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# Introduce A New Method of Silkworm Feeding in Agriculture to Increase the Efficiency of Cocoon Growing

**Kakharov Sobir Sidikjanovich, Abdullaev Nuriddin Hasanovich, Sidikjanov Jafar Sobir Ogli**

Namangan Institute of Engineering and Technology, Faculty of Automation and Energy, Associate Professor of

Energy, Candidate of Physical and Mathematical Sciences. Uzbekistan

PhD Researcher, Gujarat Technological University, Faculty Engineering and Mechanical. Ahmedabad,

Gujarat, India

PhD Student, Namangan Institute of Engineering and Technology, Uzbekistan

**ABSTRACT:** The purpose of the new silkworm feeding method proposed in this article is to eliminate the shortage of cocoon areas, which is the biggest problem in silkworm breeding, reduce mulberry leaf consumption, save heat energy, increase labor productivity and, as a result, reduce cocoon cost and quality. illuminated.

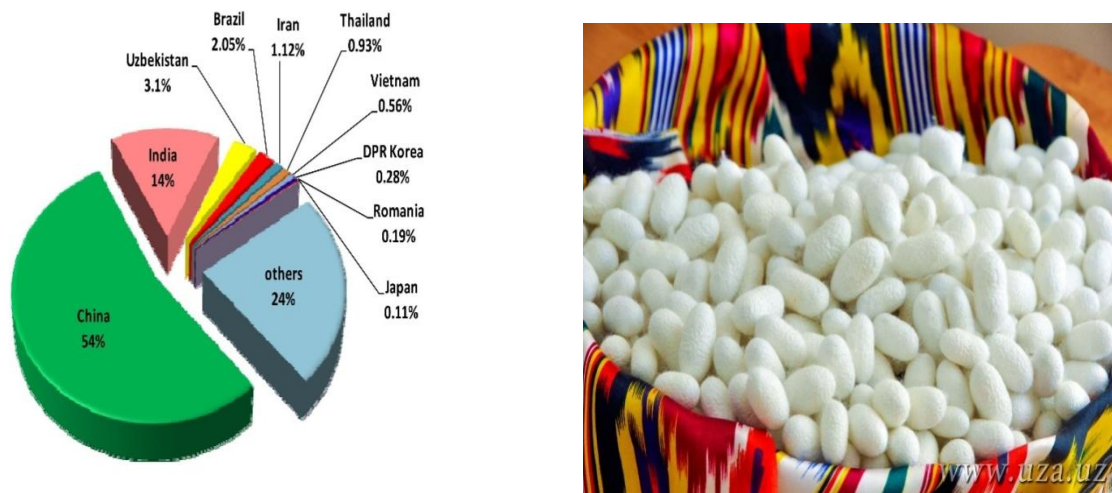
It has been proven that in order to feed silkworms, boxes made of cheap poplar wood with a special structure were used instead of stalks.

**KEYWORDS AND PHRASES:** Silkworm, cocoon, boxes, mulberry leaf, temperature meter, heat energy, worm.

## I. INTRODUCTION

As a result of the improvement of living standards during the years of independence, it is becoming more difficult to feed silkworms in modern houses in rural areas. Therefore, practical research on the introduction of a new method of feeding silkworms in agriculture in order to increase the efficiency of cocoon cultivation can be said to be aimed at solving today's pressing problems.

Silkworm breeding has long been one of the most developed industries, providing the textile industry and the national economy with natural silk raw materials. Natural silk is superior to other fabrics and synthetic fibers in durability, elongation, durability, elegance, lightness and elegance, air permeability. Therefore, natural silk is widely used in various sectors of the economy, including medicine, radio engineering, aerospace, aviation, communications, textiles and others. On this basis, measures are being developed to develop silkworm breeding and grow abundant and high-quality cocoons in regions where the climate is suitable for feeding silkworms. [1]. The state of silk production in the world is as follows (2021)



Picture -1. World Silk production (2005). (FAO (2005). Food And Agricultural Organization of United Nations: Economic And Social Department: The Statistical Division)

In terms of cocoon production, China produces 360-400 thousand tons of cocoons, including 70-80 thousand tons of wild silkworms. In second place is India - 125 thousand tons (15 years ago it produced 20-25 thousand tons). In third place - the Republic of Uzbekistan in 2021 - about 27,000 tons. In fourth place is Korea-15-16 thousand tons. In terms of cocoon quality, Japan ranks first, followed by Korea and Xiaoy. In foreign countries, the amount of cocoons is 93-95%, while in our country this Picture is 70-75%.

Productivity In foreign countries (China, India, Japan, Korea, Brazil, etc.) 3.5-4 kg of cocoons are obtained from 1 gram of worms, and in Uzbekistan 2.5-2.6 kg of cocoons. If we analyze the quality of cocoons grown in the country, we see that it is 15-16% lower than in well-developed countries. That is why in the world market we see that the price of cocoons grown in our country is 2 times cheaper. One of the main reasons for this is that the impact of external environmental factors on silkworms has not been fully studied, the processes of interaction between silkworms and the environment have not been identified at the required level of comprehensive scientific justification. The quality of cocoons can be raised to the required level if it is scientifically recommended to produce which types of defective cocoons are most common in the structure of the cocoons and which environmental factors have the greatest influence on their occurrence.

In addition, in order to bring the weight of cocoons grown in the country and the yield per box of worms to the required level, it is necessary to address issues such as the quantity and quality of feed, as well as feeding areas, which are a key part of environmental factors. This is evidenced by the neglect of mulberry trees on farms, the lack of measures to combat mulberry pests, the fact that the yield of a box of cocoons from worms in recent years will fall by 50-52 kg (previously 65-70 kg in the country) by 75-76%. In countries with developed silkworm breeding, this Picture is 1.3-1.5 times higher, and the amount of varietal cocoons is 93-94%. [1], [2].

In practice, one- or two-story squirrels are used in homes to feed cocoon worms. The size of the area required for a box of worms (50-60 m<sup>2</sup>), the amount of heat consumption for their heating, the need for special ladders for leaf feeding and other work, as well as excessive labor costs.

The task of the new method of feeding silkworms in special boxes is to eliminate the shortage of cocoon areas, which is the biggest problem in silkworm breeding, reduce mulberry leaf consumption, save heat energy, increase labor productivity and, as a result, reduce cocoon cost and quality [2], [3]

In order to feed the silkworms, instead of squirrels, boxes made of cheap poplar wood with a special structure are used.

The outer dimensions of the special box are 110x90x15.5 cm (approximately 1 m<sup>2</sup>), which are lined with paper and worm seeds are placed in it. As the worms grow and spread to other special boxes, the number of special boxes also increases, they are stacked on top of each other, and the number of layers in it can be up to 14.

Each time the worms are given a leaf, the location and height of the special boxes change. This ensures that the climate, light and air exchange conditions are almost the same for the worms to develop. [4].

Thus, in a room with 5x4 = 20m<sup>2</sup>, 0.25 boxes of silkworms are fed, and in the proposed method, 2 boxes of silkworms are fed, ie the area required for 1 box of silkworms is reduced by 8 times compared to the silkworm method. Another advantage of this method is that when the worms are fed in special boxes, at the age of four or five they are filled with green twigs and cotton leaves, rather than the usual leaf twigs. In this case, the leaves are completely eaten,



because the worms eat the leaf halfway as usual, and the branches do not come out. As a result, leaf wastage is sharply reduced and leaf consumption is also reduced. [5], [6].



Picture-2. Feeding silkworms in boxes.

And finally, as the boiler area is reduced, the fuel consumption to heat it is also reduced by 2-8 times.

Factors that increase the cost-effectiveness of a new method of feeding silkworms on farms:

1. Overcoming the lack of a wormhole area.
2. Reduce leaf consumption.
3. Prevention of worm infestations and diseases.
4. Reduce energy consumption.
5. Improving cocoon quality and productivity.
6. Possibility of transporting silkworms at 3 and 4 years of age.

The authors aim to reduce the required area of silkworm rearing rooms, reduce mulberry leaf consumption, reduce the death of cocoon worms, reduce the cost of cocoon heating and increase the economic efficiency of cocoon cultivation. [7], [8].

Due to the compact size of the boxes and their weight of 2-3 kg, as well as the fact that their maintenance can be organized in a rotating way, the work is easier and its consumption is sharply reduced.

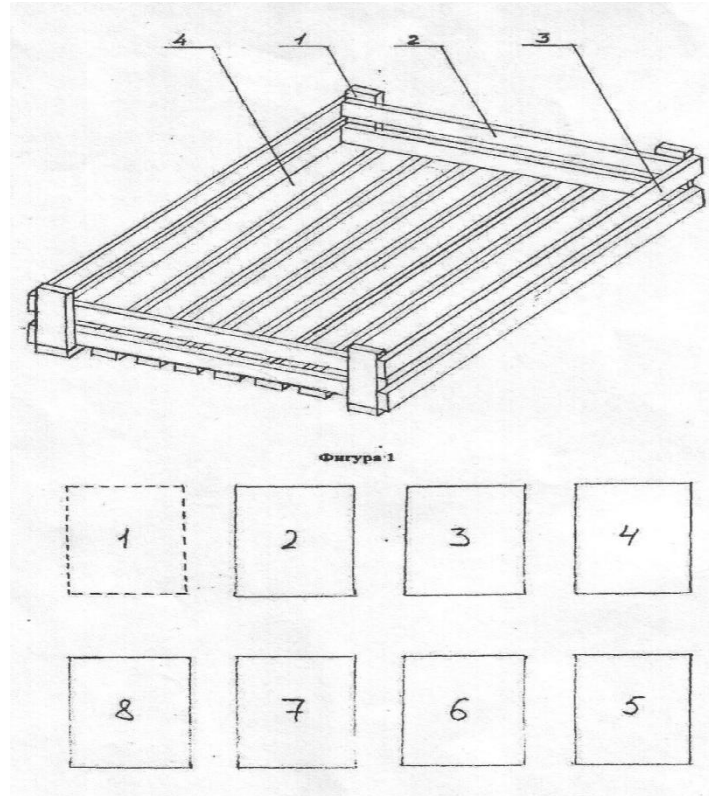


Picture-3.

Another advantage of this method is that when the worms are fed in special boxes, at the age of four or five they are filled with green twigs and cotton leaves, rather than the usual leaf twigs. In this case, the leaves are completely eaten, because the worms eat the leaf halfway as usual, and the branches do not come out. As a result, leaf wastage is sharply reduced and leaf consumption is also reduced. [9].

And finally, as the area of the hut is reduced, the fuel consumption for heating it is also reduced by 2-4 times.

Feeding silkworms in special boxes has not yet been introduced on cocoon farms. The solution, which is planned to be applied to production in this article, can be applied with great economic efficiency in other cocoon-growing countries. To achieve the expected result, Namangan Institute of Engineering and Technology has specialists with theoretical and practical knowledge in the field of silkworm breeding. [10], [11].



Picture -4.

Farms specializing in silkworm breeding are sufficient to test the proposed method. Preliminary studies have shown that the proposed method of feeding silkworms can be implemented. In 2019-2021, the proposed method of feeding silkworms on the farm "Uychi Yogdu cocoon pearl" gave positive results. [12].

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