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JANATA SHIKSHAN SANSTHA'S
KISAN VEER MAHAVIDYALAYA, WAI, DIST. SATARA

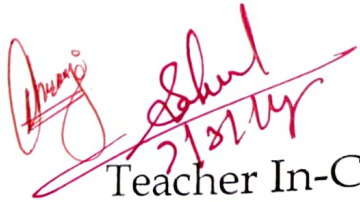
DEPARTMENT OF ZOOLOGY


Certificate of Attendance

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of class B.Sc. Part III Roll No. 84 Examination Seat No. _____

has attended the Study visit arranged to District Sericulture center, wai on 2 February 2019.


Teacher In-Charge


Head,
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Sericulture Report

Introduction:

Sericulture, or silk farming, is the rearing of silkworms for the production of silk. Although there are several commercial species of silkworms, *Bombyx mori* is the most widely used and intensively studied silkworm. Sericulture has become one of the most important cottage industries in a number of countries like China, Japan, India, Korea, Brazil, Russia, Italy and France.

Today China and India are the two main producers, together. Silkworm larvae are fed by mulberry leaves, and, after the fourth moult, climb a twig placed near them and spin their silken cocoons. This process is achieved by the worm through a dense fluid secreted from its structural glands, resulting in the fiber of the cocoon. The silk is a continuous-filament fiber consisting of fibroin protein, secreted from two salivary glands in the head of each larva, and a gum called sericin, which cements the two filaments together.

The sericin is removed by placing the cocoons in hot water, which frees the silk filaments and readies them for reeling. This is known as the degumming process. The immersion in hot water also kills the silkworm pupae. Single filaments are combined to form thread. This thread is drawn under tension through several guides and wound onto reels. The threads may be plied together to form yarn. After drying the raw silk is packed according to quality manufacturing more than 60% of the world production each year.

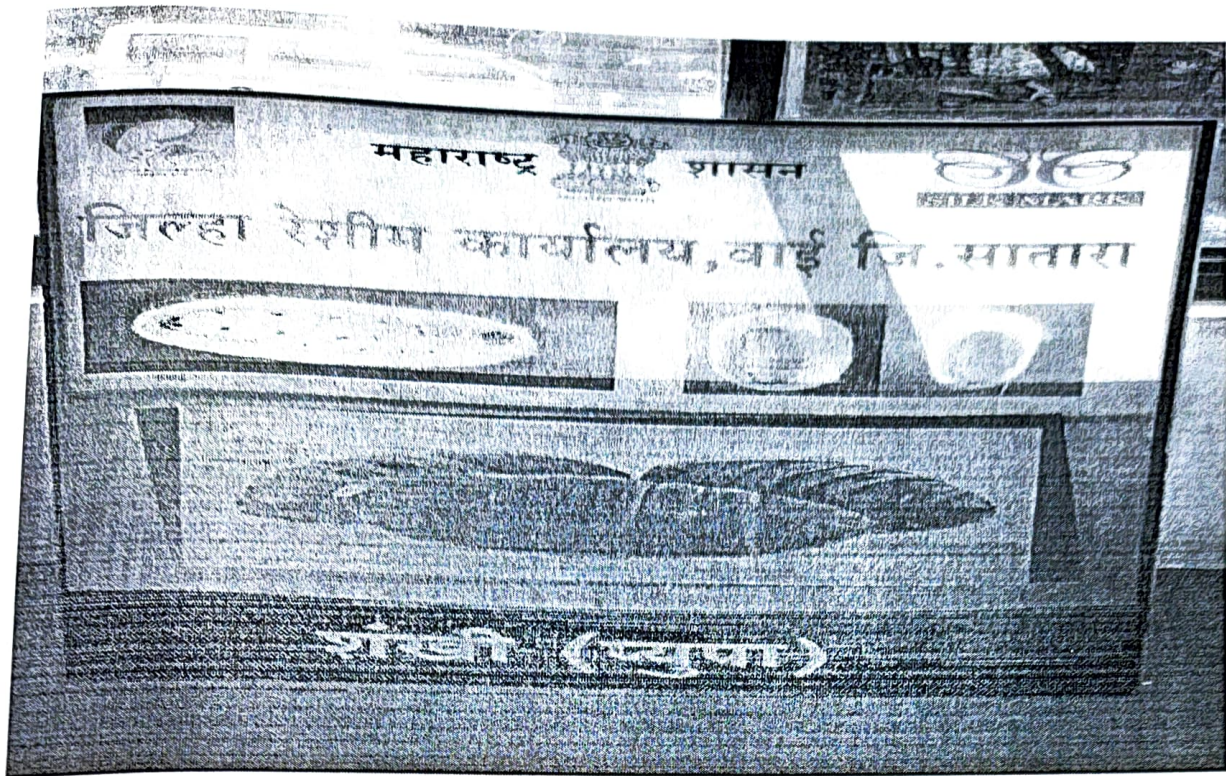
Objectives:

1. Sericulture provides suitable silk fibers to manufacture the various kind of garments.
2. Sericulture is an excellent cottage industry improving the economic status along with the maintenance of environment equilibrium in rural areas
3. Sericulture industry requires low capital investment it can be done with regular farming as a cottage industry.
4. Sericulture industry provides employment for men and women from rural area of different age category.

Study site:

To study Sericulture we have visited District **Sericulture Centre Wai** on 22/2/2019. In this center the Government officials have provided us very useful information regarding the cultivation of mulberry, rearing techniques of silk moth and ideal conditions required for the better maintenance of the larvae and production of good quality cocoons. Many farmers from Satara district, Koregaon taluka have taken the initiative and involved in silk production along with their traditional

farming.



1. Cultivation:

Mulberry is a hardy plant capable of thriving under a variety of agroclimatic conditions. Plant cultivated by "Patta Method" (2x3) x5 feet and plant population is 100%. It also give 8 metric tons cow dung manure. Only cultivate CSR certified seeds for planting. At the same time, it is also sensitive responding extremely well to optimum agricultural inputs but showing practically no growth when plant nutrients and moisture begin to operate as limiting factors. This is evident from the fact that under the poor rainfall conditions of 25-30 (625-750 mm) prevailing in South India, the current leaf yield is of the order of only 3,000-3,500 kgs per hectare whereas under assured irrigation and appropriate fertilizer application, it can be stepped upto 30,000 kgs or so, or nearly ten times. Further, mulberry under South Indian conditions, unlike in temperate regions like Japan, Korea and USSR, gives continuous growth almost throughout the year, because of optimum temperature conditions and good sunshine available.

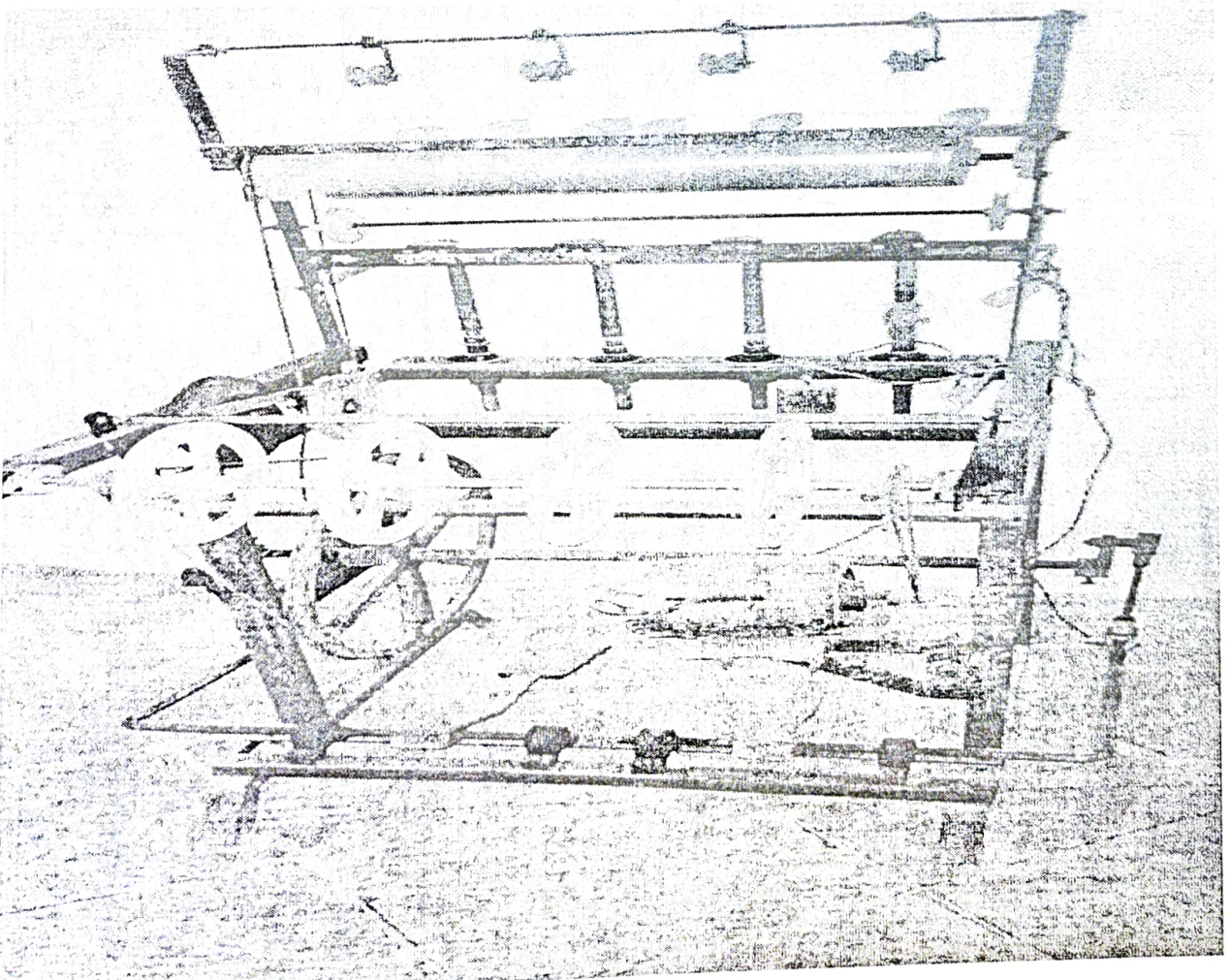
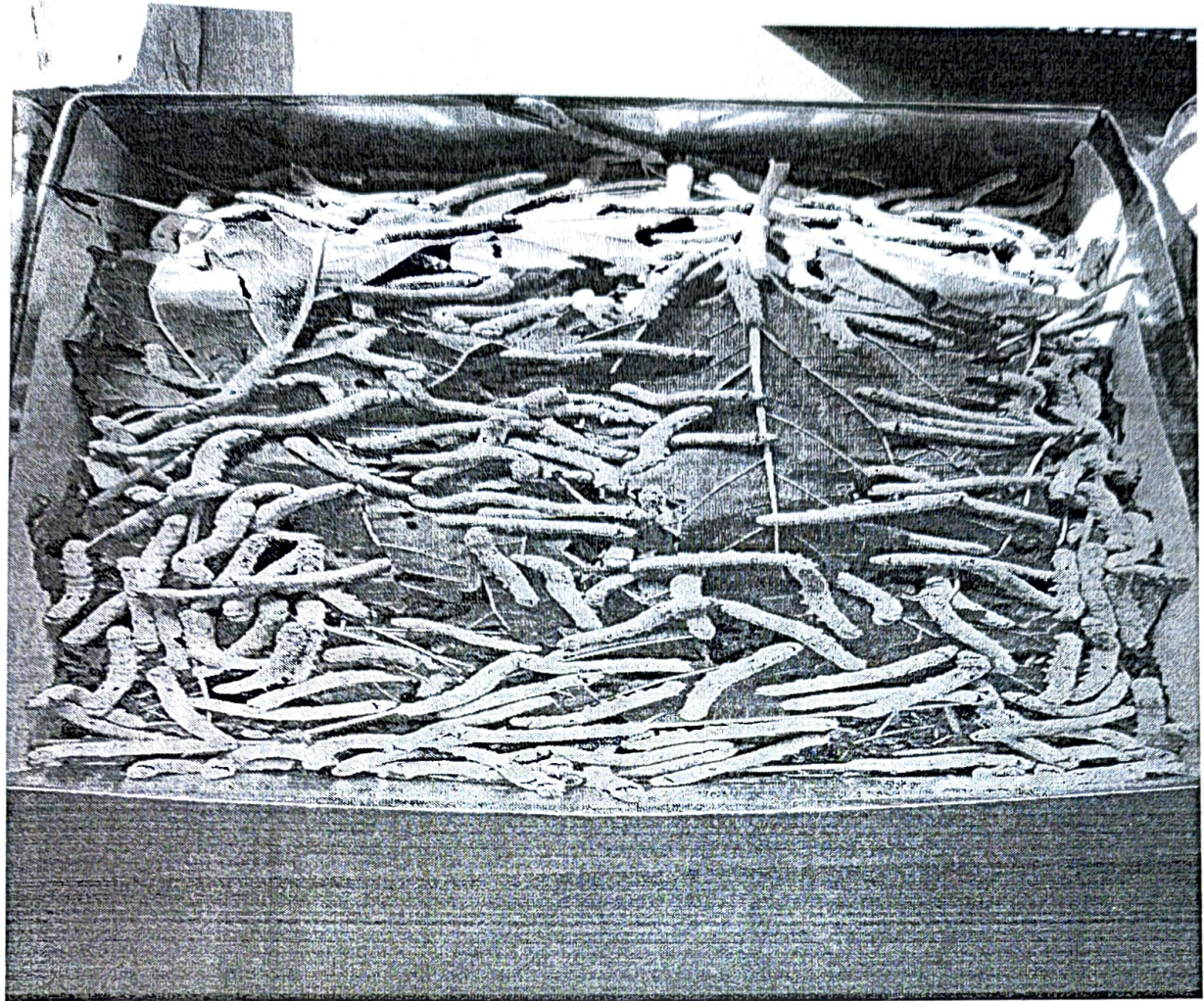
Soil and climatic conditions :

Mulberry can grow practically on any type of land except on very steep lands. Good growths, however, are obtained when it is raised on either flat land. Mulberry grows in a wide range of soils, but best growth is obtained in loamy to clayey loam soils. The mulberry plant can tolerate slightly acidic conditions in the soil. In the case of too acidic soils with pH below 5, necessary corrective measures through application of Dolomite or Lime should be adopted. In case of alkaline soils, application of Gypsum should be resorted to for correction of the soil alkalinity. Since, mulberry is a deep the soil should be sufficiently deep up to about two feet in depth. In respect of elevation, mulberry thrives well up to about 4,000 feet, above growth will be retarded because of the cooler temperature.

1.Rearing:

The silk worm larvae after 12 to 13 days will be segregated into various age groups. The larvae at this stage change body color at this stage and do not take any food. Those worms will be separated and put into a plastic tray, covered with papers and a wire mesh net. The light yellow colored larvae after taking required amount of feed (after approximately 10 to 12 days of initiation of larval stage) are ready for cocoon stage are placed on the net. Before placing the cocoons, the tray is washed with bleaching powder to protect the worms from infection. The cocoon stage is arrived in 5 days

1. **Economy:** Sericulture provides a continuous income throughout the year. An economic analysis of mulberry sericulture farmers was studied. Cost and return structure from cross-breed (Pure Mysore x CSR2) silkworm rearing was estimated. The study has shown that net returns from one acre of mulberry worked out to Rs. 52,206=00/year. The cost-benefit ratio of sericulture was

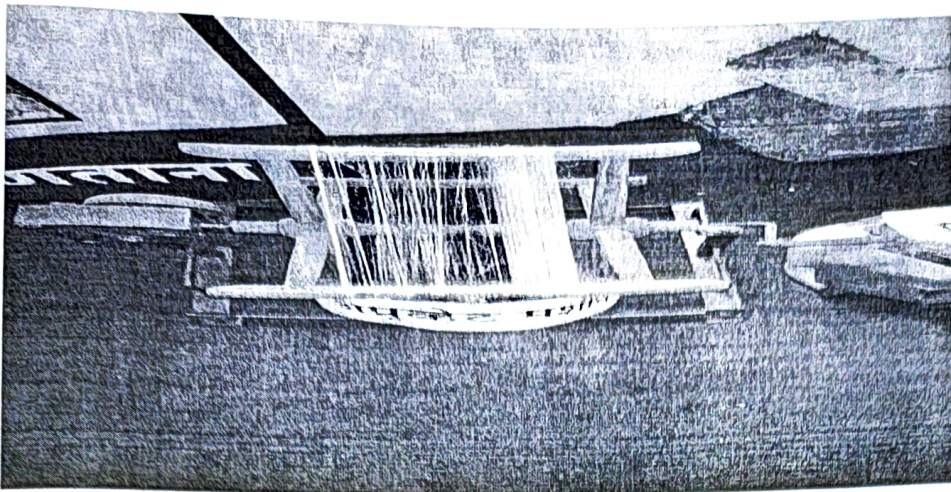


worked out to be significantly higher (1:1.94). Detailed study of the economics revealed that the major economic factor contributing for the total cost in structure was labour which was 32.54% for silkworm rearing and 13.95% for mulberry production. Another important item was cost of equipment for silkworm rearing which is about 11.27%.

The possibility of obtaining 1,600 kg of bivoltine cocoons from rearing 4,000 layings and by producing 30,000 kg of leaves per hectare. The cost of leaf and cocoon production and net returns were estimated at Rs. 6,000.00 Rs.10,000.00 and Rs. 26,800.00 respectively per hectare by using improved techniques.

Government facilities:

A complete system from egg to silk production at the village level has been developed and popularized in Maharashtra and Karnataka. Advisory services have also been provided to 400 farmers in Mandi district through the Government of Himachal Pradesh for improving their income. More than 250 families with 163 ha mulberry plantation, received technical guidance and marketing support in collaboration with the Directorate of Sericulture, Government of Maharashtra and whose earnings have increased to Rs. 1.20 lakh per year from Rs. 40,000 per year. They produced 59 tons of cocoon which was processed into silk clothes and garments and sold through the Silk Mart outlet at Urulikanchan. Over 1700 farmers are benefitting from the programme and earning in the range of Rs. 4000 to 26,000 from tasar silk and Rs. 25,000 to Rs. 3.5 lakhs from sericulture, while generating over 2.7 lakh person days of employment per year. 80 landless families in Thane, Pune, Gadchiroli and Bhandara districts of Maharashtra are earning in the range of Rs. 6000 to Rs. 30,000 per year through integrated activities such as tasar silkworm egg production, tasar silkworm rearing, reeling of tasar cocoons, processing of raw silk and weaving of silk fabrics



Life Cycle of Silkmoth



The stages of production are as follows:

1. The silkworm lays thousands of eggs.
2. The silkworm eggs hatch, and the larvae feed on the mulberry leaves.
3. First, it weaves a net to hold itself
4. Next, it swings its head from side to side in form of the number '8'.
5. The silk solidifies when it comes in contact with the air.



6. The silkworm spins approximately 1 mile of filament and completely encloses itself in a cocoon in about two or three days but due to quality restrictions; the amount of usable silk in each cocoon is small. As a result, 5500 silkworms are required to produce 1 kg of silk.
7. The silk is obtained from the undamaged cocoons by brushing the cocoon to find the outside end of the filament.
8. The silk filaments are then wound on a reel. One cocoon contains approximately 1,000 yards of silk filament.


ACKNOWLEDGEMENT

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