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Research of Prospective Ways to Grow Cocoons and Develop Silk Factory

Ermatov Sh.Q., Abrayqulov B.I., Ochildiyev B.B., Khaydarov S.S., Islambekova N.M., Khasanov J.T.

Tashkent Institute of Textile and Light Industry (Uzbekistan)
Termez branch of Islam Karimov Tashkent State Technical University Uzbekistan
Termez State University (Uzbekistan)
Tashkent Institute of Textile and Light Industry (Uzbekistan)
Tashkent Institute of Textile and Light Industry (Uzbekistan)

ABSTRACT: The article describes the state of the silk industry in the country and the prospects for the production of cocoons in 2017-2021, how to grow raw cocoons at home, how to anesthetize cocoons, how to use a mini KMS-10 to get quality raw silk.

KEY WORDS: Silkworm, hybrid, cocoon, raw silk, Navruz 3, Navruz 4, Mayin tola 1, Mayin tola 2, KMS 10

I. INTRODUCTION

Efficient use of raw materials is the most important task in boosting the country's economy. As the President said, it is necessary to export high-quality products to foreign markets, not cheap raw materials. In order to expand export opportunities and enter world markets, it is necessary to develop joint ventures to produce finished products based on the processing of valuable raw materials. Together with foreign partners, it is necessary to build modern compact enterprises and bring them closer to the village, which is a source of labor resources [1].

In particular, the silk industry is one of the largest industries in the Republic of Uzbekistan and one of the world's leading producers and processors of cocoons. In a market economy, the number of silkworm farms is growing day by day. Currently, 450,000 households are engaged in mulberry silkworm rearing, in which more than 750,000 people contribute to the development of the silkworm industry [2, 3].

Today, 70-80% of silkworm seeds in our country are imported from the People's Republic of China, and the rest, ie 20-30%, are our local silkworm seeds [1,2].

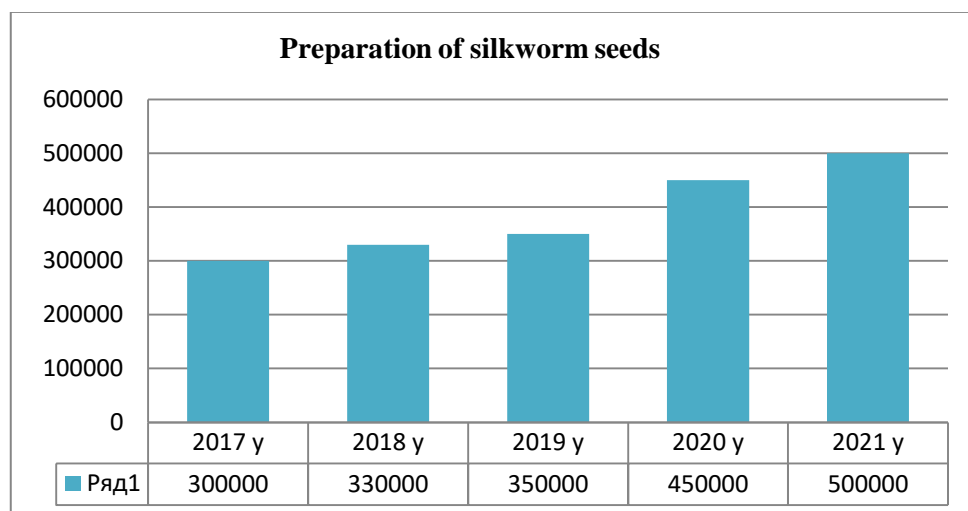
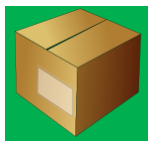
II. ANALYSIS OF EXISTING FILTERING MATERIALS AND RESEARCH RESULTS

Silkworms in the cocoons of our silkworm breeds and hybrids were created by high-yielding navlvr scientists, but the perennial crises in the silk industry occurred between 1998-2015, which hindered the widespread zoning of breeds and hybrids created by local scientists. Only 8-10% of cocoon raw materials are grown from local breeds and hybrids. Today, 20-30% of cocoons are produced by cocoons in the provinces. In the near future, in 2022-2025, scientists are creating new species and hybrids to increase these figures to 90-100%. At present, our cocoons produce an average of 55-65 kg of live cocoons from 1 box of silkworm seeds. In 2021-2025, it is planned to produce 65-85 kg of live cocoons. Scientists are creating high-yielding silkworm species and hybrids, in particular, scientists of the Silk Research Institute Mayin tola-1, Mayin tola-2, Navruz 3, Navruz 4, Gulshan Nafis and many other local silkworm breeds and hybrids were created. The cocoon yield of these silkworms and hybrids is 70-85 kg, and the yield of raw silk is 39-43% [2].

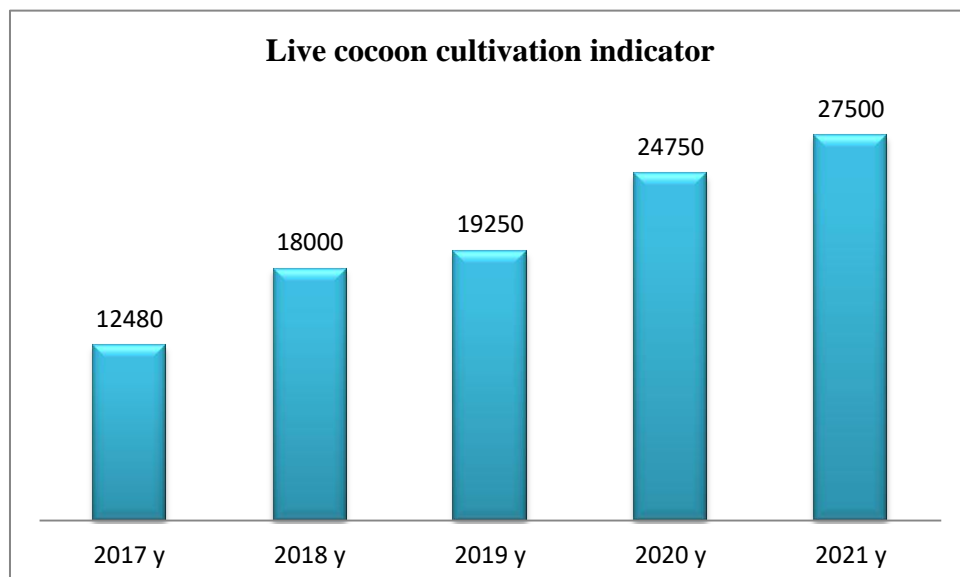
III. LITERATURE SURVEY

In order to further deepen economic reforms in the silk industry, modernize enterprises in the silk industry and create favorable conditions for the establishment of new production facilities, increase the volume and expand the range of competitive finished products in the world market, silkworm breeders in Surkhandarya region. work is underway.

Now let's look at the silkworm seed production rate for 2017-2021.



As a result, the production of cocoons in the Republic in 2017-2020 was as follows.



Silkworms, in particular, are cost-effective: they take up less space than the traditional silkworm method, less leaf wastage, and are fed in specially made portable crates made of polyethylene. In addition to mulberry, which is the main food for silkworms, low algae are also used during the feeding phase (it has been found that a suspension of chlorella water can be given as an additional food for silkworms - a biostimulator). This method increases the resistance of silkworms to various diseases, feeding conditions, shortens the feeding period by 3-5 days and increases

the silkworm cocoon by 20-25%. Once the cocoon is wrapped, the fungi inside the cocoon shell must be killed. After 12 to 15 days, the fungus turns into a butterfly, pierces the cocoon and makes the cocoon unusable.

IV. EXPERIMENTAL RESULTS

The following cost-effective method of initial processing of raw cocoons is used. This method is very simple, using plastic containers and cellophane bags, which are currently used in our daily lives, to seal the living cocoons in containers so that no oxygen enters the water from the outside. As a result, the fungus inside the shell dies within 48 to 50 hours due to lack of oxygen.

According to the results of the analysis, the silk content of cocoons processed by this method is 35-37% and the efficiency of the machines is high. According to the results obtained, the coefficient of dry cocoon during the initial treatment of cocoons by these methods is $K = 2.30 K = mt / mq$. The cocoons killed by the fungus are mixed in the shade, neat racks and dried until 9–11% humidity. Because cocoons are a seasonal product, they need to be stored and used.

Based on the test results, a cocoon treated with this ingredient can be stored in our climate for up to 18 months. The silkworm cocoon stored in this way increases by 2-2.5% and it is easier to protect against various pests kojeyed (*Dermestes Lardarius*). The dried cocoon is stored in specially sealed solid containers made of airtight polyethylene up to 15 kg to prevent crushing [4,5].

The silk industry can be used to provide employment and income to the population. For example, in rural areas, manual KMS-10 mechanical lathes can be used to produce raw silk from dried cocoons. It is easy to repair and install by compacting the machines. Home-made looms are still used in China and Vietnam, where private silk production is developed.

Both our craftsmen and individual enterprises use these machines. But by now, these machines have dwindled. This will increase the number of machines and provide employment for the population, as well as provide the population with a good economic income. Made on the basis of KMS-10. The following is a list of home-made silk production equipment.



Figure 1. Mechanical machine KMS-10 working at home



Figure 2. Mechanical machine for rewinding silk at home



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V. CONCLUSION AND FUTURE WORK

Expected cost-effectiveness for a family (calculated at the average market price in 2020): if 300 kg of live cocoons are produced per season by members of the family, dry cocoons will be produced after the initial processing $300 : 2.30 = 130.4$ kg. The average price of a dry cocoon is $130.4 \cdot 12000 = 1564800$ soums. The KMS-10 machine produces an average of 48 kg of silk from 130.4 kg of cocoons.

In our climate, even in the cocoon warehouses during the summer months, the temperature is around $+ 40^{\circ}\text{C}$. Under the influence of oxygen in the air, sericin in the cocoon becomes "tired" and difficult to dissolve in water. As a result, the technological properties of the cocoon shell are reduced, which leads to an increase in the number of breaks during the spinning process and an increase in the amount of silk waste. To prevent this, the cocoon is pre-treated with a special solution containing a water-soluble polymer and surfactants that form a thin film before drying.

In short, further development of the silk industry will increase employment, especially for women, increase the feeding of local silkworm breeds and hybrids, and grow cocoons. The use of silkworms during silkworm rearing opens up new avenues for obtaining high-quality raw silk and using mini KMS 10 silk spinning machines at home to obtain quality raw silk.

The development of these technologies in the country on the basis of the above data at low cost and high income is widely involved in the production of human capital participation.

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