	12.691*	0.472
18	Farmscientistcontact	4	14.692**	0.543
19	Extension participation	4	11.682*	0.437

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

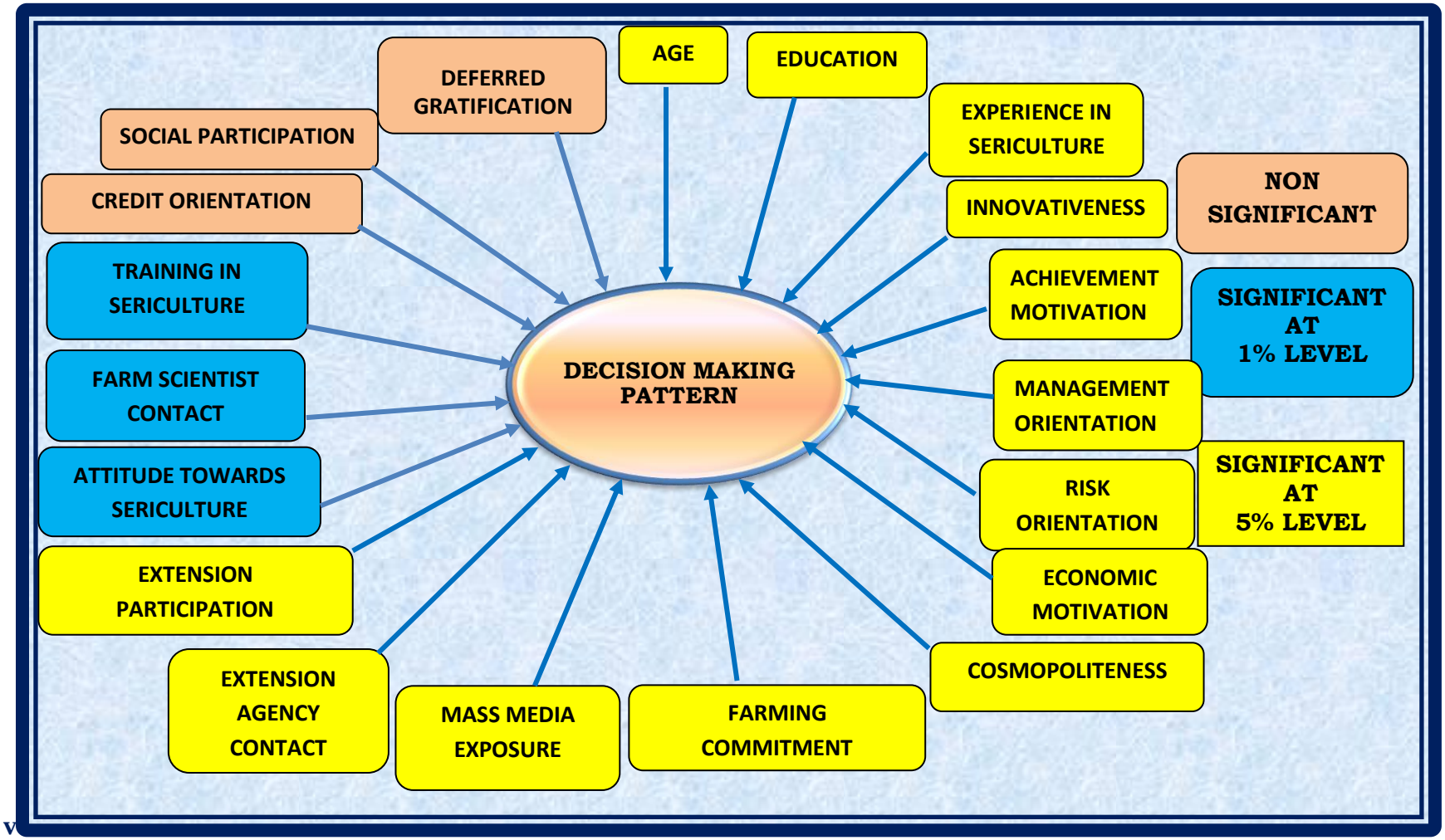


Fig. 14: Association between profile characteristics of farm men with their decision making pattern on sericulture technologies

4.5.2.2. Association between profile characteristics of farm women with their decision making pattern onsericulture technologies

It is observed from Table 21and Fig.15that variables namely, credit orientation, social participation and deferred gratification of farm women had non-significant association with the decision making pattern, whereas while age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, cosmopoliteness, attitude towards sericulture, farming commitment and mass media exposure had significant association with the decision making pattern at five per cent level of probability. Training in sericulture, extension agency contact, farm scientist contact and extension participation of farm women had highly significant association with the decision making pattern on sericulture technologies.

Table 21: Association between profile characteristics of farm women with their decision making pattern on sericulture technologies

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	9.981*	0.365
2	Education	10	20.612*	0.796
3	Experiencein sericulture	4	11.682*	0.433
4	Innovativeness	4	9.725*	0.367
5	Achievement motivation	4	12.686*	0.465
6	Management orientation	4	11.002*	0.405
7	Risk orientation	4	13.018*	0.483
8	Economic motivation	4	12.999*	0.486
9	Credit orientation	4	3.687^{NS}	0.139
10	Social participation	4	2.995^{NS}	0.114
11	Cosmopoliteness	4	10.615*	0.398
12	Deferred gratification	4	4.440^{NS}	0.167

13	Attitudetowards sericulture	4	10.205*	0.375
14	Farming commitment	4	11.698*	0.4310
15	Massmedia exposure	4	12.006*	0.445
16	Trainingin sericulture	2	10.017**	0.3813
17	Extensionagency contact	4	13.690**	0.506
18	Farmscientistcontact	4	15.224**	0.568
19	Extension participation	4	14.991**	0.556

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

The probable reasons for the profile characteristics of farm men and women having significant to highly significant association with the decision making pattern on sericulture technologies is explained in ensuring paragraphs.

4.5.2.2.1. Age and decision making pattern

It is evident from the results that there exists a significant association between age and decision making pattern of farm men and women. As age increases the farmer's experience and knowledge also increases which helps to understand the situation better and enhance their decision making ability to take appropriate decisions.

4.5.2.2.2. Education and decision making pattern

The chi-square value reveals that there is a significant association between education and decision making pattern of farm men and women. Education exposes farm men and women more to communication media. Better perception and comprehension could be observed among better educated than others. Acquisition of formal education may also help to interpret ideas in a rational manner resulting in pragmatic decision making. Hence, there is significant association exist between education and decision making pattern.

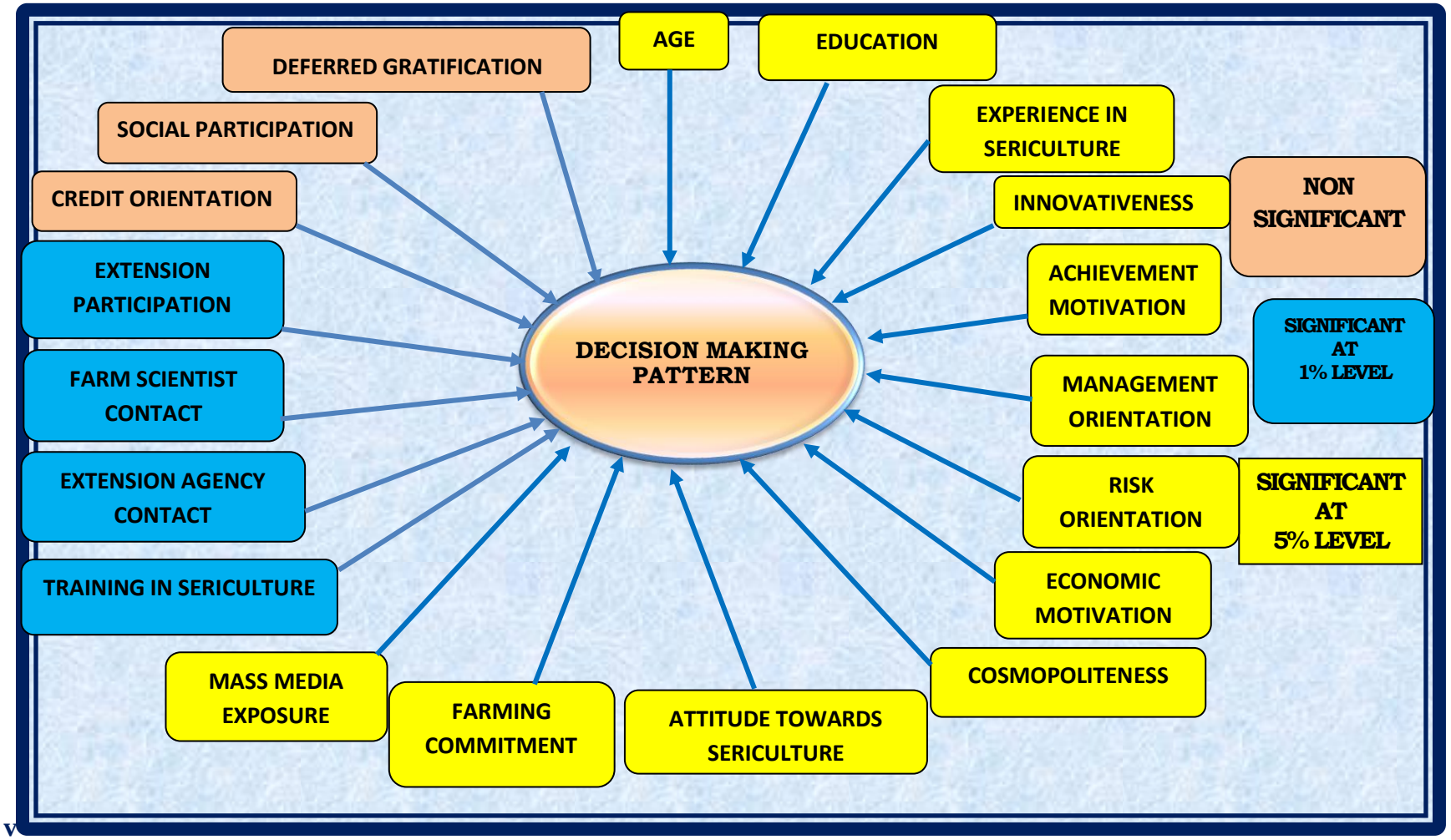


Fig. 15: Association between profile characteristics of farm women with their decision making pattern on sericulture technologies

4.5.2.2.3.Experience in sericulture and decision making pattern

The results revealed that experience in sericulture had a significant association with the decision making pattern of farm men and women. Experience in sericulture aids in effective management and helps in making quick decisions to perform better in sericulture technologies.

4.5.2.2.4. Innovativeness and decision making pattern

It was observed from the results that innovativeness had a significant association with the decision making pattern of farm men and women. Innovativeness is associated with accepting change leading to decisions on adoption of innovative ideas and scientific practices. The farm men and women who are more innovative have actively involved in decision making about sericulture technologies.

4.5.2.2.5 Achievement motivation and decision making pattern

The results revealed that achievement motivation had a significant association with the decision making pattern of farm men and women. Achievement motivation influences the urge of the individual to excel in their life and it is the important determinant of excellence or perfection in what one does. It is the value associated with an individual that drives them to excel in sericulture and thereby attain a sense of personal accomplishment. In order to achieve this distinction, the farm men and women would have actively involved in decision making about sericulture technologies.

4.5.2.2.6 Management orientation and decision making pattern

The significant association of management orientation with the level of decisionmaking pattern of farm men and women might be due to the following reasons. The first reason may be that management orientation offers a chance for working towards excellence, which could enable an individual to manifest themselves as excellent in sericulture. The second reason may be the desire for better management, resulting in greater efforts towards excellence. The urge to move earlier than others will act as an instrument to acquire and adopt managerial components related to sericulture agriculture. Thus, the need to have better management orientation might have raised the decision-making ability of the farm men and women.

4.5.2.2.7 Risk orientation and decision making pattern

Risk orientation of farm men and women and decision making pattern on sericulture activities has a significant association. The various risks involved in adopting sericulture technologies include risks of scarcity of manure, water, drought, pests and diseases, market failure etc. In this context, sericulturists having more risk orientation will be regularly contacting sericulture extension functionaries and farm scientists for deciding which type of technologies/measures (obtaining subsidy for farm inputs, crop insurance etc.,) needs to adopted/followed for mitigating the risks.

4.5.2.2.8 Economic motivation and decision making pattern

A perusal of the results indicates that there is a significant association between economic motivation and decision making pattern of farm men and women. If responsibility of a farmer to earn more money for meeting his family needs increases, then such farmers try to involve in making decisions to adopt new sericulture technologies/activities for earning higher profit.

4.5.2.2.9 Cosmopoliteness and decision making pattern

A cosmopolite farmer during his visit to offices of the sericulture extension personnel and farm scientists (which are located at Hobli/ Taluk/ District headquarters) might have been motivated in deciding the various sericulture technologies he/she to adopt in his/her farm. Hence, there exist a significant association between cosmopoliteness and decision making pattern.

4.5.2.2.10 Attitude towards sericulture and decision making pattern

There exist a significant association between the attitude towards sericulture of farm men and women and their decision making pattern. A farmer who have positive attitude towards a particular sericulture technology, he/she will certainly decide to know more about and decide which technology needs to be adopted by him/her. Hence, it could be seen from the results that there is a significant association between attitude and decision making pattern.

4.5.2.2.11 Farming commitment and decision making pattern

The results revealed that there is a significant association between farming commitment of farm men and women with their decisionmaking pattern. A committed farmer will always look

for the technologies which are of no/ low cost, easy to adopt and yields more income. Later he/she will decide the which technology needs to followed in his/her farm., hence there is a significant association between farming commitment of farm men and women with theirdecision making pattern in sericulture technologies.

4.5.2.2.12 Mass media exposure and decision making pattern

There exists a significant association of mass media exposure with the level of decision making pattern of farm men and women in sericulture technologies. Exposure to mass media develops modern orientation among farmers; make them more efficient in acquiring, retaining and evaluating the effectiveness factors leading to knowledge gain which influences their decision making ability. Mass media also provides enormous opportunity of repeated exposure to new technologies, motivating farmers to take positive steps relevant for decision making. This could be due to the fact that exposure leads to acquiring more information and therefore, more involvement in decision making.

4.5.2.2.13 Training in sericulture and decision making pattern

Sericulturists who have undergone training in sericulture will be imparted skill and knowledge on the latest sericulture technologies. It also helps the sericulturists to interact with the farm scientists to decide upon the technologies that he/she could adopt in his/her field for getting optimum income. Hence, there exist a significant association between training and decision making pattern.

4.5.2.2.14 Extension agency contact and decision making pattern

It can be seen from the results that there is a significant association between extension agency contact with the decision making pattern of farm men and women. This clearly indicates that the contact with extension agents influences the decision making ability and participating in different extension activities to upgrade knowledge regarding sericulture technologies. Extension professionals not only communicate latest developments in sericulture practices but also about development in other farmer's fields. Collecting information on sericulture technologies/activities from researchers and from fellow farmers is possible through extension agency. Therefore, farmers with high level of extension agency contact, will consequently make appropriate decisions regarding the adoption of the sericulture technologies.

4.5.2.2.15 Farm scientist contact and decision making pattern

Frequent contacts of both farm men and women with the farm scientists has helped them to decide about which innovative sericultural technologies are useful to earn greater profit. hence there exist a highly significant association between farm scientist and decision making.

4.5.2.2.16 Extension participation and decision making pattern

It was observed from the results that extension participation had a significant association with the decision making pattern of farm men and women. Participation in extension activities like demonstrations, discussion, general meetings, field days, campaigns, etc., promotes the acquisition of knowledge and helps the farmers to involve in making decisions to adopt the innovative sericulture technologies.

Similar findings were reported by Nishitha (2016) and Natarajue*t al.,* (2021).

A larger number of profile characteristics of farm men and women are having significant to highly association with the decision making pattern on recommended sericulture technologies/activities, hence the null hypothesis set forth for the study that 'there is no association between profile characteristics of farmers and their decision making pattern is partially rejected.

4.5.3. Association between profile characteristics of farm men and women with their participation in sericulture activities

4.5.3.1. Association between profile characteristics of farm men with their participation in sericulture activities

The results in Table 22and Fig. 16revealed that variables namely, credit orientation, social participation, cosmopoliteness and deferred gratification of farm men had non-significant association with the participation level, while variables such as, age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure and training in sericulture of farm men had significant association with the participation level. Extension agency contact, farm scientist contact and extension participation of farm men was having highly significant association with the participation in sericulture activities.

4.5.3.2. Association between profile characteristics of farm women with their participation in sericulture activities

Profile characteristics namely, credit orientation, social participation, cosmopoliteness and deferred gratification of farm women had no significant association with the participation in sericulture activities, whereas age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, economic motivation, attitude towards sericulture, farming commitment, mass media exposure, training in sericulture and extension agency contact of farm women had significant association with the participation in sericulture activities (Table 23 and Fig. 17). Farm scientist contact and extension participation of farm women had highly significant association with the participation in sericulture activities.

Table 22: Association between profile characteristics of farm men with their participation in sericulture activities

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	9.681*	0.358
2	Education	10	21.015*	0.779
3	Experiencein sericulture	4	10.806*	0.406
4	Innovativeness	4	11.683*	0.433
5	Achievement motivation	4	10.019*	0.375
6	Management orientation	4	12.025*	0.449
7	Risk orientation	4	11.601*	0.427
8	Economic motivation	4	12.229*	0.455
9	Credit orientation	4	5.695^{NS}	0.214
10	Social participation	4	6.185^{NS}	0.221
11	Cosmopoliteness	4	4.885^{NS}	0.180
12	Deferred gratification	4	2.696^{NS}	0.096
13	Attitudetowards	4	10.688*	0.399

	sericulture			
14	Farming commitment	4	11.219*	0.418
15	Massmedia exposure	4	12.693*	0.475
16	Trainingin sericulture	2	7.016*	0.346
17	Extensionagency contact	4	13.912**	0.517
18	Farmscientistcontact	4	14.809**	0.543
19	Extension participation	4	13.816**	0.510

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

The probable reasons for the profile characteristics of farm men and women having significant association with the participation in sericulture activities is explained in the ensuring paragraphs.

4.5.3.2.1. Age and participation

As the sericulturists gets old, he/she gets more experienced in sericulture enterprise which helps him/her in knowing more about the sericulture activities. An experienced sericulturist will actively participate in such sericulture activities which he/she can contribute efficiently to more income and profit, thus there exist a significant association between the age of farm men and women and their participation in sericulture activities.

4.5.3.2.2. Education and participation

Results of the study revealed that education was found to be significantly associated with the extent of participation of farm men and women. Education provides an opportunity for farm men and women to expose themselves to mass media which carry messages on production aspects of sericulture activities, thus motivating farm men and women to participate in the sericulture activities

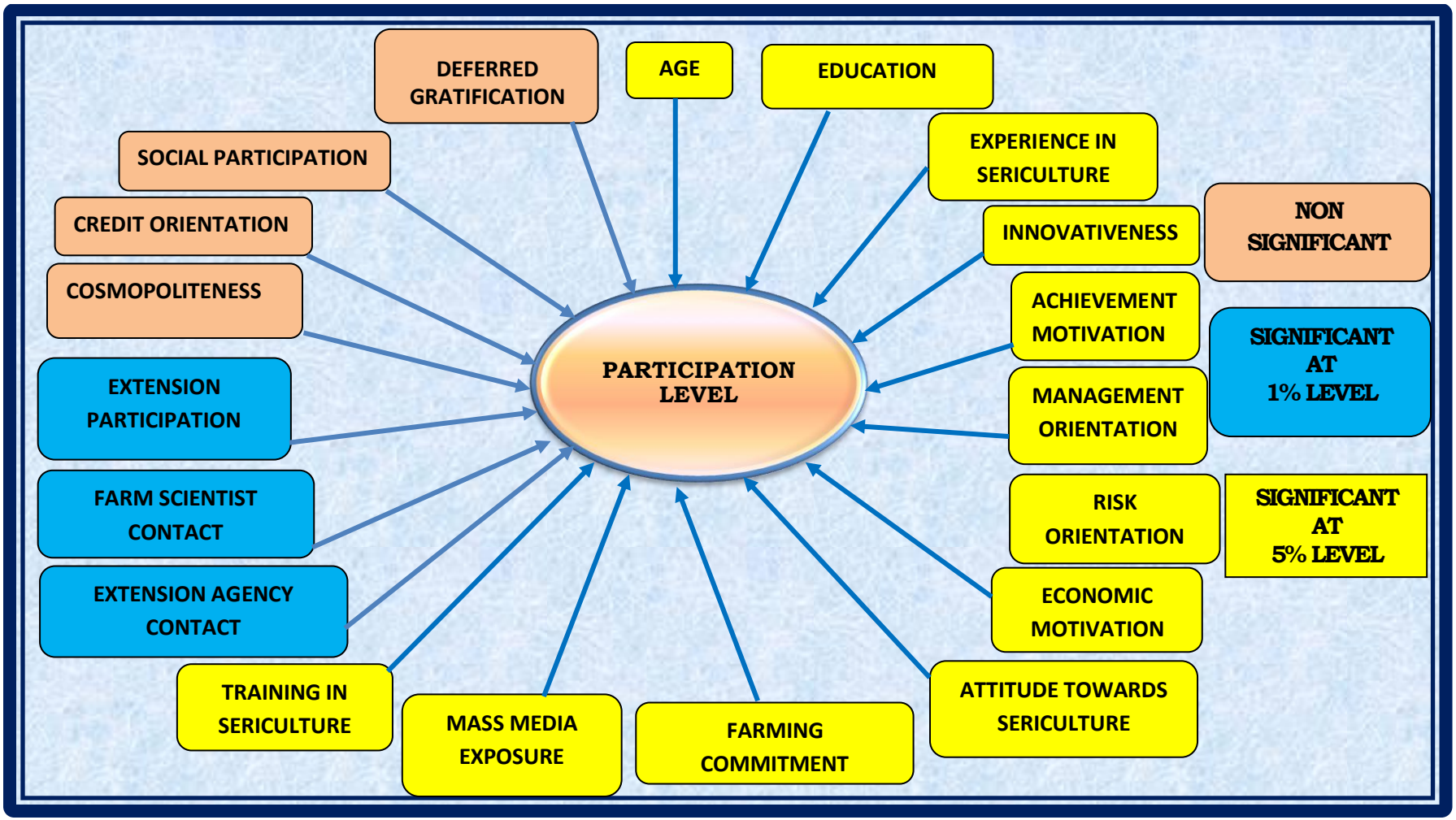


Fig. 16: Association between profile characteristics of farm men with their participation in sericulture activities

Table 23: Association between profile characteristics of farmwomen with their participation in sericulture activities

(n=60)

Sl.No.	Profilecharacteristics	Degreesoffreedom	Chi–squarevalue	Contingency co-efficient
1	Age	4	10.015*	0.372
2	Education	10	21.332*	0.753
3	Experiencein sericulture	4	9.815*	0.365
4	Innovativeness	4	11.685*	0.433
5	Achievement motivation	4	12.222*	0.456
6	Management orientation	4	13.018*	0.489
7	Risk orientation	4	11.019*	0.401
8	Economic motivation	4	10.220*	0.374
9	Credit orientation	4	2.686 ^{NS}	0.098
10	Social participation	4	3.616 ^{NS}	0.137
11	Cosmopoliteness	4	4.616 ^{NS}	0.175
12	Deferred gratification	4	3.116 ^{NS}	0.117
13	Attitudetowards sericulture	4	11.203*	0.416
14	Farming commitment	4	9.986*	0.362
15	Massmedia exposure	4	11.009*	0.401
16	Trainingin sericulture	2	8.880*	0.460
17	Extensionagency contact	4	11.687*	0.333
18	Farmscientistcontact	4	13.696**	0.509
19	Extension participation	4	14.689**	0.544

NS=Non-significant, *=Significant at 5% level,**=Significant at 1% level

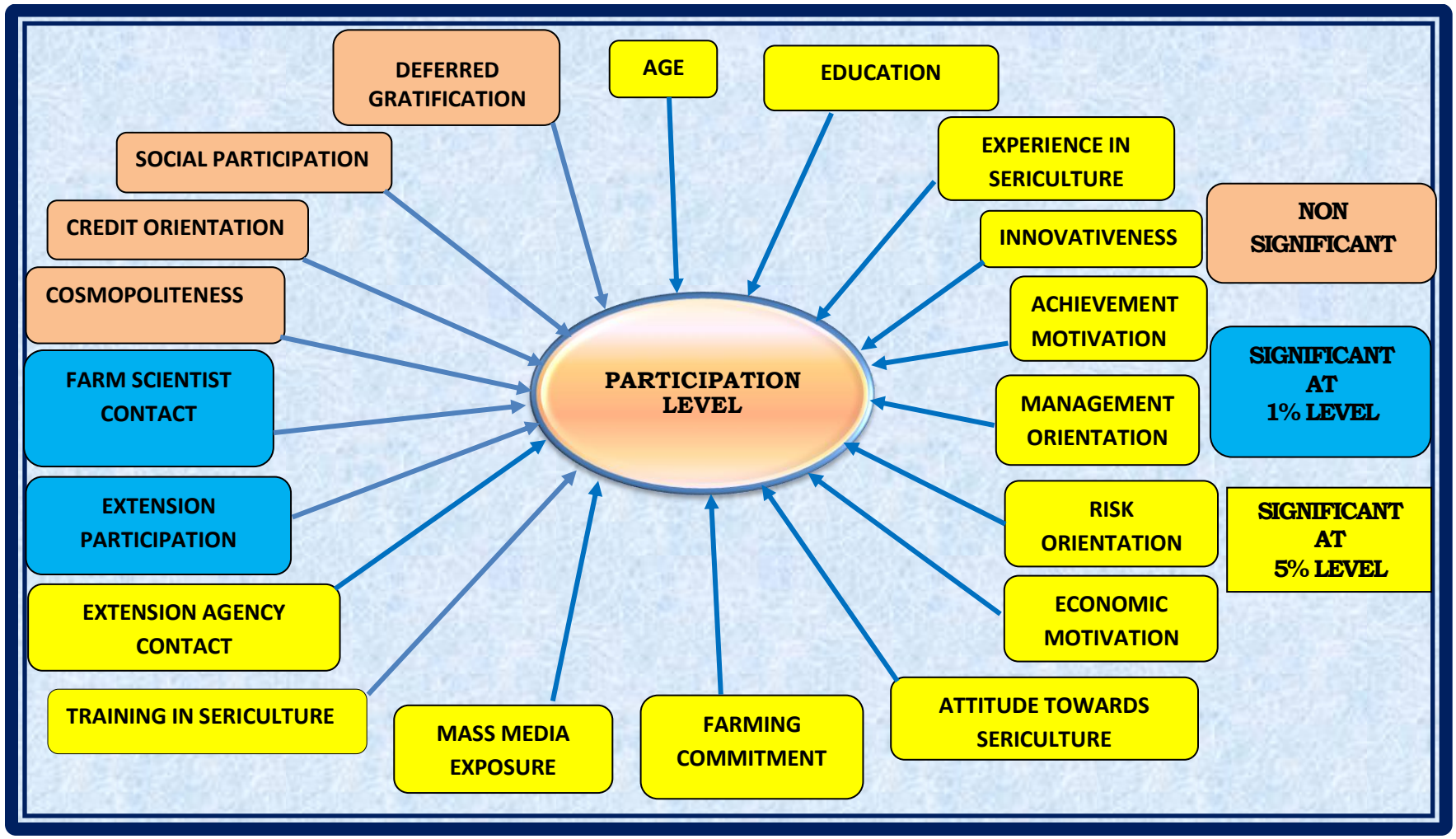


Fig. 17: Association between profile characteristics of farm women with their participation in sericulture activities

4.5.3.2.3.Experience in sericulture and participation

An experienced sericulturist will be having good knowledge on the sericulture technologies and based on his experience in sericulture he/she will actively participate in such activities which yields good income, hence a significant association exhibited between experience in sericulture and participation of farm men and women in sericulture activities.

4.5.3.2.4. Innovativeness and participation

It is evident from the results that innovativeness had a significant association with the extent of participation of farm men and women. The farmers who are innovative, generally will have higher orientation towards risks of scientific technology influencing one's management productivity. Farmers who participate in farming activity would naturally be innovative in adopting new sericulture technologies and will strive hard to achieve higher productivity and income

4.5.3.2.5 Achievement motivation and participation

The study reveals that there exist significant association between achievement motivation of farm men and women with their participation in sericulture activities. The achievement of an individual is associated in excelling in the sericulture enterprise and thereby attaining a sense of successful accomplishment towards making optimum profit from sericulture. To achieve this distinction, the sericulturists mighthave participated in the various government and non-government programmes/schemes for obtainingtechnical guidance on sericulture and obtainingsubsidized sericulture inputs. Sericulturists who have participated in such programmes has led to increased participation in sericulture activities to utilize the available resources efficiently for getting increased income and profit. As a consequence there exist a significant association between the achievement motivation and participation level.

4.5.3.2.6 Management orientation and participation

Farm men and women have participated in the sericulture activities to manage the available resources efficiently and labour scarcity, hence there exist a significant association between management orientation of farm men and women and participation in sericulture activities.

4.5.3.2.7 Risk orientation and participation

The active participation in extension activities will enable the sericulturists to acquaint themselves to the improved sericulture technologies building confidence and minimize risks while participating in the sericulture activities. This may be accounted for the significant association between risk orientation of the farm men and women and participation in sericulture activities.

4.5.3.2.8 Economic motivation and participation

Results indicates that there was a significant association between economic motivation and extent of participation of farm men and women in sericulture activities. Economic motivation is the basic character upon which other motives drive and other attributes are built. It psychologically conditions an individual to motivate themselves to achieve higher income. One could set higher levels of economic motivation, they could strive hard, participate and get inter-relieved themselves about different aspects of sericulture activities. Farm men and women, who are motivated to get higher income will actively participate in the sericulture activities.

4.5.3.2.9 Attitude towards sericulture and participation

It could beobserved from the results that the attitude towards sericulture showed a significant association with the extent of participation of farm men and women. The key attribute of an attitude is its evaluative component. That is, attitude generally refers to individual's disposition to respond positively or negatively to some aspect/object. So, when a farmer possesses a favourable attitude towards sericulture technologies farming, he/she would have, naturally evaluated its positive and negative implications of practising the same on their farm. Therefore, favourable attitude towards sericulture brings significant association with the participation, since the positive attitude of farm men and women is very essential to participate in sericulture activities

4.5.3.2.10 Farming commitment and participation

A committed sericulturisthave participated in the sericultureactivities have saved the labour cost which has resulted in lesser cost of production and efficient utilization of available

resources. Thus, there exist a significant association between the farming commitment of farm men and women with their participation in sericulture activities.

4.5.3.2.11 Mass media exposure and participation

It was observed from the results that the mass media exposure has a significant association with the extent of participation in sericulture activities. Higher levels of mass media use would facilitate the farmers to develop habits of gathering more information about sericulture technologies through radio, television, newspaper, farm magazines and other literature. Mass media develop modern orientation among the farm men and women and make them more efficient in acquiring, retaining and evaluating the effectiveness of sericutlure innovations. Hence, mass media exposure has motivated the farm men and women to participate in sericulture activities.

4.5.3.2.12 Training in sericulture and participation

There is a significant association between training on sericulture and participation in sericulture activities. The participation of sericulturists in the training programmes in sericulture has given an opportunity to acquaint themselves on the latest sericulture technologies which yields better income, hence sericulture who have undergone training in sericulture will actively participate in the sericulture activities to get good profit.

4.5.3.2.13 Extension agency contact and participation

It was observed from the results that extension agency contact is found to be having a significant with the extent of participation of farm men and women in sericulture activities. Extension agency contact would help the farm men and women to expose themselves to improved sericulture technologies promoted by the sericulture extension workers. Frequent contact with the sericulture extension workers would also motivate farm men and women to participate in sericulture activities. This clearly indicates that the contact with extension workers has influenced the participation of farm men and women in sericulture activities.

4.5.3.2.14 Farm scientist contact and participation

Farm scientists helps the farmers to create awareness about the improved sericulture technologies which are developed by the Farm universities and Sericulture Research Institutes. Sericulturists who have good knowledge on various technologies will actively participate in the sericultural activities earning maximum profit.

4.5.3.2.15 Extension participation and participation

The results of the studyreveals that extension participation is significantly associated to the extent of participation of farm men and women in sericulture activities. Participation in extension activities such as, group discussion, demonstrations, field days, farmers field school, video conferencing, krishi-melas, etc., would promote the acquisition and consequent adoption of sericulture technologies. The eagerness in solving their problems with sericulture extension workers and also the interest in extension activities to gather recent information will enhance their participation in the sericulture activities.

The present findings are in line with the findings reported by Bharath Kumar (2020), Nishitha (201) andNatarajue*t al.,* (2021).

Since, many profile characteristics of farm men and women are having significant to highly association with the participation level on sericulture activities, hence the null hypothesis set forth for the study that 'there is no association between profile characteristics of farmers and their participation level',is partially rejected.

4.6 Drudgeries faced by farm men and women in sericulture activities

This section presents the research data pertaining to the drudgeries faced by farm men and women in mulberry cultivation and silkworm rearing practices.

4.6.1. Drudgeries faced by farm men and women in mulberry cultivation

Table 24 presents the data on the drudgeries faced by farm men and women in mulberry cultivation. It is seen from the table that 30.00 per cent of the farm men experienced 'backache' while preparing the land for raising mulberry crop. Whereas, one-third of the farm men (33.33%) and 36.66 per cent of the farm women have experienced 'backache' while preparing and planting

the mulberry cuttings. Over one-third of the farm men (38.33%) and women (40.00%) experienced ‘backache’ while performing hand weeding. Nearly half of the farm men (46.66%) and one-fifth of the farm women (20.00%) experienced ‘backache’ while irrigating the mulberry crop. Forty and 35.00 per cent of the farm men and women experienced ‘backache’ while harvesting the mulberry leaves, respectively.

It is also observed from Table 24 that the farm men and women experienced ‘neck pain’, while applying organic manure (25.00% and 20.00%), chemical fertilizers (16.66% and 10.00%) and plant protection chemicals (30.00% and 5.00%), respectively.

Thirty fiveper cent of the farm men perceived that ‘blister and lesions’ were caused while preparing land for raising mulberry crop. Whereas, one-third of the farm men (33.33%) and 35.00 per cent of the farm women perceived that ‘blister and lesions’ were caused during hand weeding. Less number of farm men and women perceived that ‘blister and lesions’ were caused while performing operations such as application of chemical fertilizers (13.33% and 5.00%), mixing and application of plant protection chemicals (35.00% and 8.33%) and mulberry leaf harvesting (15.00% and 6.00%), respectively.

The findings in Table 24also revealed that less than one-fourth of the farm men (23.33%) and women (18.33%) perceived drudgery due to inhalation of plant protection chemicals causing ‘cough and nasal infestations’, while mixing and application of plant protection chemicals causing ‘eye irritation’. Less number of fam men and women perceived drudgery while applying chemical fertilizers (20.00% and 18.33%) and mixing and application of plant protection chemicals (23.33% and 21.66%) causing eye irritation, respectively.

The drudgeries in mulberry cultivation could be reduced if suitable farm implements such as ploughs and weeders are developed by the farm scientists. However, the technologies should be within the farmer’s financial means. The mulberry growers could also adopt drip irrigation to irrigate the mulberry crop for reducing the drudgeries. Drudgeries could be reduced while applying micro-nutrients and manure by efficiently using the sprayers. Hand gloves, face and eye masks could be used while mixing and application of agro-chemicals, so that the chemicals would not come in direct contact with the skin

Table24: Drudgeries faced by farm men and women in mulberry cultivation

Sl. No.	Drudgeries	Farm men (n_1=60)		Farm women (n_2=60)	
		No.	%	No.	%
1	Backache				
a	Land preparation	18	30.00	0	0.00
b	Preparation and planting the mulberry cuttings	20	33.33	22	36.66
c	Hand weeding	23	38.33	24	40.00
d	Irrigation	28	46.66	12	20.00
e	Mulberry leaf harvesting	24	40.00	21	35.00
2.	Neck pain				
a	Application of organic manure	15	25.00	12	20.00
b	Application of chemical fertilizers	10	16.66	6	10.00
c	Application of plant protection chemicals	18	30.00	3	5.00
3	Blisters and lesions				
a	Land preparation	21	35.00	0	0.00
b	Hand weeding	20	33.33	21	35.00
c	Application of chemical fertilizers	8	13.33	3	5.00
d	Mixing and application of plant protection chemicals	21	35.00	5	8.33
e	Mulberry leaf harvesting	9	15.00	4	6.66
4.	Cough and nasal infections due to mixing and application of plant protection chemicals	14	23.33	11	18.33
5	Eye irritation				
a	Application of chemical fertilizers	12	20.00	11	18.33
b	Mixing and application of plant protection chemicals	14	23.33	13	21.66

4.7.1. Drudgeries faced by farm men and women in silkworm rearing

The results in Table 25presents the data on findings related to the drudgeries faced by farm men and women in silkworm rearing. It is seen from the table that less than half of the farm men and women experienced ‘back ache’ while applying disinfectants (26.66% and 16.66%), and performing operations such as, heating and cooling the rearing houses (10.00% and 13.33%), feeding the silkworms (46.66% and 48.33%), bed cleaning (41.66% and 43.33%) and harvesting of cocoons (46.66% and 48.33%), respectively.

The findings revealed that less than one-third of the farm men and women experienced ‘itching’ while applying disinfectants (6.66% and 5.00%) and performing operations like, heating and cooling the rearing houses (1.66% and 1.66%), feeding the silkworms (3.33% and 1.66%), bed cleaning (26.66% and 25.00%)and harvesting of cocoons (28.33% and 31.66%), respectively.

Table 25 also reveals that less than one-fifth of the farm men and women experienced ‘allergy’ while applying disinfectants (13.33% and 6.66%) and performing operations like, heating and cooling the rearing houses (3.33% and 1.66%), feeding the silkworms (5.00% each), bed cleaning (8.33% and 10.00%), cleaning of mountages (25.00% and 13.33%) and harvesting of cocoons (13.33% and 6.66%), respectively.

It could also be observed from the Table 25 that less than one-fourth of the farm men and women perceived drudgery due to inhalation of disinfectant causing ‘cough and nasal infestations while applying disinfectants (25.00% and 13.33%) and performing bed cleaning (15.00% and 13.33%) and cleaning of mountages (15.00% and 13.33%). Over one-third of the farm men (26.66%) and 15.00 per cent of the farm women experienced ‘headache’ while applying disinfectants, whereas 16.66 per cent of the farm men and 15.00 per cent of the farm women experienced ‘headache’ while carrying out bed cleaning practices. One-fourth of the farm men (33.33%) and 13.33 per cent of the farm women were experiencing ‘headache’ while cleaning of mountages.

Table 25: Drudgeries faced by farm men and women in silkworm rearing practices

Sl. No.	Drudgeries	Farm men (n_1=60)		Farm women (n_2=60)	
		No.	%	No.	%
1.	Back pain				
a.	Application of disinfectants	16	26.66	10	16.66
b.	Heating and cooling the rearing houses	6	10.00	8	13.33
c.	Feeding the silkworms	28	46.66	29	48.33
d.	Bed cleaning	25	41.66	26	43.33
e	Cleaning of the mountages	22	36.66	18	30.00
f.	Harvesting of cocoons	28	46.66	29	48.33
2	Itching				
a.	Application of disinfectants	4	6.66	3	5.00
b.	Heating and cooling the rearing houses	1	1.66	1	1.66
c.	Feeding the silkworms	2	3.33	1	1.66
d.	Bed cleaning	16	26.66	15	25.00
e.	Harvesting of cocoons	17	28.33	19	31.66
3	Allergy				
a.	Application of disinfectants	8	13.33	4	6.66
b.	Heating and cooling the rearing houses	2	3.33	1	1.66
c.	Feeding the silkworms	3	5.00	3	5.00
d.	Bed cleaning	5	8.33	6	10.00
e	Cleaning of the mountages	15	25.00	8	13.33
f.	Harvesting of cocoons	8	13.33	4	6.66
4	Cough and nasal infections				
a.	Application of disinfectants	15	25.00	8	13.33
b	Cleaning of the mountages	15	25.00	8	13.33
c	Bed cleaning	9	15.00	8	13.33
5.	Headache				
a.	Application of disinfectants	16	26.66	9	15.00
b.	Bed cleaning	10	16.66	9	15.00
c.	Cleaning of the mountages	20	33.33	8	13.33

The drudgery in silkworm rearing could be minimised by the use of hand gloves while mixing the disinfectants. Further, the use of face and eye masks will help in minimising drudgery during the application of disinfectants and performing the operations like heating and cooling the rearing houses, feeding the silkworms, bed cleaning and harvesting the cocoons.

The reduction in drudgery will lead to reduced fatigue and increase the participation of farm men and women in sericulture activities, however the extent of drudgery of the farm men and women in sericulture across the country vary widely with the nature of work, type of activity, their socio-economic status, local customs, size of family etc.

More or less similar findings were reported by Nishitha (2016), Malek et al., (2019) and Biradar (2021).

V SUMMARY

Sericulture is a high-yielding and highly profitable enterprise which offers regular and all-year-round attractive returns in the country's tropical states. When a farmer has one acre of mulberry plantation and uses family labour, the net returns are projected to be around Rs 48,000/. This is significantly more than that of other tropical crops. Moreover, nothing is wasted in sericulture, where its by-products are used for various purposes. Cattle eat the leaves and shoots of mulberry that the silkworms leave behind, which boosts their milk production. The pupae are used to make dog treats like oil and biscuits. The bakery and soap industries can both benefit from the protein powder and the oil that could be recovered from dead pupae, besides the protein powder is a rich food source for pigs, fish, and fowl. The excreta of the silkworm is used as manure by the peasants. The sensible use and disposal of these by-products aids sericulturists in maximising their financial rewards and it is reported that an acre of irrigated mulberry can produce up to one lakh rupees annually through the sale of cocoons, besides providing full employment to at least five people

Sericultural operations are typically limited to small or medium scale due to labour-intensive nature and individualised care required for silkworm rearing operations, with most of the mulberry holdings in India ranging from 0.5 acres to 2 acres. Large-scale or commercial farming is now economically viable and popular, particularly among progressive farmers and educated people. This is because improved technologies developed by the country's research institutes have increased crop stability and reduced the labour dependence of silkworm rearing operations significantly. Large-scale sericultural cultivation is thought to be distinguished by high productivity, cost effectiveness, and quality. The generation of cocoons is regarded as sericulture's key output, increasing farmers' income and serving as raw materials for the silk industry. The main product of the silk industry is cocoons and a variety of useful secondary products, such as moths, trash, and proteins from silkworms could be processed for use in animal feed. By putting money into sericulture, about 30 million families worldwide will benefit.

Women are generally favoured in sericulture because of their work ethics. They work on a grainage, a silkworm farm, or a mulberry garden. Their role in post-cocoon technologies, starting with the silk reeling, weaving, and clothing manufacturing industries, is larger. According to recent studies, one crore peasants rear silkworms; fifty lakhs peopledependon their livelihood

from the silk industry; and Asia is the world's top silk-producing continent, accounting for world's total output of 95 per cent. Fifty-eight countries produce silk, with China, India, Japan, Brazil, and Korea among the top producers. For every kilogramme of raw silk produced, sericulture can also create up to six jobs to women out of 11 new jobs.

The sericulture business employs about eight million people in rural and semi-urban areas in India. A sizable portion of these people employed in sericulture are drawn from the socio-economically underprivileged groups of society, including women. Sericulture is a profession performed by and for women because 60.00 per cent of the labour and consume 80 per cent of the silk. In this backdrop, it is essential to know about the knowledge, decision making and participate of both farm men and women in sericulture technologies, hence this study is framed with the below mentioned objectives:

6. To assess the knowledge level of farm men and women regarding recommended sericulture technologies

7. To analyse the decision making pattern of farm men and women in sericulture technologies

8. To study the extent of participation of farm men and women in sericulture activities

9. To understand the association of profile characteristics of farm men and women with theirknowledge, decision making and participation level

10. To document the drudgeries faced by farm men and farm women in sericulture activities

The study was carried out in Ramanagara district of Karnataka. During 2019-20, mulberry was grown in 9528, 3609, 2691 and 311 ha of Kanakapura, Channapatna, Ramanagara and Magadi taluks of Ramanagara district, respectively. The study wase purposively conducted in Kanakapura (9525 ha) and Channapatna (3609 ha) taluks since mulberry is cultivated in more areas among the four taluks of Ramanagara district. Ten villages were selected for the study from the sampled two taluks. Marginal and small farmers practising sericulture were selected for the study since the farm women from these categories are actively involved in making decision and also they participate in most of the sericulture activities. Six sericulture households from

each village were chosen randomly.Data was collected from the husband and wife of each of the sampled farm household. Sixty farm men and 60 women formed the sample from Kanakapura and Channapatna taluks of Ramanagara district..The study followed Expost- facto research design..

Knowledge, decision making and participation level were selected as dependent variables, while education, age, experience in sericulture, innovativeness, achievement motivation, management orientation, economic motivation, credit orientation, risk orientation, cosmopoliteness, deferred gratification, attitude towards sericulture, farming commitment, social participation training in sericulture, farm scientist contact, mass media exposure, extension participation and extension agency contact were chosen as independent variables.Using a pre-tested interview schedule data was gathered from the respondents. Frequency, percentage, standard deviation, mean,chi square test, and student 't' test were used for analysis of data.

The major findings are as follows:

1. A larger percentage of men were having high level of management orientation (51.66%), risk orientation (46.66%), economic motivation (55.00%), credit orientation (50.00%), social participation (56.67%), cosmopoliteness (48.34%), deferred gratification (45.00%), favourable attitude towards sericulture (46.66%), farming commitment (50.00%), farm scientist contact (50.00%) and mass media exposure (36.66%).

2. More number ofwomen were having high level of management orientation (40.00%) and deferred gratification (40.00%), while 63.34 per cent of the women did not undergo training in sericulture.

3. A larger proportion of farm men (46.66%) were having high level of knowledge regarding improved sericulture technologies, followed by medium (30.00%) and low (23.34%) level of knowledge regarding improved sericulture technologies, respectively. On the other hand, over one-third (35.00%) of farm women belong to knowledge category regarding recommended sericulture technologies, followed by one-third (33.33%) and 31.67 per cent of them werebelonging to high and low knowledge category regarding recommended sericulture technologies, respectively.

4. There existed a significant difference in the mean knowledge score between men (46.54) and women (40.65) with regard to the recommended sericulture technologies.

5. More than two-third of farm men (63.34%) were falling under high decision category, while 16.66 and 20.00 per cent of farm men were falling under low and medium decision category, respectively. In respect of women, a majority were falling under low decision category (60.00%) followed by 26.66 and 13.34 per cent of farm women falling undermedium and high decision category, respectively.

6. It was found that there was a highly significant difference existed in the mean decision making score between farm men (22.08) and women (6.66) in regard to the sericulture technologies.

7. Forty-five per cent of farm men were falling under high participation level with regard to sericulture activities, while 30.00 and one-fourth (25.00%) of farm men were falling under medium and low participation level. More than one-third (35.00%) of farm women were falling under medium participation level followed by one-third (33.34%) and 31.66 per cent of farm women falling under high and low participation level in regard to sericulture activities.

8. There was a significant difference in the mean participation score between the farm men (16.44) and women (13.98) in respect of the sericulture activities.

9. Age, education, experience in sericulture, innovativeness, achievement motivation, management orientation, risk orientation, attitude towards sericulture, farming commitment, economic motivation, training in sericulture, extension agency contact, extension participation, mass media exposure, and farm scientist contact of both sexes had significant association with their level of knowledge, decision making and participation.

10. All the 19 profile characteristics of men contributed 84.20, 75.50 and 78.90 per cent on the knowledge, participation and decision making in sericulture technologies/activities, respectively.

11. Nineteen independent variables of farm women together contributed to 81.20 per cent to the knowledge, 74.90 per cent to the participation and 76.10 per cent to the decision making on sericulture technologies/activities, respectively.

12. Backache, headache, neck pain, blisters, lesions and eye irritation were the health hazards/drudgeries faced by sexes in silkworm rearing and mulberry cultivation activities.

Implications of the study

The research study findings have practical implication for the policy makers, academicians, researchers and extension personnel.

1. The findings revealed that a larger proportion of men were falling under to high and medium category of making decisions and knowledge, while women were falling under medium and low category of making decisions and knowledge. Women were least considered in making decisions in sericulture. Sericulture extension agencies must educate men for encouraging farm women in the making decisions and also they must motivate farm women to actively involve in making decisions and participate in sericulture activities. So that both could profitably engage in sericulture activities for earning maximum income and profit.

2. Management orientation had significant association with their knowledge, decision making and participation level of both sexes in sericulture activities. Therefore, their knowledge and decision making pattern needs to be enhanced by strengthening their leadership and technical capacities in sericulture technologies.

3. More than four-tenth of farm women had low level of extension participation (35.00%) and extension agency contact (46.33%) and besides there is strong association between the above two independent variables of both sexes with their level of knowledge, decision making and participation in sericulture activities. Hence, more opportunities needs to be given for the women to participate in the extension activities (discussion, demonstrations, meetings, training programmes, field days, farm schools, farmer field schools, exposure visit to progressive sericulturists farm, etc.) and frequent contacts of women with farm scientists and formal sericulture extension personnel (Demonstrator, Sericulture Officer and Assistant Director of Sericulture) will aid the women in gaining good knowledge for improving

selfesteem, self perception, and confidence to help them for actively contributing in making better decisions and increased participation in respect of sericulture activities.

4. Mass media participation of men and women was having a significant association in respect of their knowledge, decision making and participation level in sericulture technologies/activities. Print and electronic media would publish/broadcast/telecast needbased messages in local languages on improved sericulture technologies aiding both sexes to increase their knowledge on improved sericulture technologies for making better decisions and induce participation in sericulture activities.

5. Greater number of both genders have faced drudgeries in performing activities/ operations like, planting mulberry cuttings, hand weeding and mixing and applying plant protection chemicals. Extending the technological interventions like ploughing tools, inter-cultivator, weeder, sprayers etc., will minimise the drudgery to both sexes (farm men and women) in mulberry cultivation. Sericulture Department must provide farm implements and equipment on custom hire basis to the needy sericulturists on subsidy basis.

6. The drudgeries could also be minimised by using hand gloves during mixing and applying disinfectants and also face and eye masks could be used by both sexes while performing silkworm rearing activities *viz.,* application of disinfectants, feeding of silkworms, bed cleaning, cocoon harvesting etc.

Future line of work

1. The present research study had the limitations of resource and time ofa researcher and the sample size restricted to 120 selected from Ramanagar district. Hence, it is essential to replicate the research study in all the major sericulture districts of the country so that the inference might be generalized to a larger extent.

2. Similar type of research studies may be conducted on different agriculture-based enterprises as the type and nature of activities performed by both sexes differs.

3. There is a need to know the drudgeries encountered by farm men and women in various cropbased enterprise, so that the farm researchers may develop suitable farm equipment and tools and equipment for minimising the drudgeries for both the genders.

VI REFERENCES

ALKA PATKI,NIKHADE,C.M., AND THOTE,S.G., 2000,Role performance of rural women in animal husbandry practices. *Maharashtra J. of Extn. Edn.*,**19:** 246-248.

ANITHA, 2002, Role of women in decision making in household activities in Bihar. *Maharashtra J. of Extn. Edn.*, **21**(1): 67-70.

ANITA KUMARI, 2002, Role of rural women in monetary decision making, *J. of Extn. Edn.*, **13** (4):3418-3421.

ANONYMOUS, 2003, Department of Agricultural Research and Education, Ministry of Agriculture, Government of India. *Indian Council of Agri. Res*., New Delhi: 121.

ANONYMOUS,2021a, Annual Reportof Central Silk Board: http://www.csb.gov.in/assets/uploads /documents/CSBAR1617English.pdf.

ANONYMOUS, 2021b, Annual Report, Department of Sericulture, Karnataka.

ANU, S., 2017, Adoption behaviour of coconut growers about organic farming practices in Thiruvanthapuram district of Kerala. *M.Sc.(Agri.) Thesis (Unpub.),* Sam Higginbottom University of Agriculture and Technological Sciences, Allahabad.

ARCHANA, 2019, A study on participation, decision making and time utilization by dairy farm women in Bidar district. *M. Sc. (Agri.) Thesis (Unpub.)*, Univ. Agric. Sci., Bengaluru.

BHARATH KUMAR, T.P., 2010.Time utilization and decision making in horticulture: Antecedent to gender mainstreaming. *M.Sc. (Agri.) Thesis,(Unpub.),* Univ. Agri. Sci., Bengaluru.

BIRADAR, S., 2021, Perceived drudgery of farm women involved in agricultural activities. *Indian Research Journal of Extension Education,***12**(1): 103-106.

CHAITRA, G., 2020, Impact of National Food Security Mission on socio economic status of farmers of selected districts of Karnataka. *Ph.D. Thesis (Unpub.),* Univ. Agric. Sci., Bengaluru.

CHANDAN KUMAR,K. C., 2019, A study on knowledge and adoption of mulberry and pure mysore silkworm seed production practices by sericulture farmers in Ramanagara district. *M.Sc.(Agri.), Thesis (Unpub.)* Univ. Agri. Sci., Bangalore.

CHAVAN KISHORE, T., 2015, Knowledge and adoption of mango production technology. *M. Sc. (Agri.) Thesis (Unpub.),* Vasantrao Naik Marathwada Krishi Vidyapeeth, Prabhani.

DARJI, A., 2018, Group dynamics of farmer's interest groups under ATMA in Ahmedabad district of Gujarat State, M. Sc. (Agri.) Thesis (Unpub.), Anand Agricultural University, Anand.

DHANESHWARI SAHU, TARNI SAHU, V.K., PYASI AND AGRAWAL, A.K., 2020. Profile and entrepreneurial behavior of tomato growers in Panagar block of Jabalpur District (M.P.). *Journal of Pharmacognosy and Phytochemistry 2020,* **9**(2): 154-159.

ELIZABETH, M. G., AND INGLE, P. O., 1995, Involvement of women in rubber plantation in Kerala. *Maharastra J. Extn. Edn.,* **14**: 77-82.

FARAHAT, A. E. M., 2011, The determinants of political participation of rural youth- a comparative study between male and female youth in Menoufiya Governorate. *Arab Univ. J.Agri.Sci***.,19**(1): 39-85.

FEASTER, J. Y., 1968, Measurement and determinants of innovativeness among primitive agriculturists. *Rural Sociology,***33**: 339-348.

HADAGALI VISHWANATH, 2013, A study on aspirations and participation of rural youth practicing agriculture and allied activities. *M.Sc. (Agri.) Thesis, (Unpub.),* Univ. Agri. Sci., Bengaluru.

HADAGALI VISHWANATH, MANJUNATHA B.N., LAKSHMINARAYAN M.T., AND ANAND. T.N., 2014, Participation of rural youth in sericulture. *Mysore J. of Agri. Sci.*, **48**(2): 251-256.

HADAGALI VISHWANATH, MANJUNATHA B.N., AND LAKSHMINARAYAN M.T., 2015, Aspirations and participation of rural youth practicing dairy enterprises. *Mysore J. Agri. Sci.,* **49**(1): 102-104.

HADIMANI D. K., MOULASAB, J., ASHOKA AND MANJUNATH., 2017, Animpact study on sericulture production technology by the farmers of Bidar District in Karnataka, *India. Int. J. Curr. Microbiol. Applied Sci.*,**6**(11): 2368- 2374.

HIREMATH, N. S., 2000, Participation of rural youth in farm and non-farm activities in Dharwad taluk. *M.Sc. (Agri.) Thesis, (Unpub.),* Univ. Agri. Sci., Dharwad.

IMRANKHANJIRAGAL, 2018, Adoption and economic performance of bi-voltine silkworm rearing farmers in Chitradurga district. *M. Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bengaluru.

JOY MATHEW AND NAGI REDDY, K., 1990, A scale to measure the attitude of rural youth towards agriculture. *Maharashtra J. Extn. Edn.,* 8: 203-206.

JYOTHI, S. S. P. AND DEVARANI, L., 2019, Farmers' network analysis on diffusion and adoption of CAU-R1 Variety in Imphal East district of Manipur. *Curr. J. Appl. Sci. Technol.***36**(1): 1-17.

KAMAR, A., 2019, Knowledge and adoption of coconut production technology by the coconut growers in Thiruvananthapuram district. *M. Sc.(Agri.) Thesis (Unpub.),* Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

KHARDE, P. B., 2016, Knowledge and adoption of farmers using high density plantation in Guava. *M. Sc. (Agri.) Thesis (Unpub.),* Mahatma Phule Krishi Vidyapeeth, Rahuri.

KIKON. W., 2010, Adoption gap in Groundnut production in Northern Transition Zone of Karnataka, *M.Sc (Agri.), Thesis (Unpub.),* Univ. Agric. Sci., Dharwad.

KOLI, M. A., 2012, Knowledge and adoption of coconut production technology in Junagadh district of Gujarat state. *M. Sc.(Agri.) Thesis (Unpub.)*, Junagadh Agricultural University. Gujarat.

KULKARNI, R. R., 1998, Perception of drudgery by farm women. *Maharashtra J. Extn. Edn.*, **17**:288-290.

LAKSHMINARAYAN, M. T., 1996, Adoption of sustainable sugarcane farming practices by farmers-An analysis. *Ph.D. Thesis,(Unpub.)*, Univ. Agri. Sci., Bengaluru.

LAKSHMI NARAYANI,S., 2009, A study on livelihood security of farmers in Virudhnagar district of Tamil Nadu. M.Sc. Thesis (Unpub.), Univ. Agric. Sci., Bangalore.

LAKSHMINARAYAN, M.T., BANUPRAKASH, K.G. AND NARAYANAREDDY, R., 2013, Participation of women sericulturists in silkworm rearing practices. Published in compendium of abstracts of National Seminar on Sericulture, Bengaluru held during 7th to 9th July 2013 at College of Sericulture, Chintamani.

LAKSHMINARAYAN, M.T., NATARAJU, M.S. AND MANJUNATHA B.N., 2011, Participation of rural youth in milk and silk farming. Published in compendium of abstracts of National Seminar on Attracting farm youth to Sustainable Agriculture, Bengaluru held from 4th July to 7th July 2011 at University of Agricultural Sciences, Bangalore.

MADHUSHREE, A., 2014, Decision making pattern and achievement motivation of farm women under dry land condition. *M. Sc. (Agri.) Thesis (Unpub*.), Univ. Agri. Sci., Bengaluru.

MALEK, K. P., 2019, A study on decision making pattern in farm and non-farm activities by the farmers of Shivmogga district in Karnataka state. *M. Sc. (Agri.) Thesis (Unpub.)*, Univ. Agri. Sci., Bengaluru

MANJULA MALGI., 2003, Decision making and participation of farm women in watershed development programme of Karnataka. *M.Sc. (Agri.) Thesis*, Univ. Agri. Sci., Bengaluru.

MANJUNATH, K. AND BAI, D. S., 2019, Profile analysis of mango growers of Karnataka. *Journal of Pharmacognosy and Phytochemistry*, **8**(2): 904-908.

MARADDI, G.N., 2006, An analysis of sustainable cultivation practices followed by sugarcane growers in Karnataka. *Ph.D. Thesis (Unpub.),* Univ. Agric. Sci.,Dharwad.

MISHRA, A. K., 2019, A study on the knowledge and practices of banana growers in Fakharpur Block of Bahraich District of Uttar Pradesh. *International Journal of Advanced Agricultural Science and Technology*, **6**(6): 62-69.

MISHRA, K., 1979, A study of some agro-economic, socio- psychological and communication variables associated with repayment behaviour of agricultural credit users of nationalized bank. *Ph.D. Thesis, (Unpub.),* Bidhanachandra Krishi Viswavidyalaya, Kalyani, West Bengal.

MORWAL, B. R., PAGARIA, P., CHOUDHARY, H. D. AND DAS, S., 2019, Characteristics and adoption behaviour of pomegranate growers in Barmer district of Rajasthan. *Journal of Pharmacognosy and Phytochemistry,***8** (3): 3296-3300.

MUTTEPPA, C., 2018, A study on knowledge and extent of adoption of improved cultivation practices by turmeric growers in Belgavi District. *M.Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

NAGANANDA, C., 2005, Study of organizational climate perception of Assistant Directors of Agriculture and Agricultural officers of Karnataka State Department of Agricuture, *M.Sc. (Agri.), Thesis (Unpub.)*, Univ. Agric. Sci., Dharwad

NAGESH, 2006, Study on entrepreneurial behavior of pomegranate growers in Bagalkot District of Karnataka, *M. Sc. (Agri.), Thesis (Unpub.),* Univ. Agric. Sci., Dharwad.

NAIK, R. M., TANDEL, B. M. AND CHAUHAN, N. M., 2016, Decision making prototype of farm women in dairy farming. Gujurat J. Extn. Edu., **8**(1):600-603.

NARESH, N. T., 2018, A study on entrepreneurial behaviour of rural youth practicing integrated farming system in Chamarajanagara district. *Ph.D Thesis (Unpub.), Univ*. Agric. Sci., Bangalore.

NATARAJU, B. Y., 2012, A study on participation of women in dairy farming in Chickmagalur district. *M. Sc.(Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bengaluru.

NATARAJU, M. S., LAKSHMINARAYAN, M. T., PREETHI AND LALITHA, K. C., 2019, Decision making behaviour of households on agriculture and home related activities. Trends in Bioscience, **12** (1):15.

NETHRAVATHI, R.V., 2008, Participation of farm women in post-harvest technology of tomato in Kolar district. *M.Sc. (Agri.) Thesis, (Unpub.)*,Univ. Agri. Sci., Bengaluru.

NIRMALA, N. S., 2013, Participation and time utilization pattern among members of women milk producer's co-operative societies. *M. Sc. (Agri.) Thesis (Unpub.),* Univ. Agri. Sci., Bengaluru.

NISHITHA, K., 2016, Decision making and participation of farm men and women in sugarcane cultivation: A study in Mandya district. *M.Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

PADMAVATHI, M., 2002, Participation and knowledge of farm women labourers in rice farming operations. *Ph.D. Thesis, (Unpub.),* Univ. Agri. Sci., Bengaluru.

PANKAJ KUMAR MEGHWAL, RAJKUMAR JOSMEE SINGH, MUTHU LAKSHMI B., INNE LEGO AND KONJENGBAM MONIKA DEVI, 2017. Socio-economic and psychological characteristics of farmers towards Climate change. *International Journal of Bio-resource and Stress Management*, **8**(6):877-881.

PRABHU ILLIGER, NARASIMHA, N. AND LAKSHMINARAYAN, M.T., 2017, Attitude of farmers towards cultivation of Bt cotton, *Mysore J. Agri. Sci.*,**51** (4): 860- 865.

PRASAD, R. M., 1983 Comparative analysis of achievement motivation of rice growers in three states in India. *Ph.D. Thesis, (Unpub.),* Univ. Agri. Sci., Bengaluru.

PRASHANTH, P., 2011, A study on adoption of organic farming in cotton in Karimnagar district of Andhra Pradesh. *M.Sc. (Agri.) Thesis (Unpub.),*Acharya N G Ranga Agricultural University, Hyderabad, India.

PREMAVATI, R. AND NETAJI SEETHARAMAN. R.,2002, Decision making pattern of rural in farm related activities. *J. of Extn. Edn.*, **13**(3): 3382-3385.

RAHUL,C.R., 2021, A study on entrepreneurial behavior and supply chain management of Rose cut flower growers in Bangalore Urban District of Karnataka. *MBA Thesis (Unpub.),* Univ. Agri. Sci., Bangalore.

RAJULA SHANTHY, T., 2010, Gender perspectives for sustaining sugarcanebased farming system. *Indian Res. J. Extn. Edn.,***10**(1): 112- 116.

RAKESH, 2020, Participation of farmers in water users association in Tungabhadra command area of Koppal district. *M.Sc.(Agri.), Thesis (Unpub.)* Univ. Agri. Sci., Bangalore.

RAMEGOWDA, B, L., 1991, Crisis management by farmers an analysis. *Ph.D. Thesis, (Unpub.),* Univ. Agric. Sci., Bangalore.

RANI, CANDY TONDON AND SHAIFFALI RAIZADA, 2001, Pattern of participation of rural women in major homestead and allied activities. *Maharashtra J. of Extn.Edn.*, **14:** 227-231.

RASHMI, N., 2018, A study on knowledge, adoption and marketing behavior of tomato growers in Chickaballapur District of Karnataka. *M.Sc.(Agri.), Thesis (Unpub.)* Univ. Agri. Sci., Bangalore.

RIZA, M., 2021, A study on entrepreneurial and marketing behaviour of cassava growers in Thiruvananthapuram district of Kerala state. *M. Sc. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

ROKONUZZAMANA, M., 2013, Training needs of tribal people regarding income generating activities. *Indian Res. J. Extn. Edu.,***13**(2): 10-16.

SAHANA, S., 2003, A study on knowledge and attitude of farmers and extension personnel towards functioning of Raitha Samparka Kendras in Shimoga district. *M.Sc. (Agri.), Thesis (Unpub.),* Univ. Agric. Sci., Bangalore

SAMANTA, R. K., 1977, A study of some agro-economic, socio- psychological and communication variables associated with repayment behaviour of agricultural credit users of nationalized bank. *Ph. D. Thesis,* (*Unpub.*), Bidhanachandra Krishi Viswavidyalaya, Kalyani, West Bengal.

SAMANTARAY, S.K., PANDA, P.K., GIRI, B.P. AND NAYAK, M.P., 2019, A study on adoption level of good Horticultural practices by the Vegetable growers. *Indian Journal of Pure and Applied Bioscience.***7**(5), 154-159.

SAMPA, A. Y., ALAM, M. A., LATIF, M. A. AND ISLAM, M. M., 2019, Socio-economic status and rationale of mango cultivation based on some selected areas in Rajshahi district of Bangladesh. *Res. Agric. Livestock and Fisheries***, 6**(1): 79-90.

SAMPRAJA., 2022, Impact analysis of Pashu Bhagya scheme on livelihood status of the farmers in Vijayapura district of Karnataka state. *M. Sc. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

SARAH JEHU AUTA, YUSUF, M. ABDULLAHI AND MOHAMMED BASITU, 2010, Rural youth participation in agriculture: prospects, challenges and the implications for policy in Nigeria. *J. Agri. Extn. Edn.,* **16**: 298-307.

SAROJ AND INDU., 1997, Constraints encountered by farm women in grape cultivation. *Maharastra J. Extn. Edn.,***16**:377-379.

SATHISH, 2022, Knowledge, adoption and perception on climate smart technologies by small and big farm red gram growers in Southern Karnataka. *M. Sc. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

SAVITHA, B. N., 2011, Participation and decision making of rural youth in agriculture. *M.Sc. (Agri.) Thesis, (Unpub.),* Univ. of Agri. Sci., Dharwad.

SEEMA, B.,1986, Role of farm women in decision making process of a farming community in Trivandrum district. *M.Sc. (Agri.) Thesis, (Unpub.),*Kerala Agri. Univ., Thrissur.

SHAILAJA, S., 1990, Role of women in mixed farming productivity. *Ph.D. Thesis, (Unpub.),* Univ. Agri. Sci., Bengaluru.

SHARMA, A., VENGOTO, V. AND JITENDRA, C., 2014, Entrepreneurial behaviour of potato growers in Kohima district of Nagaland. *Indian Res. J. Extn. Edu.,* 14 (2): 82-87.

SHINDE ROHINI SHARAD, SYED H MAZHAR AND JAHANARA, 2021. Relationship between socio-economic profile and knowledge level of pomegranate growers on pomegranate cultivation technology in Ahmadnagar district of Maharashtra. *International Journal of Advances in Agricultural Science and Technology*,**8**(7):129-142.

SHIRUR, M., 2015, A study on mushroom entrepreneurship and consumer behaviour in Karnataka. *Ph. D. Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

SHIVANI DECHAMMA, GOVINDA GOWDA, V.AND SHANABHOGA, M. B., 2020. Profile characteristics of the tomato growers with respect to different information and communication technology (ICT) gadgets in Karnataka. *Journal of Pharmacognosy and Phytochemistry;* **9** (1): 1244-1251.

SIMIN NASERI, 2012, Participation of farm women in Agricultural development of Iran. *M.Sc. (Agri.) Thesis,(Unpub.),* Univ. Agri. Sci., Bengaluru.

SINGH, S., 1977, Achievement motivation, decision making orientation and work values of

fast and slow progressing farmers in India. *J. Soc. Psychol*., **106:** 153-160.

SINGH, S. P., GITE, L.P, NIRMAL KUMAR AND NIDHI AGARVAL., 2005. Involvement of farm women of Vindhya platue Zone. *Agri. Extn. Review*, **16**:20-26.

SOLANKI, K. D., AND SONI, M. C., 2004, Study on entrepreneurial behaviour of potato growers. *Indian J. Extn. Edu.*,**40** (3-4): 33-36.

SOWMYA, T.M., 2009, A Study on entrepreneurial behaviour of rural women in Mandya district of Karnataka. *M. Sc. (Agri) Thesis (Unpub.)*, Univ. Agric. Sci., Bangalore.

SUBHASH, C., 2018, Impact of Agricultural Technology Management Agency on Adoption of Wheat Production Technology by the Farmers in Sri Ganganagar District of Rajasthan, *M. Sc. (Agri.), Thesis (Unpub.)*, Rajasthan Agricultural University, Bikaner.

SUJAYKUMAR, S., 2012. Participation and time utilization pattern of rural youth in organic sugarcane cultivation under Cauvery command area of Karnataka. *M.Sc. (Agri.) Thesis, (Unpub.)*, Univ. Agri. Sci., Bengaluru.

SUPE, S. V., 1969, Factors related to different degrees of rationality in decision-making among farmers in Buldana district. *Ph.D. Thesis, (Unpub.)*, Indian Agri. Res. Inst, New Delhi.

SURADKAR, D. D. AND NIRBAN, A. J., 2011, Characteristics of farm women influencing their extent of participation in decision making. *Maharashtra J. Extn. Edn.*, **20**: 25-27.

SURESH, 2004, Entrepreneurial behaviour of milk producers in Chittoor district of Andhra Pradesh- A critical study. *M. V. Sc. Thesis (Unpub.)*, Acharya N. G. Ranga Agril. Uni. Hyderbad, through DWCRA – An empirical study, **52**(12): 33- 38.

SWAMI PUJA, S., 2018, Knowledge and adoption of sericulture technology by farm women. *M. Sc. (Agri.) Thesis (Unpub.)*, College of Agriculture, Latur. Vasantrao Naik Marathwada Krishi Vidyapeeth Parbhani.

TAMAGOND, P., 2013, A study on role perception and role performance of farm facilitators under Bhoochetana programme of KSDA in Raichur District. *M.Sc. Thesis (Unpub.)*, Univ. Agric. Sci., Raichur.

TANWEER, A., 2019, Sustainability and adoption of organic farming practices in southern Karnataka. *Ph.D Thesis (Unpub.)*, Univ. Agric. Sci., Bangalore.

THIPPESWAMY, R., 2011, A study on knowledge and adoption of plant protection measures in coconut cultivation by farmers of Chitradurga District. *M. Sc. (Agri.) Thesis (Unpub.)*, Univ. Agric. Sci., Dharwad.

TRIVEDI, G. AND PAREEK, 1963, Measurement and analysis of socio-economic status of rural families. *Ph.D. Thesis, (Unpub.),* Indian Agri. Res. Inst., New Delhi.

UPAYAN SINGH, VIJAY AVINASHILINGAM, N. A. AND MALIK, B. S., 2010, Social impact of women dairy co-operative societies on its beneficiaries in Haryana. *Indian J.Dairy Sci.*,**63**(4):314-318.

VERMA, S. K., AND SINHA, B. P., 1991. Inter-gender sharing of drudgery in cultivation of major crops. *Indian J. Extn. Edn.,* **27**(1&2): 18-23.

VIDHYANAND, H. M., 2004, A Study on extent of participation and decision making by farm women in agriculture and homestead gardening in selected district of Karnataka. *M.Sc. (Agri.) Thesis, (Unpub.),* Univ.Agri.Sci., Bengaluru.

VIJAYA KUMARI, K. M. AND RANJAN, R. K., 2015., Impact of training on knowledge and adoption levels of Chawki Rearing Centre owners of Karnataka state. *Agricultural Research Communication Centre.* Agri. Sci. Digest., **35**(3): 203-206.

VIKAS, 2020, A study on knowledge, yield gap and extent of adoption of recommended production technologies by maize growers in Koppal district. *M.Sc.(Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

YASHODHARA, B., 2015, A comparative analysis of livelihood status in irrigated and rainfed farming situations in central dry zone of Karnataka. *Ph.D. (Agri) Thesis (Unpub.),* Univ. Agric. Sci., Bangalore.

YAVANA PRIYA, D., 2010, Impact of farmer's field school on farm women participants in Karnataka communitybased tank management project. *M. Sc. (Agri.) Thesis (Unpub.),* Univ. Agric. Sci., Bengaluru.

YEDIDA SUDHAMINI, 2019, A study on coconut production technology among the growers of East Godavari District of Andhra Pradesh. *M. Sc. (Agri.) Thesis (Unpub.),* Dr.Rajendra Prasad Central Agricultural University, Bihar.

ZAHOOR AHMED SHAH, REKHI SINGH AND MUSHTAQ AHMED, 2017, An analysis of knowledge level of farmers of recommended apple cultivation practices in district Shopian of Jammu and Kashmir India. *Journal of Entomology and Zoology Studies*, **5**(6): 867-871.

ZAIDI, N. H. AND MUNIR, A., 2014, Participation of women in sugarcane farming system – A case study of Bijnor District, Western Uttar Pradesh. *Economic Affairs*,**59** (3): 449-457.

APPENDICES

UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE
DEPARTMENT OF AGRICULTURAL EXTENSION
GKVK, BANGALORE-560 065

"Gender Participation and Decision making in Sericulture: A Study in Ramanagara District of Karnataka state"

INTERVIEW SCHEDULE

Schedule No.:……..

PART-A

1. **Name of the respondent :**
2. **Sex :**
3. **Village :**
4. **Taluk :**
5. **Age :……..**Years
6. **Education**: Illiterate/ Primary school/ Middle school/ Hig school/Pre-university/ Graduate/ Post graduate

7. Experience in sericulture:_____ in years

8. **Innovativeness**

Please indicate your response for the following statements.

Sl. No.	Statements	Response		
		Yes	No	Undecided
1.	Do you want to learn new ways of farming?			
2.	If the sericulture officer gives a talk on improved cultivation aspects, would you attend?			
3.	If the government would help you to establish a farm elsewhere, would you move?			
4.	Do you want to change your way of life?			
5.	A farmer should try to farm the way their parents did.			
6.	Do you allow your son to be a farmer?			
7.	It is better to enjoy today and let tomorrow take care of itself?			
8.	A man's fortune is in the hands of god			

9. Achievement motivation

Please indicate your response for the following statements.

Sl. No.	Statements	Agree	Undecided	Disagree
1.	Work should come first even if one cannot get proper rest in order to achieve ones goals.			
2.	It is better to be content with whatever little one has, than to be always struggling for more.			
3.	No matter what I have done, I always want to do more.			
4.	I would like to try hard at something really difficult even if it provides that I cannot do it.			
5.	The ways things are now-a-days discourage one to work hard.			
6.	One should succeed in occupation even if one has to neglect his family.			

10. Management orientation

Please indicate your response for the following statements.

Sl. No.	Statements	Agree	Disagree
A.	**Planning orientation**		
1.	Every year one should think afresh about the mulberry variety to be cultivated in each type of land		
2.	It is not necessary to make prior decisions about the variety of mulberry to be cultivated in land		
3.	One need not consult an agricultural expert for mulberry crop planning		
4.	The amount of inputs such as seeds, fertilizers and plant protection chemicals is needed for raising a mulberry should be assessed before cultivation		
5.	It is not necessary to think ahead of the cost involved in raising a mulberry		
6.	It is possible to increase the yield through farm production plan		
B.	**Production orientation**		
1.	Timely planning of a mulberry ensures good yield		

2.	One should use as much manures/fertilizers as he/she can		
3.	Determining fertilizer dose by soil testing saves money		
4.	Mulberry cuttings rate should be given as recommended by specialists		
5.	For timely harvest one should analyze the maturity of mulberry		
6.	For timely weed control one should use suitable herbicides		
C.	**Marketing orientation**		
1.	Market news is not so useful to a farmer		
2.	A farmer can get good price by grading his produce		
3.	Warehouses can help the farmers to get better price of his produce		
4.	One should sell his produce to the nearest market irrespective of price		
5.	One should sell the produce through middlemen		
6.	One should grow those mulberry which have more market demand		

11.Risk orientation

Sl. No.	**Statements**	**SA**	**A**	**UD**	**D**	**SD**
1	A farmer should grow large number of mulberry garden to avoid greater risks in growing one or two crops					
2	A farmer should take more chance in making big profits than to be context with smaller but less risky profits					
3	A farmer who is willing to take risk than the average farmer usually does it better financially					
4	It is good for a farmer to take risk, which he/she knows his/her chances of success is fairly high					
5	It is better for a farmer not to try new farming methods unless most of other farmers have used those methods successfully					
6	Trying an entirely new methods for a farmer involves risk but it is worth					

SA= Strongly agree; DA=Disagree; A=Agree; UD=Undecided;

SDA=Strongly disagree;

12. **Economic motivation**

Sl. No.	Statements	Response	
		Agree	**Disagree**
1	A farmer should work towards larger yield and economic benefits		
2	The most successful farmer is the one who makes the most profit		
3	A farmer should try any new farming ideas that may earn him/her more money		
4	A farmer should grow crop with higher market values to increase monetary profits in comparison to growing of food crops for own consumption		
5	A farmer should value add their produce to obtain more monetary gain		
6.	It is not difficult for the farmer's children to make good start unless he/she is provided with economic assistance		

13. Credit orientation

Sl. No.	Statements	Responsepattern
1	Do you think a farmer like you should borrow money for agriculture purpose?	Yes/No
2	In your opinion, how difficult it is to secure credit for Agriculture purpose?	Very easy–Easy-Difficult
3	How a farmer is treated when he goes to secure credit?	Veryfairly-Fairly-Badly
4	There is nothing wrongin taking credit from Institutional sources for increasing farm production	Agree-Disagree
5	Did you get credit in the last two years for cultivation	Yes/No

(a) Did you get the credit in time Yes/No

- If not, what might be the reasons

(b) Are you repaying the borrowed money in time Yes/No

- If not, what made you to become a defaulter

14. Social participation

Sl. No.	Particular	Member	Office bearer	Extent of participation		
				Regular	Occasionally	Never
1.	Gram panchayat					
2.	Taluk panchayat					
3.	Zilla panchayats					
4.	Co-operative socities					
5.	Raita sanghas					
6.	Youth club					
7.	SHGs					
8.	Any other Specify					

15. Cosmopoliteness

Please indicate the number of times and purpose you have visited nearest town

Sl. No.	Frequency of visit	Response		Purpose of visit
		Yes	No	
1.	Two or more times in a week			-Agriculture -Entertainment -Other purpose -No response
2.	Once in a week			
3.	Once in a fortnight			
4.	Once in a month			
5.	Seldon			
6.	Never			

16. Deferred gratification

Sl. No	Statements	Response			
		SA	A	U	DA
1	I am good at saving money rather than spending it straight away				
2	When I am in a market place, I tend to buy a lot which I had not planned to buy				
3	I agree with the philosophy, eat, drink and be happy. For tomorrow we may be all dead				
4	I often feel that it is worthwhile to wait and think over before deciding anything				
5	I like to spend my money for family as soon as I get it				
6	I am good at planning things well in advance				
7	I don’t save food grains to face future uncertainties				
8	I somehow manage to keep at least a little of inputs in reserve for future				
9	I sell farm produce immediately without waiting for good price				
10	I invest more on farm to expect handsome return in long run				

Choose your responses Strongly Agree(SA), Agree(A), Undecided(U) and Disagree(DA) with these statements.

17. Attitude towards sericulture

Please indicate your response for the following statements.

Sl. No.	Statements	Responses		
		Agree	Undecided	Disagree
1.	Sericulture is the hope for the growing population in India			
2.	Top priority should be given by the government for the development of sericulture			
3.	I feel Sericulture will be the last resort as a profession			
4.	Only people who are unable to go for any other work will take up Sericulture			
5.	One should be proud of being a member of a farm family practising Sericulture			
6.	If we want to safeguard our cultural haritage we should foster an sericulturian society			
7.	I will rather whileaway my time than doing sericulture			
8.	Sericulture meant for uneducated and poor people			
9.	Even if a handsome return is guaranteed from Sericulture, I will not take farming as a profession			
10.	Today's need is to promote industry than sericulture			
11.	I will take sericulture as prosper			
12.	Promoting sericulture is the way for India's prosperity			

18. Farming commitment

Sl .No.	Statements	Response categories				
		SA	A	N	D	SD
1.	If I were given a job in city, I will quit sericulture farming					
2.	I feel that people simply talk of farming problems, they forget that everything on how they manage it.					
3.	I am willing to take a great deal of effort to develop my farm					
4.	I am prepared to face any problems to stay permanently in sericulture farming					
5.	I wish my children to be government employees rather than a cane grower like me					
6.	There is not much to be gained by sticking to sericulture farming permanently					
7.	I believed that sericulture cultivation pays in long run					
8.	For me sericulture growing is the best occupation when compared to other occupation					

Choose any one among five alternatives for each statement (SA=Strongly agree, A=Agree, N=Neutral, D=disagrees and S=strongly disagree)

19. Mass media exposure

Please indicate how often you use the following mass media

Sl.No.	Items	Scores
(a)	**News paper**	
	Subscriber	1
	Non-subscriber	0
	Read daily	2
	Read occasionally	1
	Never read	0
	Each article contributed and published	1
(b)	**Radio**	
	Owned	1
	Non-owned	0
	Listened regularly	2
	Listened occasionally	1
	Never listened	0
	Each radio talk given by respondent	1
(c)	**Television**	
	Owned	1
	Non-owned	0
	Viewed regularly	2
	Viewed occasionally	1
	Never viewed	0
	Each programme participated respondent	1
(d)	**Farm magazines and other publications**	
	Subscriber	1
	Non-subscriber	0
	Read daily	2
	Read occasionally	1
	Never read	0
	Each article contributed and published	1

20. Training Undergone in Sericulture/ did not undergone training, if undergone training

Sl. No.	Name of the training received	Duration

21. Extension agency contact

Indicate whom do you contact to obtain the information related to Sericultureand also indicate frequency of contact

Sl. No	Extension personnel	Frequency of contact			
		Once in a week	Once in a fortnight	When problem arose	Never
1	Sericulture Assistant				
2	Assistant sericulture Officer				
3	Sericulture Officer				
4	Assistant Director of sericulture				
5	University scientists				
6	Private dealers of input agencies				

22. Farm scientist contact

(Farm scientists include scientists from Agricultural university and other research Institutes).

a. Awareness of farm scientist : Aware/ Not aware

b. Frequency of contact : Never/ Sometimes / Regular

c. Purpose of visit : casual / to get technical guidance

23. Extension participation

Sl. No	**Extension Activities**	**Participation**	**Non Participation**
1	Meeting /discussion		
2	Demonstration		
3	Kisan Ghostis		
4	Farm school		
5	Group meeting		
6	Field day		
7	Field visit		
8	Film show		
9	Campaign		
10	Exhibition		
11	Tour		
12	Video conference		
	Others(specify)		

PART-B

I. Gender knowledge regarding mulberry cultivation practices and Silkworm rearing practices

Sl. No.	(A) Mulberry cultivation practices	Correct knowledge	
		Farm Men	Farm Women
1	Soil testing (2-3 years once)		
2	Soil type (red soil /sandy loam soil/laterite soil/red loamy soil)		
3.	Land preparation		
a	Deep digging (30-35 cm depth) /ploughing of land		
b	Pit size (1×1×1ft)		
c	Spacing		
i	Paired row system ((3×2)+5ft)		
ii	Pit system (90×90cm)		
iii	Tree system (6×6,8×8,10×10 ft)		
d	Planting method		
i	Pit		
ii	Paired row		
iii	Tree type		
4.	Mulberry variety (V-1/S36)		
5	Preparation of mulberry cuttings		
a	Mulberry cuttings length (20-22 cm)		
b	Age of mulberry saplings to be planted in the main field (4 months old)		
6.	Quantity of FYM/compost (20t/ha)		
7.	Quantity of fertilizers (350N:140P:140K/kg/ha)		

8.	Quantity of micronutrients (Seriboost 7ml /liter of water / 2.5 ml/liter of water or 1 liter of Poshan in 140 liter of water per Acre)		
9.	Number of irrigations		
a	Surface irrigation (2-3times/week)		
b	Flood irrigation (2-3 times/week)		
c	Drip irrigation (1.5-2 liter/day/plant)		
10.	Weeding (once after 20 days of Pruning)		
a	Number of weedings (15 days once)		
b	Application of weedicide (600 l/ha)		
11	Integrated pest and disease management practices		
a	Physical method		
i	Installing light traps /pheromone traps to attract defoliating pests in mulberry garden		
b.	Chemical method		
i	Spraying of 0.4% neem oil for managing pink mealy bug		
ii	Application of paste 0.1% malathion for managing stem borer		
iii	Spraying of 0.2% carbendazim mixed with 50%WP (wettable power) to manage leaf spot disease		
iv	Spraying of 0.2%carbendazim with 50%WP (wettable power) to control powdery mildew		
v	Spraying of 100ppm (parts per million) streptocyclin @1g/10L to manage blast disease		
vi	Spraying of 0.1% of carbendazim to manage stem canker disease		
c	Biological method		
i	Releasing of egg parasitoid@ 4 tricho cards/ac for control of leaf webber		

12	Harvesting of mulberry leaves		

a.	Time of harvesting (morning/evening)		
b.	Period of harvesting of leaves (30days from DAP (day after pruning)/35days from DAP/40days from DAP/45days from DAP)		
(B) Silkworm rearing practices			
1	Use of disinfectants		
A	Disinfectant name (Bleaching powder)		
B	Quantity used(200g/ha)		
C	Equipment/appliance used for disinfection		
2.	Temperature maintenance at rearing house		
3	Relative humidity maintenance at rearing house		
4.	Procurement of silkworms through eggs /chawki		
5	Name of the silkworm breed		
6	Method of silkworm rearing		
A	Tray method		
B	Shoot method		
7.	Instar-wise feeding frequency		
A	1st instar		
B	2nd instar		
C	3rd instar		
D	4th instar		
8.	Bed spacing (100 dfls with breed)		
9	Bed cleaning		
10	Incubation of dfls		
11	Black boxing of dfls		

12	Brushing of dfls		
13	Density of worms in moulting per unit area (sq.feet)		
14	Disease management		
A	Use of bed infectants		
B	Use of lime +fungicide		
15	Pest management		
A	Use of meshes to ventilator or window to control uji fly		
16	Days required for cocoon harvesting		
17	Cocoon harvesting		
18	Transportation and marketing of cocoon		
19	By -product utilization		

II. Decision making pattern of farm men and women in sericulture activities Indicate your response to the following sericulture activities

Sl. No.	**(A) Mulberry cultivation practices**	**Men**	**Women**	**Together/With family members**
1	Soil testing			
2	Pruning			
3	Land preparation			
4	Spacing			
5	Planting method			
6	Preparation of mulberry cuttings			
7	Mulberry variety			
8	Application of organic manure			
9	Application of chemical fertilizers			
10	Application of micro-nutrients			

11	Irrigation			
12	Weeding/intercultivation			
13	Integrated pest management practices			
14	Leaf harvesting			
Sl. No.	**(B) Silkworm rearing practices**	**Men**	**Women**	**Together/With family members**
1	Use of disinfectants			
2	Temperature maintenance at rearing house			
3	Relative humidity maintenance at rearing house			
4	Selection of silkworm breed			
5	Feeding of silkworms			
6	Bed spacing			
7	Bed cleaning			
8	Moulting care			
9	Pest management			
10	Disease management			
11	Cocoon harvesting			

III.Extent of participation of farm men and women in sericulture activities

Indicate your response to the following sericulture activities.

Sl. No.	(A)Mulberry cultivation practices	Men	Women	Both
1	Deep digging (30-35 cm depth) /ploughing of land			
2	Preparation of mulberry cuttings			
3	Application of organic manure			
4	Application of chemical fertilizers			
5	Application of micro-nutrients			
6	Irrigation			

7	Weeding/intercultivation			
8	Integrated pest management practices			
9	Application of plant protection chemicals			
10	Leaf harvesting			
	(B) Silkworm rearing practices			
1	Application of disinfectants			
2	Temperature maintenance at rearing house			
3	Relative humidity maintenance at rearing house			
4	Feeding of silkworms			
5	Bed spacing			
6	Bed cleaning			
7	Incubation of dfls			
8	Black boxing of dfls			
9	Brushing of dfls			
10	Pest management			
11	Cocoon harvesting			

IV. Drudgeries faced by farm men and women in mulberry cultivation andsilkworm rearing

Sl. No.	**(A) Mulberry cultivation**	**Farm men**	**Farm women**
1	Backache		
a	Land preparation		
b	Preparation and planting the mulberry cuttings		
c	Hand weeding		
d	Irrigation		
e	Mulberry leaf harvesting		
2.	Neck pain		
a	Application of organic manure		
b	Application of chemical fertilizers		

c	Application of plant protection chemicals		
3	Blisters and lesions		
a	Land preparation		
b	Hand weeding		
c	Application of chemical fertilizers		
d	Mixing and application of plant protection chemicals		
e	Mulberry leaf harvesting		
4.	Cough and nasal infections due to mixing and application of plant protection chemicals		
5	Eye irritation		
a	Application of chemical fertilizers		
b	Mixing and application of plant protection chemicals		
(B) Silkworm rearing			
1.	Back pain		
a.	Application of disinfectants		
b.	Heating and cooling the rearing houses		
c.	Feeding the silkworms		
d.	Bed cleaning		
e	Cleaning of the mountages		
f.	Harvesting of cocoons		
2	Itching		
a.	Application of disinfectants		
b.	Heating and cooling the rearing houses		
c.	Feeding the silkworms		

d.	Bed cleaning		
e.	Harvesting of cocoons		
3	Allergy		
a.	Application of disinfectants		
b.	Heating and cooling the rearing houses		
c.	Feeding the silkworms		
d.	Bed cleaning		
e	Cleaning of the mountages		
f.	Harvesting of cocoons		
4	Cough and nasal infections		
a.	Application of disinfectants		
b	Cleaning of the mountages		
c	Bed cleaning		
5.	Headache		
a.	Application of disinfectants		
b.	Bed cleaning		
c.	Cleaning of the mountages		