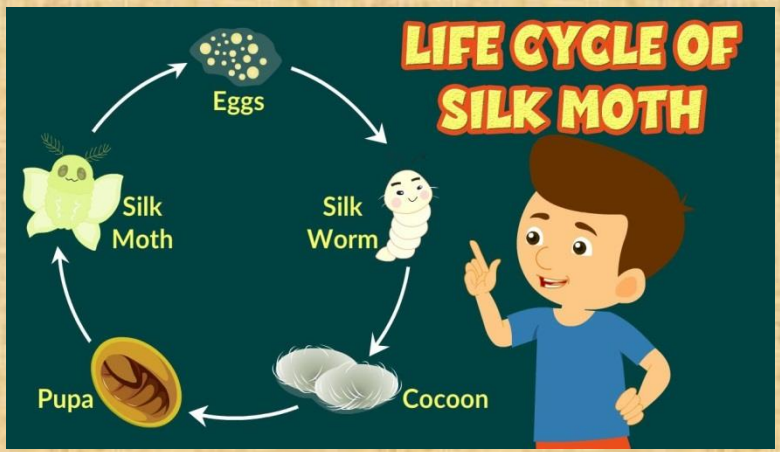
CHAPTER 03

ANIMAL FIBRE

SILK:

Silk, is the queen of textiles for its luster, royal appeal, luxury and elegance. India is the second largest producer of silk in the world. Mulberry silk is the most popular variety and contributes around 79% of the country's silk production.

Silk is an insect fiber, produced by silkworms belonging to the genus *Bombyx*. The silkworm, Bombyx mori produces the silk of commercial importance.



About Bombyx mori

- ✓ This silk moth is both blind and flightless.
- ✓ The female moth lays 500 eggs in one go and dies soon after.
- ✓ Approximately 30,000 silk worms need about a ton of mulberry leaves to eat before they start making their cocoons.
- ✓ From their cocoons, 5.4kg raw silk can be obtained.

Sericulture

It is the process of gathering the silk worms and harvesting the cocoon to collect silk.

The steps involved in sericulture are as follows.

Moth to egg

Female silk moths lay 300-500 eggs at a time. Eggs of silk moths called seeds and the seed growing centres called grinages. These eggs eventually hatch to form larvae (caterpillars) in a controlled environment.

Egg to cocoon

Mulberry leaves chopped into small pieces and arranged in large trays to feed larva. The silk worms feed on leaves and grow about 3 inches in 6 weeks. Then they stop eating and settle at particular place. During the larval stage, the worm wraps itself in a

liquid protein secreted by two large glands in its head. Secreted proteins harden when it contacts air and forms a hard shell or cocoon.

The cocoons placed into boiling water to soften and dissolve the gum. The process of killing larvae inside by putting a lot of steam for 10-15 minutes to cocoons, called stifling.

Cocoon to fibre

Cocoons are boiled to get silk fibre. The fibre is made of two types of proteins -sericin and fibroin. It is very strong. The cocoons boiled to loosen the fibre to be able to reel it.

Fibre to yarn

Obtaining silk fibre from cocoon, called reeling and done with reelers and twisters. The silk fibres are wound together to make yarn. This yarn is cleaned, bleached and coloured.

Dyeing

Silk fibres washed, degummed, bleached and dried before the dyeing process. Traditional dyeing techniques involve dyes from natural resources. Advanced techniques use chemical dyes to give a great range of choices in colors and shades. The silk immersed in a dye bath soaks up the color.

The traditional spinners like spinning wheels or Charkhas are integral part of silk production process.

Weaving

Weaving is the process in which the final piece of silk comes and its finish depends on the type of weave. They get their names from the places where they made. Examples like Dharmavaram, Pochampally etc.

Importance:

China is the world's largest silk producer. Silk is not just useful for clothing. Various types of silk produced for a wide range of applications like fashion apparel, furnishings, luxury paper, carpets and rugs.