

**PRODUCTIVITY INDICATORS OF BUTTERFLIES AND WORMERS OF
TASHKENT 1 AND TASHKENT 2 BREEDS IN BIOLOGICAL
RESOURCES**

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**ПОКАЗАТЕЛИ ПРОДУКТИВНОСТИ БАБОЧЕК И ЧЕРВЕЙ
ТАШКЕНТСКОЙ 1 И ТАШКЕНТСКОЙ 2 ПОРОД ПО
БИОЛОГИЧЕСКИМ РЕСУРСАМ**

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АННОТАЦИЯ

Abstract. This article presents the reproductive indicators of the mother butterfly selected from the Tashkent 1 and Tashkent 2 breeds, the reproductive characteristics of butterflies and the biological and productivity indicators of silkworms of the hybrids ♀Tashkent 1 x ♂Tashkent 2, ♀Tashkent 2 x ♂Tashkent 1 prepared from them.

Абстрактный. В данной статье представлены репродуктивные показатели бабочки-матери, отобранной из пород Ташкент 1 и Ташкент 2, репродуктивные характеристики бабочек, а также биологические и

продуктивные показатели тутовых шелкопрядов гибридов ♀Ташкент 1 х ♂Ташкент 2, ♀Ташкент 2 х ♂Ташкент Я приготовил из них.

Key words: Heredity, variation, reproductive, egg, reproduction, motility, worm, ovipositor, cocoon, silkiness.

Ключевые слова: Наследственность, изменчивость, размножение, яйцо, размножение, подвижность, червь, яйцеклад, кокон, шелковистость.

Introduction. Decree of the President of the Republic of Uzbekistan No. PF-4947 of February 7, 2017 "On the Strategy of Actions for Further Development of the Republic of Uzbekistan", No. PQ-3910 of August 20, 2018 "On the Coir Industry in the Republic on measures for more effective use of existing opportunities" and PQ-4411 of July 31, 2019 "On additional measures for the development of deep processing in the cocoon industry" implementation of the tasks specified in the decisions and other normative legal documents related to this field is considered an important task facing the field.

In the development strategy of the Republic of Uzbekistan for 2022-2026, the improvement of the system based on science and innovation in agriculture is defined as the main directions. In the implementation of these tasks, it is important to breed new breeds and recommend them for breeding and industrial seed production by developing the technology of preparing super-elite and elite seeds for breeding work.

Much progress has been made in mulberry silkworm genetics, selection and breeding. Most economic value signs belong to the category of quantitative signs, and their manifestation depends on the hereditary factor. All quantitative signs have a certain variability, whether they are animal signs or plant signs.

The variability transmitted from generation to generation is manifested in the next generation as a result of a certain combination of genetic factors of the father and mother organisms.

Scientists have unanimously proven that the high heritability coefficient will definitely be effective in the selection method. In cases where the heritability

coefficient is low, the variability in the population depends not on the genetic factor, but on the feeding and care of the animals, and the environmental conditions. The selection work carried out in such populations does not give the expected good results in the next generation.

V.A. Strunnikov (1960, 1971) was one of the first to determine heritability coefficients of mulberry silkworm traits. In the work carried out on the introduction of mechanized selection of breeding cocoons, the heritability coefficient of cocoon silkiness was calculated and this indicator was equal to $h^2=0.5$.

Later, at UzIIT, under the leadership of U.N. Nasirillaev, extensive research was started on determining the variability and heritability coefficients of the selection traits of the mulberry silkworm.

Chin Ngok Lan (1972, 1973) studied the degree of variation and heritability coefficients of the most important technological characteristics: fiber length and its thinness. The heritability coefficient of silk fiber is $h^2=0.313$. . . 0.394, fiber length $h^2=0.221$. . . It was found to be equal to 0.362. The determined indicators indicate that it is possible to achieve certain positive changes in the population by carrying out the selection of live cocoons for these two characters.

U.N.Nasirillaev and B.G.Abasov (1975) determined heritability coefficients of reproductive traits. Until now, the heritability coefficients of the most important quantitative traits such as cocoon weight, silk shell weight and silkiness of mulberry silkworm have been determined.

It is natural to ask whether it is possible to maintain this characteristic at a high level by selecting high silk cocoons or silk cocoons. Since a number of characters such as cocoon weight, silk shell weight, and silkiness belong to the category of quantitative characters, their transmission from generation to generation differs from the inheritance of quality characters. Because a large number of genes and polygenes are involved in the manifestation of quantitative traits. It is important to note that the influence of external environmental conditions

on the manifestation of quantitative signs is also significant (B.U. Nasirillaev, 2009).

One of the tasks assigned to the dissertation experiments is to carry out selection works of the Tashkent 1 and Tashkent 2 breeds according to the leading selection characters, and in the future, the research results will be directly introduced into production and the new industrial hybrids will fully demonstrate their high technological potential. is achieved. Development of the method of selection of breeding cocoons in the super-elite and elite stage according to the morphological characteristics of the cocoons. That's why we found it necessary to carry out a set of selection works for traits with leading economic value in the family kennel of Tashkent 1 and Tashkent 2 breeds for 3 years.

It started with determining the reproductive characteristics of Tashkent 1 and Tashkent 2 breeds and selecting the most fertile families for offspring. The obtained results are presented in Table 1.

Table 1

Reproductive indicators of Tashkent 1 and Tashkent 2 breeds (2023)

Breed and hybrids	The number of eggs in the nest, dona	Weight of eggs in a barn, mg	Weight of one egg, mg
Toshkent 1	596±12,00	359±3,0	0,605±0,003
Toshkent 2	673±10,5	377±6,0	0,559±0,004
♀Toshkent 1 x ♂Toshkent 2	639±7,9	396±5,1	0,619±0,005
♀Toshkent 2 x ♂Toshkent 1	698±5,7	427±4,7	0,612±0,005

As can be seen from the figures in Table 1, the Tashkent 1 and Tashkent 2 breeds have high fertility characteristics, as a result of the selection work carried out on reproductive indicators, the number of eggs in the laying was 596 in the Tashkent 1 breed and 673 in the Tashkent 2 breed. formed a piece. According to the weight of the eggs in the barn, this indicator was equal to 359 mg and 377 mg, respectively. But the weight of one egg decreased significantly.

At the end of the annual analysis of reproductive characteristics, the families of Tashkent 1 and Tashkent 2 breeds with the same genealogy were united, groups

were formed, and 100 eggs of each group were sampled to determine the viability of eggs. Among the groups revived for worm feeding, the groups with the highest survival rate and fully revived were selected for worm feeding. Worm viability was calculated by determining the number of healthy worms that reached cocooning and pupation in each group.

Table 2

Egg viability and worm viability of Tashkent 1 and Tashkent 2 breeds (2024).

Breeds	The revival of the egg, %	The vitality of worms, %	Disease percentage, %
Toshkent 1	98,4±0,74	92,3±0,45	1,8±0,13
Toshkent 2	98,2±0,26	93,6±0,68	3,4±0,42
♀Toshkent 1 x ♂Toshkent 2	99,1±0,25	95,2±0,15	0,9±0,30
♀Toshkent 2 x ♂Toshkent 1	99,2±0,12	95,1±0,19	1,7±0,17

Analyzing the egg survival and worm viability indicators in Table 2, we can be sure that important results have been achieved for the silkworm. Breeds Tashkent 1 and Tashkent 2 showed the results according to these indicators - egg survival averaged 98.4%, 98.2% and worm viability - 92.3%, 93.6%. The percentage of the disease was very low, i.e. 1.8% in Tashkent 1 breed and 3.4% in Tashkent 2 breed.

From the figures in Table 3, it can be seen that the indicators of these characters are at a much higher level. The average weight of cocoon and the average weight of cocoon shell in Tashkent 1 and Tashkent 1 breeds are 1.79 g, 446 mg and 1.86 g and 461 mg, respectively, and silkiness is 24.9 % in Tashkent 1 breed and Tashkent 2 in the breed was 24.7%.

Table 3

Cocoon productivity of Tashkent 1 and Tashkent 2 breeds (2024 y.).

Years	Cocoon weight, g	Cocoon weight, mg	silkiness, %
Toshkent 1	1,79±0,041	446±4,9	24,9±0,35
Toshkent 2	1,86±0,029	461±3,0	24,7±0,46
♀Toshkent 1 x ♂Toshkent 2	1,95±0,01	489±5,4	25,1±0,17
♀Toshkent 2 x ♂Toshkent 1	2,00±0,02	501±3,6	25,1±0,21

In addition, cocoons bred in family nurseries of two breeds for three years were selected according to cocoon shell graininess and cocoon compactness. The above results are mainly the result of this selection methodology.

It was found that the hybrids "Tashkent 1 x Tashkent 2" and "Tashkent 2 x Tashkent 1" from elite breeds of Tashkent 1 and Tashkent 2 breeds actually have heterosis. All biological indicators of these hybrids are clearly superior to the parent breeds

The variability indicators of Tashkent 1 and Tashkent 2 breeds, $C_v=19.7\%$ in Tashkent 1 breed, $C_v=25.4\%$ in Tashkent 1 breed, indicate that there is diversity in the breed population and there is a basis for selection.

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