A STUDY ON KNOWLEDGE AND ADOPTION OF RECOMMENDED PRACTICES OF SERICULTURE AMONG FARMERS OF PAVAGADA TALUK, TUMKUR DISTRICT

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Affectionately dedicated to

My Beloved Parents

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CERTIFICATE

This is to certify that the thesis entitled "A STUDY ON KNOWLEDGE AND ADOPTION OF RECOMMENDED PRACTICES OF SERICULTURE AMONG FARMERS OF PAVAGADA TALUK, TUMKUR DISTRICT" submitted for partial fulfilment of the requirements for the degree of MASTER OF SCIENCE in AGRICULTURAL EXTENSION of the University of Agricultural Sciences, Bangalore, is a record of research work done by Mr.V. SHREEDHARA, during the period of his study in this University under my guidance and supervision and the thesis has not previously formed the basis for the award of any other degree, diploma, associateship, fellowship or other similar titles.

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BANGALORE

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INTRODUCTION

CHAPTER I

INTRODUCTION

Silk, the end product of Sericulture industry, is the "Queen of Textiles" for its exclusive characteristics of fineness, elegance, strength and pearl like lustre among the natural fibres. India has a long tradition of producing and using silk. It produces all the four main types of silk, namely, mulberry, tasar, ery and muga. However, mulberry silk accounts for about 90 per cent of the total production. Traditionally, Bengal was the home of silk in India. In the second half of the 18th century, the then ruler of Mysore, TippuSultan, gave encouragement for systematic development of sericulture. In the Southern India it became a major producer of silk. During the second world war, the sericulture industry developed further because of the demand for silk in making parachutes. After the war, the States of Mysore and Madras, as they were then known, developed the silk industry further. Today, the production of mulberry silk in India is about 13,000 tonnes of which about 8000 tonnes comes from Karnataka. This accounts for about 61.5 per cent of the mulberry silk produced in the country.

The share of silk in India's exports is significant. Against a meagre Rs. 254 crores in 1987-88 the exports are now (1994-95) around Rs. 937 crores and likely to cross thousand crores. The primary need is, therefore, to increase

production substantially and to upgrade the quality. There are two ways of increasing silk production. One way is to expand the area. It cannot be done beyond certain extent, since it competes with food crops. The area under mulberry in the country is about 3.4 lakh hectares. There is, therefore, scope for increasing mulberry area which will ultimately increase silk production to 50,000 tonnes giving employment to 20 million people in rural areas. The second alternative is to increase the production per unit area by applying better methods of mulberry cultivation and rearing practices. Emphasizing the importance of increasing the silk production per unit area, Balasubramanian (1982) observed :

"Besides increasing the area, there is scope for increasing the productivity of silk per unit of land. For instance, the raw silk production per hectare of land is about 130 kg in Hangzhon area in China, 100 kg in Japan and only 35 kg in India. The green revolution which has taken place in Agriculture is still to happen in a significant way in Sericulture".

Sericulture offers large employment opportunities on account of its domesticated rearing. One of the main problems in India is the migration of landless agricultural labourers, marginal and small farmers to urban areas. The expansion of sericulture industry can arrest this kind of

migration. At present 6 million people are employed in sericulture and it has got a potential to absorb more than 20 million people. Sericulture has a short gestation period under tropical conditions. From the 7th month of mulberry plantation the farmers can start rearing silkworms and earn income. Silkworms can be reared every 2 to 2½ months from the same plantation and yields can be had 5 to 6 times a year.

Realising the importance of this industry in providing employment as well as steady income to the rearers and its share in the export market, the Central and State Governments are now taking steps to expand sericulture even in non-traditional areas. The tribal people in hilly areas have been epscially encouraged to take up sericulture to augment their incomes. The Central Silk Board and major silk producing states have formulated projects to double mulberry silk production in five years. Karnataka is a pioneer state in this direction and it has implemented 110 crore world bank assisted project to boost silk production.

Under the World Bank aided sericulture project, the Department of Sericulture has been expanded. Both research and extension activities have been strengthened with increasing staff, mobility and training facilities. More and more purposeful extension activities are carried out to help the farmers by way of encouraging planting of mulberry,

construction of rearing houses, supply of rearing equipments, quality and disease free layings, free disinfection of rearing houses and equipments; supply of nylon nets at subsidised cost and intensified chawki rearing activity for supply of chawki silkworms so as to enable farmers to increase cocoon production per 100 layings. Lot of efforts have also been undertaken with state, Central and World Bank funds to streamline research and extension activities to benefit the farmers. Despite these efforts, the potential is not fully harnessed and there is always a gap between what research says and what farmers do. Farmers are facing problems in adopting scientific sericulture practices. They are not following scientific cultivation practices of mulberry crop due to lack of knowledge and other constraints resulting in less yields and reduced income. It is gathered that the knowledge and adoption of sericulture practices are directly reflected in their cocoon yields.

The study was proposed to be conducted in Tumkur district which is also one of the mulbery cultivating district in Karnataka. It has produced more than 825 tonnes of mulberry silk during 1994-95. It has mulberry cultivation in an area of 10,383 hectares (Anonymous, 1994). In Tumkur district the study was conducted in Pavagada taluk which has a total geographical area of 2,16,916 acres of which 5060 acres are under mulberry cultivation.

Need for the study

Recently sericulture has been introduced in the non-traditional areas of Karnataka. The Government of India and State Department of Sericulture have placed special emphasis on its development in non-traditional areas. It would be interesting to know the knowledge level and adoption pattern of sericulturists in non-traditional areas. Although some studies have been conducted on the knowledge and adoption pattern of improved practices of sericulture in Karnataka, no systematic and comprehensive study has been made so far selecting several dimensions of the sericulture enterprise.

Research studies on adoption by farmers and the problems faced by them are very important, since the information generated would give valid conclusions based on which further planning of schemes/programmes can be thought of for implementation and also will have practical relevance to policy makers/extension workers and all others concerned. Hence, the present study was designed with the following objectives:

1. To measure the knowledge level of sericulturists about the recommended practices of sericulture.
2. To find out the extent of adoption of recommended practices of sericulture.

3. To find out the relationship between the selected personal, socio-economic and psychological characteristics of sericulturists and their level of knowledge and adoption of recommended practices of sericulture.

4. To identify the reasons for partial and non-adoption of recommended practices of sericulture.

Implications of the Study

The results of the study would help the scientists, policy makers and extension workers to develop effective programmes in future. It would also help to know the problems and the necessary remedial measures.

Limitations of the Study

As the student researcher had the limitations of resources and time, the study was confined to only one taluk of Tumkur district in Karnataka state. Hence, it would not be appropriate to draw generalisations for all the areas. The results are applicable wherever similar situations exist.

OPERATIONAL DEFINITIONS OF THE TERMS USED IN THE STUDY

Knowledge : This refer to those behaviour of farmers which emphasise the remembering either by recognition or by recall of ideas, with regard to recommended practices of mulberry cultivation and silkworm rearing.

Adoption : Practicing of recommended practices of mulberry cultivation and silkworm rearing by farmers on their operational holdings during 1995.

Disease free layings (DFLs) : The eggs of silk moth which are free from seed borne diseases.

Full adoption : This refers to the following each recommended sericulture practices in full by farmers.

Partial adoption : This refers to the level of adoption less than the recommended levels of sericulture practices by the farmers.

Big farmer : A farmer who possesses more than five acres of dryland.

Small farmer : A farmer who possesses less than five acres of dryland.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

Keeping the objectives of the study in view, the relevant literature is reviewed in this chapter under the following headings.

1. Knowledge of farmers about the recommended practices of sericulture and other commercial crop practices.
2. Adoption of recommended sericulture practices and other commercial crop practices.
3. Relationship between the selected personal, socio-economic and psychological characteristics of farmers and their knowledge level of recommended practices.
4. Relationship between the selected personal, socio-economic and psychological characteristics of farmers and their adoption level of recommended practices.
5. Problems encountered by the farmers for partial and non-adoption of recommended practices of sericulture and other commercial crop practices.

1. KNOWLEDGE OF FARMERS ABOUT THE RECOMMENDED PRACTICES OF SERICULTURE AND OTHER COMMERCIAL CROP PRACTICES

Knowledge refers to the fact or condition of knowing things with a considerable degree of familiarity gained through experience or contact or association with the individual or things so known.

It also refers to those behaviour and test situations which emphasize the remembering either by recognition or by

recall of ideas, materials on phenomenon with regard to improved farm practices.

Krishna (1972) reported that 10 per cent of hybrid maize growers had high knowledge and 80 per cent of growers had low knowledge.

Govindappa (1974) found that in case of dairy enterprise where intensive extension work was in operation, the knowledge level of farmers was very high.

Srivastava and Mukunda Das (1976) in their study of economics of sunflower cultivation and processing reported that most of the farmers were aware of recommended spacing, fertilizers and insecticides and lacked proper knowledge with respect to recommended seed rate.

Puttaswamy (1977) observed that small farmers in general had low to medium knowledge in respect of recommended practices of dairy and sheep enterprises.

Puttaswamy et al. (1978) reported that majority of the farmers in Bangalore and Kolar districts were aware of the recommended race of silkworm; and the percentage of farmers having knowledge of pebrine disease was 64.0, flacherie was 87.0, Grasserie was 91.0 and Muscardine was 97.0.

Rajashekaraiah (1979) revealed that 78 per cent of farmers had medium knowledge level on improved sericultural

practices, while remaining 22 per cent were equally shared by high and low knowledge categories. It was also pointed out that size of holding had significant influence on the overall knowledge of the farmers on sericulture practices.

Kantharaj (1980) found that majority (64%) of sunflower growers had medium knowledge level. The percentage of farmers under `low' and `high' knowledge categories was found to be 16 and 20, respectively.

Ravindra (1980) observed that majority (77%) of the respondent poultry farmers were found to have medium knowledge level, while there were only 7.5 in the high knowledge category and the rest in low knowledge category.

Dayananda Patel (1985) reported that there was significant difference in the knowledge level of farm men and women with respect to improved practices of sericulture. Nearly 75 per cent of farm men and 66 per cent of farm women possessed "medium level" of knowledge. About five per cent of farm men and nine per cent of farm women had "high level" of knowledge.

Aswathanarayana (1989) reported that about 35.83 per cent of farmers belonged to high knowledge category, 29.17 per cent to medium knowledge category and 35 per cent to low knowledge category. Thus, the results indicate that nearly

65 per cent of farmers had medium to high knowledge on silkworm rearing practices.

Sreenivasa (1989) revealed that cent per cent of the sericulturists had correct knowledge about variety of mulberry, preparation of land, system of planting and irrigation with respect to mulberry cultivation; and place of rearing, location of rearing house, recommended race of silkworm, number of feedings per day, number of instars, and number of moults with respect to silkworm rearing practices.

Satheesh (1990) found that majority of the beneficiaries were possessing knowledge of chawki rearing practices such as appropriate race, rearing place, diseases, disinfection and leaf preservation. But majority of them lacked knowledge of practices like bed cleaning net, method of hatched eggs. On the contrary, majority of the non-beneficiaries were knowledgeable with respect to practices like leaf preservation, cleaning the bed, identifying diseases and selection of race. But, majority of them lacked knowledge on size of bed cleaning net, maintaining a separate mulberry garden as well as area of chawki room.

Nimje et al. (1993) revealed that about 36 per cent enterpreneurs were knowing as to how to maintain their poultry farms, based on scientific knowledge. However, about 60 per cent respondents possess medium management skills.

This indicates that the poultry enterpreneurs need to be trained in simple management aspects like clean and regular water supply, cleanliness while entering the cages, regular vaccination and medication of the birds.

2. ADOPTION OF RECOMMENDED SERICULTURE PRACTICES AND OTHER COMMERCIAL CROP PRACTICES

According to Rogers (1962) adoption refers to the continued use of the recommended practice by an individual. Some of the relevant studies have been reviewed for the purpose of present investigation.

Puttaswamy (1977) reported that small farmers of Sira and Anekal taluks in general, had low to medium adoption in respect of recommended practices of dairy and sheep enterprises.

Puttaswamy et al. (1978) observed that only 21 per cent of the farmers were rearing silkworms in separate buildings. It was also found that majority of the farmers were adopting recommended control measures for muscardine disease, as against very few (10%) in the case of 'Grasserie disease'. It was also revealed that none of the farmers took control measures against 'Pebrine' and 'Flacherie' diseases.

Rajashekaraiah (1979) revealed that the adoption of selected recommended practices of silkworm rearing was higher

among big farmers than among small farmers, except with regard to recommended source of layings, race of silkworm, type of leaves to be fed and leaf preservation measures, for which there was hundred per cent adoption among both small and big farmers.

Kantharaj (1980) indicated that 50 per cent of sunflower growers had medium adoption level of recommended practices, while 22 per cent of farmers were low adopters and 28 per cent were high adopters.

Thangaraju and John Knight (1980) revealed that more than 90 per cent of the trained sericulturists followed rearing practices such as spacing, number of trays and disease control measures.

Ravindra (1980) reported that majority of the farmers (85%) were under medium adoption category, while there were few under high (10%) and low (5%) categories in respect of poultry farming practices.

Shivaraja (1985) indicated that the levels of adoption of recommended practices of bivoltine silkworm rearing by big, small and marginal farmers was promising. All the three categories of farmers had followed the leaf preservation methods and temperature manipulating measures to an appreciable extent. The adoption behaviour with reference to practices like spacing, type of leaves to be fed, number of

cleanings of bed, mounting density of worms in chandrike, number of feedings per day, time of feeding and the correct day of harvesting of cocoon from chandrike was high in case of big and small farmers when compared to marginal farmers.

Prakashkumar (1986) found that there was no significant difference in the overall adoption of recommended practices of mulberry cultivation and silkworm rearing by big, small and tenant farmers.

Aswathanarayana (1989) reported that nearly two-thirds of the farmers belonged to medium and high adoption categories in respect of adoption of silkworm races, sources of layings, chawki rearing practices, rearing house and environmental requirements, leaf quality, quantity and preservation practices, spacing of worms, bed cleaning, moulting, disease control, mounting and harvesting practices.

Satheesh (1990) observed that chawki rearing practices such as appropriate race, type of leaves, leaf preservation, disinfection were followed by majority of both beneficiaries and non-beneficiaries. Whereas, a very few respondents (beneficiaries as well as non-beneficiaries) had followed the practices like separate mulberry garden and black box method of hatching eggs.

Gopala (1991) revealed that there was significant difference in the overall adoption of recommended

sericultural practices like adoption of varieties and sowing, rearing house practices, environmental requirements, leaf quality, quantity and preservation : spacing of worms and bed cleaning; moulting ujifly control and disease control practices between farmers of developed and less developed areas. And there was non-significant difference with respect to adoption of manures and fertilizers and irrigation practices.

3. RELATIONSHIP BETWEEN THE SELECTED PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF FARMERS AND THEIR KNOWLEDGE LEVEL OF RECOMMENDED PRACTICES

Singh et al. (1970) reported that there was positive relationship between newspaper reading behaviour of farmers and their gain in knowledge on sugarcane cultivation. Whereas land holding was not associated with the level of their knowledge on sugarcane cultivation.

Somashekarappa (1971) found that there was association between the level of education and retention of knowledge among farmers. Similar findings were reported by Bhaskaram and Mahajan (1968).

Pimpriker et al. (1975) reported that education and expenditure on poultry farm was found to be significantly associated with knowledge of poultry farming practices of trained and untrained farmers.

The results of the study conducted by Anantharaman (1977) revealed that socio-personal characters like socio-economic status, mass media use, contact with extension agency and attitude towards high yielding varieties and knowledge level had shown significant and negative relationship with training needs of small and marginal farmers.

Sundaraj (1978) reported that there was a significant association between age, education and social participation of farmers and their knowledge on tomato cultivation.

Hanumantha Reddy (1980) identified the influence of family size on the knowledge level of dairy farmers.

Kantharaj (1980) reported that there was a significant association between education, land holding and social participation of farmers and their knowledge on sunflower cultivation. Whereas, age was no association with their knowledge level of sunflower cultivation.

Ashoka Reddy (1983) revealed absence of difference in knowledge among the small and big families in Dharwad district.

Dayananda Patel (1985) indicated that there was no association between the education, farm size and social participation of farm men and women and their knowledge

level. Whereas, age has no association with knowledge level of farm men while in the case of farm women there was negative and significant association between age and knowledge level.

Shivaraja (1985) found that the net income of big farmers was seen to be positively and significantly associated with knowledge on bivoltine seed cocoon production.

Aswathanarayana (1989) found that there was significant association between age, education, social participation and extension participation of farmers and their knowledge on silkworm rearing practices. There was highly significant association between mass media participation and knowledge of sericultural practices. But there was no significant association between the size of land holding and the knowledge of improved silkworm rearing practices.

Sreenivasa (1989) revealed that there was a positive and highly significant relationship between education, social participation, mass media participation and extension participation and the knowledge level of sericulturists with regard to mulberry cultivation. But there was no relationship between age, farm size and family size with knowledge level of sericulturists with regard to mulberry cultivation.

Sreenivasa (1989) revealed that age, farm size and family size was found to have no relationship with the knowledge level of sericulturists with regard to silkworm rearing practices. Whereas, education, social participation, mass media participation and extension participation were found to be having positive and highly significant relationship with the knowledge level of sericulturists about silkworm rearing practices.

Dube and Sawarkar (1992) indicated that socio-economic characteristics like education, training and social participation were significantly associated with knowledge on rice production technology among small and marginal farmers, whereas credit facility was associated with knowledge among marginal farmers.

Many research studies cited above pointed out the relationship between education, land holding, mass media participation, social participation, net income and extension participation of farmers and their knowledge. Few studies have pointed out that there is no relationship between age, education, family size and farm size of farmers and their knowledge. Hence, it would be quite appropriate to test this finding under the present situation also.

4. RELATIONSHIP BETWEEN THE SELECTED PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF FARMERS AND THEIR ADOPTION LEVEL OF RECOMMENDED PRACTICES

Shanmukhappa (1978) pointed out the significant relationship between managerial ability of arecanut growers with the recommended practices of arecanut.

Gangadharappa (1979) in his study indicated that the adoption behaviour of both trained and untrained farmers with respect to the recommended practices of hybrid jowar cultivation was statistically significant with the material possession.

Rannorey (1979) revealed that there was a significant relationship between the risk orientation, management orientation and adoption behaviour of recommended practices of Varalaxmi cotton.

Kantharaj (1980) reported that there was no association between media participation and adoption of sunflower growers.

Ramegowda (1983) and Himantharaju (1984), Prakash Kumar (1986) reported a significant association between adoption and mass media participation.

Shivaraja (1985) found that big and small farmers used lesser labour for unit work when compared to marginal farmers. The reasons for this, according to him were high

managerial skills of big and small farmers regarding efficient use of labourers according to work requirements and also the requirements ofrelatively less number of labourers per unit due to their rearing of more number of layings.

Prakash Kumar (1986) found that education, farm size, social participation and extension participation of respondents have positive and highly significant relationship with their adoption of sericultural practices. But age of the respondents found to have a non-significant relationship with the adoption of sericultural practices.

Aswathanarayana (1989) indicated that age, education, land holding, mass media participation, social participation and extension participation had significant relationship with adoption of improved silkworm rearing practices in Kolar district.

Sreenivasa (1989) found that age, education, farm size and mass media participation of respondents had non-significant relationship with adoption level of recommended sericulture practices. Whereas, family size, social participation and extension participation were found to have highly significant relationship with adoption level of recommended practices of sericulture.

Satheesh (1990) found that education, land holding, mass media participation and extension participation had

positive and significant relationship with adoption of chawki rearing practices. Whereas, age and social participation of the beneficiaries and non-beneficiaries of chawki rearing centres had no significant relationship with the adoption of chawki rearing practices in Bangalore district.

Gopal (1991) found that the educational level, size of holding and mass media participation of sericulture farmers had positive and significant relationship with their adoption of sericultural practices in developed area, while non-significant relationship was found in less developed area. Whereas, age, social participation and extension participation had non-significant relationship with adoption of recommended sericultural practices in both developed and less developed areas.

Thus, the findings of most of the research studies pointed out that there was positive and significant relationship between education, size of holdings and mass media participation and adoption of recommended practices by farmers, but few researchers have concluded to the contrary. It would be worth testing these contradictory findings as applied to sericulture farmers.

5. PROBLEMS ENCOUNTERED BY THE FARMES FOR PARTIAL AND NON-ADOPTION OF RECOMMENDED PRACTICES OF SERICULTURE AND OTHER COMMERCIAL CROP PRACTICES

Bedi and Saxena (1965) reported that inadequate and untimely provision of credit was the impending factor for adoption of improved agricultural practices.

Govindappa (1974) observed lack of finance, risk due to disease, low profit, high cost of inputs, labour problems and lack of knowledge as the important reasons for non-adoption of dairy management practices by the small farmers of Bangalore district.

Channegowda (1976) found that non-availability of credit was the major constraint in non-adoption of improved paddy practices.

Puttaswamy (1977) found lack of knowledge and resources as the primary reason for non-adoption of recommended practices by farmers. Other reasons he found were low prices for the produce and disease of the crop.

Rajashekaraiah (1979) reported that non-availability of credit, failure of crop, lack of trays and mountages, lack of knowledge about the control of disease were the most important disincentives for non-adoption of recommended practices of silkworm rearing.

Krishnaswamy (1986) indicated the problem of production of quality seed in required quantities, lack of progress in the post cocoon technology are to be given greater attention. Manpower training also need immediate attention and launching of some intensive programmes to get professionally capable men to efficiently discharge the various technical management functions of the industry.

Siddappaji and Vasundara (1986) conducted survey in Mysore district and reported the following reasons for low cocoon yield :

(i) Non-application of correct dosage of chemical fertilizer but use of more quantity of nitrogen in the form of urea for cultivation of local variety of mulberry.

(ii) Rearing of local low yielding cross-breeds which were crossed from Mysore x Siniche.

(iii) Lack of sufficient space for silkworms causing low yield of cocoon.

(iv) Rearing of silkworms in the dwelling houses

(v) Negligence about uzifly attack.

Further, they reported the cocoon loss due to Flacherie, Grasserie, Muscardine, Pebrine and Uzifly was 14.36, 1.456, 0.38, 0.094 and 11.57 per cent, respectively.

Sarkar (1988) reported that low yield of mulberry in West Bengal can be attributed to :

(i) Lack of use of high yielding varieties

(ii) Lack of knowledge of using improved agronomical practices especially in the use of fertilizers

(iii) Lack of adequate training on the improved techniques of rearing.

Satheesh (1990) observed that lack of adequate care at chawki rearing centres and inadequate technical guidance given at chawki rearing centres were the primary reasons

for not utilizing chawki rearing centres by the non-beneficiaries.

Gopala (1991) observed that lack of knowledge about disease control was perceived as most important reason for non-adoption of recommended sericultural practices by both developed and less developed areas. Lack of irrigation facilities got second rank in developed area while non-availability of M_5 variety of mulberry got second rank in less developed area. Non-availability of labours in right time received fourth rank in developed areas as against lack of knowledge about disinfection measures which received fourth rank in less developed area. These are the main reasons quoted by the farmer of developed and less developed area.

METHODOLOGY

CHAPTER III

METHODOLOGY

The research study was conducted during the year 1994-95, in Pavagada taluk of Tumkur district in Karnataka.

The methodology employed in conducting the research study is presented in this chapter under the following heads:

1. Selection of the study area
2. Selection of villages and respondents
3. Measurement of dependent variables
4. Measurement of independent variables
5. Method used for data collection
6. Statistical tools used

1. Selection of the study area

The research study on knowledge and adoption of recommended sericulture practices was conducted in Tumkur district which occupies an area of 10,383 hectares under mulberry cultivation. Pavagada taluk in Tumkur district was purposively selected since the taluk is well developed in sericulture industry with an area of about 5060 acres under mulberry cultivation and producing 4.69 lakh kilo grammes of cocoons.

FIG. 1. MAP OF TUMKUR DISTRICT SHOWING THE TALUK SELECTED FOR THE STUDY.

2. Selection of villages and respondents

Pavagada taluk consists of four hoblies namely, Nidagal, Kasaba, Nagalamadike and Y.N. Hosakote. From each hobli two villages with highest acreage under mulberry cultivation were selected. Thus, a total of eight villages were selected for the study. The names of villages selected with hoblies are given below.

Sl. No.	Hobli	Villages selected
1.	Nidagal	Chinnammanahalli Karekyathanahalli
2.	Kasaba	Chikkanayakanahalli Kodamadagu
3.	Nagalamadike	B.K. Halli Kyathaganakere
4.	Y.N. Hosakote	Budibetta J. Acchammanahalli

From each of the above eight villages, a list of all the farmers practicing sericulture was prepared in consultation with the Sericultural Extension Officer. From this list, 16 farmers from each village (i.e., 8 big farmers and 8 small farmers) were randomly selected. Thus, a total of 128 respondents (64 big farmers and 64 small farmers) were selected for the study.

3. Measurement of dependent variables

A. Knowledge : The teacher made knowledge test as recommended by Anastasi (1961) was prepared to measure the knowledge level of respondents. In this study the knowledge level was quantified by using the following formula as used by Ravikumar (1979).

$$\text{Knowledge index} = \frac{\text{Number of correct responses}}{\text{Total number of knowledge items}} \times 100$$

To know the knowledge level of sericulturists 45 recommended practices of sericulture (20 practices under mulberry cultivation and 25 practices under silkworm rearing) were selected. For each of the practices considered, a score of 'one' was assigned for the correct response and 'zero' score for no response or incorrect response. Thus, the maximum score that a respondent could obtain under knowledge items was 45.

The raw knowledge score of respondents were converted into knowledge index. Based on the knowledge index, the respondents were classified into two categories using mean knowledge score as central point of check.

	Knowledge index	
Categories	Big farmers	Small farmers
High (Mean and above)	40.50 and above	39.25 and above
Low (Below mean)	Below 40.50	Below 39.25

8. **Adoption** : The procedure followed by Sengupta (1967) for calculation of adoption quotient was used to measure the adoption level of the respondents in this study. According to this method, the adoption quotient was calculated by using the following formula.

$$\text{Adoption quotient} = \frac{\text{Number of scores obtained}}{\text{Number of scores that could be obtained}} \times 100$$

To find out the extent of adoption by Sericulturists, 42 recommended practices (19 practices under mulberry cultivation and 23 practices under silkworm rearing) were selected. For each of the practices considered, a score of two was given for full adoption, one for partial adoption and zero for non-adoption. Thus, the maximum score that a respondent could obtain was 84.

The raw adoption scores were converted to adoption quotient. Based on the adoption quotients obtained the respondents were classified into two categories using mean adoption score as central point of check.

Categories	Big farmers	Small farmers
High (Mean and above)	71.85 and above	67.82 and above
Low (Below mean)	Below 71.85	Below 67.82

4. Measurement of independent variables

(i) **Age** : The respondents were asked to indicate their age in completed years as on the date of data collection. The farmers were grouped into three categories based on age as used by Raghavendra (1979) with slight modification.

Category	Age range (years)
Young	Upto 30
Middle	31 to 45
Old	Above 45

(ii) **Education** : This refers to the amount of formal schooling of respondents. The scores were assigned as detailed below.

Educational level	Scores
Illiterate	0
Primary school education	1
Middle school education	2
High school education	3
Pre-University/Diploma	4
Degree	5

These scores were used directly for the computation of correlation coefficients.

(ii) **Family size** : The respondents were asked to state number of persons in their family.

Family size	Score
Less than or equal to 5	1
More than 5	2

The total scores were used for the computation of correlation coefficients.

(iv) Land holding : The respondents were asked to indicate the extent of land holding possessed by them in respect of wetland, garden land and dryland. Each type of holding was converted into a common denominator of standard acre by following the procedure indicated in Karnataka land Reforms Act 38 of 1966. According to the Act, one acre of garden land or wetland is equal to three acres of dryland.

Based on land holding (standard acres) the farmers were categorised into two groups as mentioned below :

Category	Acres
Big farmers	Above 5 standard acres
Small farmers	Below 5 standard acres

(v) Social participation : This refers to the degree of involvement of an individual in formal organizations either as a member or an office bearer. The formal organizations like Gram panchayat, Taluk Panchayat, Zilla Panchayat, Youth Association, Mahila Mandal, Primary Co-

operative Agriculture and Rural Development Bank, Milk Producers Co-operative Society, Cocoon Regulated Market, etc. This variable was quantified using the method followed by Trivedi (1963) with suitable changes in the items and weights. The items considered for the measurement of the variable and the weightages assigned were as follows :

(a) Membership position

	Score
Not a member in any of the organization	0
Member in one organization	1
Member in more than one organization	2
Office bearer in one or more organizations	3

(b) Attendance in the meetings of the organizations

	Score
Never	0
Occasionally	1
Regularly	2

Taking into consideration, the total score obtained by the respondents, they were grouped into three categories with mean and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 1.84	> 0.94
Medium (Mean ± ½ SD)	0.16-1.84	-0.2-0.94
Low (Mean - ½ SD)	< 0.16	< -0.2

(vi) Mass media participation : In order to assess the extent of participation of the respondents in mass media, different mass media sources were listed and the respondents were asked to indicate as to how far they participated in each of these. The procedure used by Trivedi (1963) and followed by Byra Reddy (1971) was adopted for measuring mass media participation. The scores were assigned as detailed below.

Items	Scores assigned		
	Pattern of participation		
	Regularly	Occasionally	Never
Newspaper reading habit	2	1	0
Listening to Radio	2	1	0
Listening to Agriculture programmes in Radio	2	1	0
Reading habit of farm magazines, leaflets or any other literature on sericulture	2	1	0
Viewing of Agriculture programmes in Television	2	1	0

Based on the scores obtained by the respondents, they were grouped into three categories using mean and standard deviation as a measure of check.

Categories	Score	
	Big farmers	Small farmers
High (Mean + ½ SD)	> 4.74	> 2.69
Medium (Mean ± ½ SD)	2.94-4.74	1.71-2.69
Low (Mean - ½ SD)	< 2.94	< 1.71

(vii) **Extension participation** : It refers to the extent of participation of the farmer in different extension activities like group discussion meetings, farmers training, field days, field visit, demonstrations, tours, exhibitions etc., conducted during the last one year in the area.

This variable was quantified by following the procedure suggested by Ravikumar (1979) with some modification. A list of seven extension activities was prepared and respondents were asked to indicate their extent of participation under each one of them. The scoring procedure followed is detailed below.

Name of the extension activity	Scores assigned		
	Pattern of participation		
	Regularly	Occasionally	Never
Group discussion meetings	2	1	0
Farmers training	2	1	0
Field day	2	1	0
Field visit	2	1	0
Demonstrations	2	1	0
Tours	2	1	0
Exhibitions	2	1	0

Based on the scores obtained by the respondents, they were classified into three categories using mean and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 2.00	> 1.22
Medium (Mean ± ½ SD)	0.72-2.00	0.22-1.22
Low (Mean - ½ SD)	< 0.72	< 0.22

(viii) Material possession : To place the respondents at different levels with respect to the material possession Trivedi's (1963) scale with slight modifications was used.

Items included and the respective weights assigned to them are as follows :

Items included	Score assigned
1. Pumpset	6
2. Tractor/Power tiller	5
3. Bullock cart	4
4. Radio/Transistor	3
5. Cycle	2
6. Sprayer/Duster	1

Based on the scores obtained by the respondents, they were grouped into three categories using mean and S.D. as a measure of check.

Categories	Score	
	Big farmers	Small farmers
High (Mean + ½ SD)	> 18.08	> 12.88
Medium (Mean ± ½ SD)	14.42-18.08	10.30-12.88
Low (Mean - ½ SD)	< 14.42	< 10.30

(ix) **Risk preference** : It refers to the degree to which farmers were oriented towards risk and uncertainty and have a courage to face the problem in mulberry cultivation and silkworm rearing. Risk preference was measured with the help of the scale developed by Supe and Singh (1969). Some statements of the scale were modified to suit to the present study. There were six statements, all of these were positive statements. The farmers opinion were sought on a five point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree. The scoring pattern followed was 5, 4, 3, 2 and 1 for all the statements. Based on the scores obtained by the respondents, they were grouped into three categories using mean and standard deviation as a measure of check.

Categories	Score	
	Big farmers	Small farmers
High (Mean + ½ SD)	> 26.76	> 26.92
Medium (Mean ± ½ SD)	25.04-26.76	25.22-26.92
Low (Mean - ½ SD)	< 25.04	< 25.22

(x) **Credit facilities** : To quantify the credit facility available, the respondents were asked to indicate whether they received the credit from banks, co-operative society, local money lender and friends. For these items the weights given were as follows :

Items	Score
Banks	4
Co-operative societies	3
Local money lenders	2
Friends and relatives	1

Based on the scores obtained by the respondents, they were grouped into three categories using mean and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 6.14	> 3.78
Medium (Mean ± ½ SD)	4.36-6.14	2.46-3.78
Low (Mean - ½ SD)	< 4.36	< 2.46

(xi) **Net income** : The net income of each respondent for 100 disease free layings was calculated by using the following formula.

Net return = Gross income - Total cost

Total cost includes the cost incurred on layings, labour, mulberry leaves, transportation and marketing cost etc.

The responndents were grouped into three categories based on the total annual net income using mean annual net income and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 18690.82	> 17993.00
Medium (Mean ± ½ SD)	16320.88-18690.82	14730.0-17993.0
Low (Mean - ½ SD)	< 16320.88	< 14730.00

(xii) Training need : Training need was operationally defined as the expressed level of training indicated as required by respondents in each of the training areas referred. The subject matter areas included for training need were as follows :

- Selection of mulberry cuttings and planting
- Manures and fertilizers to mulberry crop
- Irrigation practices for mulberry crop
- Intercultivation practices for mulberry crop
- Pruning of mulberry crop
- Harvesting and preservation of mulberry leaves
- Silkworm feeding practices

- Cleaning and brushing of silkworms
- Silkworm pests and diseases and their control
- Plant protection for mulberry crop
- Marketing of silk cocoons
- Any others

Training need of each subject matter area was assessed using a three point continuum such as "much needed", "somewhat needed" and "not needed" and it was quantified by assigning score 2, 1 and 0, respectively. Based on the scores obtained by the respondents, they were grouped into three categories using mean and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 7.47	> 7.50
Medium (Mean ± ½ SD)	5.93-7.47	5.62-7.50
Low (Mean - ½ SD)	< 5.93	< 5.62

(xiii) **Employment potential** : This variable was measured by using the procedure suggested by Shivaraja (1985). To measure the employment generation potentiality of sericulturists, the number of labourers engaged (both family and hired labour) for each rearing per 100 DFLS was calculated and it was later converted into mandays and women days by following the procedure of one man day/woman day is

equal to 8 hours of work. The total man days required for 100 DFLS was obtained and used for further analysis.

The respondents were grouped into three categories using mean and standard deviation as a measure of check.

	Score	
Categories	Big farmers	Small farmers
High (Mean + ½ SD)	> 46.20	> 61.45
Medium (Mean ± ½ SD)	35.80-46.20	48.55-61.45
Low (Mean - ½ SD)	< 35.80	< 48.55

(xiv) **Management orientation** : The quantification of this variable was arrived at by the procedure followed by Samanta (1977). Eighteen statements representing planning, production and marketing orientation were included in the study. The scale was modified on two points, viz., `agree' and `disagree'. The scoring was done as follows:

For positive statement `one' and `zero' scores were given for `agree' and `disagree' responses respectively and reverse order of scoring was followed for negative statement. Thus, a respondent could obtain a maximum score of eighteen and minimum zero score. Based on the scores obtained by the respondents, they were grouped into three categories using mean and standard deviation as a measure of check.

Categories	Score	
	Big farmers	Small farmers
High (Mean + ½ SD)	> 17.32	> 16.76
Medium (Mean ± ½ SD)	15.28-17.32	16.24-16.76
Low (Mean - ½ SD)	< 15.28	< 16.24

5. Method used for data collection

Interview was found to be the most appropriate method for collection of data in the present investigation. Hence, on interview schedule was developed based on the objectives of the study (Appendix I). The schedule was translated into Kannada for easy administration. Before finalising the interview schedule necessary precautions were taken through pre-testing to ensure that questions in the schedule were unambigious, clear, complete and comprehensive. The data collection was done by personally interviewing the respondents. The researcher made a number of visits before collecting the data to the study area to get acquaintance with extension workers and farmers. The data collection was done during November, 1995.

6. Statistical tools used

(i) **Frequency and percentage :** The data were presented in frequency and percentage to understand the nature of the distribution of farmers and to know the level of knowledge and extent of adoption among the sericulture farmers.

(ii) **Correlation test** : Simple correlation test was used to find out the nature of relationship between independent variables and dependent variables.

(iii) **Multiple regression analysis** : Multiple regression analysis was used to identify the extent of contribution of independent variables on the variation in the dependent variables.

RESULTS

CHAPTER IV

RESULTS

The results of the present investigation are presented in this chapter under the following headings :

1. Overall knowledge of farmers about the recommended practices of sericulture.
2. Specific knowledge of farmers about the individual recommended practices of mulberry cultivation.
3. Specific knowledge of farmers about the individual recommended practices of silkworm rearing.
4. Overall adoption of farmers about the selected recommended practices of sericulture.
5. Adoption of farmers in respect of specific recommended practices of mulberry cultivation.
6. Adoption of farmers in respect of specific recommended practices of silkworm rearing.
7. Personal, socio-economic and psychological characteristics of farmers.
8. Relationship between knowledge and personal, socio-economic and psychological characteristics of sericulturists.
9. Relationship between adoption and personal, socio-economic and psychological characteristics of sericulturists.
10. Reasons for partial and non-adoption of some of the selected recommended practices of mulberry cultivation.
11. Reasons for partial and non-adoption of some of the selected recommended practices of silkworm rearing.

1. OVERALL KNOWLEDGE OF FARMERS ABOUT THE RECOMMENDED PRACTICES OF SERICULTURE

Data in Table 1 reveal that, there was non-significant difference between big and small farmers with regard to

Table 1

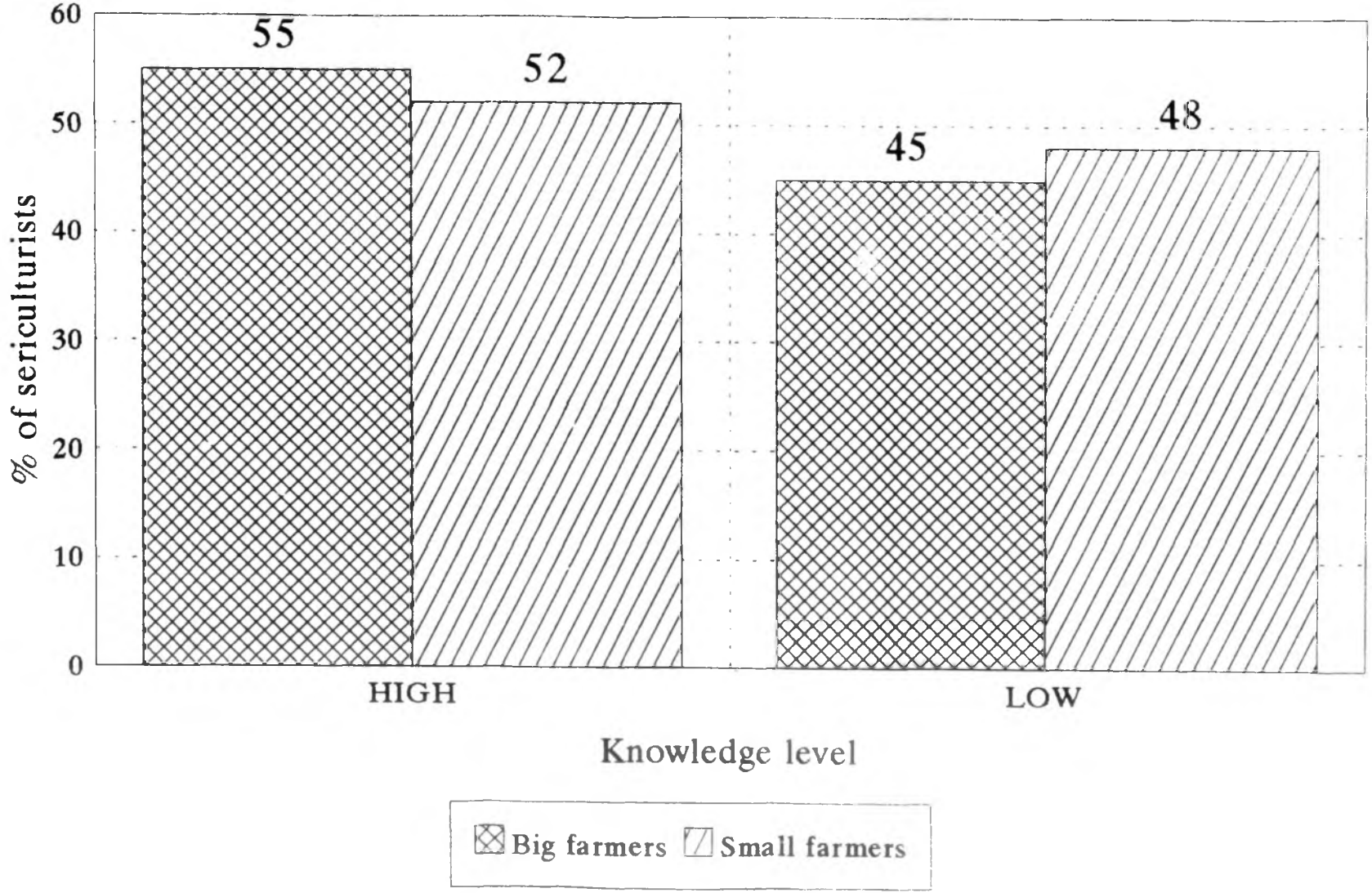
Categorization of sericulturists based on their over all knowledge about the recommended practices of sericulture

(N = 128)

Knowledge category	Big farmers (n = 64)		Small farmers (n = 64)		Total		Chi-square
	No.	%	No.	%	No.	%	
High	35	55	33	52	68	53	0.1254^{NS}
Low	29	45	31	48	60	47	
Total	64	100	64	100	128	100	

NS = Non-significant

Fig. No. 2: Overall knowledge level of sericulturists



overall knowledge level of farmers in relation to improved practices of sericulture. Fifty five per cent and 52 per cent of big and small farmers, respectively had high level of knowledge. Whereas, 45 per cent of big farmers and 48 per cent of small farmers had low level of knowledge.

2. SPECIFIC KNOWLEDGE OF FARMERS ABOUT THE INDIVIDUAL RECOMMENDED PRACTICES OF MULBERRY CULTIVATION

Data on specific knowledge of farmers regarding recommended practices of mulberry cultivation are presented in Table 2. Cent per cent of both big and small farmers had correct knowledge regarding number of buds in a cutting, season of planting, planting type, land preparation, FYM application, irrigation, number of crops to be raised in a year, weeding and dfl's per acre of mulberry. With regard to variety of mulberry cent per cent of big farmers had correct knowledge.

A great majority of small farmers (94%) had correct knowledge about recommended variety of mulberry. For pooled sample, a majority of farmers had correct knowledge (97%).

A great majority of both big (86%) and small farmers (86%) had correct knowledge about age of the cuttings. In case of pooled sample also, a great majority of the farmers (86%) had correct knowledge.

Regarding length of the cutting a great majority of both big (94%) and small farmers (95%) had correct knowledge.

Table 2

Specific knowledge of farmers about the individual recommended practices of mulberry cultivation

Sl. No.	Knowledge of specific recommended practices of mulberry cultivation	Sericulturists					
		Big farmers (n=64)		Small farmers (n=64)		Total (N=128)	
		No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8
1.	Variety of mulberry						
	Correct knowledge	64	100	60	94	124	97
	Incorrect knowledge	-	-	4	6	4	3
2.	Soil type						
	Correct knowledge	45	70	40	63	85	66
	Incorrect knowledge	19	30	24	37	43	34
3.	Age of the cuttings						
	Correct knowledge	55	86	55	86	110	86
	Incorrect knowledge	9	14	9	14	18	14
4.	Number of buds in a cutting						
	Correct knowledge	64	100	64	100	128	100
5.	Length of the cutting						
	Correct knowledge	60	94	61	95	121	95
	Incorrect knowledge	4	6	3	5	7	5
6.	Degree of planting						
	Correct knowledge	62	97	62	97	124	97
	Incorrect knowledge	2	3	2	3	4	3

Table 2 contd..)

1	2	3	4	5	6	7	8
7.	Season of planting						
	Correct knowledge	64	100	64	100	128	100
8.	Planting type						
	Correct knowledge	64	100	64	100	128	100
9.	Land preparation						
	Correct knowledge	64	100	64	100	128	100
10.	Spacing						
	Correct knowledge	59	92	57	90	116	91
	Incorrect knowledge	5	8	7	10	12	9
11.	FYM application						
	Correct knowledge	64	100	64	100	128	100
12.	Fertilizer application						
	Correct knowledge	31	48	4	6	35	27
	Incorrect knowledge	33	52	60	94	93	73
13.	Irrigation						
	Correct knowledge	64	100	64	100	128	100
14.	Bottom pruning						
	Correct knowledge	56	88	55	86	111	87
	Incorrect knowledge	8	12	9	14	17	13
15.	Number of crops can be raised in a year						
	Correct knowledge	64	100	64	100	128	100

Table 2 contd..)

1	2	3	4	5	6	7	8
16.	Weeding						
	Correct knowledge	64	100	64	100	128	100
17.	Leaf preservation						
	Correct knowledge	4	6	-	-	4	3
	Incorrect knowledge	60	94	64	100	124	97
18.	Mulching						
	Correct knowledge	27	42	21	33	48	37
	Incorrect knowledge	37	58	43	67	80	63
19.	Plant protection						
	Correct knowledge	63	98	63	98	126	98
	Incorrect knowledge	1	2	1	2	2	2
20.	DFLs per acre of mulberry						
	Correct knowledge	64	100	64	100	128	100

With regard to degree of planting, a great majority of both big and small farmers (97%) had correct knowledge. Further, a great majority of big (92%) and small farmers (89%) had correct knowledge about spacing to be followed in case of mulberry planting.

Regarding bottom pruning, a great majority of both big (88%) and small farmers (86%) had correct knowledge. In case of pooled sample also, a great majority of farmers (87%) had correct knowledge.

With regard to time of plant protection, a great majority of both big (98%) and small farmers (98%) had correct knowledge.

Regarding leaf preservation, a great majority of big (94%) and small farmers (cent per cent) had incorrect knowledge. Further, with regard to soil type, a majority of big (70%) and small farmers (63%) had correct knowledge. When pooledsample was considered a majority of farmers (66%) had correct knowledge.

Regarding quantity of fertilizer application, only 48 per cent of big farmers and 6 per cent of small farmers had correct knowledge. When a pooled sample was considered, only 27 per cent of the farmers had correct knowledge about quantity of fertilizer application. Further, only 42

per cent of big farmers and 33 per cent small farmers had correct knowledge about mulching.

3. SPECIFIC KNOWLEDGE OF FARMERS ABOUT THE INDIVIDUAL RECOMMENDED PRACTICES OF SILKWORM REARING

Data on specific knowledge of farmers regarding recommended practices of silkworm rearing are presented in Table 3. Cent per cent of both big and small farmers had correct knowledge regarding place of rearing, location of the rearing house, silkworm races, place of rearing of chawki worms, number of feedings per day, number of instars, number of moults, type of leaf for chawki worms, type of leaf for 3rd, 4th and 5th instar worms, bed cleaning, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 dfl's mountages required for 100 dfl's temperature maintenance during 3rd, 4th and 5th instar worms, number of days to spin the cocoon, harvesting of cocoons, grading of cocoons and market place.

Further, data shows that, 75 per cent of both big and small farmers had correct knowledge about the type of roof. For pooled sample also, 75 per cent of the farmers had correct knowledge about the roof type to be followed for silkworm rearing.

It could be observed that, 28 per cent of the big farmers and 53 per cent of the small farmers had incorrect

Table 3

Specific knowledge of farmers about the individual recommended practices of silkworm rearing

Sl. No.	Knowledge of specific recommended practices of silkworm rearing	Sericulturists					
		Big farmers (n=64)		Small farmers (n=64)		Total (N=128)	
		No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8
1.	Place of rearing						
	Correct knowledge	64	100	64	100	128	100
2.	Type of roof						
	Correct knowledge	48	75	48	75	96	75
	Incorrect knowledge	16	25	16	25	32	25
3.	Location of the rearing house						
	Correct knowledge	64	100	64	100	128	100
4.	Silkworm races						
	Correct knowledge	64	100	64	100	128	100
5.	Place of rearing of chawki worms						
	Correct knowledge	64	100	64	100	128	100
6.	Number of feedings/day						
	Correct knowledge	64	100	64	100	128	100

Table 3 contd..)

1	2	3	4	5	6	7	8
7.	Number of instars						
	Correct knowledge	64	100	64	100	128	100
8.	Number of moults						
	Correct knowledge	64	100	64	100	128	100
9.	Type of leaf for chawki worms						
	Correct knowledge	64	100	64	100	128	100
10.	Type of leaf for 3rd, 4th and 5th instar worms						
	Correct knowledge	64	100	64	100	128	100
11.	Temperature maintenance during chawki worms						
	Correct knowledge	46	72	30	47	76	59
	Incorrect knowledge	18	28	34	53	52	41
12.	Humidity maintenance						
	Correct knowledge	47	73	31	48	78	61
	Incorrect knowledge	17	27	33	52	50	39
13.	Bed cleaning						
	Correct knowledge	64	100	64	100	128	100
14.	Size of the leaf						
	Correct knowledge	64	100	64	100	128	100
15.	Quantity of leaves to be fed during different instars						
	Correct knowledge	64	100	64	100	128	100

Table 3 contd..)

1	2	3	4	5	6	7	8
16.	Trays required for 100 DFLs						
	Correct knowledge	64	100	64	100	128	100
17.	Mountages required for 100 DFLs						
	Correct knowledge	64	100	64	100	128	100
18.	Disinfection						
	Correct knowledge	37	58	18	28	55	43
	Incorrect knowledge	27	42	46	72	73	57
19.	Temperature maintenance during 3rd, 4th and 5th instar worms						
	Correct knowledge	64	100	64	100	128	100
20.	Control of ujifly						
	Correct knowledge	47	73	40	63	87	68
	Incorrect knowledge	17	27	24	37	41	32
21.	Diseases and control						
	Correct knowledge	49	77	31	48	80	62
	Incorrect knowledge	15	23	33	52	48	38
22.	Number of days to spin the cocoon						
	Correct knowledge	64	100	64	100	128	100
23.	Harvesting of cocoons						
	Correct knowledge	64	100	64	100	128	100
24.	Grading of cocoons						
	Correct knowledge	64	100	64	100	128	100
25.	Market place						
	Correct knowledge	64	100	64	100	128	100

knowledge about the temperature maintenance during chawki worms. For pooled sample, 41 per cent of the farmers had incorrect knowledge.

With regard to humidity maintenance, 27 per cent of the big farmers had incorrect knowledge when compared to 52 per cent of the small farmers. For pooled sample, 39 per cent of the farmers had incorrect knowledge about the humidity maintenance during chawki worms.

The data also shows that 42 per cent of big farmers had incorrect knowledge regarding disinfection of rearing house and equipments when compared to small farmers (72%). The data for pooled sample shows that a majority of the farmers (57%) had incorrect knowledge about the disinfection of rearing house and equipments.

Data from the table also shows that only 27 per cent of the big farmers had incorrect knowledge when compared to 37 per cent of small farmers with regard to control of ujifly. For pooled sample, 32 per cent of the farmers had incorrect knowledge.

With regard to diseases and their control measures, a majority of small farmers (52%) had incorrect knowledge when compared to big farmers (23%). For pooled sample, 38 per cent of the farmers had incorrect knowledge about diseases and their control.

4. OVERALL ADOPTION OF SELECTED RECOMMENDED PRACTICES OF SERICULTURE BY FARMERS

A perusal of the Table 4 reveals that, there was non significant difference between big and small farmers with regard to overall adoption of selected recommended practices of sericulture. Table shows that, 58 per cent of small farmers belongs to high adoption category when compared to big farmers (55%). Further, 45 per cent of big farmers and 42 per cent of small farmers belonged to low adoption category.

5. ADOPTION OF SPECIFIC RECOMMENDED PRACTICES OF MULBERRY CULTIVATION BY FARMERS

A close look at Table 5 shows that cent per cent of both big and small farmers adopted fully the practices like number of buds in a cutting, planting type, weeding and time of plant protection. Regarding mulching cent per cent of both big and small farmers have not adopted.

A great majority of big (84%) and small farmers (86%) had adopted recommended variety of mulberry. Further, more or less equal proportion of big (16%) and small farmers (14%) had partially adopted the recommended variety of mulberry.

Regarding age of the cuttings, a great majority of both big (84%) and small farmers (84%) had adopted fully. Whereas 16 per cent of both big and small farmers have partially adopted the age of the cuttings.

Table 4

Overall adoption of selected recommended practices of sericulture by farmers

(N = 128)

Adoption category	Big farmers (n = 64)		Small farmers (n = 64)		Total		Chi-square
	No.	%	No.	%	No.	%	
High	35	55	37	58	72	56	0.1268^{NS}
Low	29	45	27	42	56	44	
Total	64	100	64	100	128	100	

NS = Non-significant

Fig. No. 3: Overall adoption level of sericulturists

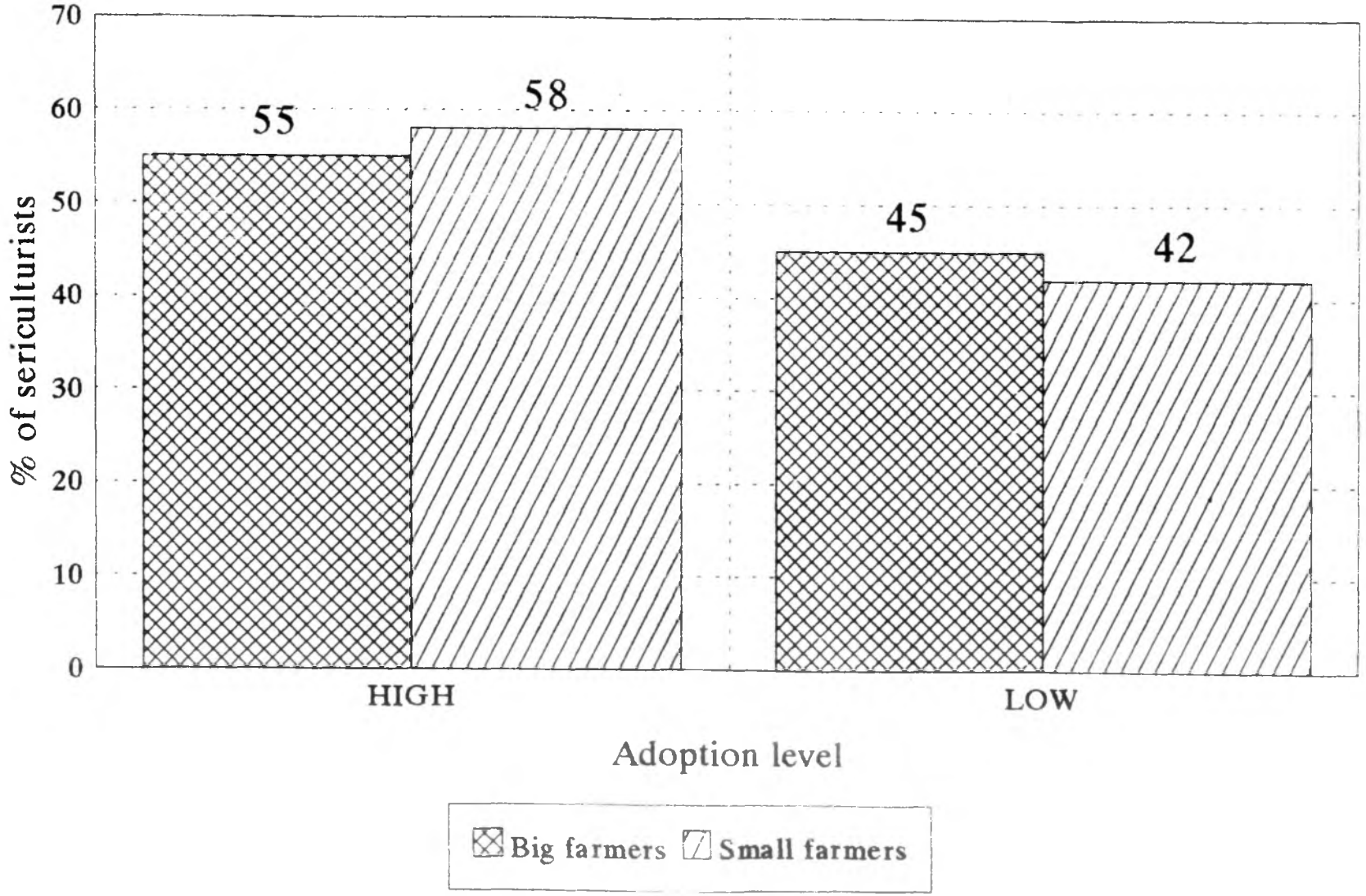


Table 5

Extent of adoption of specific recommended practices of mulberry cultivation by sericulturists

Sl. No.	Adoption of specific recommended practices of mulberry cultivation	Sericulturists: Big farmers (n=64)		Sericulturists: Small farmers (n=64)		Sericulturists: Total N = 128	
		No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8
1.	Variety of mulberry						
	Adopted	54	84	55	86	109	85
	Partially adopted	10	16	9	14	19	15
2.	Age of the cuttings						
	Adopted	54	84	54	84	108	84
	Partially adopted	10	16	10	16	20	16
3.	Number of buds in a cutting						
	Adopted	64	100	64	100	128	100
4.	Length of the cutting						
	Adopted	60	94	62	97	122	95
	Partially adopted	4	6	2	3	6	5
5.	Degree of planting						
	Adopted	62	97	62	97	124	97
	Partially adopted	2	3	2	3	4	3
6.	Season of planting						
	Adopted	59	92	56	88	115	90
	Partially adopted	5	8	8	12	13	10
7.	Planting type						
	Adopted	64	100	64	100	128	100

Table 5 contd..)

1	2	3	4	5	6	7	8
8.	Land preparation						
	Adopted	56	88	48	75	104	81
	Partially adopted	8	12	16	25	24	19
9.	Spacing						
	Adopted	58	91	57	89	115	90
	Partially adopted	6	9	7	11	13	10
10.	FYM application						
	Adopted	33	52	4	7	37	29
	Partially adopted	26	41	38	59	64	50
	Not adopted	5	7	22	34	27	21
11.	Fertilizer application						
	Adopted	11	17	2	3	13	10
	Partially adopted	30	47	6	9	36	28
	Not adopted	23	36	56	88	79	62
12.	Irrigation						
	Adopted	64	100	63	98	127	99
	Partially adopted	-	-	1	2	1	1
13.	Bottom pruning						
	Adopted	56	88	55	86	111	87
	Partially adopted	8	12	9	14	17	13
14.	Number of crops						
	Adopted	61	95	45	70	106	83
	Partially adopted	3	5	19	30	22	17

Table 5 contd..)

1	2	3	4	5	6	7	8
15.	Weeding						
	Adopted	64	100	64	100	128	100
16.	Leaf preservation						
	Partially adopted	64	100	64	100	128	100
17.	Mulching						
	Not adopted	64	100	64	100	128	100
18.	Plant protection						
	Adopted	64	100	64	100	128	100
19.	DFLs per acre						
	Adopted	31	48	3	5	34	27
	Partially adopted	33	52	61	95	94	73

A great majority of big (94%) and small farmers (97%) had adopted length of the cuttings fuly whereas only negligible proportion of big farmers (6%) and small farmers (3%) had partially adopted length of the cutting to be followed while planting the mulberry cuttings.

Regarding degree of planting as high as 97 per cent of both big and small farmers had adopted fully leaving only 3 per cent of them under partial adoption category.

A great majority of big (92%) and small farmers (88%) had fully adopted the season of planting. Whereas only 8 per cent of big and 12 per cent of small farmers had partially adopted this practice.

With regards to land preparation, a majority of big (88%) and small farmers (75%) had adopted fully whereas only 12 per cent of the big and 25 per cent of small farmers had partially adopted this operation.

A glance at table also shows, majority of big (91%) and small farmers (89%) had fully adopted the correct spacing whereas only 9 per cent of big farmers and 11 per cent of small farmers had adopted partially.

Regarding FYM application, 52 per cent of big farmers had adopted fully when compared small farmers (7%). Further, data shows 41 per cent of big farmers and 59 per cent of

small farmers had partially adopted FYM application at the recommended level. But, 7 per cent of big farmers and 34 per cent of small farmers had not adopted the application of FYM.

With regard to fertilizer application only 17 per cent of big farmers had adopted fully when compared to small farmers (3%). Further, data also reveals that, 47 per cent of the big farmers had adopted partially when compared to 9 per cent of small farmers. It is interesting to observe that a great majority of small farmers (88%) were in the non-adoption category as compared to the big farmers who were in small proportion (36%).

With respect to irrigation cent per cent of the big farmers had fully adopted when compared to small farmers who had 98 per cent adoption leaving only 2 per cent of them under the partial adoption category.

A majority of the big (88%) and small farmers (86%) had fully adopted bottom pruning. Whereas only 12 per cent of the big farmers and 14 per cent of small farmers had partial adoption.

Regarding number of crops to be raised in a year, a majority of the big (95%) and small farmers (70%) had adopted fully. Further, only 5 per cent of big farmers had partial adoption when compared to small farmers (30%).

The weeding practice was adopted by 100 per cent of both big and small farmers. With regard to leaf preservation, cent per cent of both big and small farmers had partial adoption.

With respect to number of disease free layings to be raised per acre of mulberry garden, 48 per cent of big farmers had adopted fully when compared to small farmers who were in small proportion (5%). Further, 52 per cent of the big farmers and majority of small farmers (95%) had partial adoption of disease free layings per acre of mulberry garden.

6. ADOPTION OF SPECIFIC RECOMMENDED PRACTICES OF SILKWORM REARING BY FARMERS

The data in Table 6 points out the extent of adoption of specific recommended practices of silkworm rearing by farmers. An examination of Table 6 shows that, cent per cent of both big and small farmers had adopted fully the practices like, silkworm races, number of feedings per day, type of leaf to be fed for chawki worms, type of leaf for 3rd, 4th and 5th instar worms, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 disease free layings (DFL's), mountages required for 100 DFL's, days to spin the cocoon, harvesting of cocoons, grading of cocoons and market place.

A majority of the big farmers (64%) had fully adopted the place of rearing when compared to small farmers (11%).

Table 6

Extent of adoption of specific recommended practices of silkworm rearing by sericulturists

Sl. No.	Adoption of specific recommended practices of silkworm rearing	Sericulturists					
		Big farmers (n=64)		Small farmers (n=64)		Total N = 128	
		No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8
1.	Place of rearing						
	Adopted	41	64	7	11	48	37
	Partially adopted	28	36	57	89	80	63
2.	Type of roof						
	Adopted	38	59	29	45	67	52
	Partially adopted	26	41	35	55	61	48
3.	Location of the rearing house						
	Adopted	52	81	46	72	98	77
	Partially adopted	12	19	18	28	30	23
4.	Silkworm races						
	Adopted	64	100	64	100	128	100
5.	Place of rearing of chawki worms						
	Adopted	35	55	10	16	45	35
	Partially adopted	29	45	54	84	83	65
6.	Number of feedings/day						
	Adopted	64	100	64	100	128	100

Table 6 contd..)

1	2	3	4	5	6	7	8
7.	Type of leaf for chawki worms						
	Adopted	64	100	64	100	128	100
8.	Type of leaf for 3rd, 4th and 5th instar worms						
	Adopted	64	100	64	100	128	100
9.	Temperature maintenance during chawki worms						
	Adopted	3	5	2	3	5	4
	Partially adopted	61	95	62	97	123	96
10.	Humidity maintenance						
	Adopted	3	5	1	2	4	3
	Partially adopted	61	95	63	98	124	97
11.	Bed cleaning						
	Adopted	57	89	54	84	111	87
	Partially adopted	7	11	10	16	17	13
12.	Size of the leaf						
	Adopted	64	100	64	100	128	100
13.	Quantity of leaves to be fed during different instars						
	Adopted	64	100	64	100	128	100
14.	Trays required for 100 DFLs						
	Adopted	64	100	64	100	128	100

Table 6 contd..)

1	2	3	4	5	6	7	8
15.	Mountages required for 100 DFLs						
	Adopted	64	100	64	100	128	100
16.	Disinfection						
	Adopted	36	56	18	28	54	42
	Partially adopted	28	44	46	72	74	58
17.	Temperature maintenance during 3rd, 4th and 5th instar worms						
	Adopted	28	44	13	20	41	32
	Partially adopted	36	56	51	80	87	68
18.	Control of ujifly						
	Adopted	1	2	-	-	1	1
	Partially adopted	63	98	64	100	127	99
19.	Diseases and control						
	Adopted	27	42	8	12	35	27
	Partially adopted	37	58	56	88	93	73
20.	Number of days to spin the cocoon						
	Adopted	64	100	64	100	128	100
21.	Harvesting of cocoons						
	Adopted	64	100	64	100	128	100
22.	Grading of cocoons						
	Adopted	64	100	64	100	128	100
23.	Market place						
	Adopted	64	100	64	100	128	100

While 36 per cent of the big farmers and a majority of small farmers (89%) had partial adoption of place of rearing of silkworms.

Further, data also reveals, 59 per cent of big farmers and 45 per cent of small farmers had full adoption with respect to type of roof to be followed for silkworm rearing. While 41 per cent of the big farmers and 55 per cent of small farmers had partially adopted the type of roof to be followed.

A majority of both big (81%) and small farmers (72%) had fully adopted the location of the rearing house. While 19 per cent of the big farmers and 28 per cent of the small farmers had partial adoption of this practice.

With regards to rearing place of chawki worms, majority of the big farmers (55%) had adopted fully when compared to only 16 per cent of small farmers. Further, 45 per cent of big farmers and a majority of small farmers (84%) had partial adoption of this practice.

Regarding temperature maintenance during chawki worms, negligible proportion of both big (5%) and small farmers (3%) had full adoption. While a majority of big (95%) and small farmers (97%) had partially adopted the practice.

With regards to humidity maintenance also, negligible proportion of both big (5%) and small farmers (2%) had full

adoption. While a majority of the big farmers (95%) and small farmers (98%) had partial adoption of this practice.

A majority of big (89%) and small farmers (84%) had adopted fully the practice of bed cleaning. While only, 11 per cent of the big farmers and 16 per cent of the small farmers had partial adoption.

Regarding disinfection of rearing house and equipments, 56 per cent of the big farmers had full adoption when compared to small farmers (28%). Further, data reveals 44 per cent of big farmers and 72 per cent of small farmers had partial adoption of this practice.

With regards to temperature maintenance during 3rd, 4th and 5th instar worms, 44 per cent of the big farmers had fully adopted when compared to small farmers who had only 20 per cent full adoption. A majority of both big (56%) and small farmers (80%) had partial adoption of temperature maintenance during 3rd, 4th and 5th instar worms.

An examination of Table 6 also shows that, negligible proportion of big farmers (2%) had fully adopted the control of uzifly when compared to cent per cent of small farmers who had partially adopted this practice leaving a great majority of big farmers (98%) under the partial adoption category.

Regarding diseases and their control measures, 42 per cent of the big farmers had adopted fully when compared to small farmers (12%) and the remaining majority of both big (58%) and small farmers (88%) had partial adoption.

7. PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF FARMERS

A cursory look at Table 7 reveals that 77 per cent of big and 59 per cent of small farmers belonged to middle age group, considerable percentage of big farmers (48%) had high level of education while 36 per cent of small farmers had medium level of education. A majority of both big farmers (78%) and small farmers (53%) had family size of more than five members.

Social participation was found high in case of big farmers (30%), whereas 89 per cent of small farmers had medium social participation. Mass media participation was slightly better among big farmers since 30 per cent of them were under high category when compared to small farmers (33%). A majority of the big farmers (53%) had medium extension participation, while a majority of small farmers (64%) had low extension participation. Regarding material possession 41 per cent of big farmers had high material possession when compared to small farmers (25%).

Regarding risk preference, it is interesting to note the slight superiority of small farmers who had 45 per cent

Table 7

Personal, socio-economic and psychological characteristics of sericulturists

Sl. No.	Characteristics/ Category	Big farmers (n = 64)		Small farmers (n = 64)	
		No.	%	No.	%
1	2	3	4	5	6
1.	Age				
	Young	0	0	1	2
	Middle aged	49	77	38	59
	Old aged	15	23	25	39
2.	Education				
	High	31	48	20	31
	Medium	15	24	23	36
	Low	18	28	21	33
3.	Family size				
	More than 5	50	78	34	53
	Less than or equal to 5	14	22	30	47
4.	Social participation				
	High	19	30	7	11
	Medium	0	0	57	89
	Low	45	70	0	0
5.	Mass media participation				
	High	23	36	21	33
	Medium	11	17	27	42
	Low	30	47	16	25

Table 7 contd..)

1	2	3	4	5	6
6.	Extension participation				
	High	7	11	21	33
	Medium	34	53	2	3
	Low	23	36	41	64
7.	Material possession				
	High	26	41	16	25
	Medium	21	33	29	45
	Low	17	26	19	30
8.	Risk preference				
	High	25	39	29	45
	Medium	14	22	12	19
	Low	25	39	23	36
9.	Credit facilities				
	High	24	37	15	23
	Medium	17	27	14	22
	Low	23	36	35	55
10.	Net income				
	High	18	28	20	31
	Medium	25	39	30	47
	Low	21	33	14	22
11.	Training need				
	High	17	27	18	28
	Medium	31	48	26	41
	Low	16	25	20	31

Table 7 contd..

1	2	3	4	5	6
12.	Employment potential				
	High	27	42	19	30
	Medium	12	19	36	56
	Low	25	39	9	14
13.	Management orientation				
	High	1	2	35	55
	Medium	59	92	0	0
	Low	4	6	29	45

of high level risk preference compared to 39 per cent of big farmers comng under this category. With regards to credit facilities, 37 per cent of big farmers belonged to high category when compared to small farmers (23%). Small farmers have proved their slight superiority since 31 per cent of them had high net income when compared to big farmers (28%).

Regarding training need, almost equal proportion of big (27%) and small farmers (28%) belonged to high category of training need. Further, 48 per cent of big farmers and 41 per cent of small farmers belonged to medium category of training need. Forty two per cent of big farmers had high employment potential whereas 30 per cent of small farmers had high employment potential. Regarding management orientation, it is interesting to observe that a great majority (92%) of big farmers had medium management orientation whereas, majority (55%) of small farmers had high management orientation.

8. RELATIONSHIP BETWEEN THE OVERALL KNOWLEDGE AND PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF SERICULTURISTS

The correlation coefficients (r) presented in Table 8 show that out of 13 independent variables, 4 variables namely education, mass media participation, material possession and risk preference in respect of big farmers had a positive and highly significant relationship with their overall knowledge

Table 8

Relationship between knowledge and personal, socio-economic and psychological characteristics of sericulturists

Sl. No.	Characteristics	Correlation coefficient (r)	
		Big farmers (n=64)	Small farmers (n=64)
1.	Age	-0.1609	-0.0358
2.	Education	0.3519**	0.4166**
3.	Family size	-0.0458	-0.0337
4.	Social participation	0.2347	0.0179
5.	Mass media participation	0.2834*	0.2820*
6.	Extension participation	-0.0125	0.3016*
7.	Material possession	0.3436**	0.1408
8.	Risk preference	0.3468**	0.1494
9.	Credit facilities	0.0214	0.1957
10.	Net income	0.1165	-0.0094
11.	Training need	-0.0061	0.2156
12.	Employment potential	-0.2441	-0.2436
13.	Management orientation	-0.1938	-0.0444

* = Significant at 5 per cent level
** = Significant at 1 per cent level

level. And, in case of small farmers, only three variables namely, education, mass media participation and extension participation had a positive and significant relationship with their overall knowledge level.

Multiple regression analysis revealed the relative importance of the different independent variables on knowledge level of farmers. As seen from Table 9, in case of big farmers, out of 13 variables, only one variable namely risk preference fitted in the regression equation had positive relationship whereas none of the variables in case of small farmers had positive relationship. The 13 variables together explained variation to the extent of 34.11 per cent in the knowledge level of big farmers whereas in case of small farmers the variation was 33.85 per cent.

9. RELATIONSHIP BETWEEN THE OVERALL ADOPTION AND PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF SERICULTURISTS

A cursory look at Table 10 indicate that education, social participation, mass media participation, material possession, risk preference, credit facilities and employment potential were significantly related to the adoption level of big farmers. In case of small farmers, education, mass media participation, extension participation, risk preference and net income were significantly related to their adoption level and remaining variables were not related to their adoption level.

Table 9

Multiple regression of knowledge level of sericulturists with different characteristics

N = 128

Sl. No.	Characteristics	Big farmers (n = 64)			Small farmers (n = 64)		
		Regression coefficient (b)	't' value	R^2	Regression coefficient (b)	't' value	R^2
1.	Age	0.0297	0.4015	0.3411	0.0524	0.9785	0.3385
2.	Education	0.9476	2.0735		0.7698	1.8962	
3.	Family size	0.6814	0.8474		0.2475	0.4070	
4.	Social participation	0.2014	0.7944		-0.1095	-0.3652	
5.	Mass media participation	0.1112	0.3561		-0.2978	-0.6745	
6.	Extension participation	-0.5448	-1.7195		0.3970	1.1268	
7.	Material possession	0.014	0.1144		0.1894	1.4138	
8.	Risk preference	0.4297	2.2095*		-0.0188	-0.0991	
9.	Credit facilities	-0.0414	-0.2066		0.0496	0.2186	
10.	Net income	0.0001	0.5231		0.0000	-0.2791	
11.	Training need	-0.0183	-0.0814		0.2866	1.6455	
12.	Employment potential	-0.0147	-0.3976		-0.0148	-0.5681	
13.	Management orientation	-0.1121	-0.7148		0.3825	0.6805	

* = Significant at 5 per cent level

Table 10

Relationship between adoption and personal, socio-economic and psychological characteristics of sericulturists

Sl. No.	Characteristics	Correlation coefficient (r)	
		Big farmers (n=64)	Small farmers (n=64)
1.	Age	-0.1563	-0.0602
2.	Education	0.2936*	0.3604**
3.	Family size	0.0004	0.0211
4.	Social participation	0.3129*	0.1577
5.	Mass media participation	0.2659*	0.2831*
6.	Extension participation	0.0413	0.3673**
7.	Material possession	0.2581*	0.2227
8.	Risk preference	0.2557*	0.2545*
9.	Credit facilities	0.2671*	0.0933
10.	Net income	0.0607	0.2745*
11.	Training need	-0.0025	0.2109
12.	Employment potential	-0.4712**	-0.2062
13.	Management orientation	-0.0678	0.0737

* = Significant at 5 per cent level
** = Significant at 1 per cent level

Multiple regression analysis revealed the relative importance of different independent variables on adoption level of sericulturists. The results of this analysis are presented in Table 11. The data reveal that the 13 variables together explained variation to the extent of 42.95 percent in the adoption level of big farmers. Out of 13 variables, only one variable namely employment potential had negative relationship in case of big farmers. However, in case of small farmers, the results of regression analysis revealed that all the 13 variables together contributed 42.79 per cent of the variation in their adoption level. Out of 13 variables, two variables namely net income and employment potential had positive and negative relationship respectively.

10. REASONS FOR PARTIAL AND NON-ADOPTION OF SOME OF THE SELECTED RECOMMENDED PRACTICES OF MULBERRY CULTIVATION

It is seen from the Table 12 that 10 big and 9 small farmers expressed lack of knowledge as the reason for partial adoption of variety of mulberry. Regarding age of the cuttings, 9 big and 6 small farmers expressed non-availability of cuttings in time as the reason for partial adoption followed by lack of knowledge which was felt by a big farmer and 4 small farmers.

With regards to length of the cutting 4 big and 2 small farmers expressed the reason of lack of knowledge for partial

Table 11

Multiple regression of adoption level of sericulturists with different characteristics

N = 128

Sl. No.	Characteristics	Big farmers (n = 64)			Small farmers (n = 64)		
		Regression coefficient (b)	't' value	R^2	Regression coefficient (b)	't' value	R^2
1.	Age	-0.0387	-0.5049	0.4295	0.0422	0.7189	0.4279
2.	Education	0.8870	1.8738		0.5137	1.1538	
3.	Family size	0.2765	0.3320		0.7149	1.0720	
4.	Social participation	0.1687	0.6422		0.4437	1.3497	
5.	Mass media participation	-0.1793	-0.5546		0.1178	0.2434	
6.	Extension participation	-0.6825	-2.0797		0.7615	1.9708	
7.	Material possession	-0.0764	-0.5979		-0.0866	-0.5891	
8.	Risk preference	0.2477	1.2294		0.2720	1.3048	
9.	Credit facilities	0.1487	0.7164		-0.1332	-0.5349	
10.	Net income	-0.0001	-0.9777		0.0003	2.5450*	
11.	Training need	0.0205	0.0881		0.2147	1.1240	
12.	Employment potential	-0.0863	-2.2604*		-0.0616	-2.1501*	
13.	Management orientation	-0.1384	-0.8525		0.9889	1.6042	

* = Significant at 5 per cent level

Table 12

Reasons for partial and non-adoption of some of the selected recommended practices of mulberry cultivation

N = 128

Sl. No.	Improved methods/ Reasons for partial and non-adoption	Sericulturists			
		Big farmers (n = 64)		Small farmers (n = 64)	
		N	Percentage calculation to N	N	Percentage calculation to N
1	2	3	4	5	6
1.	Variety of mulberry				
	(a) Lack of knowledge	10	100	9	100
2.	Age of cuttings				
	(a) Lack of knowledge	1	10	4	40
	(b) Non-availability of cuttings in time	9	90	6	60
3.	Length of the cutting				
	(a) Lack of knowledge	4	100	2	100
4.	Degree of planting				
	(a) Lack of knowledge	2	100	2	100
5.	Season of planting				
	(a) Non-availability of cuttings in time	5	100	8	100
6.	Land preparation				
	(a) Labour problem	8	73	11	44
	(b) High labour cost	3	27	14	56
7.	Spacing				
	(a) Lack of knowledge	6	100	7	100

Table 12 contd..)

1	2	3	4	5	6
8.	FYM application				
	(a) Non-availability	31	50	30	60
	(b) Lack of finance	31	50	20	40
9.	Fertilizer application				
	(a) High cost of fertilizers	34	64	45	63
	(b) Non-availability	14	26	11	15
	(c) Lack of knowledge	5	10	16	22
10.	Irrigation				
	(a) Lack of water	-	-	1	100
11.	Bottom pruning				
	(a) Lack of knowledge	8	100	9	100
12.	Number of crops could be raised per year				
	(a) Lack of water	3	100	19	100
13.	Leaf preservation				
	(a) Lack of knowledge	64	100	64	100
14.	Mulching				
	(a) Lack of knowledge about its advantage	64	100	64	100
15.	DFLs per acre				
	(a) Lack of water	26	74	52	70
	(b) Labour problem	9	26	-	-
	(c) Small sized holdings	-	-	22	30

(More than one reason was recorded)

adoption. Further, equal number of both big and small farmers expressed lack of knowledge as the reason for partial adoption of this practice.

Non-availability of cuttings in time was the main reason for partial adoption of correct season of planting, which was expressed by 5 big and 8 small farmers. Regarding land preparation, 8 big and 11 small farmers expressed labour problem as the main reason for partial adoption followed by high labour cost which was explained by 3 big and 14 small farmers. Further, almost equal number of both big and small farmers felt lack of knowledge as the reason for partial adoption of spacing to be followed in mulberry planting.

With regards to FYM application, almost equal number of both big and small farmers expressed the reason of non-availability for non-adoption of FYM, further 31 bigand 20 small farmers expressed lack of finance as the reason for non-adoption of this practice.

Majority of the partial/non-adopters in both big and small farmers expressed high cost of fertilizers as the main reason for partial/non-adoption of fertilizer application. Further, 14 big and 11 small farmers expressed non-availability of fertilizers as the reason followed by lack of knowledge which was explained by 5 big and 16 small farmers.

Almost equal number of both big and small farmers expressed lack of knowledge as the reason for partial adoption of the practice bottom pruning. Regarding number of crops taken only 3 big and 19 small farmers expressed the reason lack of sufficient water in the wells.

With regards to leaf preservation and mulching all the big and small farmers expressed the reason lack of knowledge and lack of knowledge about advantage of mulching respectively for non-adoption of the practice.

Regarding DFL's to be raised per acre, majority of the partial adopters in both big and small farmers expressed lack of water as the main reason for partial adoption followed by labour problem which was expressed by only big farmers. Further, only small farmers expressed small sized holdings as the reason for partial adoption.

11. REASONS FOR PARTIAL AND NON-ADOPTION OF SOME OF THE SELECTED RECOMMENDED PRACTICES OF SILKWORM REARING

A cursory look at Table 13 reveals the reasons for partial and non-adoption of some of the selected recommended practices of silkworm rearing.

From the table it could be seen that, 18 big and 39 small farmers expressed lack of finance to construct a separate house as the main reason for partial adoption of

Table 13

Reasons for partial and non-adoption of some of the selected recommended practices of silkworm rearing

N = 128

Sl. No.	Improved methods/ Reasons for partial and non-adoption	Sericulturists			
		Big farmers (n = 64)		Small farmers (n = 64)	
		N	Percentage calculation to N	N	Percentage calculation to N
1	2	3	4	5	6
1.	Place of rearing				
	(a) Lack of finance to construct a separate house	18	78	39	68
	(b) Lack of credit facilities	12	52	21	37
2.	Type of roof				
	(a) Lack of knowledge	21	81	28	80
	(b) Lack of finance	5	19	12	34
3.	Location of rearing house				
	(a) Lack of finance to construct a rearing house nearer to mulberry garden	12	100	18	100
4.	Rearing place of chawki worms				
	Not interested due to negligence of rearers in chawki rearing centres	29	100	54	100
5.	Temperature maintenance during chawki worms				
	(a) Not aware of improved method	61	100	62	100

Table 13 contd..)

1	2	3	4	5	6
6.	Humidity maintenace				
	(a) Not aware of improved method	61	100	63	100
7.	Bed cleaning				
	(a) Lack of knowledge	7	100	10	100
8.	Disinfection				
	(a) Lack of knowledge about recommended formalin concentration	28	100	46	100
9.	Temperature maintenance during 3rd, 4th and 5th instar worms				
	Not aware of using heaters during winter season	36	100	51	100
10.	Control of ujifly				
	(a) Lack of knowledge	8	13	13	20
	(b) Lack of finance	14	22	35	55
	(c) Risky job of using net to each and every tray	41	65	17	27
11.	Diseases and control				
	(a) Lack of knowledge about the diseases	32	86	39	70
	(b) Lack of knowledge about control measures	15	41	24	43

(More than one reason was recorded)

place of silkworm rearing followed by lack of credit facilities which was expressed by 12 big and 21 small farmers.

Regarding type of roof, 21 big and 28 small farmers expressed the reason lack of knowledge for partial adoption. Further, 5 big and 12 small farmers expressed the reason lack of finance for partial adoption. With regard to location of rearing house only 12 big and 18 small farmers expressed "lack of finance to construct a rearing house nearer to mulberry garden" as the reason for partial adoption.

Regarding rearing place of chawki worms majority of the small farmers (54) and 29 big farmers expressed the reason "not intersted due to negligence of rearers in chawki rearing centres" for non-adoption. Almost equal number of both big and small farmers expressed "not aware" of improved method as the reason for non-adoption of the operation, temperature maintenance during chawki worms. Further, majority of both big (61) and small (63) farmers expressed "not aware ofimproved method" as the reason for partial/non-adoption of practice humidity maintenance.

Regarding bed cleaning, 7 big and 10 small farmers expressed the reason of "lack of knowledge" for partial adoption of the practice. Further, only 28 big and 46 small

farmers expressed "lack of knowledge about recommended formalin concentration" as the reason for partial/non-adoption.

With regards to temperature maintenance during 3rd, 4th and 5th instar worms, 36 big and 51 small farmers expressed the reason "not aware of using heaters during winter season" for partial adoption. Regarding control of uzifly, a majority of the partial adopters in big farmers expressed the reason of "risky job of using net to each and every tray" folowed by lack of finance and lack of knowledge. While, a majority of partial adopters in small farmers expressed "lack of finance" followed by "risky job of using net to every tray" and "lack of knowledge" as the reason for partial adoption.

Regarding diseases and control, 32 big and 39 small farmers expressed "lack of knowledge about the diseases" as the main reason followed by "lack of knowledge about control measures" as the reason for partial/non-adoption which was expressed by 15 big and 24 small farmers.

DISCUSSION

CHAPTER V

DISCUSSION

The results of the study are discussed in this chapter under the following headings :

1. Overall knowledge about the recommended practices of of sericulture.
2. Specific knowledge of farmers about the individual recommended practices of mulberry cultivation.
3. Specific knowledge of farmers about the individual recommended practices of silkworm rearing.
4. Overall adoption of selected recommended practices of sericulture by farmers.
5. Adoption of specific recommended practices of mulberry cultivation by farmers.
6. Adoption of specific recommended practices of silkworm rearing by farmers.
7. Relationship between knowledge and personal, socio-economic and psychological characteristics of sericulturists.
8. Relationship between adoption and personal, socio-economic and psychological characteristics of sericulturists.
9. Reasons for partial and non-adoption of the selected recommended practices of mulberry cultivation and silkworm rearing.

1. OVERALL KNOWLEDGE ABOUT THE RECOMMENDED PRACTICES OF SERICULTURE

There was no significant difference between big and small farmers with regard to overall knowledge level of farmers in relation to improved practices of sericulture

(Table 1). It indicates that the knowledge level of big and small farmers found to be at same level. A good number of big (55%) and small farmers (52%) possessed high level of knowledge. Whereas, 45 per cent of big farmers and 48 per cent of small farmers had low level of knowledge. The findings are contrast to that of Rajashekaraiah (1979).

The possible reasons for non-significant results might be due to the fact that the sericulture being an important commercial enterprise constituting an important source ofincome for the livelihood of farmers, the importance of knowledge on scientific mulberry cultivation and silkworm rearing has also been equally realised by small and big farmers. This is also evident from the results presented in the Table 2 and 3 pertaining to the knowledge of individual mulberry cultivation and silkworm rearing practices respectively. Wherein small farmers compared to the big farmers possessed correct knowledge of majority of the recommended practices leaving one or two practices involving high cost such as fertilizer application to mulberry and practices of relatively high technical in nature such as temperature and humidity maintenance.

2. SPECIFIC KNOWLEDGE OF FARMERS ABOUT THE INDIVIDUAL RECOMMENDED PRACTICES OF MULBERRY CULTIVATION

The results of the investigation with respect to knowledge about specific mulberry cultivation practices

(Table 2) showed that cent per cent of both big and small farmers had correct knowledge about the practices like number of buds in a cutting, season of planting, planting type, land preparation, FYM application, irrigation, number of crops to be raised in a year, weeding and disease free layings per acre of mulberry. With regard to variety of mulberry cent per cent of big farmers and 94% of small farmers had correct knowledge. This may be due to the simplicity of these practices and also the spread of knowledge relating to these aspects is easy.

Some of the findings relating to the practices like land preparation, system of planting and irrigation with respect to mulberry cultivation are in conformity with the findings of Sreenivasa (1989).

It is also evident that a majority of both big and small farmers were aware of the practices to be followed viz., soil type, age of the cuttings, length of the cutting, degree of planting, bottom pruning and time of plant protection. Considerable percentage of big farmers (48%) and only 6 per cent of small farmers had correct knowledge about the quantity of fertilizers to be used. However, majority of big and a great majority of small farmers had incorrect knowledge about this practice. This also may be due to the complexity of the practices and low mass media and extension

participation of farmers in general with respect to mulberry cultivation.

Only few farmers had correct knowledge about fertilizer application, leaf preservation and mulching. This might be due to the reason that the farmers might not have been educated on these aspects or these practices might not have been disseminated effectively among farmers.

3. SPECIFIC KNOWLEDGE OF FARMERS ABOUT THE INDIVIDUAL RECOMMENDED PRACTICES OF SILKWORM REARING

The results of the investigation with respect to knowledge about specific silkworm rearing practices (Table 3) showed that 100 per cent of both big and small farmers had correct knowledge regarding place of rearing, location of the rearing house, silkworm races, place of rearing of chawki worms, number of feedings per day, number of instars, number of moults, type of leaf for chawki worms, type of leaf for 3rd, 4th and 5th instar worms, bed cleaning, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 disease free layings, mountages required for 100 disease free layings, temperature maintenance during 3rd, 4th and 5th instar worms, number of days required to spin the cocoon, harvesting of cocoons, grading of cocoons and market place. Further, a considerable percentage of farmers had correct knowledge regarding type of roof (75% of both big and small farmers), temperature

maintenance during chawki worms (72% of big farmers and 47% of small farmers), humidity maintenance (73% of big and 48% of small farmers), disinfection measures (58% of big farmers and 28% of small farmers), control of uzifly (73% of big farmers and 63% of small farmers) and diseases and their control (77% of big farmers and 48% of small farmers). This indicates that the farmers had really learnt more number of practices. Some of the practices like silk worm races and identification of diseases and their control are in confirmity with the findings of Puttaswamy et al. (1978). Practices like place of rearing, location of the rearing house, recommended race of silk worm, number of feedings per day, number of instars and number of moults, are in confirmity with the findings of Sreenivasa (1989).

The probable reason might be due to the effective extension work done by the personnel of Department of Sericulture. Also, due to farmers education, social participation, mass media participation and extension participation. Further, profitability of the enterprise might have made them to learn more about rearing of silk worms.

4. OVERALL ADOPTION OF SELECTED RECOMMENDED PRACTICES OF SERICULTURE BY FARMERS

A glance at Table 4 reveals that, there was non-significant difference between big and small farmers with

regard to overall adoption of selected recommended practice of sericulture. Further, 58 per cent of small farmers belonged to high adoption category when compared to big farmers (55%). Table also shows that 45 per cent of big farmers and 42 per cent of small farmers belonged to low adoption category. The findings are in confirmity with the findings of Prakash Kumar (1986).

The probable reason for non-significant results between big and small farmers might be due to the fact that, sericulture being an important commercial enterprise engaging the complete family labour attracts the sincere and serious efforts to adopt the various recommended practices of mulberry cultivation and silkworm rearing by sericulturists. In support of this, a perusal of the Table 5 and 6 relating to the extent of adoption of specific recommended practices of mulberry cultivation and silkworm rearing respectively reveal that only very few practices involving high cost or high technical capabilities have not been adopted by the small farmers. Whereas in respect of most of other practices they have performed on par with big farmers.

5. ADOPTION OF SPECIFIC RECOMMENDED PRACTICES OF MULBERRY CULTIVATION BY FARMERS

A close look at Table 5 show that cent per cent of both big and small farmers had adopted fully the practices like number of buds in a cutting, planting type, weeding and time

of plant protection. The reason for this encouraging situations may be due to the simplicity and also the crucial nature of these practices. Regarding mulching cent per cent of both big and small farmers have not adopted. This situation could be attributed to the lack of knowledge of farmers about its advantage in mulberry cultivation.

A majority of big (84%) and small farmers (86%) had adopted recommended variety of mulberry. With regard to age of the cuttings, 84 per cent of both big and small farmers had adopted the practice fully.

Regarding length of the cuttings majority of the big (94%) and small farmers (97%) had adopted the practice. With regard to degree of planting 97 per cent of both big and small farmers had adopted fully.

A majority of big (92%) and small farmers (88%) had fully adopted the season of planting. With regards to land preparation, a majority of big (88%) and small farmers (75%) had adopted fully. Regarding spacing, 91 per cent of big farmers and 89 per cent of small farmers had adopted the practice fully. The above finding relating to spacing is in confirmity with the findings of Shivaraja (1985).

Regarding bottom pruning, a majority of big (88%) and small farmers (86%) had adopted the practice fully. With regards to number of crops to be raised in a year, 95 per

cent of the big farmers and 70 per cent of small farmers had adopted the practice.

With regard to leaf preservation, cent per cent of both big and small farmers had partially adopted. The findings relating to leaf preservation are not in confirmity with the findings of Shivaraja (1985) and Satheesh (1990).

In these practices partial and non-adoption could be attributed to the reasons of non-availability of the seed material in time, non-availability of cheap agricultural labourers in time, lack of sufficient water in the wells, weak financial status of farmers and lack of technical guidance.

Considerable percentage of big farmers (52%) and only 7 per cent of small farmers had fully adopted the application of farm yard manure. The reason for this situation is due to non-availability of FYM in time and lack of finance.

With regard to fertilizer application, 17 per cent of big farmers had adopted fully when compared to small farmers (3%). Further, 47 per cent of big farmers and 9 per cent of small farmers had adopted partially. The reasons for partial and non-adoption was due to high cost of fertilizers, non-availability of fertilizers in time and lack of knowledge about the recommended dose.

Regarding number of disease free layings to be raised per acre of mulberry garden, 48 per cent of big farmers and only 5 per cent of small farmers had adopted fully. Further, 52 per cent of big farmers and 95 per cent of small farmers had partial adoption. The reasons attributed for partial adoption were : lack of sufficient water in the wells, labour problem and small sized holdings in case of small farmers.

6. ADOPTION OF SPECIFIC RECOMMENDED PRACTICES OF SILKWORM REARING BY FARMERS

From the Table 6 it could be noted that 100 per cent of the sericulturists had adopted the practices like silkworm races, number of feedings per day, type of leaf to be fed for chawki worms, type of leaf for 3rd, 4th and 5th instar worms, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 disease free layings, mountages required for 100 disease free layings, number of days required to spin the cocoon, harvesting of cocoons, grading of cocoons and market place. The findings of the practices like type of leaf to be fed, number of cleanings of bed, number of feedings per day and harvesting of cocoons are in confirmity with the findings of Shivaraja (1985).

A majority of big farmers (64%) had fully adopted the place of rearing when compared to small farmers who had only 11 per cent adoption. Lack of finance to construct a

separate house and lack of credit facilities were the reasons attributed for partial/non-adoption. Further, 59 per cent of big farmers and 45 per cent of small farmers had full adoption with respect to type of roof to be followed. While 41 per cent of the big farmers and 55 per cent of small farmers had partially adopted. The reasons assigned for partial adoption were due to lack of knowledge and finance.

A majority of both big (81%) and small farmers (72%) had fully adopted the location of rearing house. While 19 per cent of the big farmers and 28 per cent of small farmers had partial adoption. The reason for partial adoption were due to lack of finance to construct a rearing house nearer to mulberry garden.

With regards to rearing place of chawki worms. Majority of the small farmers had not adopted the practice compared to big farmers. The reason for partial adoption was negligence of rearers in chawki rearing centres as perceived by sericulturists.

Regarding temperature maintenance and humidity maintenance during chawki worms negligible proportion of big and small farmers had full adoption. While a majority of both big and small farmers had partially adopted the practices. The reason for partial adoption was lack of awareness of the improved methods.

A majority of big (89%) and small farmers (84%) had adopted fully the practice of bed cleaning. While, 11 per cent of big farmers and 16 per cent of small farmers had partial adoption of bed cleaning. The reason for partial adoption was lack of knowledge.

Regarding disinfection measures majority of small farmers (72%) had partial adoption when compared to big farmers (44%). The reason for partial and non-adoption was lack of knowledge about recommended concentration of formalin.

With regards to temperature maintenance during 3rd, 4th and 5th instar worms, majority of the small farmers (80%) had partial adoption when compared to big farmers (56%). The reason for partial adoption was due to lack of awareness of using heaters during winter season.

An examination of the table also shows that, negligible proportion of big farmers (2%) had fully adopted the control of uzifly when compared to small farmers who had not adopted fully. Further, cent per cent of the small farmers had partial adoption when compared to big farmers (98%). The reasons for partial adoption were lack of finance, risky job of using nylon net to each and every tray and lack of knowledge.

Regarding diseases and their control measures, 42 per cent of big farmers had adopted fully when compared to small farmers (12%). A majority of small farmers (88%) had partial adoption when compared to big farmers (58%). The reasons for partial and non-adoption were lack of knowledge about the diseases and lack of knowledge about its control measures.

7. RELATIONSHIP BETWEEN KNOWLEDGE AND PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF SERICULTURISTS

The characteristics namely, education, mass media participation, material possession and risk preference of big farmers had significant relationship with their knowledge level. In case of small farmers, education, mass media participation and extension participation were significantly related with their knowledge level (Table 8). However, other characteristics were found to have no relationship with the knowledge level of big and small farmers. The possible reason for significant relationship between knowledge of big and small farmers and their education level is that the educated farmers were more exposed to different mass media. They gain more knowledge through reading print media and will have more contact with change agents. The findings of the study are in agreement with the findings of Aswathanarayana (1989).

There was positve and significant relationship between knowledge level and material possession of big farmers. This

may be due to the fact that a greater possession of materials tend to acquire more knowledge by farmers.

There was a significant relationship between risk preference and knowledge level of big farmers. Risk preference is expressed as the degree to which a farmer is oriented to take risk and has courage to face uncertainties in any enterprise. A farmer who is having this particular trait normally will have better knowledge. This might be the probable reason for the existence of this type of relationship.

There was a significant relationship between knowledge level and extension participation. The findings of Aswathanarayana (1989) and Sreenivasa (1989) are in confirmity with the present findings. Extension activities conducted in the area have direct effect on gain in the knowledge level about improved practices of sericulture.

Thirteen independent variables selected for the study explained about 34 per cent of variability in knowledge level of big farmers. It is further clear from the results that risk preference contributed significantly towards knowledge level of big farmers.

Thirteen independent variables selected for the study explained about 34 per cent of variability in knowledge level of small farmers (Table 9).

8. RELATIONSHIP BETWEEN ADOPTION AND PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF SERICULTURISTS

The characteristics education, social participation, mass media participation, material possession, risk preference, credit facilities and employment potential of big farmers had significant relationship with their adoption level. Whereas, in case of small farmers education, mass media participation, extension participation, risk preference and net income were significantly related with their adoption level (Table 10).

The possible reason for significant relationship between education and adoption level of big and small farmers is that education facilitates individuals to learn about new agricultural technology, which in turn, leads to adoption of the technology. The findings of the present study are in agreement with the findings reported by Aswathanarayana (1989), Satheesh (1990) and Gopala (1991).

Social participation of big farmers was found significantly related to their adoption level. Social participation normally develops more personal contacts with outsiders who might have influenced farmers to adopt improved practices of sericulture. Findings of Aswathanarayana (1989) and Sreenivasa (1989) are in agreement with the present findings.

There was positive and significant relationship between mass media participation and adoption level of both big and small farmers. It is natural that mass media carry more information on improved methods of mulberry cultivation and silkworm rearing. Farmers were exposed adequately to mass media and get influenced by it. The findings of this study is in confirmity with the findings of Aswathanarayana (1989), Satheesh (1990) and Gopala (1991).

Extension participation of small farmers was found significantly related to their adoption level. The possible reason for significant relationship is that increased participation of farmers in extension activities make them to be more confident about the technology and it will have direct effect on decision of farmers whether to adopt or reject the technology. The present finding is in confirmity with the findings of Aswathanarayana (1989) and Satheesh (1990).

The possible reason for significant relationship between adoption level and material possession of big farmers is that, farmers with higher material possession will be prone to adopt the improved practices. The present findings are in confirmity with the findings of Gangadharappa (1979).

There was positive and significant relationship between adoption level and risk preference of both big and small

farmers. It is natural that farmers who are willing to take risk, will try out new methods in order to maximize their profits. The findings of the study are supported by the findings of Rannorey (1979).

There was positive and significant relationship between credit facilities and adoption level of big farmers. The possible reason may be due to the fact that credit facilities enables the farmers to adopt improved technology. This finding was in contrast to the findings of Shivaraja (1985).

Net income of small farmers was significantly related with their adoption level. The possible reason could be due to high turn over within short gestation period enables the farmers to adopt improved sericulture practices.

There was significant relationship between employment potential and adoption level of big farmers. The reason for significant relationship could be due to high employment generation in silkworm rearing and mulberry cultivation. This may enable the farmers to adopt recommended practices of sericulture.

The 13 independent variables selected for the study together explained about 43 per cent of variability in adoption level of big farmers. Further it is clear from the results that employment potential contributed significantly towards adoption level of big farmers (Table 11).

The 13 independent variables selected for the study explained 43 per cent of variability in adoption level of small farmers. It is further clear from the results that net income and employment potential contributed significantly towards adoption level of small farmers.

9. REASONS FOR PARTIAL AND NON-ADOPTION OF THE SELECTED RECOMMENDED PRACTICES OF MULBERRY CULTIVATION AND SILKWORM REARING

Table 12 reveals the reasons identified for partial /non-adoption by sericulturists in mulberry cultivation. From the above table, it can be noted that a great majority of partial/non-adopters in both big and small farmers expressed the reason "lack of knowledge" about the practices viz., variety of mulberry, length of the cuttings, degree of planting, spacing to be followed while planting the mulberry, bottom pruning, leaf preservation and mulching for partial/non-adoption.

A great majority of the partial/non-adopters in both big and small farmers expressed "non-availability of cuttings intime" as the reason for practices like age of the cuttings and season of planting. Regarding FYM application a majority of the big farmers expressed "non-availability of FYM" and "lack of finance" as the reason for partial/non-adoption while a majority of small farmers expressed "non-availability of FYM" as the reason followed by "lack of finance".

A majority of partial/non-adopters in both big and small farmers expressed "high cost of fertilizers" as the main reason for partial/non-adoption of fertilizer application followed by "non-availability" and "lack of knowledge" as the reason.

"Lack of sufficient water in the wells" was the main reason for partial/non-adoption of the practices viz., irrigation, number of crops could be raised per year and DFL's per acre. Considerable percentage of partial adopters in big farmers expressed the reason "labour problem" as the reason which was not expressed by small farmers. Further, a considerable proportion of partial adopters in small farmers expressed "small sized holdings" as the reason for partial adoption.

A glance at Table 13 reveals the reasons for partial/non-adoption of some of the selected recommended practices of silkworm rearing. From the above table, it could be noted that a majority of the partial adopters in both big and small farmers expressed the reason "lack of finance" to construct a separate house followed by "lack of credit facilities" for partial adoption of place of silkworm rearing and location of the rearing house.

Cent per cent of partial adopters in both big and small farmers expressed "not aware of improved methods" as the

reason for partial adoption of the operations viz., temperature maintenance during chawki worms, humidity maintenance and temperature maintenance during late age worms. Regarding type of roof to be used, a great majority of partial adopters in both big and small farmers expressed the reason "lack of knowledge", further, a small proportion of big farmers and a considerable proportion of small farmers expressed "lack of finance" as the reason for partial adoption of this practice.

Cent per cent of partial adopters in both big and small farmers expressed "lack of knowledge" and "lack of knowledge about formain concentration" about the practices bed cleaning and disinfection, as the reason for partial/non-adoption respectively.

Regarding control of uzifly, a majority of big farmers (partial adopters) and a considerable proportion of small farmers expressed the reason "risky job of using individual tray covers". Further, considerable proportion of big farmers and a majority of small farmers expressed "lack of finance" as the reason followed by "lack of knowledge" about ujifly control. A great majority of big farmers and a majority of small farmers (partial adopters) expressed "lack of knowledge about the diseases" as the reason for partial adoption followed by "lack of knowledge about control measures". Which was expressed by considerable percentage of partial/non-adopters in both big and small farmers.

SUMMARY

CHAPTER VI

SUMMARY

Sericulture is an important agro-based industry and it has attracted the attention of the farmers for its high returns to low investment. Research studies on knowledge and adoption of improved sericultural practices indicate the status of this important agro-based industry and helps for scientific planning for developmental progress in this important enterprise.

This research study was conducted in Tumkur district of Karnataka with the following objectives :

1. To know the knowledge level of sericulturists about the recommended practices of sericulture.
2. To find out the extent of adoption of recommended practices of sericulture.
3. To find out the relationship between the selected personal, socio-economic and psychological characteristics of sericulturists and their level of knowledge and adoption of recommended practices of sericulture.
4. To identify the reasons for partial and non-adoption of recommended practices of sericulture.

The study was conducted during November 1995 in Tumkur district. Pavagada taluk was purposively selected for the study. This taluk consists of four hoblies. From each holbi 2 villages were selected based on highest acreage under mulberry cultivation. Totally 8 villages were selected from

the taluk. From each village 16 farmers were selected (8 big farmers and 8 small farmers). Thus, there were 128 respondents for the study. The personal interview method was employed for the collection of data with the help of a schedule developed for the purpose.

Thirteen characteristics of sericulture farmers (independent variables) viz., age, education, family size, social participation, mass media participation, extension participation, material possession, risk preference, credit facilities, net income, training need, employment potential and management orientation were selected for studying the relationship with their knowledge and adoption level. These variables were measured by using appropriate scales and scoring procedures. Data was analysed by using statistical tools like percentage, mean, standard deviation, simple correlation and regression.

The findings of the study are summarised below :

1. There was non-significant difference between big and small farmers in their overall knowledge regarding improved practices of sericulture.

2. Cent per cent of both big and small farmers had correct knowledge regarding the recommended practices of mulberry cultivation viz., number of buds in a cutting, season of planting, type of planting, land preparation, FYM

application, irrigation, number of crops to be raised in a year, weeding and number of disease free layings per acre of mulberry with respect to mulberry cultivation.

3. A majority of big and small farmers had incorrect knowledge about fertilizer application, leaf preservation and mulching.

4. Findings relating to the knowledge of farmers about individual practices of silkworm rearing reveal that, cent per cent of both big and small farmers had correct knowledge about place of rearing, location of the rearing house, silkworm races, place of rearing of chawki worms, number of feedings per day, number of instars, number of moults, type of leaf for chawki worms, type of leaf for late age worms, bed cleaning, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 disease free layings, mountages required for 100 disease free layings, temperature maintenance during 3rd, 4th and 5th instar (late age) worms, number of days required to spin the cocoon, harvesting of cocoons, grading of cocoons and market place.

5. There was non-significant difference between big and small farmers with regard to overall adoption of selected recommended practices of sericulture.

6. Cent per cent of both big and small farmers had fully adopted the practices of mulberry cultivation viz.,

number of buds in a cutting, type of planting, weeding and time of plant protection. A majority of big and small farmers had adopted recommended variety of mulberry, age of the cuttings, length of the cuttings, degree of planting, season of planting, land preparation, spacing, bottom pruning, number of crops to be raised in a year with respect to mulberry cultivation.

7. Findings relating to the extent of adoption of specific recommended practices of silkworm rearing reveal that cent per cent of both big and small farmers had adopted the practices silkworm races, number of feedings per day, type of leaf to be fed for chawki worms, type of leaf to be fed for late age worms, size of the leaf, quantity of leaves to be fed during different instars, trays required for 100 disease free layings, mountages required for 100 disease free layings, number of days required to spin the cocoon, harvesting of cocoons, grading of cocoons and market place.

8. Big farmers had high level of education than small farmers. Regarding other characteristics, big farmers had an edge over small farmers except in case of extension participation, risk preference and net income.

9. Personal, socio-economic and psychological characteristics of big farmers viz., education, mass media participation, material possession and risk preference were

found to be significantly related to their knowledge level. Whereas education, mass media participation and extension participation of small farmers were significantly related to their knowledge level.

10. Risk preference of big farmers has explained significant contribution towards the variation in the knowledge level.

11. Regarding relationship between the adoption level and personal, socio-economic and psychological characteristics of big farmers, education, social participation, mass media participation, material possession, risk preference, credit facilities and employment potential were found to have significant relationship. In case of small farmers, education, mass media participation, extension participation, risk preference and net income were found to have significant relationship with adoption.

12. Employment potential of big farmers has explained significant contribution towards the variation in the adoption level. Whereas, net income and employment potential have explained significant contribution towards the variation in adoption level of small farmers.

13. Important reasons cited for partial and non-adoption of improved mulberry cultivation practices were lack of knowledge, finance problem, lack of sufficient water in

the wells and non-avialability of cuttings, farm yard manure and fertilizers on time.

14. The reasons cited for partial and non-adoption of improved silkworm rearing practices were, lack of knowledge and finance problem.

IMPLICATIONS AND RECOMMENDATIONS

1. A considerable number of big and small farmers possess incorrect knowledge about certain specific recommended practices of mulberry cultivation and silk worm rearing. Hence, the extension agents need to recognise the situation and arrange suitable extension educational activities by way of discussions, field visits, training and demonstrations.

2. A considerable proportion of big and small farmers either partially adopted or not adopted certain specific practices of mulberry cultivation and silk worm rearing. This situation requires efforts on the part of extension and other concerned agencies to develop strategy for providing the necessary education, supply and services, credit facilities etc.

3. More number of silk farms have to be established to supply mulberry seed material to the farmers who wish to take up fresh mulberry cultivation.

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* = Original not seen.

APPENDICES

INTERVIEW SCHEDULE

Part I : GENERAL INFORMATION

Village : Respondent No. :

Hobli :

Taluk : Pavagada

District : Tumkur

1. Name of the respondent :
2. Age :
3. Educational level : Illiterate/Primary School/ Middle School/High School/ Pre-University Education/ Degree
4. Land holding :
   (a) Dryland : acres
   (b) Wetland : acres
   (c) Area under mulberry : acres
   (d) Garden land : acres
   Total : acres
5. Size of the family :
   (a) Male :
   (b) Female :
   (c) Children :
   Total :
6. Social participation :
   (a) Are you a member of any of the following organisations? Yes/No

(b) If so, indicate your extent of participation in those organisations.

Organisation	Member/ Office bearer	Participation in meetings		
		Regular	Occasional	Never
i) Village panchayat				
ii) Taluk panchayat				
iii) Zilla panchayat				
iv) Youth club				
v) Mahila mandal				
vi) Primary Co-operative Agriculture and Rural Development Bank				
vii) Milk Producers Co-operative Society				
viii) Cocoon Regulated Market Committee				
ix) Any other (specify)				

7. Mass media participation

Indicate the extent to which you participate in the following mass media.

(a) Reading newspaper : Regularly/Occasionally/Never

(b) Listening to radio : Regularly/Occasionally/Never

(c) Listening to rural radio programme : Regularly/Occasionally/Never

(d) Reading farm magazines, leaflets and other related to Agril./Sericulture : Regularly/Occasionally/Never

(e) Television viewing related to Agriculture : Regularly/Occasionally/Never

8. Extension participation

Indicate the extent to which you participate in the following activities.

Sl. No.	Extension activities	Number of times participated		
		Nil	Once	More than once
(a)	Meetings			
(b)	Farmers training			
(c)	Field days			
(d)	Field visits			
(e)	Demonstrations			
(f)	Educational tours			
(g)	Exhibitions			
(h)	Any others (specify)			

9. Material possession

(a) Pumpset : Yes/No

(b) Tractor/Power tiller : Yes/No

(c) Bullock cart : Yes/No

(d) Radio/Transistor : Yes/No

(e) Cycle : Yes/No

(f) Sprayers/dusters : Yes/No

(g) Any others (specify)

10. Risk preference

Indicate your opinion about the following statements.

Statements	SA	A	UD	DA	SDA
(a) A farmer should rather take more of a chance in making a big profit than to be content with a smaller, but less risky profit					
(b) Farmer should take high profit oriented and less risk involved crop instead of crop which provides less income					
(c) It is good for a farmer to take risks when he knows his chance of success is fairly high					
(d) A farmer should rear silkworms in two batches instead of keeping only one batch, to avoid greater risk					
(e) It is better for a farmer not to try new recommended practices of silkworm rearing unless most others have used them with success					
(f) It is highly profitable although it involves risks in adopting improved practices fully					

SA = Strongly Agree; A = Agree; UD = Undecided;
DA = Don't Agree; SDA = Strongly Don't Agree

11. Credit facilities

From whom do you borrow money?

(a) Banks
(b) Co-operative society
(c) Local money lender
(d) Friends and relatives

12. Net-Income: Please indicate the details of expenditure and income for the year 1994.

No. of rearings	No. of layings used	Total cocoon yield (kg)	Market rate/ (kg)	Gross income (A) (Rs.)	Cost incurred				Total cost (Rs.) (B)	Net income (A-B) Rs.
					Seed	Labour	Mulberry	Others		

13. Training need: To what extent you need training in the following areas of sericulture?

Sl. No.	Areas	Extent of training needed		
		Much needed	Somewhat needed	Not needed
1.	Selection of mulberry cuttings and planting			
2.	Manures and fertilizers to mulberry crop			
3.	Irrigation practices for mulberry crop			
4.	Intercultivation practices for mulberry crop			
5.	Pruning of mulberry crop			
6.	Harvesting and preservation of mulberry leaves			
7.	Silkworm feeding practices			
8.	Cleaning and brushing of silkworms			
9.	Silkworm rearing appliances			
10.	Silkworm pests, diseases and their control			
11.	Plant protection for mulberry crop			
12.	Marketing of silk cocoons			
13.	Any other (specify)			

14. Employment potential

No.of rearings	No.of layings	Labour (mandays)*				Total men	Total women	Total labour (mandays)
		Self labour		Hired labour				
		Men	Women	Men	Women			

* = Mandays means 8 hours of work

15. Management orientation

Sl. No.	Statements	Response	
		Agree	Disagree
1	2	3	4
1.	Planning orientation		
	(a) Every year one should think a fresh about the crops to be cultivated in each type of land		
	(b) It is not necessary to make prior decisions about the variety of crop to be cultivated in the land		
	(c) Selection of crop does not depend on the availability of rain and water		
	(d) The amount of input such as seeds, fertilizers and plant protection chemicals needed for raising a crop should be assessed before cultivation		
	(e) It is not necessary to think ahead of the cost involved in raising a crop		

1	2	3	4
	(f) It is possible to increase the yield through farm production plan		
2.	Production orientation		
	(a) Timely planning of a crop ensures good yield		
	(b) One should use as much fertilizer as he likes		
	(c) Determining fertilizer dose by soil testing to save money		
	(d) Seed rate should be given as recommended by the specialists		
	(e) One should use plant protection chemicals at regular intervals irrespective of pest and disease attack		
	(f) It is not necessary to consult a specialist during crop growing		
3.	Marketing orientation		
	(a) Market news is not so useful to a farmer		
	(b) A farmer can get good price by grading his produce		
	(c) One should sell his produce to the nearest market irrespective of price		
	(d) It is of little value to record cost and return of particular crop		
	(e) One should grow those crops which have more market demand		
	(f) Warehouses can help the farmer to get better price of his produce		

Part - II : KNOWLEDGE AND ADOPTION OF RECOMMENDED SERICULTURE PRACTICES

MULBERRY CULTIVATION

1. (a) Which is the recommended mulberry variety for your area?

   (1) Local (2) S-54 (3) M-5/Kanva-2

   (b) Which variety of mulberry you are growing _____

   (c) Reasons for partial/non-adoption_____

2. Which soil is suitable for mulberry cultivation?

   (a) Red soil (b) Black soil (c) Red sandy loam

3. (a) The mulberry cutting to be used for planting should be selected from

   1) Six months old garden 2) One year old garden
   3) One and half years old garden

   (b) The cuttings were selected from _____

   (c) Reasons for partial/non-adoption_____

4. (a) The number of bunds to be present in each cutting is

   1) 3-4 buds 2) 5-6 buds 3) 6-7 buds

   (b) How many buds were present in each cutting while planting? _____

   (c) Reasons for partial/non-adoption_____

5. (a) The length of the cutting should be

   1) 10-15 cm 2) 20-25 cm 3) 30-35 cm

   (b) What was the length of the cutting _____

   (c) Reasons for partial/non-adoption _____

6. (a) At what degree the cutting should be planted?

   1) 45° 2) 60° 3) 30°

   (b) At what degree the planting was done _____

   (c) Reasons for partial/non-adoption _____

7. (a) Generally recommended season for planting

   1) July-August 2) January-February 3) April-May

   (b) When did you plant the cuttings _____

   (c) Reasons for partial/non-adoption _____

8. (a) Which is the method of planting to be followed under irrigated condition?

   1) Pit system 2) Row system 3) Tree planting

   (b) Which method of planting you had adopted _____

   (c) Reasons for partial/non-adoption _____

9. (a) How to prepare the land for planting?

   1) Digging : i) 1-2 times ii) 3-4 times
   iii) 5-6 times

   2) Ploughing : i) 1-2 times ii) 3-4 times
   iii) 5-6 times

   (b) How many did you prepare the land for planting?

   1) Digging :

   2) Ploughing :

   (c) Reasons for partial/non-adoption _____

10. (a) What is the spacing to be adopted under irrigated condition? (Row system of planting)

   1) 2' x 10" 2) 2' x 6" 3) 2' x 9"

   (b) What was the spacing given _____

   (c) Reasons for partial/non-adoption _____

11. (a) What is the recommended dose of fertilizer for one acre of mulberry under irrigated condition?

    1) 100 : 40 : 40 kg/acre
    2) 150 : 40 : 40 kg/acre
    3) 200 :100 :100 kg/acre

    (b) What quantity of fertilizer you have applied per acre _____

    (c) Reasons for partial/non-adoption _____

12. (a) What is the quantity of FYM to be applied for one acre of mulberry garden?

    1) 8-10 tonnes 2) 15-20 tonnes 3) 20-25 tonnes

    (b) How many tonnes of FYM you have applied per acre _____

    (c) Reasons for partial/non-adoption _____

13. (a) What is the interval between two irrigations?

    1) 2-3 days 2) 6-8 days 3) 15-20 days

    (b) What was the interval you have followed _____

    (c) Reasons for partial/non-adoption _____

14. (a) How many times bottom pruning is done in a year?

    1) 1 time 2) 2 times 3)3 times

    (b) How many times you have followed the bottom pruning? _____

    (c) Reasons for partial/non-adoption

15. (a) How many crops can be raised in a year under irrigated conditions?

    1) 2-3 2) 5-6 3) 8-10

    (b) How many crops you are taking in a year _____

    (c) Reasons for partial/non-adoption _____

16. (a) Do you know when the weeding has to be taken?

Yes/No

(b) When you take up weeding

1) Once in 1-2 months
2) Once in 3 months
3) Once in 4 months

(c) Reasons for partial/non-adoption _____

17. (a) What is the method to be followed for preservation of leaf?

1) By using basket
2) Heaping and putting wet gunny cloth
3) Special leaf preservation bin covered with wet gunny cloth

(b) How do you preserve the leaf _____

(c) Reasons for partial/non-adoption _____

18. (a) What type of mulching is to be followed?

1) Left over mulberry leaves
2) Green manure plants
3) Do not know

(b) Which type of mulching you have followed _____

(c) Reasons for partial/non-adoption _____

19. (a) When plant protection measures to be taken up?

1) Always 2) Whenever necessary 3) Do not know

(b) When you take up plant protection measures _____

(c) Reasons for partial/non-adoption _____

20. (a) For each crop how many disease free layings can be reared by cultivating one acre mulberry garden?

1) 100-150 2) 250-300 3) 400-500

(b) How many DFLs you are rearing by cultivating one acre mulberry garden _____

(c) Reasons for partial/non-adoption _____

Silkworm rearing

1. (a) Place of rearing should be

    1) Separate house 2) Dwelling house
    3) Dwelling house with separate room

   (b) Where you have taken up silkworm rearing _____

   (c) Reasons for partial/non-adoption _____

2. (a) The roof type of rearing house should be made up of

    1) Tiles 2) Asbestos 3) Mud

   (b) The roof of rearing house is made up of _____

   (c) Reasons for partial/non-adoption _____

3. (a) Location of the rearing house should be

    1) Very nearer to mulberry garden
    2) Near to mulberry garden
    3) Far to the mulberry garden

   (b) Where the rearing house is located _____

   (c) Reasons for partial/non-adoption _____

4. (a) Which is the silkworm race recommended to your area?

    1) Local 2) Bivoltine 3) Crossbreed

   (b) Silkworm races you are rearing _____

   (c) Reasons for partial/non-adoption _____

5. (a) Where to rear chawki worms?

    1) Chawki rearing centre
    2) Rearing house itself
    3) Separate room

   (b) Where do you rear chawki worms _____

   (c) Reasons for partial/non-adoption _____

6. (a) Number of feedings to be given per day?

   1) 2-4 times 2) 5 times 3) 7 times

   (b) Number of feedings given per day _____

   (c) Reasons for partial/non-adoption _____

7. (a) How many instars are there?

   1) 7 2) 5 3) 3

8. (a) How many moults are there?

   1) 7 2) 4 3) 2

9. (a) For chawki worms what type of leaf to be fed?

   1) 2nd and 3rd leaf from the top
   2) Bottom leaves
   3) Hapazardly picked leaves

   (b) What type of leaf you feed to the chawki worms _____

   (c) Reasons for partial/non-adoption _____

10. (a) What type of leaf to be fed for 3rd, 4th and 5th instar worms?

    1) matured leaves 2) bottom leaves
    3) hapazardly picked leaves

    (b) What type of leaf you feed to the 3rd, 4th and 5th instar worms _____

    (c) Reasons for partial/non-adoption_____

11. (a) What is the material to be used to provide favourable temperature during chawki stage?

    1) Rubber foam 2) Wet cloth 3) Wet gunny cloth

    (b) What is the material used to provide favourable temperature during chawki stage _____

    (c) Reasons for partial/non-adoption _____

12. (a) What is the material to be used to maintain the humidity during chawki stage?

    1) Paraffin paper 2) Ordinary newspaper 3) Cloth

(b) What is the material used to maintain the humidity during chawki stage _____

(c) Reasons for partial/non-adoption _____

13. (a) How many times bed cleaning should be done?

1st instar	: 1) 1 time	2) 2 times	3) 3 times
2nd instar	: 1) 2 times	2) 3 times	3) 4 times
3rd instar	: 1) 3 times	2) 4 times	3) 5 times
4th instar	: 1) Daily	2) 4 times	3) 5 times
5th instar	: 1) Daily	2) 5 times	3) 6 times

(b) How many times you are going to clean the bed during different instars?

1st instar _____
2nd instar _____
3rd instar _____
4th instar _____
5th instar _____

(c) Reasons for partial/non-adoption _____

14. (a) Do you know the size of the leaf for feeding during different instars? Yes/No

(b) If yes, what is the size you have followed

1st instar _____
2nd instar _____
3rd instar _____
4th instar _____
5th instar _____

(c) Reasons for partial/non-adoption _____

15. (a) Do you know the quantity of leaf required during different instars for 100 DFLs? Yes/No

(b) If yes, mention

1st instar _____
2nd instar _____
3rd instar _____
4th instar _____
5th instar _____

(c) Reasons for partial/non-adoption _____

16. (a) How many trays are required for 100 disease free layings?

    1) 15-20 trays 2) 35-40 days 3) 50-60 days

    (b) How many trays you are using for 100 DFLs _____

    (c) Reasons for partial/non-adoption _____

17. (a) How many mountages are required for 100 DFLs?

    1) 20-25 mountages 2) 35-40 mountages
    3) 50-60 mountages

    (b) How many mountages you are using for 100 DFLs _____

    (c) Reasons for partial/non-adoption _____

18. (a) Rearing house should be disinfected with

    1) 5% formalin 2) 2% formalin 3) 8% formalin

    (b) What is the concentration of formalin used to disinfect the rearing house _____

    (c) Reasons for partial/non-adoption _____

19. (a) How to maintain temperature for worms during summer and winter seasons?

    Summer : 1) Open all the windows and doors
    2) Do not follow any practice
    3) Sprinkle water on the floor

    Winter : 1) Close the windows and doors and using of heaters
    2) Do not follow any practice

    (b) How do you maintain temperature for worms during summer and winter seasons?

    Summer : _____

    Winter : _____

    (c) Reasons for partial/non-adoption _____

20. (a) What is the method to be followed to control ujifly attack?

    1) Net to entire stand
    2) Net to windows and doors
    3) Net covering for individual tray which contains worms
    4) Ujicide spraying
    5) Nil

    (b) What is the method you have followed to control ujifly attack _____

    (c) Reasons for partial/non-adoption _____

21. (a) Do you know about the silkworm diseases and their control measures? Yes/No

    (b) If yes, mention the diseases and their control measures.

Diseases	Control measures
1) Flacherie	_____
2) Pebrine	_____
3) Grassorie	_____
4) Muscardine	_____

    (c) Reasons for partial/non-adoption _____

22. (a) How many days does the worm take to spin the cocoon?

    1) 2 days 2) 3 days 3) 5 days

    (b) How many days do you allow the worm to spin the cocoon on chandrike? _____

    (c) Reasons for partial/non-adoption _____

23. (a) After mounting the worms, how many days are required for harvesting cocoon?

    1) 3-4 days 2) 5-6 days 3) 7-8 days

    (b) When do you harvest cocoon from chandrike _____

    (c) Reasons for partial/non-adoption _____

24. (a) Do you know grading of cocoons before marketing?

Yes/No

(b) If yes, how did you grade the cocoons.

1) Completely 2) Partially 3) Nil

(c) Reasons for partial/non-adoption _____

25. (a) Do you know place of marketing of cocoons? Yes/No

(b) If yes, where did you sell the cocoons

1) Ramanagar 2) Hindupur 3) Tumkur
4) Middleman of your village

(c) Reasons for partial/non-adoption _____

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