

Life cycle of Eri silkworm

The life cycle of *Philosamia ricini*, Hutt is completed through (a) eggs (koni), (b) larva (polu), (c) pupa (leta) in cocoon and (d) adult moth (chakari). In summer, the life cycle is completed in 44-48 days and in winter it takes about 85-87 days (Bhattacharyya and Bhattacharyya 2012).

(a) Eggs. The eggs are oval shaped. It is covered by a hard chitinous white coloured shell. The shell colour may be creamy as in wild forms. The eggs are attached to the surface with one another by colourless glue. A female moth after copulation lays about 300-500 eggs in cluster. The laying may continue for 3 to 4 days but the eggs of first 2 days are only kept for rearing. The hatching of eggs takes place after about 10 days but it depends on the temperature of the environment. The hatching may be delayed up to 14-15 days in winter. Temperature & humidity play important role in hatching of the eggs.

(b) Larva. After hatching, the larvae tend to remain together. The newly hatched larvae possess a black coloured head and the body becomes yellow in colour but gradually changed to green yellow. Mature larvae measures about 7×1.5 cm and weight 8 gm. The first moult occurs after 3 days. The prothoracic hood of the 1st instar larva has a black dorsal band, which splits up into a pair of crescent shaped markings in the 2nd and 3rd instar. These markings disappear at the 4th instar. The anal flap and claspers are light yellow throughout the larval span. The tubercle, setae, is also present. The larva (polu) matures in 17 to 45 days depends on the environmental temperature and humidity. During this period, the larva moults four times. During the onset of moulting, the larva become motionless and it does not feed. On molting, the integument of the head breaks on the sides and the larva comes out with a new integument. The larva possesses long tubular silk glands. The gland is responsible for production of silk. The silk gland secretes the silky substance to form the cocoon, and the larva transformed into a chrysalid.

(c) Pupa. The larva of last instar before molting ceases feeding and transform into a chrysalid. The larva excretes silk substance after settling in a crevice and spins the cocoon. Pupa is obdect, adectious measures about 2.8×1.5 cm and weight about 2.6g. In 3-4 days the cocoon formation is completed. Inside the cocoon the larva transforms itself into a brown coloured chrysalid. Cocoons are elongated, soft, wooly, pedunclesess, open mouthed and unreelable. It measures 4.0× 2.5 cm and weight 3 gm. It is an intermediate form in between the larva and the moth. The essential organs of the moth are formed. The body is covered by hard integument. It can survive for long time inside the cocoon. The colour of the chrysalid turns black before the emergence of the moth.

(d) Moth. The moth emerges from the chrysalid forms after about 2 weeks. The moth comes out through the open end of the cocoon. It emerges normally in morning hours. After sometime they fully stretch their wings. The colour of the wing varies from green to orange brown and the wing

expanse varying from 10 cm to 15 cm. After stretching the wings, the male finds out the female for mating which lasts about 24 hours. During mating the moths remain motionless. The male unpairs in the next evening. After unpairing, the female lays the eggs normally during the night. A female moth lays about 300-500 eggs in cluster in 3-4 days.

The male moth is 2.5 cm long while female is 3cm.

Male wingspan-13 cm, forewing-1242mm sq, hind wing 890mmsq.

Female wingspan-15cm, forewing-1465mmsq, hind wing 1037mmsq