

SSENIOR-DETERMINED SILKWORM BREEDS AS COMPONENTS OF PURE HYBRIDS

Akilov Ulugbek Hakimovich,

Senior Researcher of the AL-4721035212 project,

Doctor of Philosophy in Agricultural Sciences (PhD),.

e-mail: uaqilovagmail.com@mail.ru <https://orcid.org/0000-0002-1490-0849>

Annotation

Currently, in order to provide the population with natural silk fabrics, various scientific studies are being conducted aimed at creating and introducing into the sericulture of Uzbekistan breeds and hybrids of silkworm with high combinational value, with maximum manifestation of heterosis, with low cost of raw silk. However, not enough has been done in the direction of creating 100% pure, highly heterotic silkworm hybrids, and therefore it is necessary to conduct in-depth scientific research. In this regard, the research of this work makes it possible to solve the problem common to all sericulture countries of the world of creating 100% pure hybrids by using sex-labeled breeds at the greening stage.

Introduction

Early recognition of the sex by egg color eliminates the complex, labor-intensive and very inaccurate operation of dividing cocoons by sex, thereby significantly reducing time, money and manual labor. At the same time, the purity of the preparation of hybrids without clogging with pure-bred material leads to the maximum manifestation of heterosis in economically valuable indicators, seriously increasing the yield of raw silk.

When selecting breeds to create 100% pure hybrids, the sex-labeled breeds at the greening stage were ranked according to caterpillar viability, cocoon weight and cocoon silkiness. The lowest scores and, accordingly, the highest ranks are scored by the breeds C-5 W2 W2, C-12 W5 W5, C-14 W3 W3, C-10 W3 W3, C-13 W2 W2. These breeds were chosen by us to create 100% pure hybrids. Sex-labeled breeds differ from the usual ones by the presence of chromosomal rearrangement in their genomes. Therefore, these breeds react more sensitively to any changes in conditions of detention. As is known from numerous studies [1], in good experimental conditions, the biological characteristics of sex-labeled rocks are at the same level as that of normal material, but in unstable conditions, material with genetic changes behaves somewhat worse.

It behaves somewhat worse with genetic changes

“Material and methods of research” The experiments were conducted in the period 2022-2023, in the ecological wormholes of the Scientific Research Institute of Sericulture. In the

experiments, the rocks C-5, C-10, C-12, C-13, and C-14 labeled by sex at the greene stage were used.

During the experiments, selection methods were used based on the leading breeding characteristics of the silkworm at all stages of development [2], hybridization of breeds in various combinations, analysis and evaluation of the results obtained [3], selection by motor activity [4].

Results

Over 3 years of breeding work with breeds marked by gender at the greening stage, it was possible to raise their main economically valuable indicators somewhat. To evaluate the results achieved, Table 1 shows data on some characteristics of the studied rocks in comparison with the control ones.

As can be seen from Table 1, selection and breeding selection over two years led to an increase in the percentage of egg-laying size control in breeds C-5 (91.5%), C-10 (83.6%), C-14 (105.8%), to an increase in the vitality of the grain in all studied breeds C-5 (102.6%), C-10 (100.2%), C-12 (103.0%), C-13 (101.4%), C-14 (100.6%), to improve the viability of caterpillars in breeds C-10 (97.7%), C-12 (98.5%), to to increase the silkiness of cocoons in breeds C-13 (113.6%), C-14 (115.0%).

Economically valuable traits of sex-tagged breeds at the end of breeding selection (2022-2023)

№	Breeds	The number of norms. eggs in a clutch, pcs.		Egg liveability, %		Viability of selection caterpillars, %		Silkiness of cocoons, %	
		$\bar{X} \pm S \bar{x}$	control, %	$\bar{X} \pm S \bar{x}$	control, %	$\bar{X} \pm S \bar{x}$	control, %	$\bar{X} \pm S \bar{x}$	control, %
1	C-5	540	91,5	95,7±0,7	102,6	91,8±1,2	99,9	23,9±0,2	113,8
2	C-10	493	83,6	93,5±0,4	100,2	97,7±1,5	106,2	23,0±0,7	109,5
3	C-12	492	83,4	96,1±0,6	103,0	98,5±1,7	107,1	23,7±0,3	112,8
4	C-13	447	75,8	94,6±0,5	101,4	94,3±2,5	102,5	22,8±0,3	108,5
5	C-14	624	105,8	93,7±0,7	100,6	92,5±3,3	100,5	22,4±0,2	106,7
6	Ип.1(c)	590	100,0	93,3±0,3	100,0	92,0±0,8	100,0	21,0±0,8	100,0

It is known that the manifestation of quantitative signs in the silkworm is due to the combined effect of hereditary factors and environmental conditions. Global climate changes around the world and in Uzbekistan, in particular, lead to the destabilization of natural conditions for the reproduction of the silkworm and the cultivation of mulberry. This inevitably affects the condition of the silkworm, depriving it of the opportunity to fully realize its genetic potential. In addition, the results of breeding selection depend a lot on the degree of heritability of a particular trait and the correlations between the traits. In changing conditions of keeping caterpillars, changes in genetic parameters occur: variability, heritability and correlation

between traits, and the selection of breeding individuals by phenotype will not fully correspond to their genotype. In our case, this is exactly what is observed: in changing feeding and maintenance conditions, genotypes with a different reaction rate are selected. Egg vivacity refers to traits with an average degree of heritability, however, in our work it was this trait that reacted better than others to family selection – the vivacity of the grain of all sex-labeled breeds exceeded the control (Table 1). The silkiness of cocoons belongs to traits with a high degree of heritability, however, only 2 breeds C-5, C-12 have seriously increased their silkiness as a result of individual selection. In general, the indicators of all economically valuable traits of sex-labeled breeds are at the control level, which means they can be used to create industrial hybrids.

Conclusion

As a result of three years of work using traditional selection methods at all stages of development and selection according to the motor activity of vivifying caterpillars and male butterflies, improved reproductive parameters and vivifiability of greens, viability of caterpillars, weight and silkworm cocoon lines of silkworm breeds C-5, C-10, C-12, C-13 were derived, C-14, which can be used to create 100% but pure hybrids.

References

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