When Do Silkworms Hatch? A Practical Guide to Bombyx Mori Egg Incubation

Understanding the Silkworm Life Cycle

For anyone raising Bombyx mori at home, the first big question is: when do silkworms hatch? It is a simple question, but the answer depends on several factors that every silkworm keeper should understand. The hatching of silkworm eggs marks the beginning of the larval stage, a period of rapid growth and feeding that eventually leads to the formation of a cocoon and the emergence of an adult moth. Getting the timing right is essential for successful silkworm rearing, especially if you are coordinating your brood with the availability of fresh mulberry leaves.

Silkworm eggs are tiny, round, and initially a pale yellow or light brown color. They darken over time, and a few days before hatching, they turn a distinct gray or blackish hue. This color change is a helpful visual cue, but it is not the only thing that determines when do silkworms hatch. The two most critical factors are temperature and humidity during egg incubation.

Hatching Temperature and Humidity

Bombyx mori eggs require a consistent environment to develop properly. The ideal hatching temperature ranges from 24 to 28 degrees Celsius (75 to 82 degrees Fahrenheit). At this temperature, the eggs will typically hatch in about 10 to 14 days after they have been laid or after they have been exposed to warmth following a period of cold storage. If the temperature drops below 20 degrees Celsius, development slows considerably, and hatching can be delayed by a week or more. On the other hand, temperatures above 30 degrees Celsius can stress the embryos and reduce hatch rates.

Hatching humidity is equally important. The eggs need a relative humidity of around 70 to 85 percent. If the air is too dry, the eggs may desiccate and fail to hatch. If it is too humid, mold can grow on the eggs or on the mulberry leaves you provide after hatching. A simple spray bottle and a humidity gauge can help you maintain the right balance. Many silkworm keepers place the eggs in a ventilated plastic container with a damp paper towel, but not soaking wet, to maintain moisture without drowning the eggs.



The First Instar: What to Expect After Hatching

When the eggs do hatch, the emerging larvae are tiny, about 3 to 4 millimeters long, and covered in fine hairs. This is the first instar stage. They are extremely delicate and need fresh mulberry leaves immediately. The leaves should be young and tender, as the tiny mouths of the first instar larvae cannot chew tougher, older leaves. You can also use commercial silkworm feed, but fresh mulberry leaves are the natural and preferred food source.

At this stage, the larvae will feed almost constantly, growing quickly. Within a few days, they will stop eating and enter a period of rest, then molt. This molt is the process of shedding their old skin to grow larger. Bombyx mori will molt four times during the larval stage, with each molt marking the transition to a new instar. The first molt usually happens about 5 to 7 days after hatching, depending on temperature and food quality.

Feeding and Care During the Larval Stage

Once you know when do silkworms hatch, you need to be ready with a steady supply of mulberry leaves. The larvae will eat voraciously, and their appetite increases with each instar. A single brood can consume a surprising amount of leaves. If you have a mulberry tree nearby, you can harvest branches and store them in the refrigerator to keep the leaves fresh for a few days. Alternatively, you can use dried or powdered silkworm feed that is rehydrated with water, but fresh leaves are always better for healthy growth.

Cleanliness is crucial. Silkworm droppings, called frass, accumulate quickly under the feeding trays. You should remove frass and old, wilted leaves daily to prevent mold and bacterial infections. The larvae are sensitive to poor hygiene, and a dirty enclosure can lead to disease or death. A simple way to clean is to gently lift the larvae and any remaining leaves onto a fresh layer of newspaper or cardboard, then discard the waste.



Cocoon Formation and Beyond

After the final molt, the larvae enter the spinning stage. They will stop eating, become restless, and begin to search for a suitable spot to build their cocoon. This usually happens about 25 to 30 days after hatching, but the exact timing depends on the temperature and the quality of care. The larvae spin a single continuous silk thread around themselves, forming a protective cocoon. Inside, they transform into a pupa, also called a chrysalis.

The pupal stage lasts about 10 to 14 days. During this time, the pupa undergoes metamorphosis into an adult moth. The moth will eventually emerge from the cocoon by secreting a fluid that softens the silk, creating a hole. However, if you are raising silkworms for sericulture, you will need to harvest the cocoons before the moth emerges, because the emerging moth damages the silk thread. Most hobbyists, though, enjoy watching the entire life cycle unfold.

Common Questions About Hatching

One frequent question is whether silkworm eggs can be stored for later use. Yes, they can. If you keep the eggs in a cool place, around 4 to 8 degrees Celsius (refrigerator temperature), they will enter a state of diapause and remain viable for several weeks or even months. When you are ready to hatch them, simply bring them back to room temperature and maintain proper humidity. This is a useful trick if you want to stagger your broods or if you have a limited supply of fresh mulberry leaves at certain times of the year.

Another common concern is what to do if only some of the eggs hatch. It is normal for not all eggs to hatch at the same time. A healthy batch of eggs will have a hatch rate of 80 to 90 percent, but some eggs may be infertile or damaged. If you have a mixed brood, the first instar larvae from earlier hatchers will be larger and more active, which can make feeding and cleaning a bit more challenging. In that case, it is fine to keep them together as long as you provide enough fresh leaves for all.



Final Thoughts on Timing

So, when do silkworms hatch? For Bombyx mori kept at ideal conditions, the answer is roughly 10 to 14 days after the eggs are exposed to warmth and moisture. But the real answer depends on your specific setup. The key is to monitor the temperature and humidity closely, watch for the color change in the eggs, and prepare your mulberry leaves ahead of time. Once you have done this a couple of times, you will develop a feel for the rhythm of the life cycle. Silkworm rearing is a rewarding practice, and seeing those tiny larvae emerge from the eggs is a moment that never gets old.

Whether you are doing this for educational purposes, for a small sericulture project, or just out of curiosity, understanding the timing of hatching is the first step toward success. Keep your eggs warm, keep them moist, and be ready with fresh food. The rest will follow naturally.