

Change of Quality Indicators of Raw Silk from Cocoon Washing Machines

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ABSTRACT: In this article, the physical and mechanical properties of raw silk yarns of different linear densities, ie 2.33 and 3.23 tex, obtained from KMS-10 mechanical and FY2000YX cocoon spinning machines, were determined.

KEY WORDS: cocoon, silk, linear density, length, flatness, defect, the coefficient of variation in linear density.

I. INTRODUCTION

A number of urgent tasks facing the textile industry today include re-equipment of enterprises, introduction of new The silk industry of the Republic of Uzbekistan is one of the largest branches of the textile industry. In addition, the silk industry in our country has a sufficient capacity to export raw materials and finished products to near and far abroad, and is a sector that provides large foreign exchange earnings. This will lead to the improvement and growth of economic indicators of the republic.

The quality of raw silk is assessed in accordance with the standard Oz'Dst 3313-2011 and is divided into first and second level according to the indicators. The primary indicators are the relative deviation of the conditioned linear density from the nominal, the quadratic inequality in the linear density, the rewinding capacity, the number of breaks in 1 kg of raw material, the purity of large impurities, and the secondary indicators of the yarn condition, the purity of small impurities elongation and cohesion.

The quality of silk yarns and finished products produced by industrial enterprises engaged in silk production depends primarily on the production and processing of natural silk, as well as the quality and properties of cocoons and finished products to meet international standards.

At present, in a market economy, the problem of obtaining high-quality silk raw materials is important, it is also important to improve the methods of feeding silkworms to meet the requirements in terms of technological properties, the selection of quality hybrids. Some studies have examined the effects of cocoon stiffness and defects on evaporation, spinning regimes, raw silk yield, raw silk breakage, purity, and imperfections, and noted that all defective cocoons produce defective silk when washed.

Currently, the main task of the silk industry is to produce high-quality and competitive finished products from raw silk, to export finished products to foreign countries, not as raw materials.

II. METHODOLOGY

At present, the quality of raw silk is raised to the level of world standards. There is a great demand for such indicators as the relative difference in linear density from the nominal, the coefficient of variation in linear density, reproducibility, purity from large and small defects, tensile strength, elongation at break. In addition, these indicators of raw silk are crucial in the production of high quality silk products (fabrics, knitwear and technical products, etc.). Therefore, in the course of research, raw silk yarns of different linear densities, ie 2.33 and 3.23 tex, were obtained from the KMS-10 mechanical and FY2000YX cocoon spinning machine, and the purity of raw silk from small and large defects and the condition of the yarn were determined.

The test results are presented in tables 1 and 2.

1- table

Influence of cocoon spinning machines on the purity and yarn condition of raw silk (text 2.33)

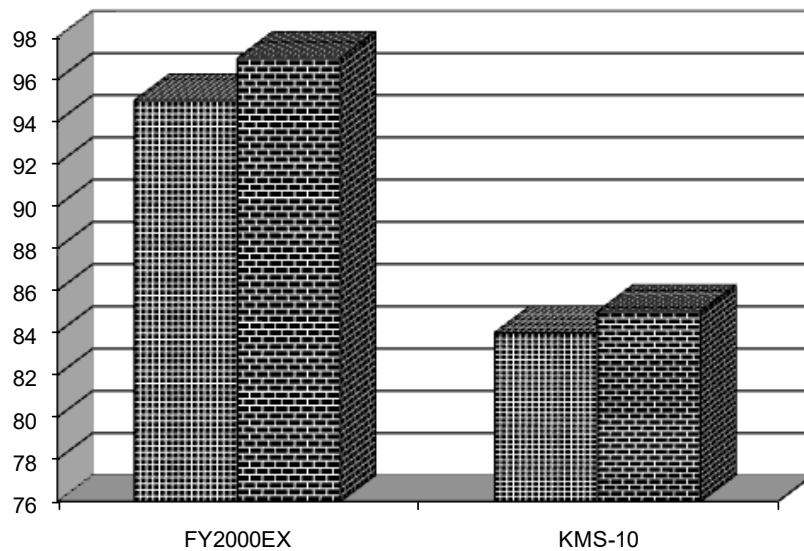
t / r	Type of cocoon reel machines	From minor flaws purity,%		One of the major drawbacks purity,%		Worst cleanliness,%	
		real	O'zDSt 3313: 2018 on	real	O'zDSt 3313: 2018 on	real	O'zDSt 3313: 2018 on
1.	KMS-10	84	85	85	86	74	75
2.	FY2000YX	95	94	97	97	91	90

2- table

Influence of cocoon spinning machines on the purity and yarn condition of raw silk (text 3.23)



t / r	Type of cocoon reel machines	From minor flaws purity,%		One of the major drawbacks purity,%		Worst cleanliness,%	
		real	O'zDSt 3313: 2018 on	real	O'zDSt 3313: 2018 on	Real	O'zDSt 3313: 2018 on
1.	KMS-10	85	85	86	86	75	75
2.	FY2000YX	94	94	95	97	90	90

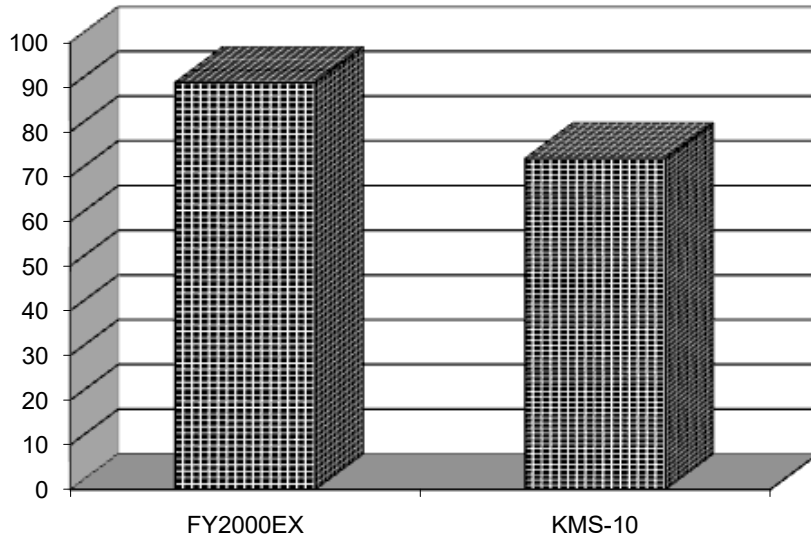
Based on the results of the test, in Figures 1-4, histograms of the effect of raw silk on the purity and condition of the yarn obtained from cocoon spinning machines were constructed.



Cocoon reel machines

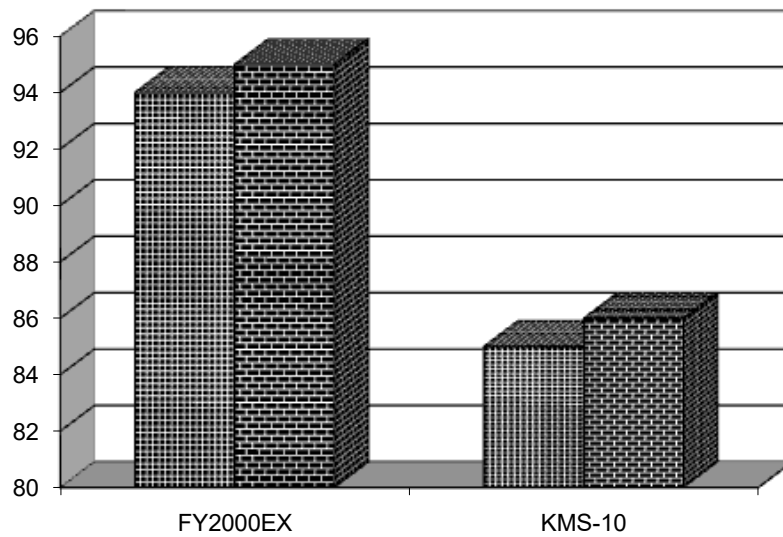
Figure 1. Influence of cocoon spinning machines on the purity of 2.33 text raw silk from small and large defects.

-  - cleanliness from minor defects;
-  - cleanliness from major defects.





Cocoon reel machines

Figure 2. The effect of cocoon spinning machines on the worst purity index of 2.33 tex



Cocoon reel machines

Figure 3. The effect of cocoon spinning machines on the purity of 3.23 text raw silk from small and large defects.

-  - cleanliness from minor defects;
-  - cleanliness from major defects.

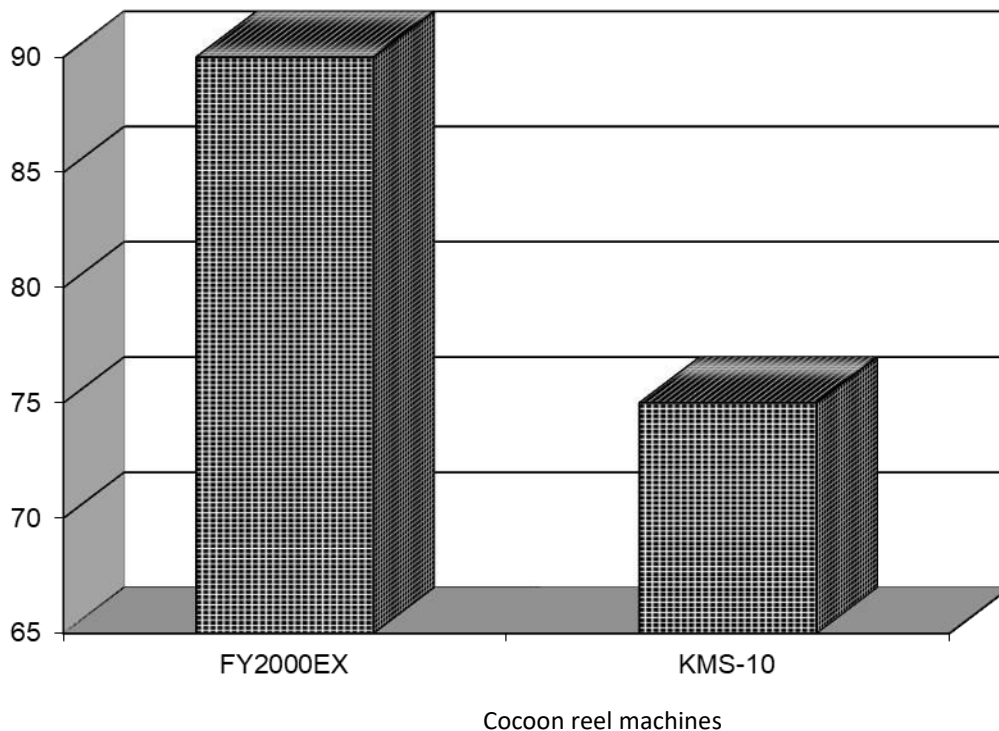


Figure 4. Influence of cocoon spinning machines on the worst purity index of 3.23 text raw silk.

III. RESULTS AND DISCUSSION

Comparing the test results with the quality of 2.33 text raw silk from the KMS-10 mechanical cocooning machine, the purity of raw silk from the FY-2000-YX cocooning machine is 11.6% from small defects, 12.4% from large defects, the worst cleanliness. Compared to the quality of 3.23 text raw silk from the mechanical cocooning machine KMS-10, the purity of raw silk from the cocoon FY2000YX increased by 9.6% from small defects, the purity from large defects by 9.5%. %, the worst cleanliness index increased by 16.7%.

Defects in raw silk yarn become small and large depending on the origin, as a result of which they lead to an increase in yarn breakage in subsequent technological processes, changing their appearance. As a result, it is natural that the finished products obtained from them have a negative impact on quality indicators.

Some defects do not cause breakage in the processing of raw silk, but have a negative impact on the structure of the finished fabric, the appearance deteriorates and the quality of the finished product deteriorates. Raw silk defects are an important factor in the weaving process. Therefore, by reducing defects, it increases the efficiency of the equipment and improves the quality of the fabrics produced.

The quality characteristics of raw silk depend on the linear density, length, flatness, defect, structure and clarity of the cocoon yarn.

IV. CONCLUSION

In summary, 2.33 and 3.23 textured raw silk from FY2000YX cocoon spinning machine has a purity of 9.6% to 11.6% from minor defects, 9.5% to 12.4% from large defects, and the worst purity. the indicator was found to increase from 16.7% to 18.7%.



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