UNIT 2 SERICULTURE AND RURAL ECONOMY

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2.0 OBJECTIVES

After reading this unit, you will be able to:

- defend that sericulture practice is a fulltime occupation that generates huge employment throughout the year;
- identify the financial schemes to start sericulture in order to strengthen rural economy and help women to become a major working force by practising sericulture;
- evaluate the importance and role of stakeholders in any agro-based industry; and
- support that sericulture fetches more money than any other agricultural practice in rural areas.

2.1 INTRODUCTION

You will agree that time and money are the raw materials for everything in our life. You can earn money based on your capability in doing a job utilizing time and skill. Your standard of living depends on quantum of money available to you. Each one of
us has to earn our livelihood. In this context, let us consider our country’s rural scene. We have huge areas of cultivable and uncultivable land available to us. Our average rural education background is within primary level. However, our villagers take up many vocations like agriculture, horticulture, social forestry, animal husbandry, sericulture, poultry, piggery, dairy, cultivation of medicinal plants, cottage industry, weaving, handicrafts, apiculture, lac-culture, goattery etc. Obviously, these activities directly boost up the rural economy. Sericulture is also an important agro-based vocation, which can benefit people and stimulate the rural economy.

In Unit 1, you have understood the importance of sericulture and different activities of sericulture like host plant cultivation, silkworm rearing for cocoon production, cocoon reeling for silk yarn, weaving and further processing for garments or textile goods etc. Thus, it generates huge employment opportunities for people of both sexes and of all age groups in the rural areas.

In order to make sericulture viable and profitable, the role of supporting organizations is indispensable and worth mentioning. Research and Development provide necessary inputs like high yielding host plant varieties, high yielding races, silkworm eggs, rearing package etc., and the extension functionary’s help in increasing commercial production and marketing. For all these activities, financial support is a primary need. Concrete efforts of all concerned give a real boost to the rural economy through sericulture. Many financial institutions, commercial banks and non-government organizations have come up to cater to the needs of women entrepreneurs and rural folks for helping them to stand on their own feet.

2.2 POTENTIAL OF SERICULTURE IN EMPLOYMENT GENERATION

As already discussed, sericultural practices involve manifold activities necessitating contributions from people with various skills. One can practise sericulture integrating all activities or do one of the activities to employ oneself depending on skills and feasibility. Another important aspect of sericulture is that the activities continue throughout the year unlike many other agricultural activities. Further, mulberry plants once planted can be maintained for more than 15 years through the cultural practices as it is a perennial plant. Hence, no investment of money need to be made on plantation every year. The most important consideration is the effective utilization of family labour particularly the aged, handicapped, the illiterate and women folk. With this brief introduction, now, let us look at the employment potential of each activity.

2.2.1 Sericulture Activities Helping in Employment Generation

a) **Raising of Mulberry Saplings:** Mulberry is widely propagated through shoot cuttings and also through seeds. Saplings are young plants with well-developed root and shoot systems. Mulberry saplings are raised from cuttings of 6 to 8 months old pencil thick mulberry shoots. The activities involved in the process are nursery bed preparation, cuttings preparation and planting in the nursery bed followed by little care regarding weeding, watering and fertilizer application up to three months which ensure 100 per cent survival of cuttings. The cuttings are planted in beds of required size. The saplings are uprooted after three months for transplantation. Hence, the whole operation will be completed within three months. The selling price of each sapling is not less than Rs. 2/- at present. Any person having little knowledge of cultivation can accomplish the job. Even
a landless farmer can hire land on lease in rural areas for the purpose and earn money, besides offering jobs to the rural folks, in turn improving rural economy.

b) **Raising of Mulberry Garden and Silkworm Rearing:** You know that the mulberry leaf is the sole food of silkworm, *Bombyx mori* and the purpose of mulberry cultivation is to rear silkworm only. Therefore, our target is to produce more leaf per unit area making sericulture profitable. It is also a proven fact that one hectare is considered as an economic unit for raising mulberry garden for silkworm rearing which can generate employment for 12 – 13 persons throughout the year. But, the marginal farmers having less than 0.5 acre are also practising sericulture with the help of their family members throughout the year. Let us hypothetically confirm the flow of activities in chronological order involving employment generation and income from a mulberry garden of one acre. The activity demands sufficient mandays.

**A. Initial Establishment Cost of One Acre of Mulberry Garden (H.Y.V. S1635, planting season-September) for 3 months (September to December)**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Expenditure (In Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Land Preparation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Tilling and levelling of land by country plough</td>
<td>1,440</td>
</tr>
<tr>
<td></td>
<td>(12 ploughs @ Rs.120/-)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Weeding 6 mandays @ Rs. 50/-</td>
<td>300</td>
</tr>
<tr>
<td>2.</td>
<td><strong>Fertilizer Application</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Cost of FYM / Vermicompost – 8 MT @ Rs. 350/- per tonne</td>
<td>2,800</td>
</tr>
<tr>
<td></td>
<td>b. Application of FYM / Vermicompost 6 mandays @ Rs. 50/-</td>
<td>300</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Cutting preparation and Planting</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Cost of cutting 1.2 MT @ Rs. 700/- per MT</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td>b. Cutting preparation 6 mandays + plantation of cuttings 12 mandays = 18 mandays @ Rs. 50/-</td>
<td>900</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Irrigation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. 8 times at 15 days interval (48 hrs @ Rs. 45/- per hour)</td>
<td>2,160</td>
</tr>
<tr>
<td></td>
<td>b. 20 mandays for irrigation @ Rs. 50/-</td>
<td>1,000</td>
</tr>
<tr>
<td>5.</td>
<td>Hoeing 3 times (72 mandays @ Rs.50/-)</td>
<td>3,600</td>
</tr>
<tr>
<td>6.</td>
<td>Miscellaneous</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>13,640</strong></td>
</tr>
</tbody>
</table>

**N.B.:** Established garden brings forth mulberry leaves steadily for 15 years without reduction of leaf yield. So, this expenditure will be divided into 15 years towards costing of leaf production in a year (Rs. 13,640 / 15 = Rs. 909/-).
## B. Maintenance of the Garden During First Year of Plantation (January to May)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Expenditure (In Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Initial Planting cost</td>
<td>909</td>
</tr>
<tr>
<td>2.</td>
<td>Hoeing two times (50 mandays @ Rs. 50/-)</td>
<td>2,500</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Chemical Fertilizer application</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Cost of fertilizer- Urea 88kg, SSP 125kg and MOP 33kg in two split doses</td>
<td>995</td>
</tr>
<tr>
<td></td>
<td>b. Application of Chemical Fertilizer 2 mandays @ Rs. 50/-</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Irrigation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. 10 times at 15 days interval (60 hrs @ Rs. 45/- per hour)</td>
<td>2,700</td>
</tr>
<tr>
<td></td>
<td>b. 20 mandays for irrigation @ Rs. 50/-</td>
<td>1,000</td>
</tr>
<tr>
<td>5.</td>
<td>Leaf Harvesting 6 MT (60 mandays @ Rs.50/-)</td>
<td>3,000</td>
</tr>
<tr>
<td>6.</td>
<td>Pruning of mulberry plants (15 mandays @ Rs.50/-)</td>
<td>750</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>19,088</strong></td>
</tr>
</tbody>
</table>

## C. Maintenance of Mulberry Garden from 2nd Year Onwards (June to May)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Expenditure (In Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Initial Planting cost</td>
<td>909</td>
</tr>
<tr>
<td>2.</td>
<td>Hoeing once in December 30 mandays and three times after each leaf harvest = 60 mandays (@ Rs. 50/-) = total 90 mandays</td>
<td>4,500</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Bio-fertilizer application</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Cost of FYM / Vermicompost 8MT @ Rs.350/-</td>
<td>2,800</td>
</tr>
<tr>
<td></td>
<td>b. Cost of Bio-fertilizer (Nitrofert 8kg)</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>c. Cost of Phosphofert 30 kg every 4 year</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>d. Application of Bio-fertilizer 6 mandays @ Rs. 50/-</td>
<td>300</td>
</tr>
<tr>
<td>4.</td>
<td><strong>Chemical fertilizer application</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Cost of chemical fertilizer Urea 146kg, SSP 75kg, MOP 75kg (In 5 split doses)</td>
<td>1,311</td>
</tr>
<tr>
<td></td>
<td>b. Application of chemical fertilizer 2 mandays @ Rs. 50/-</td>
<td>100</td>
</tr>
<tr>
<td>5.</td>
<td><strong>Irrigation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. 14 times at 15 days interval (14 x 6hrs =84 hrs @ Rs. 45/- per hour)</td>
<td>3,780</td>
</tr>
<tr>
<td></td>
<td>b. Required mandays for irrigation 28 mandays @ Rs. 50/-</td>
<td>1,400</td>
</tr>
<tr>
<td>6.</td>
<td>Leaf Harvest 16 MTs and Pruning (72 mandays @ Rs.50/-)</td>
<td>3,600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>19,088</strong></td>
</tr>
</tbody>
</table>
c) **Silkworm Rearing:** Silkworm rearing is an indoor activity, generally managed by family members of all age groups and even by the handicapped. Silkworm rearing is conducted 4 to 5 times in a year, harvesting leaf from the garden. Rearing period is 23 to 35 days from hatching of eggs to spinning of larva depending on season and silkworm breed. The optimum quantity of leaves required is 800 kgs and 1000 kgs for Multi x Bi and Bi x Bi hybrid, respectively to rear 100 layings. In order to accomplish the rearing operation, you need a well-ventilated rearing house and appliances as well as financial support. The activities involving the expenditure (approximately) are given in the following chart. The rearing activity needs labour for leaf harvest, transportation and rearing activity.

**Initial Investment of Silkworm Rearing**

A. **Non-Recurring**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Quantity Nos.</th>
<th>Rs.</th>
<th>Durability (Years)</th>
<th>Depreciation Cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construction of Rearing House</td>
<td>1</td>
<td>25,000</td>
<td>10</td>
<td>2,500</td>
</tr>
<tr>
<td>2</td>
<td>Rearing Tray</td>
<td>60</td>
<td>6,000</td>
<td>5</td>
<td>1,200</td>
</tr>
<tr>
<td>3</td>
<td>Rearing Rack</td>
<td>4</td>
<td>800</td>
<td>5</td>
<td>160</td>
</tr>
<tr>
<td>4</td>
<td>Spinning Tray</td>
<td>80</td>
<td>4,800</td>
<td>5</td>
<td>960</td>
</tr>
<tr>
<td>5</td>
<td>Leaf Chamber (Wooden/Bamboo)</td>
<td>1</td>
<td>200</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Rearing Bed Cleaning Net</td>
<td>60</td>
<td>1,200</td>
<td>3</td>
<td>400</td>
</tr>
<tr>
<td>7</td>
<td>Leaf Chopping Board (Wooden)</td>
<td>1</td>
<td>150</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>Leaf Chopper</td>
<td>1</td>
<td>40</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Thermometer/Hygrometer</td>
<td>1</td>
<td>100</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>Plastic Vat</td>
<td>1</td>
<td>100</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>11</td>
<td>Foot Sprayer</td>
<td>1</td>
<td>800</td>
<td>10</td>
<td>80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>39,190</strong></td>
<td></td>
<td><strong>5,379</strong></td>
</tr>
</tbody>
</table>

B. **Recurring**

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Item</th>
<th>Quantity</th>
<th>Amount (in Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paraffin Papers/Plastic Sheets</td>
<td>100 Nos.</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>Old Newspaper</td>
<td>10 Nos.</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Bleaching Powder</td>
<td>15 Kgs</td>
<td>300</td>
</tr>
<tr>
<td>4</td>
<td>Lime</td>
<td>5 Kgs</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Rearing Room Maintenance</td>
<td>—</td>
<td>500</td>
</tr>
<tr>
<td>6</td>
<td>Bed Disinfectants (Labex for disease management)</td>
<td>56 Kgs</td>
<td>1,512</td>
</tr>
<tr>
<td>7</td>
<td>Silkworm Eggs</td>
<td>1600 dfls</td>
<td>2,560</td>
</tr>
<tr>
<td>8</td>
<td>Miscellaneous</td>
<td>—</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>5,257</strong></td>
</tr>
</tbody>
</table>
Sericulture and Rural Economy

Returns from One Acre Mulberry Garden and Cocoon Harvest through Silkworm Rearing

d) **Silkworm Egg Production or Grainage Operation** - Grainage operation refers to production of disease-free silkworm eggs. It requires technical skill, so, only trained personnel can take up the job. The seed production involves a number of processes such as procurement and preservation of cocoons, sorting, sexing, moth emergence, coupling and decoupling, egg laying, moth examination and certification of seeds. You can take up the job after training because you have to follow all the scientific principles strictly, since the quality of seed depends on that. You must learn the technical know-how elaborately from the respective unit.

However, the silkworm seed production is a highly profitable business. Grainage operation is done preceding the commercial rearing season, generally 5 times in a year, which is a potential source of employment supporting the rural economy.

e) **Reeling and Spinning of Cocoons**: Cocoon reeling is done by a class of people called reelers and not by the rearers. The rearers harvest cocoon and sell it in the market. The cocoons are reeled in the reeling unit by the reelers. The reeling of cocoon is a high precision job; cocoons are reeled with the aid of country charkha, cottage basin, multi-end basin, automatic and semi-automatic reeling machine to get raw silk. A series of activities are involved in reeling such as cocoon drying, sorting, grading, cooking and reeling. A good number of reelers and labourers are employed in the reeling units. They earn wages from the reeling units, besides reelers also perform the job to employ themselves.

As you know, the pierced cocoon cannot be reeled but spun. Therefore, the pierced cocoons are processed through cooking, cleaning with detergent, drying and spun in the machine manually as well as in spinning mill for production of spun silk fibre, which is also a process that offers job opportunities.

f) **Twisting of Reeled Silk**: Twisting of raw silk for weaving purpose is done in the machine. The expert twister earns by this profession throughout the year.

g) **Weaving**: Silk weaving is done in handloom and also in power loom. In the villages, there are cooperative societies and private weaving centers where the weavers are employed and earn wages.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Activities</th>
<th>Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Leaf Production Cost</td>
<td>19,088</td>
</tr>
<tr>
<td>2.</td>
<td>Mandays towards rearing (5 rearings × 45 no. × Rs. 48 per mandays)</td>
<td>10,800</td>
</tr>
<tr>
<td>3.</td>
<td>Initial Establishment Cost (Non-recurring)</td>
<td>5,379</td>
</tr>
<tr>
<td>4.</td>
<td>Recurring Expenditure</td>
<td>5,257</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>40,524</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Cocoon Harvest @ 45 kgs / 100 dfls in 1600 dfls = 720 kgs (Sale of cocoon @ Rs.105 / kg)</td>
<td>75,600</td>
</tr>
<tr>
<td>2.</td>
<td>Expenditure</td>
<td>40,524</td>
</tr>
<tr>
<td></td>
<td><strong>NET PROFIT</strong></td>
<td><strong>35,076</strong></td>
</tr>
</tbody>
</table>
Dyeing and Printing: Dyeing and printing of fabrics are highly technical jobs and mainly concentrated in urban and semi-urban areas. However, the industry creates good employment opportunity for all classes of peoples.

i) Miscellaneous activities: Sericulture industry also provides indirect employment to several categories of people who are adept in preparing handicraft materials and rearing appliances (bamboo rearing trays, spinning trays, hand trays, rearing nets etc.) and middleman-ship in transaction of cocoons, yarns and silk goods.

Check Your Progress 1

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) What do you mean by employment generation?

2) Justify that sericulture fetches more money than any other agricultural crop.

3) Explain how sericulture practice generates more employment?

2.3 FINANCIAL SCHEMES TO PROMOTE SERICULTURE

Sericulture comprises both on-farm and industry-based activities. You can take up either of the technological programmes or both at a time. Let us see how the flow of sericulture activities employs people round the year. It is estimated that one hectare mulberry plantation will generate remunerative employment of 14,005 mandays or that 12 to 13 persons can be engaged throughout the year for activities right from land preparation, mulberry plantation, cultural operation, leaf harvest and silkworm rearing up to cocoon harvest.

Afterwards, silk fibre is obtained through cocoon reeling by the reellers, then fibres are twisted by the twisters and woven by the weavers, both of which requires skill. Sericulture can fit into the rural socio-economic structure benefiting the weaker section of the society. Silk is mostly consumed by the rich people and value is distributed among the farmers, reellers, twisters, weavers and traders. The major share goes to
the cocoon growers (54.6%), followed by traders (17.8%), weavers (12.3%),
twisters (8.7%) and reelers (6.6%).

However, financial support is needed to implement sericulture for creating job
opportunities to give a real boost to the rural economy. Rural development is a
continuous process wherein, constant monitoring of technological programmes is
necessary through planning. We all know that appropriate initiative is needed to
improve the economic conditions and correct the income disparities in the rural
areas through special programmes for the benefit of the poorer sections of the society.
Emphasis should also be given to agriculture extension management including
Sericulture.

2.3.1 Various Schemes under Different Plan Periods

i) **Integrated Rural Development Programme (IRDP)** was launched in
1978-79 during the fifth five year plan period (1974-79) and the District Rural
Development Agency (DRDA) was entrusted with implementation of the
programme. The target group of the programme consisted of small farmers,
marginal farmers, agricultural labourers, rural artisans and others whose income
was below the poverty line. The objective of the programme was to assist
them to cross the poverty line by taking up self employment ventures.

ii) **Training of Rural Youth for Self Employment (TRYSEM)** was launched
by the Govt. of India under the department of Rural Development on August
15, 1979 as a facilitating component of the IRDP to provide technical skills to
the rural youth from families below the poverty line to help them take up self-
employment.

iii) **Development of Women and Children in Rural Areas (DWCRA)** was
started as a sub scheme of IRDP in 1982-83. Its aim was to empower rural
women living below the poverty line (BPL) by way of organizing them to create
sustainable income generating activities through self-employment. It was the
first program of its kind that specifically focused on improving the quality of life
of rural women.

iv) **Food for Work Programme**, later developed into National Rural Employment
Programme (NREP) was started in 1977 to provide work for the rural poor.
The National Food for Work Programme launched in November, 2004 was
redesigned as National Rural Employment Guarantee scheme (NREG). This
scheme provided livelihood security for crores of poor families with a total
funding of Rs. 11,000.00 crores.

v) **Sampoorna Gram Rozgar Yojana (SGRY)** was launched on September
2001 by merging some of the earlier rural employment schemes of Rs. 6,000
crores and additional Rs. 1,000 crores exclusively for North East states &
Sikkim.

vi) **Swarnajayanti Gram Swarozgar Yojana (SGSY)** has been allotted with
sufficient funds, which will be shared between centre and states in the ratio of
3:1 and was implemented from 1st April 1999 covering all aspects of self
employment including formation of SHGs. The banks and other financial
institutions are closely associated and involved in the implementation of the
programme. The Prime Minister Rozgar Yojana (PMRY) and the Rural
Employment Generation Programme (REGP) are also being run under the
Therefore, State and Central governments have extended their generous help to the poorer sections of the society to build up a stable rural economy. You have to utilize those resources for yourself as well as for the good of the nation.

Check Your Progress 2

**Note:**

a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) What are the available schemes that promote rural employment?

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...................................................................................................................................................

2.4 INTEGRATION OF DIFFERENT ORGANIZATIONS FOR DEVELOPMENT OF SERICULTURE

In our daily life, we need support from our families to meet expenditure for food, health, education and other requirements. Likewise, some support services are also required to develop sericulture. Research and development, extension functionaries, finance, inputs and market are indispensable to run this agro-based industry. On behalf of the Union Government, the Central Silk Board, respective state governments and other financial institutions organize the supporting network.

2.4.1 Involvement of Scientific Institutions (Research and Development)

Sericulture is being practised across the country. We have to deal with two important biological materials, host plants and silkworms in particular. Under different agro-climatic conditions, the responses of these biological materials are also different. In order to increase the productivity, both in yield of mulberry leaves and cocoon production as well as to ensure quality of raw silk production, sufficient research is being carried out by Research & Development sections. It has achieved a lot through research *viz.*., high yielding mulberry varieties (V1, S1635, S1, Tr10, Kanva-2), mulberry silkworm hybrids (Multivoltine x Bivoltine), mulberry cultivation and silkworm rearing packages, mulberry and silkworm crop protection measures, fabrication of reeling machine and other devices for quality raw silk production etc.

The requirement of technical personnel has been met in every sphere of sericulture for efficient management of host plant cultivation, silkworm rearing and raw silk production through training under human resource development programme. This has resulted in the steady increase in the total raw silk production, mulberry in particular. Now, our target is to increase productivity per unit area of land and to cover non-cultivable land under sericulture, which is the future strategy of development.
2.4.2 Contribution of Extension Functionaries

Extension is informal education, an attempt to stretch out to people in the rural areas beyond the limits of research institutes. So, extension always ensures transfer of technology and provides an opportunity to evaluate technologies developed in the research institutions.

If we develop any high yielding variety of mulberry or hybrid of silkworm in the laboratory, we must evaluate the same in the field through the extension functionaries before its release. All the evolved technologies in the sericulture like bed disinfectant for silkworm disease prevention, Uzicide for Uzi control, bio-fertilizer etc., have been evaluated in the same manner through extension, which is an integral part of the research. Further, refinement of technology is also done through extension, otherwise productivity will come to a halt.

Technologies get final shape in the field with the help of extension functionaries through refinement. Further, extension also helps to popularize new technologies among the farmers resulting in increased yield.

2.4.3 Inputs for Quality and Quantity Cocoon Production

- All of us are aware that no living organism can survive without nutrition or other inputs. In the same manner, sericulture can be sustained only with continuous provision of potential inputs. The inputs in sericulture are the material aspects of viable technologies. Until recently, many important and low cost technologies have been evolved in Indian sericulture which are affordable, easily available and eco-friendly to minimize the investment cost and make sericulture more profitable. Application of these technologies or inputs can bring increased yield and income in an enterprise as illustrated here. These inputs have brought about a real break-through in Indian sericulture.

- **High Yielding Mulberry Varieties**: Mulberry varieties like S1635 ensures 36 MT and V1 ensures 50 MT annual leaf production under irrigated conditions per hectare of land.

- **Region and Season Specific Silkworm Hybrids**: (Multi X Multi hybrids ensures cocoon yield 30 - 35 kg and Multi X Bi hybrids ensures cocoon yield 45-56 kg / 100 dfis).

- **Silkworm Rearing Package**: Dealing with spacing, hygiene, nutritional quality of leaf, quantity and frequency of feeding, optimum temperature and humidity for Chawki and late age worm.

- **Mulberry Cultivation Package**: Dealing with plantation technique, manuring, bio-fertilizer application and pruning schedule etc.

- **Integrated package for prevention and control of silkworm and mulberry diseases and pests.**

- **Low cost rearing appliances, low cost egg incubating system.**

- **Training for skilled manpower development and technology demonstration.**

2.4.4 Financial Assistance to Start Sericulture

The economic development of a country to a large extent depends on resources. In addition to human resources, there must be dynamic entrepreneurs to mobilize capital
Sericulture in India

to exploit natural resources, to create markets and to carry on trade. So, role of finance to start the business and provide employment for rural development becomes important.

a) The Role of Financial Institutions in Rural Development

The government has been implementing the Rural Employment Generation Programme (REGP), a credit-linked subsidy programme, through the Khadi and Village Industries Commission (KVIC) in the country to provide self-employment opportunities to unemployed persons in rural areas including women. Under the REGP, women entrepreneurs are entitled to a higher subsidy money assistance as compared with general category entrepreneurs. Under REGP, 24,747 village industry units were set up by women entrepreneurs with marginal assistance from KVIC and loans from banks during 2003-04. The programme is still continuing.

Similarly, Prime Minister’s Rozgar Yozana (PMRY) implemented in both rural and urban areas is offering self employment opportunities to educated unemployed youth. This too is a credit-linked subsidy scheme and is implemented through the District Industries Centres of the states and Union Territories, with the loans being provided by banks (SIDBI, NABARD) and KVIC.

Development of entrepreneurship among women has become an important aspect to make them economically stronger, since in India the women constitute 48.2% of the total population.

In consultation with the concerned competent authority and financial institutions, any body can take up sericulture as a vocation for themselves as well as for bringing about rural development.

2.4.5 Organized Market for Cocoon Sale

i) Market for Primary (Cocoon) Producer: Market is a place where sellers and buyers meet to sell commodities in lieu of money. A good market is very important for any trade. In sericulture, the main product is the cocoon, which is a perishable good. It cannot be stored for an indefinite period. In traditional sericulture states, well-organized cocoon markets are run by the state governments.

ii) Market for Raw Silk and Finished Goods: Once cocoon is reeled into silk yarn (raw silk), it is sold through silk exchange for weaving for different purposes. Again, the finished products are up for sale. A good market linkage is available in the country for domestic consumption and export of various items.

iii) Assistance for Marketing: The role of National Bank for Agriculture and Rural Development (NABARD) in promoting the entrepreneurial talent among women is worth mentioning. Marketing is a major problem faced by women entrepreneurs. They face difficulties in raising initial resources for forward and backward linkages for marketing products. In order to encourage women entrepreneurs, NABARD is implementing a scheme entitled “Assistance for marketing for non-farm products of rural women” (MHIMA) to provide credit and promotional exposure to agencies engaged in marketing of goods produced by rural women. The scheme covers promotional grant and revolving fund assistance to the organizations of women/NGOs/Development agencies for providing marketing arrangements. NABARD has been working as a catalyst in providing and linking more and more SHGs to the banking systems.
Check Your Progress 3

Note:  
 a) Use the spaces given below for your answers.  
 b) Check your answer with those given at the end of the unit.

1) Why is extension support necessary for sericulture development in the rural areas?
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2) What are the important inputs to increase productivity in sericulture?
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3) Justify that finance is very important for rural development?
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4) What happens if good market is not available for sericulture produce?
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5) Who provides financial assistance for marketing?
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2.5 FINDING THE SUITABILITY OF WOMEN IN SERICULTURE

The women of rural areas, in particular, are quite adept in farm related activities both within and outside the household. All activities in sericulture are mostly indoor and are best suited to women folks except land preparation for mulberry plantation. Moreover, women can concentrate and accomplish the work with sincerity and devotion while at home.
The sericultural activities like sapling raising in nursery, leaf harvest, silkworm rearing, cocoon harvesting, marketing, entire grainage operations for disease free layings preparation, silk reeling and weaving are being attended independently by women. Recently, the participation of women in cultural practices of mulberry like weeding, manuring, pruning are also increasing day-by-day. Women are equally expert in all fields of sericulture and constitute sixty per cent of the work force engaged in various sericulture related activities.

We can depend on the women folk to run the entire sericulture industry, production in particular, if they are helped and trained as required. In India, women constitute 48.2% of the total population (49.6 crores as per 2001 census), and if we can utilize even 1% of this huge women population for sericulture, it would be a real boost to rural development.

Simultaneously, we are to ensure necessary support to them such as land, input, technology and training. Training regarding women’s participation in group formation and leadership development, group economic activity, development in decision making, access to sericulture income through savings accounts in their names are most essential to benefit the whole sector.

Check Your Progress 4

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) Why does sericulture practice suits women?

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2) How can the women build up rural economy through sericulture?

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2.6 LINKAGE OF STAKEHOLDERS IN SERICULTURE

Before reading this section, we strongly advise that you answer the self-assessment question given in the previous section. In reality, we need support from others in almost all activities. In fact, the sericulture industry can be compared to our family set up, where, each one of us has a role to play and each one of us is dependent on others in some way or the other. We, as a family prosper well only when all the individuals play their roles with a holistic view. Similarly, in sericulture, efforts are to be supported by all the players for its development. Let us see, who are these players and what are their roles?

The major stakeholders in sericulture industry are the cocoon producers, grainures,
reelers, weavers, SHGs and NGOs. All of them work hand in hand to run this agro-based industry to strengthen the rural economy.

a) **Cocoon Producers:** Those who are professionally engaged in seed cocoon production are called seed cocoon growers. They must have quality consciousness about seed cocoons because good harvest demands good seed. Marginal farmers generally engage in commercial cocoon production, the raw material for raw silk production for supply to corporate sectors.

b) **Grainures:** Grainures are the persons engaged in preparation of disease-free silkworm egg. By and large, they meet about 70% disease-free laying requirement for the industry and the rest are supplied by the Central Silk Board and respective State governments, virtually they are the backbone of the industry.

c) **Reelers:** Cocoon reeling is a high precision job done by the reelers. Quality of the yarn depends on skilled manoeuvering of the reelers. Spinning of pierced cocoon is another skill through which spun yarn is obtained. However, the reelers and spinners play very important roles in the silk industry.

d) **Weavers:** They are the artisans who are engaged in weaving of silk and contribute much to shape the silk wishfully and create a market for finished product.

e) **Self Help Group (SHG):** SHGs are formed within the rural communities with 10-20 members in each group identifying the resources, the occupational skills of the people and availability of markets. Indeed, it is a viable organized set up to disburse micro-credit to the rural women and encourage them in entrepreneurial activities. SHGs and micro-credit are the solutions to speed up the socio-economic development of poor women, besides providing the technical know how. More than eight lakh SHGs are in operation.

f) **Non-Government Organisation (NGO):** NGOs are registered bodies engaged in promoting schemes with a view to serving the rural community. The scheme covers promotional grant and revolving fund assistance. NABARD has been supporting NGOs for conduct of Rural Entrepreneurship Development programmes, Skill training, Setting up of Artisan Guilds and Common Service Centres for rural women. Now-a-days, the NGOs have diversified and intensified their activities in all sectors related to rural development including sericulture.

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**Check Your Progress 5**

**Note:**

a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) Who are the stakeholders in sericulture?

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2.7 LET US SUM UP

Sericulture is an agro-based cottage industry that can stimulate the rural economy. Financial assistance is offered by central and state governments under different schemes (SGSY, SGRY and PMRY) for rural development, covering all aspects of self employment including formation of SHGs. The banks (NABARD, SIDBI) and other financial institutions are closely associated and involved in implementing of programmes. Sericulture is considered as a means of rural development and economy. Productivity is increased through the support of Research and Development, Extension functionaries and inputs. Sericulture is also identified as most remunerative more than any other agricultural crop due to its unique nature. Participation of women folk has been established in the job as sixty per cent of the job is done by them. Sericulture can generate maximum employment throughout the year. There exists regulated markets and marketing assistance by NABARD and also the enthusiasm and the corporate help of the stakeholders have made sericulture an important activity of the rural economy.

2.8 GLOSSARY

**Cocoon Producers**: Those who rear silkworm for cocoon or raw silk production.

**Disease-free Layings**: Silkworm eggs free from Pebrine disease in particular.

**Employment Generating**: Ensures job opportunities.

**Grainures**: Those who ensure production of silkworm eggs in a grainage (egg production center).

**Gross Domestic Product (GDP)**: A measure of the total flow of goods and services produced by the economy over a specified time period, normally a year, obtained by valuing outputs of goods and services at market prices, and then aggregating.

**Rural Economy**: Income flow or GDP growth in rural areas.

**Stakeholders**: An independent party with whom money or counters wagered are deposited or a person with an interest or concern in something.

2.9 SUGGESTED FURTHER READING


Dandin, S.B. 2001. Handbook of Sericulture Technologies, Published by Central Silk Board, Bangalore, India.


Jolly, M.S. 1987. Appropriate Sericulture Techniques. Published by Director, International Centre for Training and Research in Tropical Sericulture, CSR&TI, Mysore, India.
2.10 REFERENCES

Dandin, S.B. 2001. *Handbook of Sericulture Technologies*, Published by Central Silk Board, Bangalore, India.


Jolly, M.S. 1987. *Appropriate Sericulture Techniques*. Published by Director, International Centre for Training and Research in Tropical Sericulture, CSR&TI, Mysore, India.


2.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) Employment generation is any developmental activity, which creates job opportunities. In rural areas, human resources are available in plenty and can be utilized in agriculture, food processing, farming fisheries, apiculture and sericulture in particular.

2) Mulberry being perennial, once it is planted, continuous leaf production can be ensured through cultural practices unlike as in other crops. Silkworm rearing can be conducted 4 to 5 times in a year with the available leaves. No other agricultural crop can be harvested 4-5 times in a year. Obviously, a unit area of land ensures more income through sericulture.

3) Sericulture industry provides job opportunities through mulberry cultivation, silkworm rearing, reeling, twisting, spinning, weaving, dyeing and printing, processing of clothes, directly and indirectly in the preparation of rearing appliances, sale of chemicals, disinfectant etc. In this way sericulture creates more job opportunities or generates more employment.

Check Your Progress 2

1) IRDP, TRYSEM, DWCRA under IRDP are the schemes, which started supporting the rural sector. In recent times, SGRY which merged some of the earlier rural employment schemes, SGSY, PMRY and REGP are others that have joined the list.

Check Your Progress 3

1) When any technology is developed in the laboratory, it is brought to the field functionaries for its evaluation. For instance, when a new breed of silkworm is
evolved in the laboratory and reared providing all necessary requirements the performance of that breed may be excellent. When the same is brought into the field conditions it has to face a lot of environmental hazards and the performance of that breed may not be as good as in laboratory conditions. Therefore, the extension functionaries are responsible in judging the performance of evolved technologies before their release.

2) The inputs are the material aspects of technology, the application of which can bring increased yield and income in any enterprise. In sericulture, the productivity can be increased by plantation of high yielding mulberry varieties, cultivation practices, fertilizer schedule, pest control and rearing of hybrid silkworms, adopting preventive measures against diseases, which are considered as potential inputs.

3) In rural areas, people are poor and mostly below the poverty line. To initiate any activity either independently or in groups, financial support is very essential. If any thing is produced even its marketing is a problem and all these problems can be solved if it is planned through a scheme with financial assistance. NABARD and other financial institutions have come forward for rural development and ameliorating the conditions of the poor.

4) Sericulture produces mainly cocoon which is a perishable good and cannot be stored for indefinite periods. If good market is not available there will be a distress sale to the middle man or otherwise. Poor farmers will incur loss in the deal.

5) In order to encourage women entrepreneurs, NABARD is implementing a scheme entitled Assistance for marketing of non farm products of rural woman (MAHIMA) to credit promotional exposure to agencies engaged in providing services for the marketing of goods produced by rural women. The scheme covers promotional grant and revolving fund assistance to the organizations of women/ NGOs/ Development agencies for providing marketing arrangements. NABARD has been working as a catalyst in promoting and linking more and more SHGs to the marketing system.

Check Your Progress 4

1) Except mulberry cultivation, all activities in sericulture are conducted within the household. Women Participate in all the sericulture activities as well as other members of the family very comfortably, and sericulture is therefore a suitable activity for women.

2) It is a proven fact the women constitute 60% of the work force engaged in various sericulture related activities. Moreover, 48.2% of the total population consists of women. As such it is easier to build up the rural economy with the help of the women folk.

Check Your Progress 5

1) Grainures (LSP), cocoon producers, reelers, weavers, NGOs, and SHGs are the main stakeholders in sericulture. Corporate help to the stakeholders keeps the wheel of the industry moving.