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PROCESS OF RAISING ADULT WORM OF MULBERRY SILK WORM

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Annotation: *In this article, the 4th and 5th ages of mulberry silkworms are referred to as adult worms. For worms of this age, mulberry twigs are prepared twice a day - in the morning and in the evening (after sunset). The branches of the mulberry tree are cut for the worms in the fourth year, and in the fifth year, all the branches and branches are cut and the body is shaped. In Central Asia, adult caterpillars feed on deciduous branches. In this way, a healthy and hygienic condition is created for the worms: they crawl on the branches and branches, feed on clean leaves, sick and dead worms and their habits fall from the branches.*

Key words: *mulberry silkworm, feed, seed, mulberry, branch, branch, external environmental factors, cultivation, reproduction, yield, cocoon.*

Despite the fact that Uzbekistan occupies a significant place in the world in terms of cocoon cultivation, the productive mulberry area is only 5-10% of the total mulberry area. It has been achieved over the years by grafting and grafting hybrid seedlings.

In order to breed fruitful mulberry trees, any silk agronomist needs to know the structure of mulberry tree organs, mulberry's response to external environmental factors, agrotechnical rules of breeding methods and methods of feeding silkworms with mulberry leaves. It is desirable to use agrotechnical methods that are much cheaper to reproduce a productive mulberry tree. In addition to the fact that agrotechnical measures are of great importance in increasing the productivity of mulberry, this indicator depends to a large extent on the reproductive characteristics of the plant variety or type.

In fact, in order to grow new varieties and hybrids that are nutritious for the mulberry silkworm, fertile and resistant to various diseases, it is appropriate to plant mulberry trees on farms by vegetative propagation of

mulberry trees. Because, when propagated in this way, the properties of the mother tree whose vegetative organs are used in the first grown mulberry seedlings are preserved, and it has been proven that the period of use of the second established mulberry trees for silkworms is reduced to 2-3 years.

In order to increase the quality and productivity of cocoons, it is considered to be one of the most important issues to increase the number of mulberry seedlings grown in our republic and the area of mulberry plantations providing special nutrients every year.

Care of adult worms. 4 and 5 year old wolves are called adult wolves. For worms of this age, mulberry twigs are prepared twice a day - in the morning and in the evening (after sunset). The branches of the mulberry tree are cut for the four-year-old worms, and in the fifth year, all the branches and branches are cut and the body is shaped. In Central Asia, adult caterpillars feed on deciduous branches. In this way, a healthy and hygienic condition is created for the worms: they crawl on the branches and branches, feed on clean leaves, sick and dead worms and their habits fall from the branches. The aeration conditions are improved, the leaf on the branch does not dry quickly. Mulberry branches are cut to a length of 70-90 cm and planted on the slats. In this case, the branches can be placed in two different ways. In the first method, the branches are arranged in a checkerboard pattern across the height and width of the sod. As a result, well-ventilated cages are formed, and litter falls down: in the second method, the branches are placed along the width of the straw. In this case, the ends and the bottom of the branches are placed alternately. In this way, the leaves on the branch are distributed to the worms in the same order. Because the leaves at the ends of the branches are nutritious. When placing the branches, the leaves on them should touch each other and the ends of the branch should not hang from the sap. Advanced caterpillars turn the branches 1-2 hours after feeding, turning the leafy side up. Each feeding should be given after the silkworms have eaten the leaf without wilting the leaf. If another leaf is placed on top of a leaf that has already been eaten, the old leaves will become moldy, become a source of disease, and the leaf will be wasted. The amount of feeding worms depends on the temperature, if the temperature is high, the amount of feeding is increased, in which the food is given in small portions and fed frequently. The amount of feeding is reduced when the temperature is low and the humidity is high.

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A cocoon breeder will do well if the silkworms are fed throughout the day. It is recommended to feed in the appropriate amount for the experiments..

In the first year - 10 times, then 2 times at night

In the second year - 9 times, then 2 times at night

In the third year - 8 times, then 2 times at night

In the fourth year - 6 - 7 times, then 2 times at night

In the fifth year - 5-6 times, then 2 times at night

It should be noted that the formation of silk substance in the silk gland takes place in the fifth year of the worm, especially in the days when it enters the daha. That is why it is very important to feed the worms in the daha. At this time, if there is an interruption in giving leaves to the worms, silk synthesis will decrease. As a result, if the worms entering the daha are not provided with enough leaves, the cocoons they weave will be small and the amount of silk will be low, the quality of the cocoons produced will be low.

picture 1

The process of caring for adult worms.

(The experiment was carried out in 2018 at the Zarqaynar farm in Beshariq district, Fergana region)

Caring for adult worms is a process of breeding and thinning.

It is known that now there are more than 200 varieties of mulberry. Among them there are varieties created by breeders of our republic, imported from the Commonwealth and far abroad. Mulberries consist of cultivars and hybrids, differing in leaf yield and biochemical composition of leaves. The mulberry varieties created using selection methods usually have high yield and satiety characteristics and fully meet the demand.

Effect of silk gland activity on cocoon yield and fertility. The result of any work carried out in the field of cocooning must be the high yield of cocoon and its quality indicators, which are important for production.

In the following years, the average yield of cocoons from one box of worms is 51-52 kilograms. This indicator is equal to 45-46 kilograms in some districts. The quality of cocoons does not meet the requirements of the world market. Defective cocoons (5,000-6,000 tons) make up about 20-22% (25-30% in some districts) of more than 25,000 tons of live cocoons produced annually in the country. This number is equal to the cocoons produced by two provinces, causing a great loss to the economy of farms and the cocoon industry.

93-94% of the cocoons grown in countries such as China, Japan, Korea and India, where the silk industry has developed, are fertile cocoons. The price of quality cocoons on the foreign market is 3-4 times higher. Therefore, we directed the next stages of our research to study how the amount of food and temperature affect the cocoon yield and fertility indicators through silk gland activity.

Effect of feed amount and silk gland activity on cocoon productivity and fertility. Shows that cocoon yield and quality parameters are influenced by mulberry cultivars, mulberry management, feeding area, cocooning and other processes. However, it is often overlooked that this indicator is also related to the leaf ratio given to more worms.

Lack of food in silkworms leads to changes in metabolism, physiological and biochemical processes in the body. This, in turn, affects the activity of silk glands. As a result, the amount of silk liquid accumulated in the silk glands decreases, and during the period of cocooning, some of the worms that are not satisfied with food do not cocoon. The wrapped cocoons are also thin pods (less silk) and light in weight. As a result, it affects the yield and fertility indicators of the cocoon.

In conducting our experiments, we used Tajikistan seedless, Uzbekistan Pioner and Kukoso-70 varieties created by scientists of the Research Institute of Sericulture of Uzbekistan. Control variant worms were fed on freely pollinated hybrid mulberry leaves. The effect of mulberry leaves on silk gland activity is given in Table 3.4.1 below. Worms in the experiment were fed with fertile mulberry leaves propagated by the method of Professor K.R. Rakhmonberdiev using cuttings.

From the data in Table 1, it can be seen that when silkworms were fed with seeded mulberry leaves, silkworm index was slightly higher than when they were fed with unseeded mulberry leaves. For example, in the experimental variants, the weight of the silk gland was 1550-1650 mg, and the volume was 1.55-1.63 cm3, while in the comparative version, this index was 1470-1480 mg, the volume was 1.45-1.48 cm3 , compared to the

experimental variants, it was found that the weight is 6.9-11.5% less, and the volume is 6.9-10.1% less. So, it was found that if silkworms are fed with fertile mulberry leaves, the larvae develop well, the silk gland grows normally and accumulates enough silk material.

Table 1

Effect of feeding silkworms with fertile mulberry leaves on silk gland activity

(The experiment was conducted in a laboratory in Besharik Tumun, Fergana Region in 2018)

Name of mulberry varieties	Silk cloth indicators		Worms are viable league, % X±Sx	Extension of the worm period, day	Total cocoon-s, %	Cocoon yield from 1 box of worms, kg	Pd
	heavy - league, mg	Volume cm3					
In breed Silky-1							
Tajikistan seedless	1600	1,58	93,0±0,70	22	95,5	76	0,990
Pioneer	1550	1,55	93,5±0,71	22	95,0	75	0,992
Kukuso-70	1650	1,63	94,0±0,72	22	96,5	80	0,999
Uzbekistan	1630	1,60	93,5±0,72	22	96,0	78	0,996
A mixture of hybrids	1450	1,45	92,0±0,70	22,5	92,0	72	-
In a foreign hybrid							
Tajikistan seedless	1620	1,60	93,0±0,72	22	96,0	77	0,998
Pioneer	1580	1,57	93,5±0,73	22	95,5	76	0,994
Kukuso-70	1670	1,65	94,5±0,74	22	96,5	82	0,996
Uzbekistan	1640	1,62	93,5±0,71	22	96,0	79	0,996
A mixture of hybrids	1480	1,48	92,0±0,69	22,5	92,0	74	-

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Analysis of the figures in the table shows that the viability of worms fed with cultivated mulberry leaves is slightly higher (1.5-2.5%) than those fed with a mixture of hybrid mulberry leaves. The highest rate was observed in variants using Payvandi and Uzbekistan varieties. Feeding with fertile mulberry leaves only shortened the larval period by 0.5 days.

When determining the total number of cocoons in the experimental and comparative variants, it was found that when silkworms were fed with fertile mulberry leaves, the number of cocoons wrapped was equal to 95.0-96.5%, compared to the comparative variant (92.0%), 3.0-4 proved to be higher by .5%.

The formation and release of silk is the largest part of the protein metabolism process in mulberry silkworms. Therefore, to produce silk, a lot of protein and a lot of energy must be consumed in the silkworm's body. The weight of the cocoon is generally estimated to be half the weight of the silkworm, with up to 12% dry matter and 13% energy required for cocooning. Silk formation is a special separation activity that occurs during the dormant and defenseless stage of the mulberry silkworm's development. This activity consists in the ultimate adaptation of the organism to the external environment, because as a result of this, the exchange of substances intended for the previous stage takes place at this stage, that is, silk is released before the cocoon stage. Domesticated silkworms secrete a lot of silk, which is the result of long-term selection, while non-domesticated silkworms secrete much less silk.

Silk is a thick stretchy liquid secreted by a special gland. The silk gland is the second pair of salivary glands that have changed in origin. The silk gland is a pair of tubular organs, almost clear, glassy, very light amber, pale yellow, sometimes with a greenish tint. This gland is located on either side of the worm's body cavity and just below the midgut, only slightly smaller in overall size. Each side of the gland begins with a sessile section, followed by a fluid bladder, from which fluid ducts leave, which join and terminate in the sessile tube located on the lower lip.

The silkworm starts from the sixth joint of the abdomen and consists of a relatively thin curved tube. This section is the longest part of the gland, and becomes very long when the silkworm reaches the end of its fifth instar; the range of the curved areas is correspondingly extended, its curves go to the seventh and eighth joints of the abdomen. In the fourth or fifth joint of the abdomen, the front part of the silk-separating section begins to expand and turns into a liquid bubble in the thickest part of the gland.

The liquid bubble is sharply bent in two places, forming three elbow turns parallel to each other. The second middle elbow is slightly longer and thicker than the other two. The oblique first-instar silkworms, between the first and second elbows, are on the second joint of the abdomen. The silk gland of productive silkworm breeds is more than two times larger in the hybrids used in production, compared to the ones in the collection and in the cultivated breeds. They have a particularly well-developed silk-separating section, which is 3.3 times longer and 6 times heavier in fertile worms than in infertile worms. The average lengths of the silk-separating, liquid bladder and even and odd excretory ducts of each section of the silk glands were as follows.

As the mulberry silkworms grow, the silk gland also increases in size, but if the growth is the same in the first four years, then by the fifth age, a sudden change in the development of the sections of the silk gland occurs, which can be clearly seen from the data presented in the table below.

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