

REARING OF ERI SILK WORM

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- Eri silkworm (*Philosamia ricini*) is a non mulberry silkworm producing white silk.
- The distribution of Eri silkworm is confined to Assam and other parts of Northeast India and some parts of West Bengal.
- The Eri Silkworm is a multivoltine which have a complete metamorphosis as other Lepidopterans.
- The Eri Silkworm is reared indoors 5-6 times a year. In tribal areas, Eri Silkworm are reared not only for cocoon but also as an edible food.

- Eri silkworm is polyphagous having both primary and secondary food plants . The primary food plants is *Ricinus communis* (vern. Castor) and *Heteropenax fragans* (vern. Keasseru), while secondary host plants are like *Manihot utilissima* (vern. Topoica), *Plumeria acutifolia* (vern. Plum). The castor plants have two varieties; the green leaves and violet leaves.
- Rearing of eri silkworm starts with collection of cocoons from grainage , local rearers or from the government agencies.

- After collection of the cocoons, the cocoons were tied in a string without harming the inside parts of the cocoons and were tied along the bamboo mats or in an old cotton towel hanged in a string (see Fig. 1.1) in an undisturbed dark room.
- After some days the moth emerges from the cocoons. The male moth are smaller in size and have bushy antenna. The emergence of the moths takes place during dusk till in the morning.



Plantation of *Ricinus communis* (castor plants) food plants of Eri silkworm.



Copulation of eri silkworm



- Soon after emergence of the moths, the male and female moths starts mating typically lasting from morning until evening. Females attract males via pheromomnes, with mating usually occurring in dark, quiet, and well ventilated conditions at 24-26° C.
- After mating the female moths starts laying eggs in the kharikas or in the cotton towels provided by the rearer.
- The female moth lays around 250-350 eggs which adhere to one another in a cluster. After 2-3 days the eggs are collected and wrap it in a paper for hatching or kept for incubation at 26 degree celcius. The colour of the eggs turns dark blue on the prior to hatching.

Eggs being laid on cotton clothes



Mating and laying of eggs



- After 6-8 days the eggs hatch and the 1st instar larva emerges out. Immediately after hatching the larva are kept over the bamboo mats and leaves cut into pieces are spread over the larva for feeding.
- The larva immediately starts feeding on the leaves and continues to feed and undergoes **four moults** and **five instars**. **Total larval period lasts for about 30-35 days.**
- The 5th instar mature larva stops feeding and starts searching for a proper place to spin the cocoon.

- At this stage, the adult larva are transferred into mountages or kept in a basket hanged with stacks of leaves for spinning the cocoons.
- The spinning of cocoons lasts for 2-3 days.
- The cocoon of Eri silkworm are open mouthed, tapering at one end and flat rounded at open end without a peduncle .
- The silk filaments of eri silkworm is also not continuous, it has many breaks.

- **Post cocoon processing:**
- **Stifling** of the cocoons is done by exposing the cocoons to sun for 1-2 days. In some places, the tribal peoples use the chrysalis as a source of food.
- **Degumming** process is done by dipping the cocoons in boiling soda solution till it becomes soft and tender. After sufficient boiling, the cocoons are washed for several times to washed off the soda, squeezed to remove the water and spread over mats to let it dry .

- **Being open mouthed, thread of the cocoon is discontinuous. So, the thread can only be spun and not reeled traditional methods of spinning is done in wet condition on takli and in semi dried condition on a charkha. Modern spinning machines like N.R.Das type charkha and Chaudhury type charkha are also available.**

- **END OF CLASS**

- **THANK YOU**

- **References:**
- **1. A Textbook of Applied Zoology- Pradip V. Jabde.**
- **2. TNAU online portal**
- **3. Central Silk Board, India.**