



THE INFLUENCE OF THE TEMPERATURE REGIME ON THE PRODUCTIVITY OF THE SILKWORM

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Annotation

The article gives information about the influence of one of many external factors on the growth and development of silkworm caterpillars, the temperature conditions, its influence in the stages of eggs, pupa, butterflies, in what temperature conditions they should be contained, especially in the tracked period when they feed, develop and determine the fate of the future harvest cocoons, the duration of each age and the tracked period in general, how to maintain the optimal temperature regime, how they are measured, and how and what measures are taken when the temperature rises and falls from the optimal temperature

Keywords: temperature, cold-blooded, insects, regime, warm-blooded, organism, environment, oxidation, tissue, sunlight, insect coloration, cooling, temperature fluctuations, high temperature, low temperature, optimal temperature, caterpillar, egg, pupa, butterfly, silkworm, duration of feeding, survival, duration, productivity, productivity, vital function.

Introduction

A certain temperature is necessary to process normal metabolism in the body. In warm-blooded animals, the body temperature is constant and does not depend on the temperature of natural environment, in cold-blooded creatures, such as insects, the body temperature follows changes in the ambient temperature. Therefore, the development of cold-blooded creatures, their vital activity takes place in less favorable conditions. The main source of heat is the process of oxidation of organic substances, the formation of sugars in the tissues of the body. The stronger the oxidative processes, the more heat is released, as for the external source of heat and sunlight, their role is secondary.





The degree of use of sunlight depends on the structure of the animal's skin, its physiological characteristics and color. Heat consumption occurs as a result of its conversion into other types of energy - energy of movement, energy of chemical transformations in the body, as a result of heat loss by the body by radiation.

The amount of produced heat in the insect's body for each gram of its weight is significantly less than that of warm-blooded animals, insects are able to dramatically increase their body temperature with energetic movements of their wings. They absorb the thermal energy of the sun's rays well, which is facilitated by the insect's coloring. By evaporating water, the insect's body cools down and thereby protects itself from overheating.

The silkworm has the ability to tolerate a wide range of temperature fluctuations. The endurance of the silkworm to high temperatures depends on the breed, the stage of development of the insect, air humidity, and so on. It is also necessary to take into account the duration of its exposure, by analyzing the actions of high or low temperature.

The optimal temperature for storing the eggs in the summer ranges from 25-26 °, in winter 2-4 ° above zero. The optimal temperature for storing pupae in cocoons during papillonage is 25-26 °. But the pupa withstands freezing to -10 degrees for two days, and after their thawing, the butterflies come out in the usual time (Kovalev 1953). Butterflies also withstand short-term freezing to -10 °, temperatures of 40 ° above zero not for several hours, but 35 ° during the day.

The older the caterpillars, the worse they tolerate low temperatures. The lower temperature limit for the development of silkworm caterpillars is 7.5 °. At a temperature of about 10 °, only individual caterpillars eat the leaf sluggishly, the optimal feeding temperature is in the range of 23-29 °. An increase in temperature above the optimum slows down the speed of physiological processes, violates their consistency and regulation, causes the destruction of the main active principle of physiological processes-enzymes.

The duration of the entire feeding is at 15 ° more than 60 days, at 17 ° - 52 days, at 20 ° -73 days, at 22 ° -27 days, at 25 ° -23 days, at 27 ° 20 days. The yield of cocoons depends on the duration of feeding, the following results are obtained according to the observations of P.A. Kovalev;





The duration of feeding in days	The number of boxes in all links	Average yield of cocoons from 1 box per kg
23	3	68,2
24	21	63,8
25	15	59,3
26	24,5	56,4
27	42	54,6
28	36,5	48,1

Each vital function-the speed of insect development, its survival, fertility, productivity, and so forth- is performed at its optimal temperature. The yield of cocoons is determined by the number of curled cocoons and the weight of one cocoon, so the optimal temperature for the survival of the silkworm can also be taken as optimal for productivity.

For the new highly productive white-window breeds and their hybrids, the following temperatures in degrees are accepted.

- The first three ages.....25-26
- The fourth age.....24-25
- Fifth age.....23-24
- Perm.....24-25

It is necessary to feed caterpillars of all ages in heated rooms, to ensure the required temperature. To monitor the temperature in the middle of the cocoonery, a thermometer should be hung at the level of the middle shelf of the bookcase. In a large cocoonery, it is recommended to have two or three thermometers, in the middle and at the end of the cocoonery.

The temperature is measured and recorded at certain hours of the day. More carefully, the temperature of the cocoonery can be determined by a self-recording device - a thermograph. During the feeding of caterpillars, it is necessary to maintain the temperature required for this age, preventing sharp fluctuations in it, which adversely affect the state of feeding.

To maintain the required temperature in the cocoonery, stoves should be heated at lower temperatures, while in the hot season, the windows of the cocoonary should be moistened and ventilated in the cool night.