

Silk moth lifecycle

Life History of Mulberry silk worm (*Bombyx mori*)

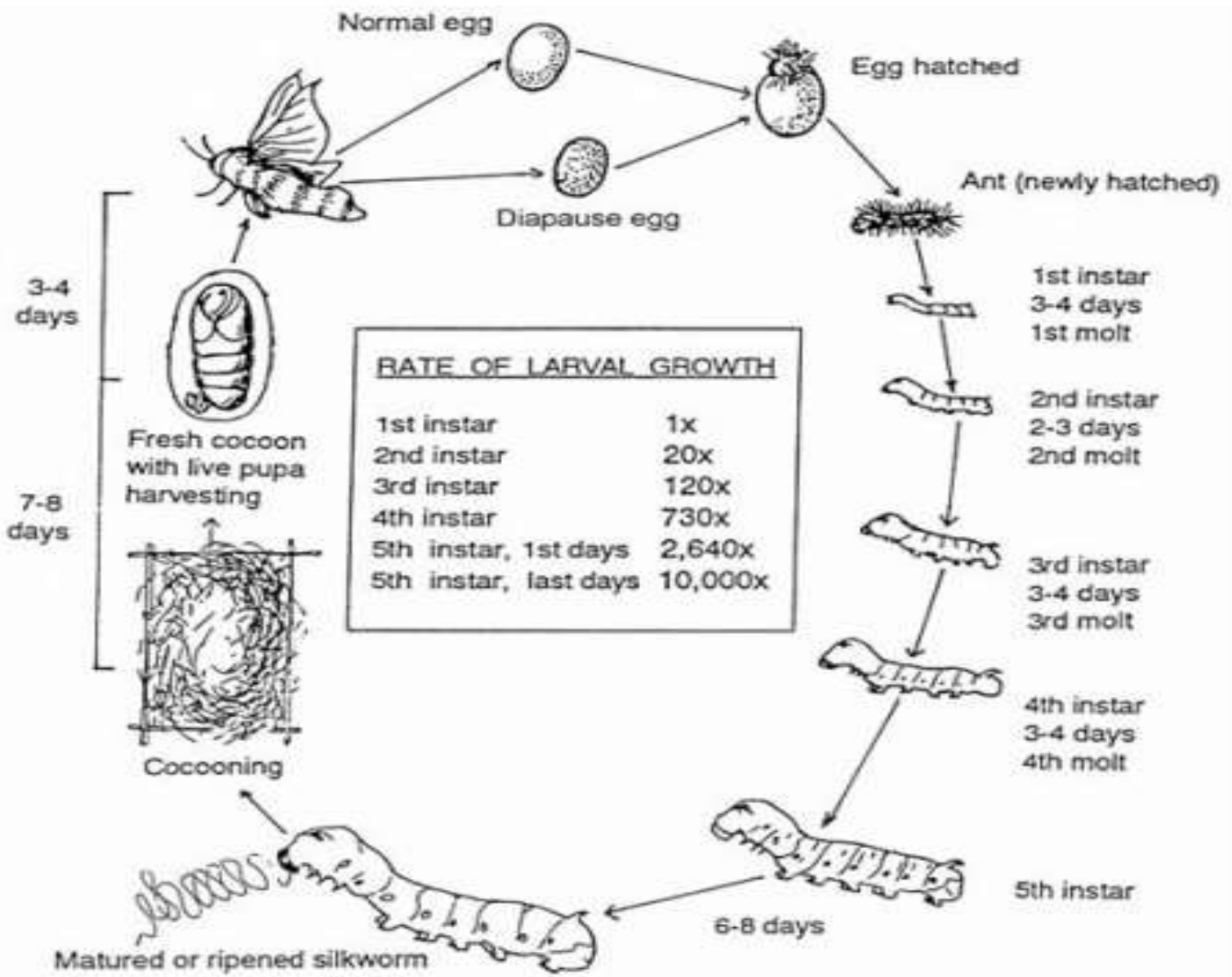
- The moths mate and the female lays more than 350 eggs. The moths then die
- In the wild this cycle occurs once a year, but under scientific breeding it can occur up to three times in a year
- In the Life cycle of Silkworm there are four stages *i.e.* Egg, Larva, Pupa and Adult
- The eggs develop into the silkworm larva, grub or caterpillar. They eat for 20-30 days, consuming large amounts of mulberry leaves. The caterpillar moults through four changes of skin



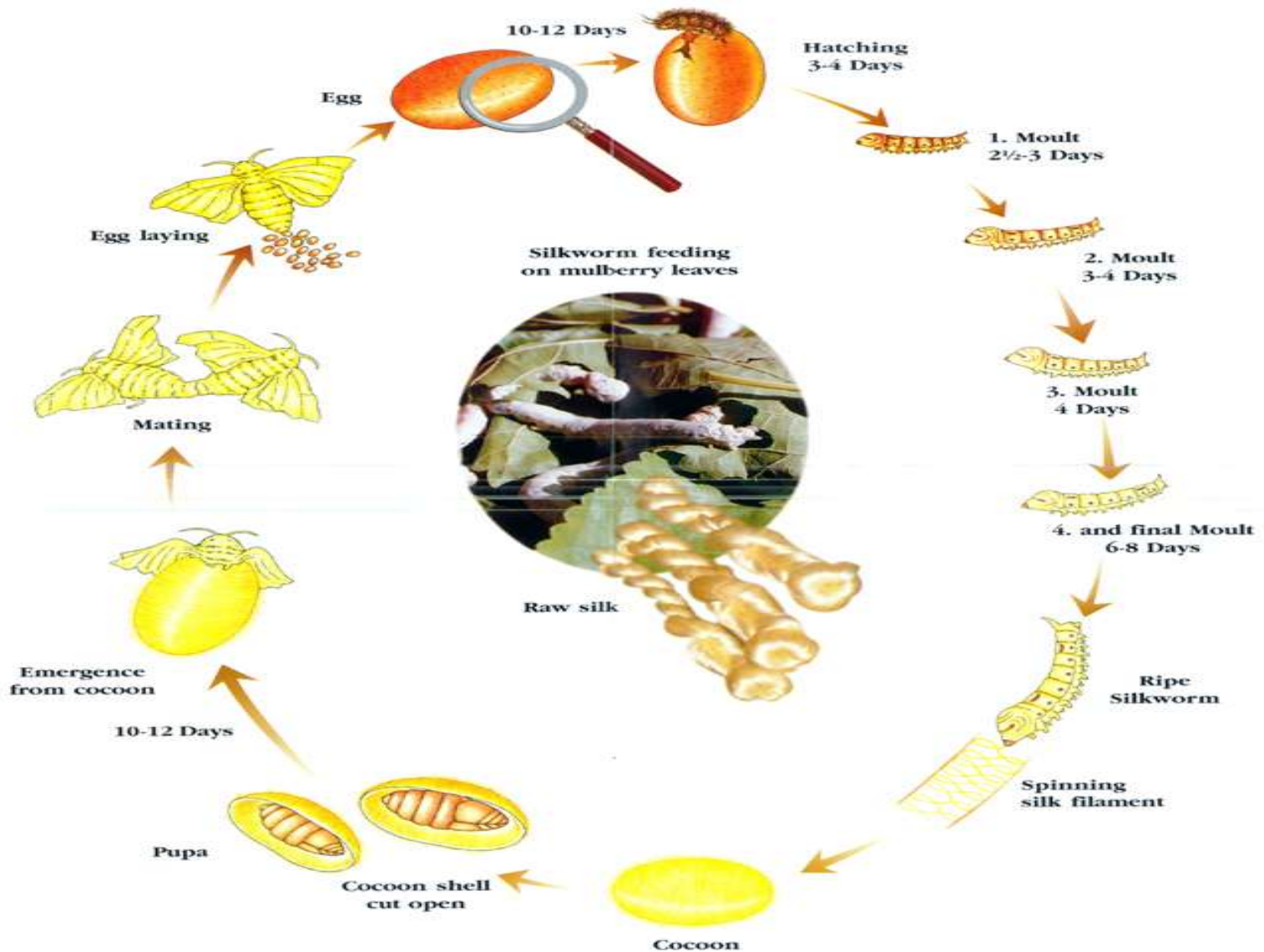
- The silkworm spins a cocoon for protection, to permit the development of the **pupa or chrysalis**. The cocoon takes about three days to be fully complete and is a similar size to a peanut shell



- The chrysalis emerges from the cocoon as a moth. In cultivated silk, the grub is terminated while still inside the cocoon so that the long filaments are maintained
- The color of the silk is determined by the diet of the larva and seasonal influences. Mulberry leaves produce the preferred lighter colored cocoons, but in the wild silk worms will eat other plants, producing all variety of colors



Life cycle of silkworms (*Bombyx mori*)



Diseases of silk worm

- **Muscadine** (Fungal disease)
 - **Causative agent:** **White Muscadine** is caused by a fungus *Beauveria bassiana* and the **Green Muscadine** is caused by a fungus *Spicaria prasina*
 - **Symptoms:** Destroys the entire silkworm body. This disease is not passed on to the eggs from moths, as the infected silkworms cannot survive to the moth stage. This fungus can spread to other insects. Mycelial cluster are seen on the dead silkworm body
 - **Control:** Hygiene. Prevent Humidity build up. Keep mulberry tree's free of insects (without the use of insecticides as this will kill your silkworms). Muscardine is common in winter and rainy seasons because these seasons provide favorable environments for infection, growth and multiplication of the pathogen

- **Polyhedrosis (Grasserie disease)**

- **Causative agent:** Virus Nuclear polyhedrosis

1. Nuclear polyhedrosis: nuclei of cells of fatty tissue, dermal tissue, muscles, epithelial cells of mid-gut, blood cells

- **Symptoms:** Larva becomes inactive, loses appetite, body swells up, pus leak out, death of larva

- **Control:** Disinfection of room, treatment with formalin, hygienic conditions

2. MG Cytoplasmic polyhedrosis: Cytoplasm of MG cells, Goblet cells

- **Symptoms:** Translucent cephalothorax, shrinkage of body size, excretion of white colored loose faeces

3. MG Nuclear Polyhedrosis: MG column on cells

- **Symptoms and control** as above

- **Pebrine disease**

- **Causative agent:** A parasitic microsporidian, *Nosema bombycis*
- **Symptoms:** The affected part (fat body and cells of AC) become black due to formation of melanin, white spots appear on the surface of silk glands and AC
- **Control:** Only eggs of healthy mother moth should be used; spores can be destroyed by treatment with 2% formalin for 30min. or 5% chlorinated lime for 30min

- **Flacherie:** (Bacteria and viral disease)individually or in combination
 - **Symptoms:** Flacherie is most often caused by high humidity and fluctuating temperatures. Worms appear lethargic and flaccid, growth is stunted. The cephalothoracic region may be translucent. Dead worms putrefy quickly often with a foul odor
 - **Control:** As Flacherie is most often contracted in the early Instars and does not present until the later Instars it is usually impossible to eradicate without destroying the entire colony. You may remove the sick or dead silkworms and any silkworms that have contacted fluid.