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## MULBERRY LEAF UTILIZATION RATE IN FEEDING MULBERRY SILKWORMS BY AGE

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#### ABSTRACT

*Definition and value of feeding factor of mulberry-trees leaves by caterpillars influencing the development and productivity of silk worms is lightened in the article*



Currently, new hybrids of silkworms are being raised in the farms of our republic. For high-yielding breeds and hybrids, the amount of leaves consumed per box (19 g) of worms is set at 1000 kilograms according to the rules of agrotechnology. However, in production conditions, that is, when raising silkworms in rural households, this norm is not observed, and in many cases a shortage of leaves occurs, which negatively affects the harvest. It is scientifically and practically relevant to determine the growth, development of worms and how much of the leaves they eat, that is, what is the utilization coefficient.

A number of scientists have conducted interesting studies on the nutrition of silkworms, how much leaves to give depending on their age, and how much is spent on one box of worms. In particular, A.G. Kofian (1947), E.N. Mikhailov (1953), P.A. Kovalev (1959), N.L. Bakhovutdinov (1961), U. Nasirillayev (1992), N. Akhmedov (1999) in their experiments studied in detail the amount of food that silkworms eat at different ages, the duration of feeding, and the breakdown of food in the body, and made appropriate recommendations. However, complete information on the utilization ratio of the leaves given to the worms has not been described.

Experiments show that the caterpillars do not eat the same amount of leaves from the beginning to the end of each age. The caterpillar eats the least leaves at the beginning and end of each age, and the most in the middle of the age. As for the amount of leaves eaten relative to the live weight of the caterpillar at each age, the caterpillars of younger ages eat more leaves than the caterpillars of older ages.

In spring feeding, the monovoltine strain worms ate 63-65 % of the given leaf. It was found that the current strain and hybrids ate 69-70 % of the given leaf.

The fifth instar of the caterpillar requires several times more leaves than the previous four instars. Three-quarters of these leaves are eaten. On average, the caterpillar eats more than half of the total leaves provided during its five instars. The difference between the total amount of leaves provided to the caterpillar and the amount of leaves eaten is called the utilization ratio, and this ratio is measured as a percentage. Data on the leaf consumption ratio of the caterpillars are given in Table 1 below.

1-table

**Amount and ratio of mulberry leaf use in feeding silkworms according to their age.**

The young of the worm	Amount of leaves given to 1 box of worms, kg	Eaten leaf		Waste		Worm utilization rate of a given leaf, %
		quantity, kg	%	quantity, kg	%	
1	6	0.78	13.0	5.22	87.0	15
2	17	4.16	24.5	12.84	75.5	25
3	57	18.80	33.0	38.20	67.0	35
4	170	83.30	49.0	86.70	51.0	50
5	750	525.00	70.0	225.00	30.0	70
Total:	1000	632.05	63.20	367.95	36.80	65

As can be seen from the data in the table, as the worms grow older, the amount of leaves given to them increases (6 kg in the first year, 57 kg in the third year, 750 kg in the fifth year). At the same time, the amount of leaves consumed (utilization coefficient) gradually increases (13-15 in the first year, 33-35 in the third year, and 70 % in the fifth year). Based on this, if in the first year the worms excrete 85-87 % of the leaves given to them, this figure is 67 % in the third year and 30 % in the first days of the fifth year. However, on the 4th-5th-6th day of the fifth year, the worms eat all (almost 100 %) of the leaves given to them except for the base, and on the 7th-8th day this figure decreases slightly.

The leaf utilization coefficient depends on the quality, variety, nutritional value and water content of the leaf, as well as the agrotechnical conditions for feeding silkworms. Uneaten leaves (stalks) contain few nutrients and are rich in fiber and ash. However, if the worms are given fewer leaves, they will leave less straw, but the worms will not be able to eat evenly and will become larger and smaller. Studies have shown that the nutritional value of the straw left by the worms in the first and second instars is twice as high as that of the fifth-instar worms.

Based on the above data, it can be concluded that the higher the leaf utilization coefficient of silkworms, the faster and better they develop, accumulate a large amount of silk fluid in the silk gland, and as a result, the cocoons they spin are alive and silk-like. If the utilization coefficient is low, more food is consumed, the amount of waste increases, and by the end of the fifth instar, a shortage of leaves occurs, as a result of which the worms spin small, poor-quality cocoons without being fed. To increase the leaf utilization coefficient, it is necessary to multiply mulberry seedlings, establish special mulberry nurseries, feed mulberries with food, water them frequently, and maintain them according to agrotechnical

rules. At the same time, it is advisable to use innovative technologies for worm feeding, observing the rules for preparing, storing, and feeding worms.

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