# Project Report On

# Sericulture

**SUBMITTED BY**

Promoter Name:
xxxxxxxxxxxxxx

**Project Location:**
xxxxxxxxxxxxxxx

**Prepared By:**
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# C O N T E N T S

## CHAPTER – I

## ABOUT THE PROMOTER

1. Name : xxxxxxxxxx

2. Address (residence) : xxxxxxxxxx

3. Contact Number : xxxxxxxxxx

4. Educational Qualification :xxxxxxxxx

5. Project Location (Address) :xxxxxxxxx

6. Experience : xxxxxxxxxx

7. Constitution : xxxxxxxxx

## CHAPTER – II

## PROJECT DESCRIPTION

### Introduction

Silk fibre is protein produced from the silk glands of silkworms. The technique of silk production is known as sericulture. It is an agro industry and is playing an important role in the economic development of silk rearing pockets of rural India providing gainful occupation to 64 lakh persons. One hectare of Mulberry generates employment of about 12 man years and family members ranging in age between 18 to 60 years can engage themselves in various sericulture activities, such as, cultivation of food plants (Mulberry, castor etc., silkworm rearing, egg production, silk reeling, weaving etc. India is the second largest producer of silk in the world after China and has the distinction of producing all the four types of silk i.e. (a) Mulberry silk (91.7%); (b) Tasar silk (1.4%); (c) Eri silk (6.4%); and (d) Muga silk (.5%) which are produced by different species of silkworms.

Mulberry silk is produced extensively in the States of Karnataka, West Bengal and Jammu & Kashmir. Similarly, Tasar silk worms are reared traditionally by the tribes of Madhya Pradesh, Bihar and Orissa; Muga and Eri silk are produced exclusively in Assam. The food plant of silkworms is Mulberry for producing Mulberry silk. Tasar silk producing silkworms feed on Terminalia tomentosa, and Terminalia arjuna.

### Production Technology

#### Rearing house

Mulberry silkworm rearing, being completely domesticated, demands specified environmental conditions like temperature (24-28C) and relative humidity (70-85%). It is therefore necessary to evolve measures for economic cooling through selection of proper material for wall and roof fabrication, orientation of building, construction method, design, etc. Further, enough space must be available to carry out leaf preservation, chawki rearing, late age rearing and moulting. It should also be convenient enough to conduct effective cleaning and disinfection.

The size of the rearing house depends upon the quantum and type of rearing.

#### Rearing appliances

The late age silkworms do not tolerate high temperature, high humidity and poor ventilation. Hence, the rearing house should have cross ventilation facilities to bring down the room

temperature and for removal of vapour and harmful gases generated from large quantities of excreta produced by silkworms.

**Disinfection**

Disinfection of rearing house and appliances should be made twice before rearing that is once with 5% bleaching powder (immediately after the completion of previous crop) and another time with 2.5% Sanitech (Chlorine di-oxide) solution just 2 days before the next crop.

**Feeding**

Initiate feeding with 50-55 days old shoots harvested at the height of 3-4 feet in the cooler hours of the day preferably in the morning. 60-65 days old shoots should be fed to fifth age worms.

The harvested shoots should be preserved loosely in vertical position in cool and moist place by covering with cleaned, disinfected and wet gunny cloth.

The quantum of mulberry shoot required is 460 Kg in 4th instar and 2880 Kg in 5th instar for bivoltine silkworms.

Daily 3 feeds (6 AM, 2 PM and 10 PM) schedule should be followed.

Avoid feeding of soiled or over matured leaves.

Distribute the larvae uniformly in the bed during every feeding. The bed space required for the worms of 100 dfls at the end of the fifth stage is 600 sq ft.

Remove the under sized and all suspected diseased worms carefully with chopsticks before every cleaning / feeding to avoid the contamination. The picked larvae should be put into 2% bleaching powder in 0.3% slaked lime solution.

Bed cleaning

Remove the unhealthy larvae, if any and put them into 2% bleaching powder in 0.3% slaked lime solution. Don’t spill the bed refuse on the floor of the rearing room while cleaning the bed.

Maintenance of temperature and humidity

The ideal temperature for the late age rearing is 26C for III instar larvae, 25 C for IV instar and 24 C for V instar larvae. 80% humidity is required for III instar larvae and 70% is required for IV and V instar larvae. Adjust the temperature and relative humidity as per requirement by using cooling, heating and humidifying appliances such as air cooler, room heater, charcoal stove, wet gunny cloth or by sprinkling water on the roof or using wet sand.

Good cross ventilation will help to reduce the body temperature of the silkworm.

**Care during moulting**

Ensure good ventilation and dry condition in the rearing house during moulting period.

Spread the bed gently soon after the worms settle for moult and apply slaked lime powder uniformly over the bed to ensure drying of bed.

Avoid high fluctuation of temperature and humidity as well as strong wind and bright light.

Resume feeding when 95% of worms come out of moult

**Maintenance of hygiene**

Wash hands and feet with disinfectant solution before entering in to the rearing house. To begin with, the hands and feet should be washed with alkaline soap and then dipped in disinfectant solution (2.5% Sanitech/ Serichlor in 0.5% slaked lime solution or 2% Bleaching powder in 0.3% slaked lime). Wash hands in disinfectant solution and water after picking of diseased worms, after bed cleaning and before feeding. Pick the diseased worms every day into a basin with lime powder and bleaching powder mixture and dispose off carefully by burning or burying at a distant place. Keep the rearing room clean and well aerated during silkworm rearing.

**Application of bed disinfectant**

Vijetha, Vijetha Green and Ankush are the silkworm body and rearing seat disinfectants for the prevention of silkworm diseases. The method of usage is as follows.

Take the powder in a thin cloth and dust over the silkworms @ 5 g/square feet after every moult and once on 4th day of final instar after bed cleaning

**Mounting of ripened worms**

To obtain such quality cocoons, mounting the silkworm larvae at the appropriate time and good quality mountages are essential. In the fifth instar on seventh day silkworms enter into maturation and stop feeding and begin to search place to build the cocoons. Such larvae are picked immediately and mounted on to the mountages. Care should be taken that the number of larvae on mountages must not exceed the capacity of each mountage. When the larvae are in spinning stage, the room temperature of 24°C and 60-70 % of relative humidity along with good aeration facility are to be provided. Rotary mountages are recommended for the production of better quality cocoons. About 35 sets of rotary mountages are required for mounting worms of 100 dfls. For hanging rotary mountages, a separate mounting hall or verandah is required.

**Harvesting and sorting**

Harvest cocoons on 6th day. Remove defective cocoons. After sorting out the defective cocoons grade the cocoons according to the quality. In winter, delay the harvest by one day. Transport the cocoons during cooler hours of the day and market on 7th day. Cocoons need to be loosely packed in nylon netted bags of 30~40 kg capacity and transported in vehicle having shelves/partitions so that pressing of cocoons can be avoided.

## CHAPTER – III

## MARKET POTENTIAL

The demand for silk has always been high for a variety of fabrics ranging from sarees to shirting etc. Natural silk faces competition from artificial silk which is imported but consumers having set preferences for natural silk are not easily weaned away by artificial silk. Besides indigenous demand, there is a huge export demand and Indian silk is popular all over the world. Silk earns considerable foreign exchange for the country. The Silk Board provides assistance for international marketing to those interested in export.

## CHAPTER- IV

## ECONOMICS OF THE PROJECT

### A. PROJECT PROFILE (Financial)

| Sr. No. | PARAMETERS | VALUE |
|---|---|---|
| 1 | Type of Project | Sericulture |
| 3 | Product | Cocoons |
| 2 | Production Capacity ( Cocoons-Kg./month) | 200 |
| 4 | Cost of the project | 9,88,183 |
| 5 | Bank loan | 7,90,547 |
| 6 | Margin money | 1,97,637 |
| 7 | Financial Indicators | |
| | BCR at 15% DF | 1.81 :1 |
| | NPW at 15% DF Rs. | 13,02,657 |
| | I R R % | 72 |
| | Average DSCR | 2.9 |
| 8 | Interest Rate (% per annum) | 12 |
| 9 | Repayment Period | 5 years |

## B. BASIS & PRESUMPTIONS

| Sr. No. | Particular | Unit | Quantity |
|---|---|---|---|
| **I.** | **Techno-economic parameters** | | |
| | Type of Sericulture | | Tasar |
| | Land for Mulberry plantation | Acre | 2.48 |
| | Repayment period | year | 5 |
| **II.** | **Expenditure norms** | | |
| | Maintenance of host mulberry plants | Rs./acre | 10,000 |
| | Cost of Tasar Silkworm rearing | Rs./kg. of cocoons | 90 |
| | Cost of Tasar silkworm (dfls) | Rs./dlfs | 100 |
| | dfls: Disease Free Layings; 1 dfl = 500 larvae | | |
| **II.** | **Income norms** | | |
| | Production of Cocoons per month | Kg. | 200 |
| | Selling price of Cocoons | Rs./Kg. | 450 |

## C. TOTAL COST OF PROJECT

| Sr. No. | Particular | Unit | Unit Rate | Quantity | Amount in Rs. |
|---|---|---|---|---|---|
| **I.** | **Capital Cost** | | | | |
| 1 | Land & Site Development | | | | |
| | Land (2.48 acre) | | | | Own |
| | Land development ( JCB work) | Hrs. | 750 | 12 | 9,000 |
| | Land development ( by tractor) | Hrs. | 450 | 25 | 11,250 |
| | Fencing & Gate | Running meter | 450 | 570 | 2,56,500 |
| | | | | | 2,76,750 |
| 2 | Building | | | | |
| | Rearing House & storage room (size - 22' * 65' * 1 nos.) | Sq. ft. | 250 | 1,430 | 3,57,500 |
| | | | | | 3,57,500 |
| 3 | Machinery & Equipments | | | | |
| | Rearing equipments like bamboo racks, Low volume sprayer, Secature etc. | Ls. | | | 60,000 |
| | Drip Irrigation | Acre | 30,000 | 2 | 60,000 |
| | Pipe line for irrigation ( 800 sq.ft.) | Ls. | | | 25,000 |
| | Bore well ( 800 Ft.) | Ls. | | | 85,000 |
| | | | | | 2,30,000 |
| 4 | Initial cost of Mulbery plantation | | | | |
| | Seedlings | Nos. | 2 | 14000 | 28,000 |
| | Organic Mannure | Tonn | 1,200 | 10 | 12,000 |
| | Compost fertiizer | Kg. | 12 | 250 | 3,000 |
| | | | | | 43,000 |
| | | | | **TOTAL (A)** | **9,07,250** |
| **II.** | **Working Capital** (Operational cost for four months ) | | | | 80,933 |
| | | | | **TOTAL (B)** | **80,933** |
| | **TOTAL COST OF PROJECT** | | | **TOTAL (A+B)** | **9,88,183** |

## D. MEANS OF FINANCE

| Sr. No. | Particular | Unit | Quantity | Amount in Rs. |
|---|---|---|---|---|
| 1 | Term loan | % | 80 | 7,90,547 |
| 2 | Own contribution | % | 20 | 1,97,637 |
| | | | **TOTAL** | **9,88,183** |
| 3 | Subsidy entitlement | | | |
| | Drip Irrigation set @ 100% | | | 60,000 |
| | Mulberry Plant Cultivation @ Rs. 10,500 per care | | | 21000 |
| | Silkworm Rearing Room | | | 87,500 |
| | Fencing & Gate @ 50% | | | 1,28,250 |
| | Rearing Room Equipment's | | | 60,000 |
| | | | **TOTAL** | **3,56,750** |

## E. PROJECTION OF PERFORMANCE & PROFITABILITY

| Sr. No. | Particular | Unit | Unit rate in Rs. | Quantity | I year | II year | III year | IV year | V year |
|---|---|---|---|---|---|---|---|---|---|
| **I.** | **Income** | | | | | | | | |
| | Capacity Utilized | % | | | 60 | 70 | 75 | 80 | 80 |
| a. | Production of Cocoons ( per month production- 200kg* 12 months) | Kg. | 450 | 2,400 | 6,48,000 | 7,56,000 | 8,10,000 | 8,64,000 | 8,64,000 |
| b. | Subsidy | Rs. | | | 356750 | 0 | 0 | 0 | 0 |
| | | | | **TOTAL (A)** | **10,04,750** | **7,56,000** | **8,10,000** | **8,64,000** | **8,64,000** |
| II. | **Expenditure** | | | | | | | | |
| a. | Cost of Tasar silkworm (dfls) dfls: Disease Free Layings; 1 dfl = 500 larvae | Nos | 20 | 2,400 | 48,000 | 48,000 | 48,000 | 48,000 | 48,000 |
| b. | Cost of Tasar Silkworm rearing | Rs./kg. of cocoons | 50 | 2,400 | 1,20,000 | 1,20,000 | 1,20,000 | 1,20,000 | 1,20,000 |
| c. | Maintenance of host plants | Acre | 10,000 | 2.48 | 24,800 | 24,800 | 24,800 | 24,800 | 24,800 |
| d. | Other overhead expenses | Ls. | | | 50000 | 50000 | 50000 | 50000 | 50000 |
| | | | | **TOTAL (B)** | **2,42,800** | **2,42,800** | **2,42,800** | **2,42,800** | **2,42,800** |
| **III.** | **Net Income** | | | **TOTAL (A-B)** | **7,61,950** | **5,13,200** | **5,67,200** | **6,21,200** | **6,21,200** |

**F. Financial Analysis**

| Particulars | | I year | II year | III year | IV year | V year |
|---|---|---|---|---|---|---|
| Capital Costs | | 9,07,250 | | | | |
| Recurring cost | | 2,42,800 | 2,42,800 | 2,42,800 | 2,42,800 | 2,42,800 |
| **Total Cost** | | **11,50,050** | **2,42,800** | **2,42,800** | **2,42,800** | **2,42,800** |
| Benefit | | 10,04,750 | 7,56,000 | 8,10,000 | 8,64,000 | 8,64,000 |
| Depreciated value of buildings @10% | | | | | | 2,09,316 |
| Depreciated value of equipments @ 15% | | | | | | 1,16,981 |
| **Total Benefit** | | **10,04,750** | **7,56,000** | **8,10,000** | **8,64,000** | **11,90,297** |
| **Net Benefit** | | **-1,45,300** | **5,13,200** | **5,67,200** | **6,21,200** | **9,47,497** |
| Discounting Factor@ 15% | | 0.87 | 0.76 | 0.66 | 0.57 | 0.50 |
| NPV cost at 15% DF | | 10,00,544 | 1,84,528 | 1,60,248 | 1,38,396 | 1,21,400 |
| NPV benefits at 15% DF | | 8,74,133 | 5,74,560 | 5,34,600 | 4,92,480 | 4,32,000 |
| NPW at 15% DF | **13,02,657** | | | | | |
| BCR at 15% DF | **1.81 :1** | | | | | |
| IRR % | **71.75** | | | | | |

**G. Term Loan Repayment**

Rate of interst - % per annum **:** 12

Opening balance of term loan **:** 7,90,547

| Year | Loan Outstanding | Gross Surplus | Principal | Interest | Total Repayment | Net Surplus | DSCR |
|---|---|---|---|---|---|---|---|
| 1 | 7,90,547 | 7,61,950 | 1,58,109 | 94,866 | 2,52,975 | 5,08,975 | 3.0 |
| 2 | 6,32,437 | 5,13,200 | 1,58,109 | 75,892 | 2,34,002 | 2,79,198 | 2.2 |
| 3 | 4,74,328 | 5,67,200 | 1,58,109 | 56,919 | 2,15,029 | 3,52,171 | 2.6 |
| 4 | 3,16,219 | 6,21,200 | 1,58,109 | 37,946 | 1,96,056 | 4,25,144 | 3.2 |
| 5 | 1,58,109 | 6,21,200 | 1,58,109 | 18,973 | 1,77,082 | 4,44,118 | 3.5 |
| | | | | | | **Avg. DSCR** | **2.9** |