Participation of Rural Women In Sericulture

BY

S. Malathi

A THESIS SUBMITTED TO THE AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN (DEEMED UNIVERSITY) COIMBATORE-641 043, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN FAMILY RESOURCE MANAGEMENT

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CERTIFIED AS BONAFIDE RESEARCH WORK

Signature of the Head of Department

Signature of the Dean of the Faculty

Signature of the Guide

(Visalakshi Rajamani)

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I. INTRODUCTION

Just as a bird cannot fly with its one wing only,
a nation will not march forward if the women are left behind.

Swami Vivekananda.

Women who constitute one half of the nations' population and half of its human resource, make a significant contribution to economic and social development as citizens, workers and mothers. (Devadas et al, 1992). Jain (1986) is of the view that women may be interpreted as a resource to be recognised and appreciated. They are assets to any nation and can contribute a great deal towards the achievement of national goals, through optimum utilisation of their immense potential. However the study conducted by Sharma (1985) revealed that nearly 85 per cent of the female population in the country were not able to participate adequately in economic reconstruction of the nation.

The Prime Minister of India, Mr.P.V.Narasimha Rao during his Independence day message to the nation stressed the importance of women in the society. He pointed out that women are not only the mistresses of their houses, but also should function as important members of the society. He thus explained the need to nurture their talents and abilities to facilitate growth and also to bring them in the main stream of economic development.

The National Perspective Plan for Women (1988 - 2000) prepared by the Department of women and child

development, Ministry of Human Resources Development, India, has made a series of recommendations to improve the position of women in Indian society. It aims at not only integrating women into the main stream of economic development but also ensuring equity and social justice for them (Joshi, 1989).

Womens' place as a bread winner has been recognised by many countries and constant encouragement is given in their development plans. A survey conducted by the International Labour Organisation (ILO), (1982) reveals that womens' place in labour market, away from an exclusively domestic role, has been more firmly established over recent years. Therefore employment of women must be greatly emphasised in comtemporary India as a social objective (Das and Das 1992).

The UNICEF recommended to advocate a broad perception of women in society and in the development process, taking the view that women are not to remain limited to motherhood or domestic roles; but should be seen in the totality of women's role (Manimekalai and Rajendran, 1993).

India's villages are considered as the repositories of real Indian culture and rural women are its true custodians. They represent the best of Indian tradition and value system with a distinct and unique Indian imprint on their charm (Rajagopal, 1991).

In rural areas, women shoulder numerous responsibilities in home making and income earning activities making their role in rural labour force considerable. It is estimated that they constitute nearly 41 per cent of the

rural working force (Devadas,et al, 1992). In a labour surplus economy, any worthwhile planning strategy should have a maximisation of employment opportunity as one of its key objectives. In this context Sericulture Industry fits in well with the nation's socio-economic condition as a tool of rural development (Durgadevi, 1992).

Sericulture aims at providing employment opportunities particularly to tribals and villagers, especially women preventing their migration to cities. It is a viable proposition for rural women's participation in enterprising ventures.

From time immemorial women have been playing the pivotal role for the development of silk industry. Almost 60-65 per cent of the activities of sericulture industry are carried out by women. It is therefore a significant fact that through their contribution the silk industry has survived in this country. The (CSTRI) Central Silk Technological Research Institute, (1993) rightly remarks that a time has come to make available suitable package of practices to women engaged in sericulture for the benefit of silk industry. They need to be given training to provide technical confidence and to takeup this area as an income generating activity.

Realising the participation of women in sericulture, the Karnataka State Governmment had declared 1994 as "Year of Women in Sericulture 1994". This would definitely encourage women to update their skills.

Recently the government of Tamilnadu under the leadership of the Honourable Chief Minister Selvi J.Jayalalitha has initiated measures to protect the interests of silk weavers in the state (Annexure I). These strategies will have beneficial impact on the silk weaving sector in Tamilnadu and also on preweaving stages of silk industry, mulberry cultivation, cocoon production, production of raw silk etc (Satyamurthy,1994). The future of silk industry in any state will show promise only if marketing, credit and service, seed production, chawki rearing and raw silk materials and reeling societies are firmly organised (Venkataravi,1992).

Tamilnadu has re-discovered a new area of sericulture in Coimbatore region where the mulberry yield is not only very high but its output is comparable to even that of Japan. The South Indian Textile Research Association (SITRA) (1993) clearly brings forth that farmers here have been harvesting more than 600Kg of cocoons per acre of mulberry as against about 670Kg per hectare in Japan. Moreover, Coimbatore which is the Manchester of South India has the largest concentration of textiles and allied industries in the country. There are 70,000 powerlooms, 200 large mills and 200 small mills. The Textile Institute, Manchester will be setting up in Coimbatore, the Indian National Office, the first in India and second in the world.

There is paucity of information on the extent of involvement of women in this agro-based labour intensive industry. Hence an attempt has been made to study the role

of women from selected rural areas, from Coimbatore district, in sericulture with the following general and specific objectives :

General Objective :

To provide information regarding the contribution of women in various activities of mulberry cultivation and silkworm rearing.

Specific Objective :

a. To study the infra - structural facilities required in setting up a sericulture unit.

b. To examine the nature and extent of involvement of women in sericulture.

c.To find out the socio - economic profile of selected families involved in sericulture.

d. To study the problems faced by women in setting up a unit.

It is hoped that the findings of the study may show the possibility of sericulture as a viable enterprise for rural women to improve the socio - economic status.

Review of Literature

II. REVIEW OF LITERATURE

Literature pertaining to the study on "Participation of Rural Women in Sericulture" is reviewed under the following aspects:

A. Role of Sericulture in National Economy

B. Women and Sericulture

C. Processes involved in Sericulture

D. Sericulture as an Economic Enterprise

A. Role of Sericulture in National Economy

India is among the top three countries of the world in silk production. It ranks next to China. It has the unique distinction of producing all the four commercially known varieties of silk namely, mulberry, tasar, eri and muga of which, mulberry alone accounts for about 90 per cent of the total production. (Bajpai, 1992 and Sinha, 1992). Raw silk production during the year 1991-92 was 11,748 tonnes (of which 10,657 tonnes was mulberry silk) from 3.28 lakh hectares (Thomas 1992). The growth rate of sericulture in the country has been particularly rapid in the past decade at over 10 per cent/annum. Earnings from silk exports during 1991-92 were Rs.642 crores. Thomas (1992) goes a step further stating that mulberry sericulture in India employes over 6 million people producing 9600 metric tonnes of raw silk and earns foreign exchange of about Rs.3300 million through export of silk products. Export of silk products is also increasing rapidly at 26 per cent per annum, while

domestic demand continues to grow and absorb the incremental production.

By 1995, it is anticipated, that our reqirement of raw silk will be about 20,000 tonnes. Export prospects are promising because silk production in Japan which was once a major silk will producing country, has been declining over years. In China, currently the largest producer and exporter of silk, output is levelling off. The international situation of silk production thus, opens new avenues and challenges for India as the Second largest producer to increase her production and exports.

To the farmers in several parts of the country, sericulture is now one of the attractive vocations. In India, sericulture being largely a cottage industry, provides employment to the weaker sections of the community, specially in rural sector. Presently, about four million rural poor are employed in this industry. About 30 per cent them belong to "poorest of the poor" section namely scheduled castes and scheduled tribes (Raj, 1987).

In the developing countries, it is essentially a village based and welfare-oriented industry capable of providing employment to large sections of population. Although sericulture has been considered for a long time as a subsidiary occupation in rural areas, recent technological developments have made it possible to practise sericulture on a large scale, producting greater profits than most of

agricultural crops. Sericulture is being practised both as a subsidiary crop under unfavourable agro-climatic conditions and a highly paying crop, if necessary agricultural inputs can be insured (Krishnaswami, 1988). With export of raw silk from Japan, falling drastically other newly developing countries are looking to silk as a potential foreign exchange earner and have taken up programmes of sericulture development seriously.

Despite its aura of luxury and wealth, the production of silk is a highly employment oriented, low capital intensity activity ideally suited to conditions of a labour abundant economy (Sinha, 1990). Its production relies on the careful husbanding of caterpillars and handling of cocoons. In recent years silk production has expanded rapidly in those producing countries with low labour costs (China and India) and gone into decline in higher labour cost countries. (Japan and Korea)

The chances to promote sericulture in India with large agriculture labour force as a strong base is more. The temperate climate favours all round year production. Quality of output is largely determined by the seasonal conditions, the agronomic and rearing practices, the appropriateness of mulberry and silkworm varieties in use and adoption of chawki rearing and seed quality. Months of high temperature, high humidity, heavy rainfall and extreme winter are limiting factors for sericulture. Hence the economics of introducing sericulture to new areas is largely determined by

the duration of such favourable period (Krishnaswami,1986).

The strategy envisaged for realising potential India is in the form of five year National sericulture (NSP) project with financial assistance from the World Bank and the Swiss Development Co-operation. The project involves cost of Rs.553.3 crores , consisting of 369.70 crores of budgetary expenditure and Rs.165.60 crores of Bank credit to the beneficiaries (Thomas, 1992)

The objectives are to increase raw silks output,improve its quality and introduce sericulture to new areas considered suitable for this industry. The project covers 17 states and is implemented jointly by Central Silk Board (CSB) and traditional sericulture states of Karnataka,Andrapradesh and Tamilnadu ,West Bengal and Jammu & Kashmir . The CSB implements a part of its project to 12 non traditional, non mulberry states. Its pilot project ventures to introduce a systemetic commercial sericulture in selected districts of Uttar Pradesh, Haryana, Punjab , Himachal Pradesh, Bihar, Assam, Orissa , Madhya pradesh , Rajastan , Gujarat , Kerala and Maharashtra (Reddy and Thomas, 1992).

B.Women and Sericulture:

Women in India play an enviable role in the social economical and political process of the country . Further they play a bilateral role in family maintenance,control of household expenditure, asset creation etc., (Deka,1993). Women constitute 50 per cent of the rural population. They play an important role by bringing up

their children as men are busy in outdoor activities and field work most of the time. They are equally capable of acquiring skills and helping families in their economic rehabilitation (Arya, 1993). In fact, in certain crafts and industries, they have a clear edge over men. But rural women have remained relatively backward in comparision to their urban couterparts due to many reasons like illiteracy, superstition, ignorance, social evils, traditional values, lack of facilities and male dominance in decision making. But modern women understand the dignity of labour very well and therefore in the present days strive for economic independence. As Peterson, (1980) putsforth their participation in economic activities stem from an urge to satisfy personal aspirations which mainly inculde income augmentation, improved standard of living and economical independence.

Growing contribution of women to the economic life of our country is a direct reflection of the increasing number of women workers, their expanding job opportunities and their effective job performance. Women in turn can substantially improve the status of their families considering that male migration to urban areas in search of jobs implies leaving women to shoulder the whole burden of maintaining the household. However, care must be taken to ensure that technologies selected should allow women to combine productive work with their other responsibilities.

Sericulture is one such promising appropriate technology (Durgadevi, 1992).

Sericulture is right potential tool for Economic Development opines, Panda and Sinha,(1992). Asuri and Mahadevappa, (1990) enlarge upon the suitability of sericulture for Indin conditions stating that this is a family enterprise. The major acivities related to mulberry cultivation, silkworm rearing, reeling and weaving are all family activities which can be only undertaken by both males and females.

According to Charsley, (1988) silkworm rearing represents a suitable domestic activity for the middle class sericultural families, especially for women folk who would not be expected to work outside the home. Sericulture is ideal for women because it lends itself to flexibility in organisation with reference to place. Muniraju, (1988) is of the opinion that sericulture involves only simple technologies . He adds stating that it does not require hard labour or it is a full time job. So the women could conveniently attend to feeding of mulberry leaves 4-5 times a day and rear silkworms, in addition to their normal household chores. Further it does not require any additional space.

Women supposedly earn income on a regular basis and gain strength and knowledge on the process of managing various activities of sericulture. Nearly 60 per cent of the labour requirements of sericulture industry is provided by women. Therefore there is a need to give

specific recognition to such factors that effect female participation (Durgadevi, 1992).

The activities related to sericulture where women generally contribute are several.

* In initial cultivtion of mulberry would help in planting of saplings, cutting, irrigation, weeding , leaf harvest etc.

* After plantation gets well established it is mostly women who look after maintenance of mulberry plantation, leaf harvest, rearing and production of cocoon. Bhat, Narayanaswamy and Reddy (1990) opine that about 29.8 per cent of work involved in mulberry leaf production is done by women.

* Women are also found to smear cowdung and formalin solution to silkworm rearing trays for disinfection, while undertaking the major task of feeding mulberry leaves to the silkworm.

Women also engage in harvesting cocoon from mountages. They also clear and sort the cocoons before being taken for marketing. About 43 per cent of operations involved in silkworm rearing is done by women reports, Punia (1980).

*Apart from all this reeling and spinning silk waste are mainly carried out by women. Hand spinning of pierced cocoons and silk waste is mostly attended to by women. The enterpreneurs particularly in private sec

prefer women labourers because of the light work involved and compartively lower wages paid. Thus women are employed as casual labourers, in addition to self-employment in sericulture.

* While the demand for silk is created by women's fascination for silk fabrics, women also greatly contribute to the production of raw silk by actively involving themselves in almost all activities of sericulture and silk production. Muniraju, (1988) worries over the fact that the contributions made by women in the development of sericulture industry goes unnoticed and unaccounted because it is taken for granted as a part of routine along with other domestic work for the over all benefit and welfare of the family.

C. Sericulture - a boon for Women in Development Paradigm.

The development paradigm has different strategies to offer to the people especially the rural poor. Today the development world specifies the target group to some extent; and it is not only the poorest of poor in the rural area who benefit, but even among them women benefit the most (Thomas, 1993).

It is the only sector where marketing has been requlated and farmers do not get only reasonable prices but get cash soon after sale. This is a boon to families (Prasad and Shri Ram, 1990)

Sericulture being technologically low capital agro based industry holds on important role in the uplift of the rural unemployed women.

One hectare of mulberry generates employment for 4,800 mandays right from mulberry cultivation to silkworm rearing, cocoon production, reeling, weaving and finishing of fabrics. Of the 4,800 mandays of work generated, the employments women would get will be 2,900 mandays, accounting for more than 60 per cent.

Sericulture being an integrated rural development project it requires a low gestation period and starts yielding in a short time. No other crop can give as much work and income in all seasons (Durgadevi, 1992).

Sericulture has a low investment and high output ratio: beneficial to small and marginal farmers especially for rural and landless women.

Being a household industry, women could conveniently get engaged in its pursuit for earning and improving the economic conditions of the family (Muniraju,1988).

Sericulture provides employment indirectly in appliances and marketing of sericulture products and this agro-industry has considerable scope to increase employment and income in rural areas, especially for women (Kalbagh, 1992).

Therefore, sericulture is an employment oriented agro industry for Rural Women. Though the development paradigm offers a lot to the women. what sericulture is offering in the form of the agro-based activity is really a boon to them.

D. Processes involved in Sericulture

Sericulture is the cumulative outcome of various components starting from raising of mulberry plantation and ending up with finished silk fabric passing through silkworm rearing and extraction of silk yarn (Sinha, 1993). The practise of sericulture comprises of two major activities namely cultivation of mulberry for raising the leaf crop to feed the silkworm and rearing of silkworms to produce the cocoons which is the raw material for silk reeling industry (Krishnaswami, 1990).

Sericulture combines the activites of agriculture and industry. There are 4 distinct stages :

i. Cultivation of host plants of silk worms

ii. Rearing of silkworm upto cocoon stage.

iii. Reeling of cocoons into continuous filaments called raw silk

iv. Silk throwing and weaving by which filaments are twisted and woven into fabrics.

There is an interdependence between different stages as activity in each stage feeds the activity in the other (Deshpande, Narayana and Sinha , 1980).

Mulberry cultivation :

A major factor determining productivity and hence the profitability in sericulture is the yield of mulberry crop. Mulberry cultivation or Moriculture as it is called is the process of cultivating mulberry leaves which

forms the basic food for the silk worms (Krishnaswami, 1990).

Among the various sericultural activities, production of mulberry leaves shares about 60 per cent of the total cost of production of silk cocoons (Bhat, 1991).

During the first year, attention should be concentrated on raising the mulberry yield, according to scientific methods for obtaining best yield in the subsequent years.

Land Preparation :

Land should be prepared by deeply ploughing in order to loosen the soil before planting. Then the land may be ploughed once or twice. Then a basal dose of organic manure like compost or cattle manure should be applied at the rate of atleast 10 tonnes/hectare. Finally, the manure should be properly incorporated into the soil by ploughing and the land levelled and made ready for planting during monsoon rains of June-July.

Planting Material and Planting :

In tropical conditions, mulberry can be easily propagated through cuttings with minimum of time and expenditure. It should be green in colour and of desired thickness and length. At the time of planting, cuttings are placed deep and the soil around well compacted, leaving just one inch alone of the exposed.

Pruning :

For maintaining mulberry in a state of vigorous

growth and also for obtaining good quality leaves, periodic pruning is necessary. Pruning involves the cutting of plants at a height of 3" - 4" (8 - 10 cm) above the ground level with a sharp pruning knife as saw, in such a way that clean cuts are made without splitting the stem or branches.

Weeding and inter-cultivation :

During initial stages of plant establishment in the field, weed growth should be kept to the minimum, so that the growing young plants are not smothered by the weeds. Normally within a week of pruning, weeding and inter-cultivation should be carried out by ploughing, using a harrow on manually. Upto four weeding and inter-cultivation operations should be carried out in June, October, January and April.

Manuring :

Application of a basal dose of organic manure like compost or cattle manure is necessary for successful establishment of the garden. In addition to organic manure, chemical fertilisers should also be applied at the rate 100 kg N, 50 kg P and 50 kg K/hectare/annum.

Irrigation :

Among various agronomic inputs for which mulberry plant responds very well, irrigation ranks high as it enables full utilisation of very heavy applications of fertiliser for crop production. Since this item of input is fairly expensive, judicious use of water for maximising production is very important.

Leaf Harvest and yield :

It commences after about 10 weeks from the time of pruning in June. Upto 6 yields can be harvested during the year at an interval of roughly 7-8 weeks in between harvests. The quantum of harvest will be more during rainy season (more than 2/3 of the total harvest) from August-December and comparatively poorer during the drought months from January-May. The aim of mulberry cultivation should be not only increased leaf yields, but also of quality leaves. Harvest should be made invariably in the morning or evening during the cooler hours of the day. By adopting proper measures 4,000-6,000kg. leaves/year/hectare can be harvested.

According to Deshpande, Sinha and Narayana ,(1980) the special features of moriculture are:

. It needs only a short gestation period since 5-6 crops can be raised in a year.

. It is a source of recurring cash returns and enables the agriculturists to finance other agricultural operation without recourse to debts and is more profitable than any other crop and it provides full time employment for farmers throughout the year.

It should be the primary aim of every sericulturist to ensure that he gets maximum leaf yield from his mulberry crop. It should also be realised that all measures taken to maximise leaf yield simultaneously help to improve the quality of leaves which automatically secures an insurance against cocoon crop blosses at later stages of silkworm rearing. (Krishnaswami,1990).

Silk Worm Rearing :

It is the process of rearing silk worms. The mulberry leaves form the main source of food with the help of which their growth takes place. Silkworms live a very short time - only about 1 1/2 - 2 months. During that period they pass through a complete metamorphasis from egg-adult stage through 2 intermediate stages of larva (caterpillar) and pupa (Krishnaswami, 1990).

Egg:

The eggs are tiny and weigh around 2000 eggs to a gram. They are placed in incubators assuring the ideal conditions of 25° C and 80 per cent relative humidity. The trays containing eggs should be stored in coolest place possible. Races producing white cocoons lay pale yellow eggs and those producing yellow cocoons lay deep yellow eggs. On the expected date of hatching (which is normally between 9-12 days after egg laying, depending on the seasonal temperature conditions, as indicated by the presence of a few hatched larvae on the egg cards) the eggs should be exposed suddenly to bright day light between 8 a.m and 9 a.m. The photo stimulus thus provided will ensure over 90-95 per cent hatching in about one - two hours time.

Larval stage :

The larva or the worm emerging from the egg is about 1/4 of an inch long. The larval life is of direct importance to the rearer in sericulture. In view of 4 intervening moults, larval life is divided into 5

instars/stages. Under ideal conditions for rearing (70° - 80° F with humidity ranging from 65 - 75 per cent the larval development takes place over 24-26 days.

Rearing of young age worms chawki (1 - 3 instars)

The success of silkworm rearing depends to a large extent on the successful rearing of young age worms. The worms are placed on bamboo trays covered with straw mats on which selected mulberry leaves are laid. The leaves should be chopped into 0.5-1cm squares. After the worms have crawled on to the leaves they should be gently brushed on to the tray prepared for rearing . In order to prevent drying of leaves, the rearing of the first two instars should be conduted inbetween paraffin paper sheets. The size of the the chopped leaves should be also gradugally raised from .5 - 1 cm to 2 cm by the end of the 1st instar i.e., (3-4 days).

The first age worms settle for moult within 3-4 days and enter the 2nd stage. Here the leaf size is started at 2cm squares and increased to 3-4 cms squares by the end of the second instar. Towards the close of every instar (i.e) first prior to the worms entering the moult one or two feeds are given as final cover feed for the instar. The second stage is passed within 2-3 days and after 20-24 hours of moulting, they will enter the third stage.

The third age worms coming out of the second moult are removed to round bamboo trays. During the third stage, the humidity in the bed should be slightly lower the

total period taken for the young age rearing lasts from 11-12 days.

Rearing of Late Age Silkworms : (4th and 5th instar)

During the fourth and fifth instars of the silkworms the entire leaf could be fed. More mature leaves which contain less of moisture in them can be given. During dry days all attention must be focussed on the proper preservation of leaves, as the health of the worms depends very much on the quality and quantity of leaves consumed. The late age worms of 4th and 5th instars are real feeding stages consuming about 90-95 per cent of the total feed and therefore, adequate spacing and adequate amount of feed should be given at these 2 stages.

Moulting :

After feeding voraciously and having attained full growth for the particular instar the worm loses appetite and larva prepares to moult and cast off its old skin. As moulting begins, the paraffin paper must be removed. Feeding can be continued with reduced quantities. The worms under moult take about 20 hours to complete moulting. From the time of last feeding and in about 20-24 hours over 90 per cent of the worms would come out and it would be time to resume feeding. This moulting period lasts for 15-30 hours; being shortest in the II moult followed by I, III and IV. This resting for moulting is often referred to as 'going to sleep' and coming out of the worm from moult as "waking up".

Feeding :

Feeding has a direct impact on the growth and development of worms on one side and determines the cost of silkworm rearing on the other . Silkworm is a voracious feeder and so required to be fed a number of times. It is estimated that the worm eats 30,000 times its initial weight. Feeding silkworms alone takes 42-68 per cent of total labour for silkworm rearing depending upon feeding methods adopted (Bhat and Prabhu 1991).

The number of feeds to be given duing the young age is three-four, between 6 a.m - 9 p.m. The worms in their late ages need to be given only 4 feedings between 6 a.m - 10 p.m. Fairly large feed is recommended at night. Bed cleaning will have to be done once in the first age prior to setting for moulting, twice for second moult and three times in case of third age worms i.e.,once after 2 feedings after moulting, second after two days and third first prior to settling for third moult. When worms are reared on trays, it is necessary to give bed cleaning once in the morning every day.

Mature Worms :

After passing through the four stages, it reaches the fifth and final instar when it attains its maximum weight a day prior to maturity and before it stops feeding. Its weight is maximum (10000 times its own weight). Now the mature worms cease feeding and become ripe for mounting. Ripe worms should be picked in time so that all the maturing worms are enabled to spin cocoons successfully.

Mounting :

The worm now loses its appetite, stops feeding and excretes soft faeces. Now the silk gland is enlarged and visible and accounts for 40 per cent of the body. This is the characteristic of ripened worm and serves as a guidance for picking mature worms for spinning. The worms become restless and raise their heads and crawl towards the periphery of the trays in search of support so as to start spinning. Mounting of worms will take 24 hours and the total time taken for all the worms to mount will not exceed 2 days. Mounting trays are called chandrikes. Process of picking ripe worms and putting on mountages for spinning of cocoons is called mounting of worms.

Spinning of cocoon :

It starts immediately after mounting is completed. The fine gummy filaments exude from two openings under the worm's mouth. Sericin (silk gum) exudes from apertures and this gum causes fibres to adhere to one another. The worm covers itself with these filaments and spinning is completed in 48–72 hours.

Pupal stage :

The spun worms turn into pupae within the cocoon in another day or two. This stage is called the resting, inactive stage of the silkworm when it is incapable of feeding and appears quiescent. As the cocoon stage is completed, it sleeps for 10–12 days. Pupal period lasts for 8–14 days.

Cocoon harvesting :

When pupal skin hardens, and turns brown, cocoons can be harvested. The proper time for harvesting cocoons is on the 7th or 8th day of spinning which must not be delayed. They are normally harvested by hand. After this cocoons are sorted: good, defective, double, pierced, stained. The good cocoons are cleaned by removing any faecal matter found on the surface and marketed at once.

Adult :

If the moth (adult) is permitted to emerge from the cocoon ; it comes out slitting the pupal skin and pierces the fibrous cocoon shell with the aid of salivary secretion. Adult stage is for 3-6 days. Long thin fibres can be reeled from the unpierced cocoons. Adult moths' are ready to copulate after coming from pupa and then female lays eggs. The moths which emerge from cocoons reserved for breeding purposes are creamy white. Three days after they have hatched they mate, lay eggs and die. Their life-cycle is complete.

Cocoon yield :

The improved technique will ensure optium cocoon harvests of 405 kgs. In summer, it is possible to obtain 35-40 kgs while in winter it will go upto 50-55 kgs for 100 disease free layings on an average.

E. Sericulture as an economic enterprise:

As in many developing countries, unemployment and under employment in India have remained major problem areas for several decades. Rising unemployment is a major

social, political and economic problem. This emphasis is given to evolving a pattern of development which made minimum mobilised the country's most abundant resource namely labour force. (Narayana and Deshpande ,1980). Employment criterion must be regarded as a fundamental short-term objective because it can even form an essential part of long-term strategy.

Sericulture which is an agro based industry being labour intensive in character, offers vast scope for employment to people (Garg, 1979). Sericulture is at the base of an industry which besides employing millions of people across the country, also supports silk business worth 1000 crores of rupees. Sericulture is one sector of agriculture which guarantees good market and lucrative price for its product (Thomas,1991). Sri George Fernandes has rightly stressed at an International Silk Meet at Bangalore the need to develop sericulture in the country to provide more and more employment opportunities to the people on one hand and earn foreign exchange for the country on the other. Sericulture offers vast scope for employment apart from being a source of foreign exchange.

Sericulture is currently providing employment is about 5.5 million people in rural and semi-urban areas. Besides deep emotional satisfaction it also provides economic security. It confers benefits on number of classes, farmers, reelers, twisters, weavers and traders (Sundaram,1993).

Mr.Hans Weisbrod, President of the International Silk Association had stated that India could exploit nature's gift of silk and develop sericulture steadily and with profit. Sericulture in India is perhaps one of the best examples where Government interference and aid have really done something good opines, Thomas (1991).

Direct employment effects:

Sericulture Industry is more labour intensive and opens up greater employment opportunities and that it will help to relieve to some extent unemployment and disguised unemployment in agriculture sector. Employment opportunities in sericulture may be divided broadly into two types.

Those relating to mulberry cultivation, silkworm rearing and silk work production are rural in nature.

Silk reeling, twisting, warping, weaving and dyeing, silk marketing etc. are urban or semi urban (Narayana and Sandhya Rani, 1993).

Mulberry cultivation and silkworm rearing employ mainly household labour, the latter providing respectable domestic occupation for ladies (Benchamin and Jolly ,1987).

Sericulture activity has a most significant effect on the employment of family labour. Thus farm labourers are able to find employment all year around by combining work in mulberry cultivation with rearing. To be

precise, development of sericulture creates employment opportunities of rate not less than 1 1/2 persons/acre of mulberry and rearing, assuming 300 days/farm labourer (Narayana, Deshpande and Sinha, 1980). It controls seasonal unemployment to some extent in agricultural sector which may be directly relevant for efficient policy formulation. The state wise employment position in silk industry in the three southern states of India is reported to 20,00,000 in Karnataka, 30,000 in Tamilnadu and 13,000 in Andhra Pradesh. It provides livelihood to more than 38,00,000 persons reports Ahmed, (1980). It is stated that Karnataka ranks first, accounting for more than 52 per cent of total employment in silk industry (Iqbal 1980). Another feature of sericulture activity is that nearly 50 per cent of the cultivators practicing it are small and marginal farmers and the average size of the holding under mulberry is 1.04 acres. An acre of mulberry yields enough to the farmer and provides full employment throughout the year. Garg, (1979) reports by comparing the production of mulberry silk cultivated as one hectare of land to jute, paddy and wheat cultivation on an equal piece of land. The yield of mulberry silk was reportedly equal to Rs.15,750/- as against, Rs.3837/- and Rs.4056/- and Rs.1425/- for jute, paddy and wheat respectively.

Sericulture, thus raises both the income and employment content of land thereby improving the economic

conditions of small and marginal farmers. It has special significance in generating productive employment and upliftment of women and the economically weaker sections (Panda 1992).

Indirect employment effects :

The whole area of raw silk industry in the broadest sense will also provide new employment. In silk reeling activity there is considerable scope for employment generation to the artisans and unskilled workers of rural areas. The organisation of reeling and silk weaving can help some of the markets and most vulnerable section of the society in rural areas.

Mulberry cultivation and associated activities will provide fuller employment not only to the small and marginal farmers but also to the village artisans. Moriculture, with its requirement for more and better silkworms as well as increased production of mulberry seed should be a considerable indirect stimulus to employment. Silk spinning, weaving and dyeing, silk marketing etc: will all create jobs. If job opportunities are created in construction of irrigation wells, rearing house, repair and replacement of rearing equipment, reeling, marketing and transport with all forward and backward linkages, employment potential will be enormous. (Narayana, Deshpande, 1980).

Towards the future :

. Sericulture acts as a home industry providing employment to women and aged people with minimum risk

(Narayana 1993).

. Sericulture is thus recognised as an effective tool for rural development realising its inherent advantages of multiple returns, low investment and high employment potential highlight Krishnarao and Pavankumar, (1993).

. Since sericulture is a short cycled remunerative farm avocation most suited to farmers, planning for employment must be effected to control unemployment and underemployment.

. Thus the need of the hour is that the Central government as well as the State government must pay due attention to its development which can offer vast scope of employment opportunities and would reduce existing unemployment to a large extent (Iqbal, 1980).

. Hence viewing the need of nation's development, an infra structural set up has been established for sericulture as an agricultural occupation that led to a cottage industry(Tikader,1992).

Methodology

III. METHODOLOGY

The methodology of the study on " Participation of Rural Women in Sericulture" comprised of the following main steps :

A. Locale of Study

B. Selection of Sample

C. Selection of Method

D. Formulation of Schedule

E. Pretesting the Schedule

F. Conducting the Survey and

G. Consolidation and Analysis of Data.

A. Locale of Study :

Sericulture is termed as poor man's industry because of its high employment potential. Further mulberry is a highly remunerative cash crop with least investment and maximum return (Sundaram, 1993). In addition to this, mulberry yield in Coimbatore which is throbbling with textile activity and has the largest concentration of textile mills is very high. Hence Coimbatore district was selected for the study. Sulur, Kannampalayam and Rasipalayam where of families were involved in this enterprising activity were chosen to study women's participation in this arena.

B. Selection of Sample :

Sampling is the process of learing about the population on the basis of a sample drawn from it. A sample is that part of the universe which is selected for the

purpose of investigation (Gupta, 1991). Purposive sampling also known as deliberate/judgement/directed sampling in which the sample depends exclusively on the judgement of the investigator was chosen for the study. Through this an investigator can select few units from the population which she considers to be typical units (Navaneetham 1990).

Rural women engaged in sericulture were selected at random through purposive sampling from the areas chosen. The sample size which according to Gupta (1991) is the number of sampling units selected from the population for investigation . For obtaining required information the sample size should be optimum. Optimum size, according to Parten, (1991) is one that fulfills the requirements of efficiency, reliability and representativeness. The sample size in the study was 50.

C. Selection of Method :

Personal interview is an effective informal verbal and non-verbal conversation, initiated for special purposes and focussed on certain planned content areas. It is an inter actional process (Young ,1988). It is a verbal response which is an eye opener for a whole new train of thoughts.

Owing to its advantages, the direct personal interview method was selected to conduct the survey.

D. Formulation of Schedule :

Young (1988) describes schedule as a set of questions generally filled out by the research worker who can interpret the questions when necessary in a face to face

situtation. Its sole purpose is to aid in the collection of quantitative cross sectional data.

The success of using the schedule for collecting information depends largely on the proper drafting of the schedule. Care must be taken that the questions are not too long, but short and simple, pertaining to the investigation. Based on these guidelines, a schedule was prepared which called for details such as socio economic charateristics of families, details about sericulture and mulberry cultivation, details regarding participation of women in various sericultural activites (moriculture and silkworm rearing), problems faced in sericulture and ways to manage the problems.

E. Pretesting the Schedule :

Pretesting is also called "Pilot Survey". It provides not only clarity of questions and correctness of interpretation by the respondents, but also affords possibility of discovering of new aspects of the problem studied which are not anticipated in the planning stage. Young (1988) recommends a preliminary experiment on a sample basis before the final form of the schedule is adopted. Therefore a preliminary survey was conducted with ten respondents from the chosen areas, who were not included in the final study.

Through pretesting the drawbacks and short comings in the schedule were identified. By avoiding

unnecessary details and introducing other important changes the schedule as given in Annexure II was prepared.

F. Conducting the Study :

The respondents were individually and personally met by the investigator at their leisure and questions as given in the schedule were putforth one by one in a sequential manner. The information received were carfully recorded in the schedule.

G. Consolidation and Analysis of Data :

The data collected were consolidated, tabulated,analysed and the findings are presented in Chapter IV.

Results and Discussion

IV. RESULTS AND DISCUSSION

The results pertaining to the study on "Participation of Rural Women in Sericulture" are discussed under the following main headings:

A. Findings of the Household Survey.

B. Participation of Women in Sericulture

A.Findings of the Household Survey :

To elicit information on the households which includes Sericulture as a family entrepreneurial activity ,a survey was conducted. The findings of the survey are discussed under:

1. Socio-Economic Characteristics.
2. Factors Inspiring Initiation of Enterprise.
3. Details on Moriculture.
4. Details on Establishment
5. Economics of Silkworm Rearing
6. Problems faced and Suggestions put forth.

1. Socio Economic Characteristics :

Socio economic status is a composite index that reveals social as well as economic standing of a family within a given society (Kaur, 1988). Therefore this aspect consisted of general details about the family such as occupancy, housing pattern, religion and family size,age and educational level of the heads of the families and homemakers and the monthly family income.

a. General Details about the Families :

Table I pictures the general details about the selected families.

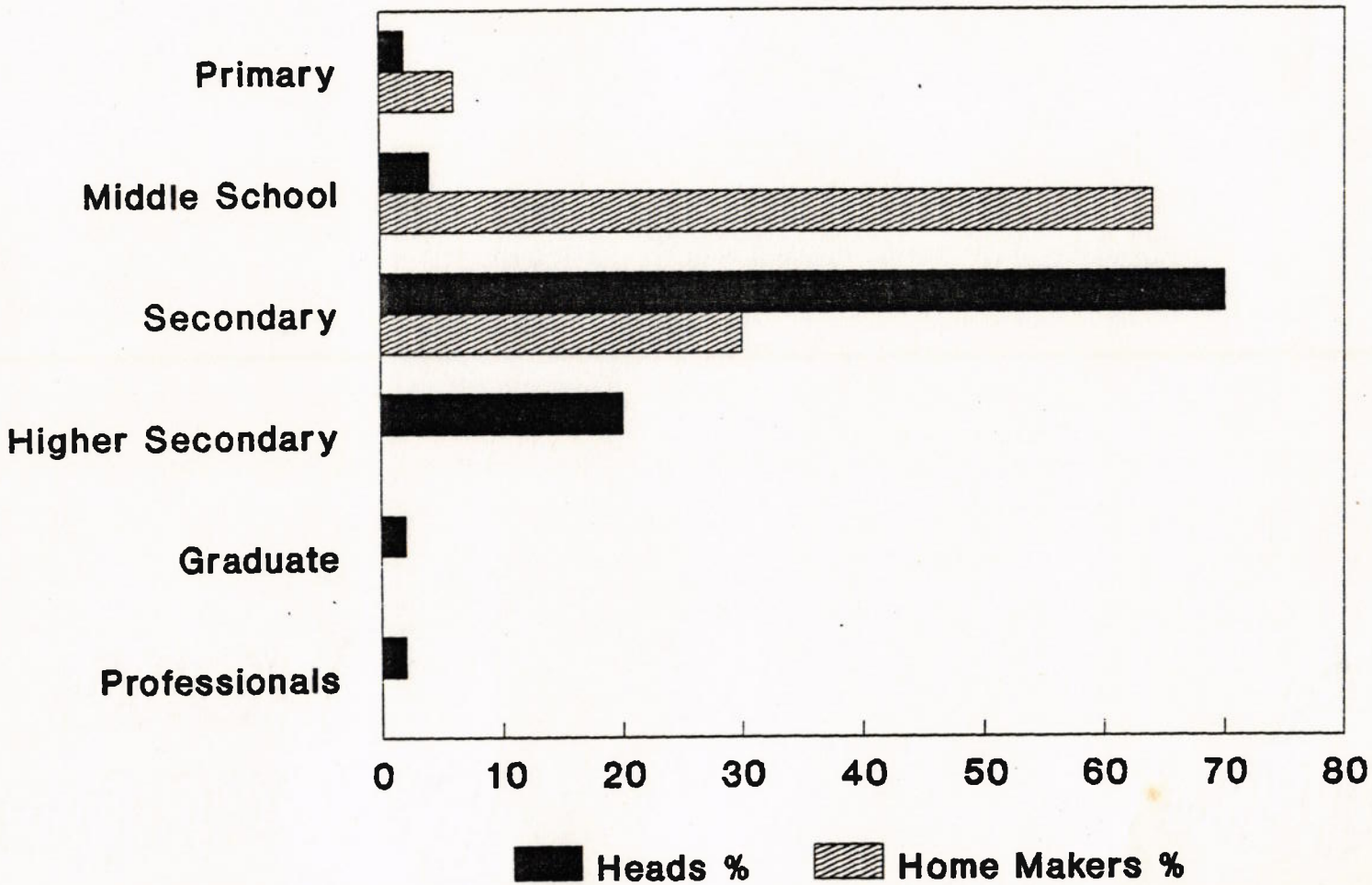
TABLE - I
GENERAL DETAILS ABOUT THE SELECTED FAMILIES

Particulars	Percentage (n = 50)
Family pattern	
Nuclear	100
Type of occupancy	
Owned	100
Religion	
Hindu	100
Housing Pattern	
Thatched	60
Tiled	34
Reinforced Cement Concrete (RCC)	6
Family size	
Medium (4-6 members)	100

All the families selected were of nuclear type and medium sized with 4-6 members living in their own houses and belonging to Hindu religion indicating the popularity of the governments policies in reducing the family size.

A majority of 60 per cent of the houses were thatched, followed by 34 per cent which were only tiled a minimum of six per cent lived in RCC buildings.

b. Age and Educational level of the heads of families and homemakers. Table II depicts the age and the educational level of the heads of families and homemakers. Fig-1 shows the educational status of the heads of families and homemakers.



EDUCATIONAL LEVEL OF THE HEADS AND HOMEMAKERS

Figure : 1

TABLE -II

AGE AND EDUCATIONAL LEVEL OF THE HEADS OF FAMILIES AND HOMEMAKERS

Particulars	Heads of Families (n = 50)	Homemakers (n = 50)
	Percentage	Percentage
Age (in years)		
30 - 40	2	16
40 - 50	44	82
Above 50	54	2
Educational Status		
Primary	2	6
Middle School	4	64
Secondary	70	30
Higher Secondary	20	-
Graduate	2	-
Professional	2	-

While a majority of the heads of families (54 per cent) were above 50 years, a majority of the homemakers (82 per cent) were between 40 and 50 years of age. Ninety eight per cent of the heads of families were above 40 years as against 84 per cent of their counterparts.

Education is the basis for determining the status of families in a society. All the heads of families and homemakers had acquired some kind of education. While a majority of heads of families (70 per cent) had studied upto secondary school level, 64 per cent of the homemakers had studied upto middle school. The maximum education received

upto secondary level. Two per cent each of the heads of families were either graduated or professional.

c. Occupational status and income level :

Table III depicts the occupational status of the heads of families and income level of the selected families.

TABLE III
OCCUPATIONAL STATUS AND INCOME LEVEL

Particulars	Percentage (n = 50)
Occupational status of the heads of families	
Agriculture	70
Weaving	28
Professionals	2
Family Income/month (in Rs.)	
1250 - 2650/-	44
2651 - 4450/-	46
Above 4451/-	10

Based on income, the families were grouped as low (Rs.1,250/- to 2,650/-), middle (Rs.2,651/- to 4,450/-) and high (above Rs.4,451/-) following the classification of HUDCO (1994). Accordingly the finding showed that 46 per cent of the households belonged to the middle income group (Rs.2,651/- to 4,450/-) followed by 44 per cent belonging to the low income group (Rs.1,250/- to Rs.2,650/-) Only a minimum of 10 per cent belonged to the high income group (above Rs.4,451/-). Regarding the occupational status of the heads of families, 70 per cent were

agriculturists, 28 per cent weavers and two per cent professionals.

2. Factors Inspiring Initiation of Enterprise :

The aspect which kindled inspiration to start a sericultural enterprise included :

a. Motivational factors and

b. Person responsible of the unit

c. Training received

a. Motivational factors : Table IV depicts the motivational factors and reasons for starting the enterprise.

TABLE IV
MOTIVATIONAL FACTORS

Particulars		Percentage of beneficiaries (n = 50)
Motivational factors		
	Friends & relatives	62
	Directorate of sericulture Department	30
	Self - interest	8
Reason for starting *		
	Sounds profitable	62
	Helps augment family income	56
	Economic Independence	12
	Engages one's time usefully	8
	Desire for innovation	6

* Multiple response.

comprehension that just motivation from outside sources cannot induce action among individuals. The need to enter such an enterprise as sericulture involves strong motivation from one's inner self. As if proving it a majority of 62 per cent stated that the major reason for entering into sericulture was because they found it more lucrative than other food crop cultivation. Added to it it had also helped to augment family income (56 per cent), assured economic independence (12 per cent). The others sought consultation from others on matters of mulberry cultivation and silkworm rearing usefully (eight per cent) Nevertheless the desire for innovation was a major reason for a negligible percentage of six families.

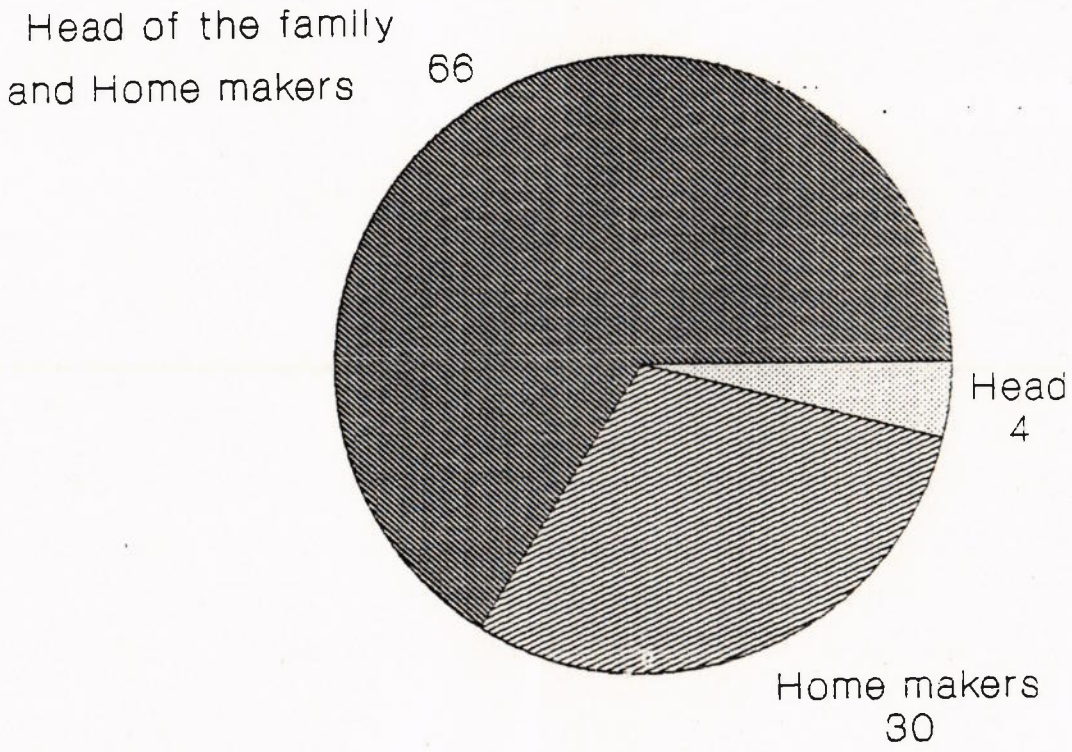
b. Person responsible of the unit

Table V gives details on the person responsible for running the sericulture unit. Fig-2 depicts the person responsible.

TABLE V
PERSON RESPONSIBLE

Particulars	Percentage of beneficiaries (n = 50)
Head of the family and home maker	66
Homemaker	30
Head	4

Running the enterprise was a joint endeavour in 66 per cent of the families. This is an era where women take up vocations on par with men. It was not surprising to note that in nearly 30 per cent of the families the homemakers



PERSON - RESPONSIBLE

Figure : 2

were incharge of the units. This is indicative of the inherent abilities of administration in women.

c. Training received:

The refresher training course is purely stipendiary where training on management practices of mulberry cultivation and silkworm rearing are given for 2 or 3 nonths duration. The certificate course is for a period of 6 months which involves a detailed training in both fields - moriculture and silk worm rearing, which is practical oriented. Here the field assistants conduct the training in the villages. Particulars pertaining to the training received by the beneficiaries on sericulture is depicted under Table VI.

TABLE VI
TRAINING RECEIVED

Particulars	Percentage of beneficiaries (n = 50)
Certificate course training	12
Refresher course Training 2 Months	24
3 Months	42
Seeking help from others	22

Though sericulture has been a household enterprise in India for many generations, proper training in the field would help tap necessary potentials. Only 78 per cent of the families reported to have had training experience, among whom 12 per cent had undergone the certificate course training for a period of 6 months while

AREA UNDER MULBERRY CULTIVATION.

PLATE : 1

TABLE VII
INITIATION OF MORICULTURE

Particulars	Percentage of beneficieries (n = 50)
Year of launching	
1985 - 86	4
1987 - 88	30
1989 - 90	58
1991 - 92	8
Area (in acres)	
0.75	16
1	70
1.5	8
2	6

Though sericulture and moriculture are generations old, Moriculture as an enterprising unit was launched only recently in selected households. It had gained momentum as a productive sector only after 1985. It was heartening to note that within a span of seven years (1985-92) all the families had started moricultural. A majority of 86 per cent of the families were found to cultivate within one acre of land.

b. Cultivation Details :

This aspect gives insight into the details of cultivation depicted through Table VIII.

TABLE VIII
CULTIVATION DETAILS

Particulars	Percentage of beneficiaries (n = 50)
Cropping season	
Summer (June - July)	82
Winter (Oct - Dec)	18
Variety of the crop	
M - 5	50
MR2	50
Irrigation	
Well irrigation	100
Fertilizer application	
Chemical Fertilizer	76
Compost	20
Neem cake	4
Frequency of application	
Once in six months	66
Once in four months	34

For 82 per cent of the families the cropping season was summer , while 18 per cent reported to crop during winter. Two varieties of crop were identified, namely M-5 and MR2 which were utilised by 50 per cent each of the selected families respectively for cultivation. All the families reported to be enjoying water from a well which was used for irrigation purposes too. Chemical fertilizers (76 per cent) were preferred to Compost (20 per cent) and Neem cake (four per cent)

c. Investment on Moriculture :

Since cultivation is carried out in the land already owned by the selected families capital

investment on purchase of land did not arise. Nevertheless the process of cultivation involved investment on purchase of cuttings, seeds, fertilizers, pesticides etc., which were recurring in nature. It was found that the families were able to give the amount spent on such purchases on a yearly basis. Table IX throws light on the investment incurred on moriculture.

TABLE IX
ANNUAL EXPENDITURE ON MORICULTURE

Amount spent (in Rs.)	Percentage of beneficiaries (n = 50)
1500 - 2000	40
2001 - 2500	52
2501 - 3000	8

It was evident from the study that the amount expended on recurring purchases depended upon the area of cultivation. While 52 percent of the selected families expended between 2001 - 2500/- per year, 40 per cent expended only upto Rs.2,000/-. A meagre eight per cent reportedly spent even upto Rs.3,000/- . This disparity may also be due to where they purchase seeds, cuttings etc., because if they are procured through their personal contacts the cost incurred is sure to be less than when purchased from nurseries. However these data indicate that moriculture can be identified as an income generating activity.

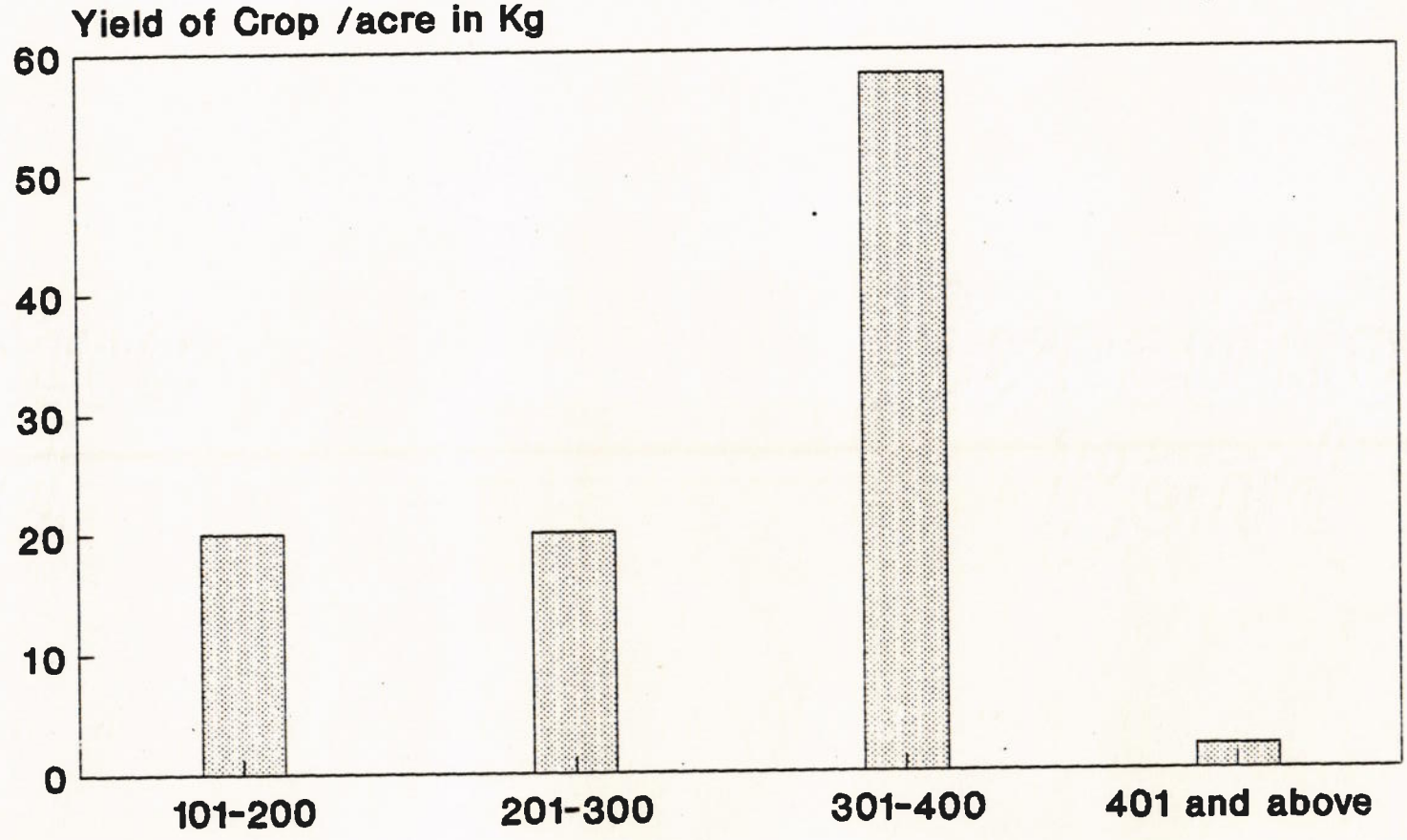
d. Yield of crop :

The yield again is dependent upon physical factors like acre under cultivation, extent of nursing and pruning of crop and application of natural or man made fertilizers. The following table illustrates the yield realised through moriculture by the selected families. Fig - 3 depicts the same.

TABLE X
YIELD OF CROP

Yield / Acre (in Kg)	Percentage of families (n = 50)
100 - 200	20
201 - 300	20
301 - 400	58
401 and above	2

Twenty per cent each of the selected families reported to be harvesting between 100 - 200 and between 201 - 300 Kgs of mulberry per acre of land every year respectively, while a majority of 58 per cent harvested upto 400 Kg per acre every year. Only a negligible percentage reported their annual yield to cross 401 Kg per acre. In Krishnaswami's (1990) view point maximisation of mulberry leaf yield will lead to increased cocoon production. Accordingly it can be inferred that those families whose production of mulberry was reportedly high would realise good returns in terms of cocoon production.



YIELD OF CROP PER ACRE

Figure : 3

e. Problems Faced :

The survey conducted brought to surface a few practical problems experienced by the cultivators such as water scarcity (60 per cent) inclement / unfavourable weather conditions (50 per cent) and attack of diseases on the crop (20 per cent).

4. Details of Establishment :

The details on establishment of sericulture units are discussed as under :

a. Location

b. Area of the unit

c. Recurring expenditure

d. Non - recurring expenditure

e. Production of cocoons

a. Location :

The beneficiaries of the selected sericulture units stated that the unit was located near the mulberry field (98 per cent). While 84 per cent stated to be running the unit in a separate shed meant for the purpose, 16 per cent had attempted transforming their house into a shed. These data bring to light that with marginal investment and infrastructure one could establish a sericulture unit.

b. Area of the Unit :

The area occupied by the sericulture units are presented under Table XI.

TABLE XI
AREA OF THE UNIT

Area Covered	Percentage of beneficiaries (in acres) (n = 50)
150 - 200	50
200 - 250	38
250 - 300	8
300 - 350	4

A majority of units (50 per cent) reported that their unit occupied only a minimum area from between 150 - 200 sq.ft while 38 per cent reported to have occupied almost 250 sq.ft. Twelve per cent were reportedly large units since they occupied more than 250 sq.ft.

c. Recurring Expenditure :

Recurring expenditure involves expenditure incurred on purchase and place of purchase of diseased free layings (DFL) and employment of labour since these items of expenditure recur with every harvest. Therefore these data included information regarding:

1. Purchase of DFL and place of procurement
2. Labour charges

Table XII depicts the the details on recurring expenditure.

TABLE XVII
RECURRING EXPENDITURE

Particulars	Percentage (n = 50)
Number of DFL	
1 -50	4
51 - 100	78
101 - 150	18
Capital for 100 DFL (Rs.)	
Rs. 150 - 175	100

This depended upon the size of the unit and production envisaged. A majority of 78 per cent of the beneficiaries reported to be purchasing upto 100 numbers of DFL, while 18 per cent reported to be purchasing more than 100. On the contrary four per cent practised purchase of just 50 numbers at a time. The maximum capital investment incurred on purchase of 100 DFL'S amounted to Rs.175/- or Rs.150/- depending upon the season. All the beneficiaries reported to be purchasing DFL from the Sericulture Department affilliated to either state or central government.

ii. **Labour Charges** : Table XIII presents information on labour.

TABLE XIII
LABOUR CHARGES

Particulars	Percentage of beneficiaries (n = 50)
Labour charges	
Rs. 500 - 1000	46
Rs. 1000 - 1500	44
Rs. 1500 - 2000	10

The labour charges disbursed depended upon the type of activity, number employed and duration of labour. The beneficiaries tended to allocate approximately Rs.1,000/- (46 per cent) Rs.1,500/- (44 per cent) or Rs.2,000/- (10 per cent) towards the same during each harvest.

d.Non - recurring expenditure :

This part included cost incurred on construction of shed and purchase of other accessory items needed for silk rearing. (Table XIV) The accessory items included bamboo trays, wooden stands and chandrikes (bamboo mountages for mounting cocoons). Plate 2a and b indicate those accessory items used in silkworm rearing.

REARING ON BAMBOO TRAYS

PLATE : 2a

CHANDRIKES FOR MOUNTING COCOONS

PLATE : 26

TABLE XIV
NON - RECURRING EXPENDITURE

Particulars	Percentage of beneficiaries (n = 50)
Investment for shed (in Rs.)	
6000 - 7000	14
7001 - 8000	26
8001 - 9000	30
9001 - 10,000	30
Other accessories (in Rs.)	
2500 - 3500	28
3500 - 4500	60
Above 4500/-	12

For a majority of 60 per cent of the beneficiaries the capital investment incurred on arranging for a proper shed ranged between Rs.8,000/- - 10,000/-. Twenty six per cent reported that they had invested Rs.1,000/- more than the 14 per cent who had invested between Rs.6,000/- to 7,000/-. Construction of shed therefore emerges as the major item of expenditure for starting a unit on silkworm rearing. Sixty per cent of the beneficiaries reported to have expended between Rs.3,500/- to 4,500/- on purchase of ascessories while 28 per cent reported to have incurred only upto Rs.3,500/- . Only 12 per cent had expended more than Rs.4,500/-.

e. Production of cocoon :

This part of the study is dealt under the following aspects.

i. Stages of Production

ii. Man days and time spent by beneficiaries

iii. Cocoon Production

i. Stages of Production :

The cocoon production phases are depicted under table XV indicating the number of days required for each stage.

TABLE XV
STAGES OF PRODUCTION

Stages	No.of days	First moulting
I Instar	3 - 4	20 Hours
II Instar	2 - 3	24 Hours
III Instar	3 - 4	24 Hours
IV Instar	4 - 5	30 Hours
V Instar	6 - 7	-

Coccon production undergoes growth in five different stages called Instar. After feeding voraciously and having attained full growth for the particular instar the worm loses appetite and larva prepares to moult and cast of its old skin. The worms under moult takes about 20 hours to complete moulting from the time of last feeding and in about 20 - 24 hours over 90 per cent of the worms would come out and it would be time to resume feeding. This moulting period lasted for 15 - 30 hours, being shortest in the 2nd moult, followed by first, third and fourth. The DFL's need 3 - 4 days in the 1st instar, 2-3 days in 2nd instar, 3-4 days in the 3rd instar and 4-5 days in the 4th instar for wholesome growth. Once they have reached the 5th instar the

worms become restless and start searching for support to start spinning. So on an average for a DFL to start spinning a minimum of 23 days was required. Further an allotment of 4 - 5 days was found necessary to complete spinning.

ii. Man days and time spent by the beneficiaries:

An enquiry made to find out the number of man days and total hours spent by the beneficiaries on silkworm rearing . The data obtained was tabulated under Table XVI.

TABLE XVI
MAN DAYS AND TIME SPENT BY THE BENEFICIARIES

Number of mandays and time spent		Percentage (n = 50)
26 *	(208)**	16
27	(216)	46
28	(224)	16
29	(232)	10
30	(240)	2

* One man day is equal to eight hours

** Number in parenthesis indicate hours

The study revealed a majority of 46 per cent of the beneficiaries to be spending 27 days (216 hours) on silkworm rearing activities, while 16 per cent each reported to be expending 26 and 28 days respectively. Ten and Two per cent reported to be spending 29 and 30 hours respectively. It was evident that the beneficiaries had to spent nearly 26 to 30 mandays as an average on the activity. These data indicate the personal involvement of the beneficiaries in running the unit.

iii. Production of cocoon:

This depends upon the area of production, viability of DFL's and proper handling and feeding. This again depends upon the freshness of leaves fed for the worms quality of leaves and humidity conditions. Since these aspects may lead to defective, double, pierced, stained or good cocoons, the beneficiaries render utmost care to provide favourable conditions for yield of good quality cocoons. Table XVII presents the details of cocoon production as reported by the beneficiaries during the phase when the investigator visited them. Plate 3 and 4 illustrated the harvesting and grading of cocoons.

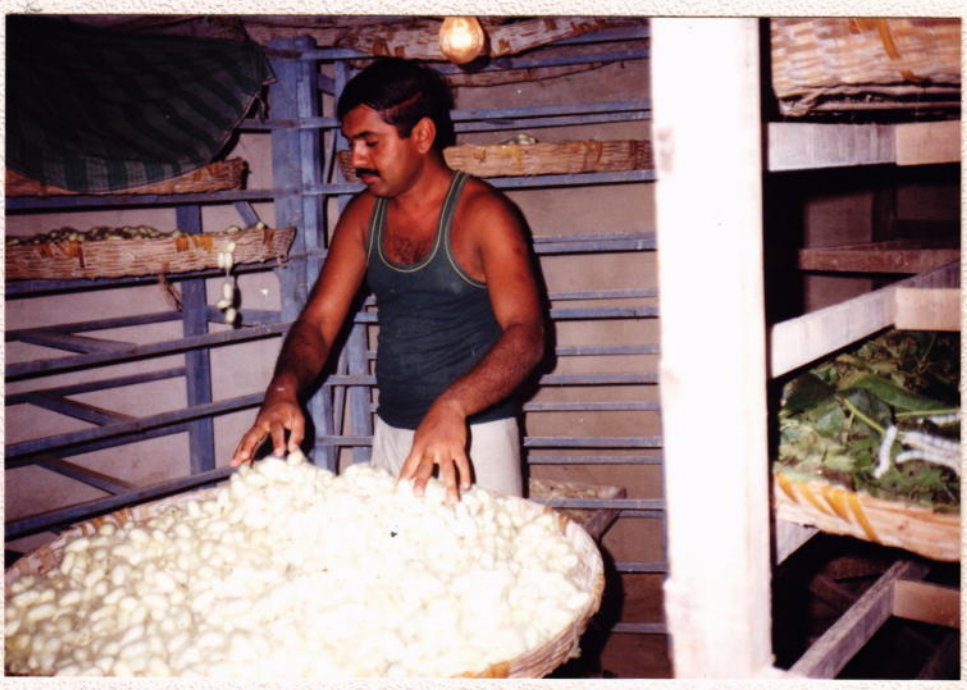
TABLE XVII
COCOON PRODUCTION

Harvest (Kg)	Percentage of Beneficiaries (n = 50)
31 - 40	30
41 - 50	64
Above 51	6

Majority of 64 per cent reported to be harvesting between 41 - 50 Kgs while a negligible six per cent harvested more than 51Kg. Only in 30 per cent of the units the yield was below 40Kgs. After sorting, the product was transported to the Government marketing centres for sale through auction. Plate 5 a and b shows the marketing activities. It was found that either the head of the family (60 per cent) or the son (40 Per cent)

HARVESTING OF COCOONS

PLATE: 3



GRADING OF COCOONS

PLATE: 4

READY FOR THE MARKET

PLATE : 5a

AUCTIONING PROCESS

PLATE : 5b

took up this responsiblity of transporting.

5. Economics of Silkworm Rearing :

This part included annual income received from sale of cocoon and the annual profit realised by the selected beneficiaries. Tables XVIII and XIX picture the same.

TABLE XVIII
ECONOMICS OF SILKWORM REARING

Annual income(in range of Rs.)	Percentage of beneficiaries (n = 50)
10,000 - 15,000	52
15,000 - 20,000	38
Above 20,000	10

The annual income from silkworm rearing depends upon the number of harvests and yield per year. The data obtained when tabulated pointed to 52 per cent of beneficiaries earning between Rs.10,000/- to 15,000/- in an year. While 38 per cent could realise between Rs.15,000/- to 20,000/-, for ten per cent annual income exceeded Rs.20,000/- .

Though the table presented above indicates the income status, the beneficiaries had to dispense with quite a large sum towards sustaining production from the unit, labour and recurring costs. Therefore it was found necessary to inquire about the actual profit realised in a year. Figure - 4 shows the profit obtained from silkworm rearing.

TABLE XIX
PROFIT REALISED

Annual Profit (range in Rs.)	Percentage of beneficiaries (n = 50)
5,001 - 10,000	18
10,001 - 15,000	70
15,001 - 20,000	8
20,001 and above	4

Profit gained is directly proportional to the size of the unit. Therefore it was not surprising to note that a majority of 70 per cent enjoyed approximately Rs.15,000/- per month, while 12 per cent had an increment of more than Rs.15,000/-. Only 18 per cent reported to be gaining below Rs.10,000/-. These facts are enough to lure and motivate anybody to start a silkworm rearing unit with a marginal investment.

6. Problems Faced and Suggestions Put Forth :

Though it is evident from the study that the beneficiaries were managing the enterprise to their expectations a few inherent problems surfaced. Table XX highlights the difficulties faced and suggestions put forth for alleviating the same.

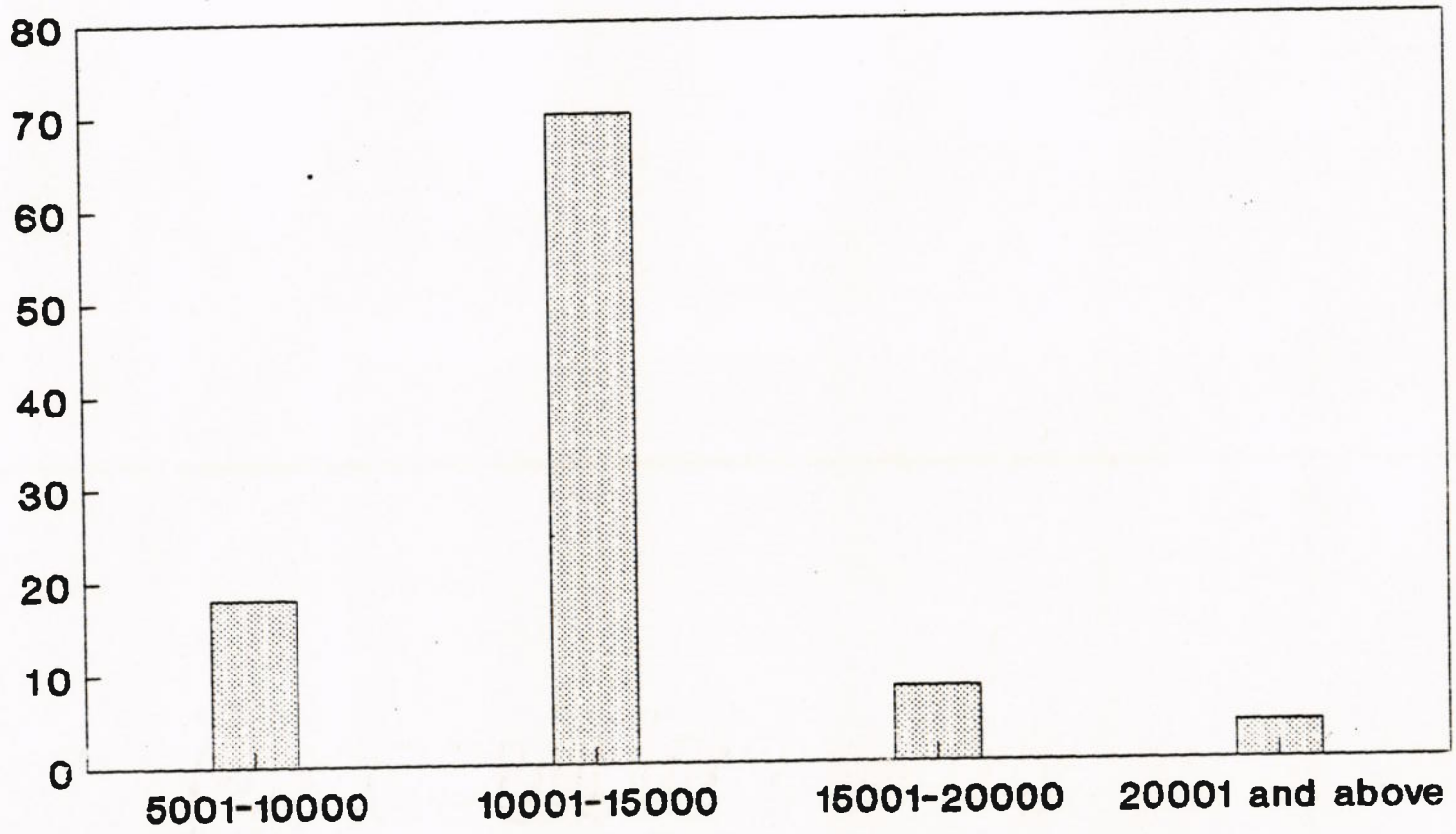

80
70
60
50
40
30
20
10
0
5001-10000
10001-15000
15001-20000
20001 and above
Percentage
PROFIT PER YEAR (in Rs)

Figure : 4

TABLE XX
PROBLEMS FACED AND SUGGESTIONS PUTFORTH

Particulars	Percentage (n = 50)
Problems faced	
Climatic problems	44
Labour problems	30
Lack of experience	18
Lack of assured market	10
Suggestions	
Use of paraffin sheets regularly	38
Use of formalin spray	26
More involvement of family members	23
Require training	22
Buying minimum DFL's during decreased market	10
Seeking help from others	4

* Multiple response

Eighty four per cent faced challenges from external environment like climate, labour, and unfavourable market, while the problem of 18 per cent was more personal calling attention to the lack of experience. To tackle the problems relating to the external environment expecially climate use of paraffin sheets and formalin spray were suggested and to overcome labour problems the decision was directed towards assuring improved family involvement in the unit. The beneficiaries tackled market conditions through appropriate purchase strategies and consultancy. Twentytwo per cent of the beneficiaries felt the need for the appropriate training to enhance production.

B. Participation of Women in Sericulture :

This part of the study is discussed under the following heads:

a. Role of women in Moriculture

b. Time spent on Moriculture

c. Participation of women in silkworn rearing

d. Opinion of women in Sericulture.

a. Role of Women in Sericulture :

Participation of men in moriculture mainly adhered to activities which required physical strength such as ploughing of land, fertilizer application, and transporting the harvest. Women in general played a major role in cultivation. Table XXI gives details on role played by women in Moriculture.

TABLE XXI
ROLE OF WOMEN IN MORICULTURE

Operations	Women Labourers			Time spent/day involved hours		
	2-3	4-5	6-7	2-3	4-5	6-7
Planting	-	90	10	-	70	30
Hoeing	96	4	-	90	10	-
Removal of weeds	94	6	-	90	10	-
Pruning	10	90	-	10	90	-
Harvesting	-	96	4	-	4	96

The activities involved in moriculture other than ploughing and application of fertilizers included planting, hoeing, weeding, pruning and harvesting. Among these activities planting, pruning and harvesting reportedly

required 4-5 women labourers (as reported by more than 90 per cent of the cultivators) while hoeing and weeding needed 2-3 women in the field. These data indicate the major role participation of women in moriculture. Plate - 6a and b illustrates women involved in gathering of mulberry leaves and feeding the silkworms.

b. Time spent on Moriculture :

The details on time expenditure pattern of women in moriculture revealed that hoeing and weeding activities extracted only 2-3 hours of time while planting and pruning taxed 4-5 hours of the women's time per day. Harvesting was the crucial period when the women were forced to expend between 6-7 hours a day. These data bring to light the moriculture as an activity does not exert too much stress on women's time.

c. Participation of women in silkworm Rearing :

This part of the study is dealt under the following heads.

i. Role of women in silk worm rearing

ii. Time spent on harvesting

iii. Level of women's participation

i. Role of women in silkworm rearing :

Table XXII presents details on participation of women in silk worm rearing.

GATHERING OF MULBERRY LEAVES

PLATE: 6a

FEEDING THE SILKWORMS

PLATE: 6b

TABLE XXII
ROLE OF WOMEN IN SILKWORM REARING

Stage of Growth	No.of Women Employed	Days of Employment
I Instar	1-2	3-4
II Instar	1-2	2-3
III Instar	2-3	3-4
IV Instar	3-4	4-5
V Instar	4-8	6-7
Cocoon formation	4-8	3-4
Harvesting / Grading	1-2	2-3

The major activity women perform in silkworm rearing happened to be feeding the worms at appropriate times and cleaning the trays. Depending upon the size of the unit, the stage of growth, and need for frequency of feeding the number of women employed and their period of employment varied. Marginal units required only employment of mzximum ten women for a period of 30 days. The women happened to spend between 5-8 hours a day on the activity.

ii. Time spent on harvesting :

Harvesting again depends upon the size of the unit and field per unit. Table XXIII gives the details on the total hours spent by women on harvesting activity.

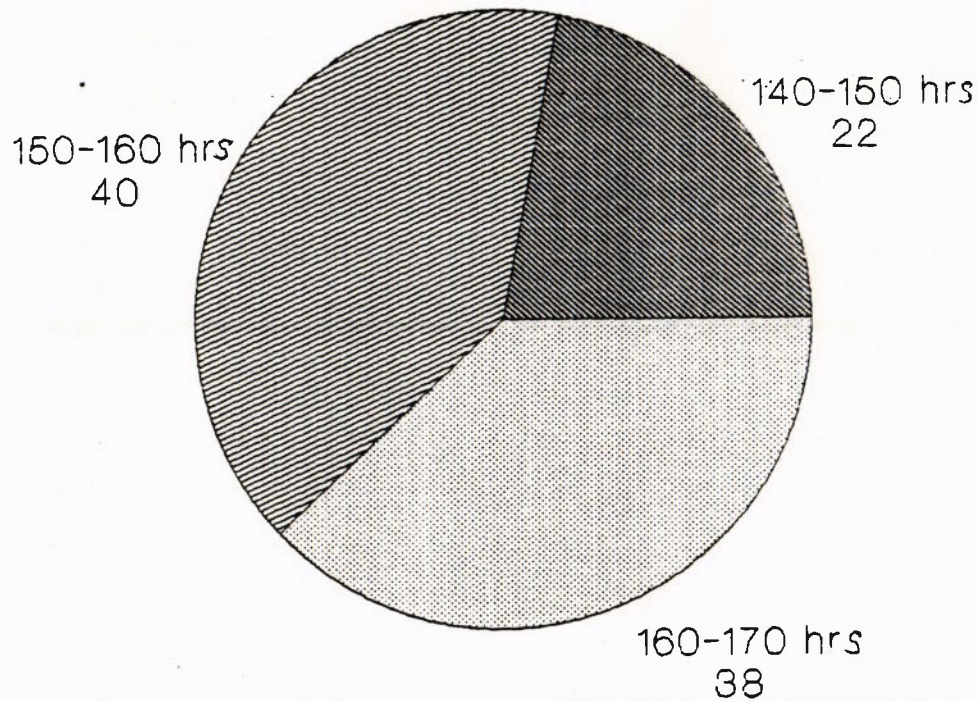
TABLE XXIII
TIME SPENT ON HARVESTING

Time Spent (in Time)	Percentage Stating (n = 50)
140 - 150	22
151 - 160	40
161 - 170	38

Majority of 40 per cent stated to be spending between 150 - 160 hours on harvesting, while 38 per cent spent between 161-170 hours. Twenty two per cent expended only between 150 hours for the same. Harvesting activity is not only dependent upon size of unit and field, it also speaks about the speed and briskness of the women performing the activity. It can be inferred that the time spent on this activity is purely a matter of personal trait and efficiency. Figure 5 depicts the time spent by women per harvest in hours.

iii. Level of women's participation :

Proportion of women's share in silkworm rearing was computed based on the number of hours spent by them on the activity. Table XXIV throws light on the extent of participation.



TIME SPENT BY THE WOMEN

Figure : 5

TABLE XXIV
LEVEL OF WOMEN'S PARTICIPATION

Extent of Participation	Percentage stating (in Percentage)(n = 50)
60 - 65	12
65 - 70	32
70 - 75	34
75 - 80	20
80 - 85	2

It was evident from the study that the 34 per cent of the women put almost 75 per cent of their might in the activity of sericulture, while 32 per cent assured 70 per cent of their share. Two per cent reportedly put in nearly 80 - 85 per cent of their time on the activity.

d. Opinion of women in sericulture :

Opinion of women regarding reasons for participating in sericultural activities brought forth the following aspects listed under Table XXV.

TABLE XXV
OPINION OF WOMEN IN SERICULTURE

Particulars	Percentage stating * (n = 50)
Augment family income	58
Achieve self confidence	14
Suitable for women	14
Avoid labour problem	10
Enable men to attend other work	10

* multiple resonse

The major reason identified for indulging in this venture was to augment family income, as reported by 58 per cent of the beneficiaries. Fourteen per cent each reported the vocation was taken up because it suited women and at the same time helped to develop self confidence. Ten per cent each reported it was mainly to alleviate labour problems and enable men in their households to attend to other jobs respectively. The study clearly indicated the scope of sericulture as an income generating enterprise to improve the family status through proper use of scientific knowledge, better training facilities and efficient marketing.

Summary and Conclusion

V SUMMARY AND CONCLUSIONS.

Women must be in a position to solve their own problems in their own way. No one can or ought to do this for them and our Indian women are as capable of doing it as any in the world. Swami Vivekananda.

Development is often measured in terms of production and productivity. It also indicates change, progress and betterment. In this contest the family as a microunit of the nation should develop . One of the economic indicators for such a development is reflected through the percentage of self-employed women . The Indian society needs accept the need for such a new dimension in women's role their role as producers and contributors to family income.

The study of Participation of Rural Women in Sericulture consisted of a household survey comprising of 50 selected households runing a sericulture family enterprise from Sulur, Kannampalayam & Rasipalayam areas of Coimbatore District. The survey was done mainly to elicit information on infra structural requirement, women's contribution and monetary benefits derived through running the enterprise. The findings of the study are summarised as under:

A. Findings of the Household Survey.

B. Participation of Women in Sericulture.

A. Findings of the Household Survey:

* Socio - Economic status

All the families selected were of nuclear type and medium sized(4-6 members)living in their own houses and belonging to Hindu religion. A majority of 60 per cent of households were found to be thatched indicating their economic status.

The survey indicated a majority of 54 per cent of heads of families to have crossed 50 years of age, while 82 per cent of the homemakers were between 40-50 years of age. Seventy per cent of heads of families had studied upto secondary school level and 64 per cent of homemakers reported to have done middle school. Agriculture & weaving were projected as major occupation of the heads of families in an approximately 7:3 ratio. Forty four per cent of the families belonged to low income and 46 per cent to middle income. Only ten per cent reported to be earning above Rs.4451/- raising their status to the high income.

* Motivating factors.

Friends and relatives followed by Directorate of sericulture department were projected as motivating factors which enthused 62 and 30 per cent of the familes to start the sericultural enterprise. Earning a profit, augmenting family income and economic independence (62, 56 and 12 per cent respectively) were focussed as reasons for starting the enterprise. Sixty six per cent of the familes reported both the head and the homemakers to be involved in sericultural activities, while 30 per cent the

homemakers themselves were found to manage the unit. Only 12 per cent of beneficiaries reported to have undergone the certificate course training on sericulture (spread over a 6 months duration) while 66 per cent had attended a refresher course for either 2 or 3 months. Twenty two per cent were contented with the help and guidance from others.

* Moriculture.

All the selected moriculture units were reportedly launched after 1985, the spread over being maximum between 1987 - 90 wherein 88 per cent of the units were intiated the cultivation was reportedly done within one acre of land by 86 per cent of the families. The cropping season was reportedly in summer (June - July) for 82 per cent of the units while it was winter (October - December) for the rest. M-5 and MR2 were the variety of crops chosen by 50 per cent each of the families. All the families resorted to well irrigation. A majority of 76 per cent applied chemical fertilizers 20 per cent had faith in compost. The frequency of application varied indicating twice (66 per cent) or thrice (34 per cent) in a year.

All the selected families cultivated in their own premises and the investment incurred on expenditure included purchase of cuttings, seeds, fertilizers, pesticides etc. which were recurring in nature. The annual expenditure incurred fell below Rs.2,000/- for 40 per cent of the families, below Rs.2,500/- for 52 per cent of

the families and below Rs.3,000/- for eight per cent of the families.

The yield of mulberry was reportedly 400 Kg for 58 per cent of the families, while 40 per cent could harvest only between 100 -300 kgs. The major problems encountered with moriculture were water scarcity (60 per cent) unfavourable weather conditions (50 per cent) and attack of diseases on the crop (20 per cent).

* Sericulture.

For 98 per cent of the families the sericulture unit were situated near the mulberry field. Eighty eight per cent reported to the running the unit in a separate shed as again 16 per cent managed with make shift arrangements in their house. The area covered under sericulture ranged between 150 - 250 sq.ft for 88 per cent of the families while 12 per cent enjoyed more space.

The major items of expenditure which were recurring in nature involved purchase of Diseased free layings (DFL) Depending upon the size of the unit the number of DFL's purchased increased or decreased while 78 per cent purchased between 51 - 100 DFL's at a time, 18 per cent purchased up to 150. Therefore the corresponding capital investment on purchase of DFL's ranged between Rs.150/- to 175/-. All the beneficiaries reported to be purchasing DFL from the sericulture Department affliated to either state or central government. The labour charges which were again recurring in nature and warranted an expenditure between

Rs.500 to 1000/- for 46 per cent, Rs.1000 to 1500/- for 44 per cent and below Rs.2000/- for ten per cent for every harvest.

The non-recurring expenditure included construction of shed and purchase of other accessory items. Beneficiaries reported to have expended between Rs.6000/- to 10,000/- on construction of shed and upto Rs.4,500/- for purchase of other accessories.

*Production of Cocoon :

The production process involved 5 instars followed by cocoon formation and harvesting. During each instar the worm grows in size depending upon the frequency of feeding and quality of leaves. During each instar the worm moults during which phase it loses appetite and casts of its old skin the duration for which differed with the each instar, the minimum being 20 hours. Once the worm reaches the 5th instar they become restless and moves searching for support to start spinning. The average duration of time for a worm to start spinning was found to be 23 days with a further allotment of 4 - 5 days for completion of spinning. During this period the beneficiaries reportedly took utmost care so as to enhance maximum yield through proper feeding and cleaning of the unit. They reportedly spent between 26 - 30 mandays which was spread over a span of 208 - 240 hours. A majority of 64 per cent reported to be yielding between 41 - 50Kgs of cocoons/harvest as against 30 per cent who could procure only below 40Kg per harvest.

The annual income from sale of cocoons ranged between Rs.10,000/- to 15,000/- for 52 per cent of the families, while 38 per cent could acrue between Rs.15,000/- to 20,000/-. Since the yield again is directly proportional to the size of the unit, a lucky ten per cent derived more than Rs.20,000/- per annum. Though the income received was reportely high, the beneficiaries had to incur expenditure on recurring costs only from that therefore the profit accrual with relation to income was projected to be below Rs.10,000/- for 18 per cent below Rs.15,000/- for 70 per cent and below Rs.20,000/- for eight per cent.

The problems encountered with sericultural activites highlighted climatic conditions, labour problems, lack of experience and assured market. The suggestions put forth to tackle these problems were use of paraffin sheets and formalin spray to combat climatic conditions, ensuring maximum involvement of family members and appropriate training to tackle labour problems and purchasing minimum DFL's and consultancy from others for other type of problems.

B. Participation of Women in Sericulture

Planting, hoeing, weeding, pruning and harvesting were the activities where women contributed more in moriculture. Hoeing and weeding were the activities which required less amount of women's participation. The time spent by women ranged between 2-7 hours per day depending upon the activity performed.

Major activites women performed in silkworm rearing happened to be feeding the worms at appropriate times and cleaning the trays. The time allocation extended between 5 - 8 hours a day on the activity.

The activity of harvesting demanded maximum time expenditure from women. Depending upon the size of the unit and their personal traits of briskness and action an allocation between 140 - 170 hours was found essential. A majority of 34 per cent of women state that their extent of participation on silkworm rearing covered almost 75 per cent, while 22 per cent allocated on increment of 10 per cent more. A majority of the women regarded sericulture as economically beneficial enterprise and it created a self confidence among them.

In conclusion, the role of women in sericulture can be described as partnership and vital for the family's imcome. Their contribution through labour and supervision gives a helping hand and added mental support to husbands which cannot be valued in terms of money. Real value needs to be computed on a broad dimension. But unfortunately women themselves consider their might as invisible giving all credit to men. Culture, may be perhaps the reason for this. Thus women being the actual resource generators, they must be given recognition and support for their remarkable efforts in the area of sericulture.

Based on the findings the following recommendations emerged :

1. Sericulture is a profitable activity and the farmers should be motivated to take up this enterprise by extending financial assistance for adoption of new technologies.

2. Crop insurance scheme to protect the farmers must be brought in

3. Co-operative and nationalised banks should extend special loan facilities to extent of Rs.50,000/- acre for procuring rearing house, equipments and mulberry cultivation.

4. Since homemakers (wives of marginal farmers) may not be able to invest on the equipments financial support through IRDP or other credit programmers should be extended to them.

5. Expansion and development work of sericulture should be immediately entrusted to state Department of Agriculture and there should be a separate wing of Sericulture at the Government level.

6. Co-operative societies should be organised in important centres and government departments and other agencies should popularise improved methods of breeding and rearing.

7. Considering economic value of sericulture, Government should subsidise fertilizers and irrigation facilities.

8. Training centres and marketing facilities should be improved to enrol many women to undertake sericulture enterprises as a subsidiary occupation.

9. There must also be sustained extension support and communication to motivate them to do better.

10. Lastly there should be good co-ordination among the different agencies involved in sericulture development.

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Appendices

ANNEXURE - I

Measures put forth by the Chief Minister of Tamil Nadu:

a. An allocation of Rs.3.46 crore for setting up seven silk - thread industrial estates in Tamilnadu (Vaniambadi, Salem, Coimbatore, Dindigul, Thiruvannamalai, Tiruchi, and Tenkasi) was proposed.

b. Depending on the size of area for growing mulberry, financial assistance ranging between Rs.4125/- and Rs.4950/- would be given to each of the beneficiaries to construct silkworm growing sheds.

c. Cash assistance between Rs.1150/- and Rs.1350/- would be provided for buying equipment and Rs.375/- to Rs.450/- would be given as fertiliser subsidy.

d. Besides this, Rs.250/- would be given for purchasing other accessories and Rs.150/- would be provided as assistance for giving training (1994 Indian Express).

e. An additional 30000 acres are to be brought under mulberry cultivation under the National Sericulture Project, providing abundant scope for development of Sericulture in Tamilnaud.

f. As the special thrust is on involving women in mulberry cultivation and Sericulture activities, a programme has been drawn up for involving a total of Rs.9,300/- women. About 10,000 women have been extended credit facilities (Satyamurthy, 1994).

A N N E X U R E - II

"PARTICIPATION OF RURAL WOMEN IN SERICULTURE" - IN COIMBATORE

I. GENERAL INFORMATION

a. Name of the Interviewer :

b. Name of the Interviewee :

c. Address :

d. Religion : Hindu Christian
: Muslim Others

e. Type of Occupancy : Owened Rented

f. Housing Pattern : RCC Tiled Thatched

g. Family pattern : Joint family
: Nuclear family

h. Family size : Small (1-3 members)
: Medium (4-6members)
: Large (above 6 members)

II. Details of Family background :

Slno.	Name	sex	Age years	Edu	Occu	Monthly income

III. General Details :

1. What are the activities done in your unit?

S.No.	Activity	Year & Month of Launching
1	Mulberry cultivation	
2	Silkworm Rearing	
3	Reeling	
4	Threading	

2. Indiacation the motivation factors :

a. Self interest :

b. Friends & relatives :

c. Directorate of Sericulture department :

3. Give reasons for starting the units :

a. Helps to augment the family income :

b. Economic independance :

c. Desire for innovation :

d. Engage one's time usefully :

e. Sounds Profitable :

f. Any others, specify :

4. Person responsible of the unit :

a. Head of the family :

b. Home maker :

c. Head of the family and homemakers :

5. Have you undergone any special training?

Yes : No :

a. If yes,specify

i. Certificate course training

ii. Refresher training programme

a. 2 months

b. 3 months

b. If no, how do you manage ?

i. Traditional

ii. Previous experience in the field

iii. Seeking help from others

IV. Details on Moriculture :

1. Cultivation details :

a. Area of Cultivation : acres

b. Variety of mulbery crop
Cropping season :

c. Irrigation sources :

a. Open well irrigation :

b. Deep bore-well irrigation:

d. Application of Fertilizer :

a. Name of Fertilizer :

b. Frequency of applcation :

e. Cost of cultivation/acre :

f. Yield of Crop/acre :

2. Participation of women in Moriculture :

S.No.	Activity	Participation by women	Time spent/day
1	Planting		
2	Hoeing		
3	Removal of weeding		
4	Pruning		
5	Harvesting		

3. Problems faced in mulberry cultivation ?

V. Silkworm rearing :

1. Details in establishing a silkworm rearing unit.

a. Location of unit :

i. Separate shed :

ii. House converted in to shed :

iii. Away from the mulbery field :

iv. Near the mulberry field :

b. Area of the unit : Sq.ft.

2. Recurring Expenditure :

a. Procurement of Diseased free layings (DFL) :

i. Sericulture Department :

ii. Central Government Department :

iii. State Government Department :

b. Number of DFL :

c. Capital for 100 DFL :

d. Laboure charges :

3. Non - Recurring Expenditure :

a. Investment for shed (in Rs.) :

b. Other accessories :

4. Production of Cocoon :

Yield of cocoon production(Kg) : Crop

5. Marketing :

a. Where do you sell the Cocoon ?

Government marketing centre :

Private bodies :

b. Person in-charge of marketing:

6. Economics of Silkworm Rearing :

a. Income from cocoon/year (Rs.) :

b. Profit/Year (in Rs.) :

7. Problems faced :

Enlist the problems incurred in running the unit

a. Lack of family co-operation

b. Climatic Problems

c. Lack of experience

d. Lack of assured market

e. Labour Problems

f. In silkworm rearing, specify

8. Give your suggestions to overcome the problems.

9. PARTICIPATION OF WOMEN IN VARIOUS ACTIVITIES

S.no	Activity Done	No.of Days	Activities undertaken		Time Spent\ Day	Total hours
			Men	Women		
	Silkworm rearing					

1.	Hatching of Eggs					
2.	Letting the Larva in the rearing tray					
3.	Rearing of silkworm					
a.	Chawki Rearing I.Instar (3-4 Days)					
1.	Preparation of leaf bits					
2.	Feeding of leaves					
3.	Cleaning of Tray					
4.	Measures taken during moulting					
5.	Measures taken to have required humidity.					
	II.INSTAR (2-3days)					

1.	Preparation of leaf bits					
2.	Feeding of leaves					
3.	Cleaning of tray					
4.	Measures taken during moulting					
5.	Measures taken to have required humidity					
6.	Changing the young larva to circular					

b.	Adult Rearing	
	III.INSTAR (3-4days)	
1.	Preparation of leaf bits	
2.	Feeding of leaves	
3.	Cleaning of Tray	
4.	Measures taken during moulting	
	IV.INSTAR (4-5Days)	
1.	Preparation of leaf bits	
2.	Feeding of leaves	
3.	Cleaning of Tray	
4.	Measures taken during Moulting	
	V.INSTAR (6-7Days)	
1.	Preparation of leaf bits	
2.	Feeding of leaves	
3.	Cleaning of Tray	
4.	Measures taken during Moulting	
5.	Collection of Mature larva	
c.	Mounting larva into chandrike	
d.	Maintenance of cocoon forming Larva	
e.	Harvesting the Cocoon	

f.	Grading of Cocoon					
g.	Marketing of Cocoon					
h.	Management of pests					
i.	Management of diseases					
j.	Other Miscellaneous works.					

10. Total Number of mandays (8 Hours)

11. What is your opinion about the women's participation in Sericulture ?