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RESEARCH OF THE INFLUENCE ON THE PROPERTIES OF QUALITY COCOON BY MODIFICATION OF BIOLOGICAL SUBSTANCE

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Abstract: *The article presents the results of a study of the influence of silkworm feeding conditions enriched with mulberry leaves on the quality of cocoons and properties of the cocoon shell.*

Keywords: *feeding, ferrostimulator-2, worm feeding, enriched with mulberry leaves, biologically active substance, vital functions of caterpillars, cocoons, and silkiness.*

ИССЛЕДОВАНИЕ ВЛИЯНИЯ НА СВОЙСТВА КАЧЕСТВО КОКОНА МОДИФИКАЦИЕЙ БИОЛОГИЧЕСКОГО ВЕЩЕСТВА

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Аннотация: *В статье представлены результаты исследования влияния условий питания тутового шелкопряда, обогащенного листьями тутовника, на качество коконов и свойства оболочки кокона.*

Ключевые слова: *питание, ферростимулятор-2, питание червя, обогащенное листьями шелковицы, биологически активное вещество, жизнедеятельность гусениц, коконы, шелковистость.*

INTRODUCTION

According to the traditional method, in the production of cocoons, the activity of silkworm lasts from 25 to 30 days. At the same time, the caterpillars that came out of each box (29 grams) during 5 ages eat up from 1,000 to 1,080 kilograms of mulberry leaf and curl about 48-50 kg of raw cocoons, small (hemisphere diameter from 15 to

16 mm), medium (hemisphere diameter from 17 to 19 mm), large (hemisphere diameter from 20 to 22 mm) and very large (hemisphere diameter more than 22 mm) caliber. From the indicated volume of raw cocoons, 82.5% of varietal mixtures (first, second and varieties), 12.6% of non-varietal and 4.9% of defective cocoons not subject to processing at silk-winding factories are obtained [1, 2, 3].

Silkworms in leading silkworm countries, such as Japan, China, South Korea, India, etc. in terms of yield (58.1- 64.6 kg per box), uniformity (79.2-79.4% cocoons of medium caliber), cost-effectiveness of feed use (feed consumption during the whole feeding period, 800-900 kg per box grains), according to the varietal composition (more than 92.1-95.19% of cocoons of the first grade), differs from the above by the property of the cocoon shell. The positive results achieved in world sericulture make us think about conducting comprehensive research and development work in the field of production of silk cocoons and the search for internal reserves in the technology of domestic worm feeding [4, 5, 6, 7].

The aim of this work is to study the possibility of enriching mulberry leaves for the uniform development of silkworms, reducing their ripening, improving the quality of cocoons and improving the properties of the cocoon shell.

The objects of study were silkworm cocoons of the Ipakchi-1 breed, Marhamat harvest of 2019 and 2020, biologically active substances consisting of ferrostimulator-2 and mulberry tree leaves of the Balkhut variety. The experiments were carried out directly in the sericulture farms of the Khojabad and Bulakbashi districts of Andijan region [8].

The experiments were carried out in two versions: spring and autumn - feeding silkworms using biologically active substances by spraying a solution of biologically active substances in a concentration of 0.25, 0.5, 0.75, 1.0, 1.5 and 2.0 per mulberry leaves before feeding silkworms for 15-20 minutes [9].

The following parameters were taken as output parameters: uniform development of the silkworm, mass of cocoons and cocoon shell, silkiness of living cocoons, quality of cocoons [10].

An analysis of the experimental study showed that the use of biologically active substances in the first age of the silkworm positively influenced the quality of the cocoons, the mass and silkiness of the cocoon shell. In particular, the period of worm feeding is reduced by an average of 1-2 days compared to the control option, which leads to a reduction in labor costs for worm feeding, saving feed and reducing the cost of live cocoons. In all experimental variants, the mass of cocoons increased in comparison with the control version from 0.17 to 0.34 grams, the silk mass of the cocoon increased from 0.087 to 0.163 grams higher than in the control version, the silkiness of live cocoons increased from 2.42% to 4.08 % The specific gravity in the

total volume of produced varietal cocoons increased from 3.4% to 8.89% compared with the control variant [11, 12].

A series of experiments was carried out on feeding silkworms in the autumn season in order to increase the production of cocoons and increase its quality indicators.

Biologically active substances were also used to enrich the mulberry leaf of various concentrations in the experiment. The experiments were carried out in six versions with sufficient repetition to minimize the error of the obtained experimental results [13, 14, 15, 16].

An analysis of the results of the study shows that the cocoons obtained during autumn feeding were different from the cocoons of spring feeding on geometrical features. That is, the cocoons of spring fodder turned out to be larger compared to autumn. Obviously, such results were obtained due to the ongoing structural changes in the leaves of the mulberry trees, depending on climatic conditions. In the summer season, due to the high temperature, moisture evaporates in the leaves of the mulberry tree and contributes to an increase in fatty substances. The high fat content in the leaves of the mulberry trees increases the saturation of the mulberry fodder. The silkworm ceases to eat quickly, without having accumulated enough silk in the body, as a result, the cocoons curled by such silkworms remain small. But when using feeds enriched with biologically active substances for feeding silkworms at the first age, the maturation period of the caterpillars is reduced by 1.0-1.5 days and the volume of silk mass in one cocoon increases from 0.006 to 0.056 grams, the silkiness of live cocoons increased from 1, 0% to 4.01%, the proportion of first-class cocoons from 10.09% to 16.09%, the proportion of non-high-grade cocoons was in the range from 3.48% to 6.18%, and defective cocoons were from 0.41 to 1.13% [17, 18, 19, 20, 21, 22, 23].

CONCLUSION

Based on the foregoing, the following conclusions can be made.

1. Feeding silkworms using biologically active substances positively affects the development of caterpillar life.
2. Reduces the ripening period, reduces labor costs associated with feeding worms.
3. Saves feed, reduces the cost of production of cocoons.
4. When enriched mulberry leaves are used at an early age, the silkworm increases the mass and shells of cocoons, its silkiness and the proportion of varietal cocoons in their total volume.
5. And also decreases the proportion of non-varietal cocoons.

Studies have shown that the supply of the same nutrients to silkworms and the timely delivery of feed to silkworms is a very important process that has a significant impact on the cocoon and its quality. The weight was also determined by the mass of the cocoon obtained naturally.

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