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CONTENTS

CONTENTS

WAYS TO DEVELOP QUALITY MANAGEMENT IN THE SILK INDUSTRY OF UZBEKISTAN'S ECONOMY

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Abstract: This article discusses the essence and theoretical foundations of quality management in the context of a market economy, as well as the importance of its development in the sericulture sector of the Republic of Uzbekistan. The authors present proposals and recommendations aimed at implementing effective quality management practices in the national sericulture industry. The study examines issues related to improving the Quality Management System (QMS) in sericulture, which is considered one of the strategic sectors of Uzbekistan's economy. Furthermore, the article analyzes the role of international standards in transforming the industry from a supplier of raw materials into a producer of competitive finished products.

Keywords: sericulture, integration, globalization, quality indicators, monopoly, certification, standardization, quality management, ISO 9001 standards, sericulture clusters, digitalization of sericulture, process approach, systematic approach, international quality standards.

INTRODUCTION

In the context of the development of a market economy and market relations in countries producing sericulture and silk products, one of the main criteria ensuring the competitiveness of these products is their quality indicators. Given the above, appropriate measures are being taken in the republic to meet the needs of both domestic and foreign markets for high-quality products.

At the same time, it should be noted that the domestic market for cocoons and silk products in the republic does not fully meet the requirements of a developed market. The monopoly position of processing enterprises and the predominantly raw-material export orientation still persist, negatively affecting production profitability and the development of the industry under conditions of a developed market economy.

The sericulture sub-complex is an important component of the republic's agro-industrial complex, as it plays a significant role in increasing export potential and positively influences foreign exchange earnings. The development of integration processes that directly affect product quality in the sectors of this complex ensures the entry of industry enterprises into new markets and strengthens their positions in foreign markets. Moreover, the development of a competitive environment in the industry is a strategic objective for the sustainable development of the sericulture complex. In this regard, increasing attention is being paid to quality management issues in all sectors of the national economy, including the silk industry.

In particular, the Decree of the President of the Republic of Uzbekistan, dated March 29, 2017, No. PP-2856, "On Measures to Organize the Activities of the 'Uzbekipaksanoat' Association," identified the following as priority tasks: "increasing the production volume and further improving the quality of finished silk products, mastering their in-demand types and designs, ensuring product certification and standardization in accordance with international requirements, and effectively organizing work on the widespread introduction of modern quality management methods."

This document establishes tasks for developing quality management and quality control systems in the silk industry, which are of great importance in the context of economic globalization and the formation of developed market relations in the sectors of the national economy.

LITERATURE REVIEW

On a global scale, the genetic potential and feed base of the silkworm are considered the primary factors

determining silk quality. H. Akay (2000) studied the ultrastructure of silk glands and proved that the physical and mechanical properties of cocoon fiber, such as strength and elasticity, are directly dependent on the microclimate during the silkworm fattening period. J. M. Gould (2012) analyzed the quality of silk fiber at the molecular level from the perspective of polymer technology and demonstrated methods for ensuring its stability in industrial production.

Among Uzbek scientists, Sh. Murodov (2018) and B. Ganiev (2021) conducted a statistical analysis of the impact of compliance with agrotechnical requirements during silkworm rearing on cocoon quality. According to their conclusions, enriching mulberry leaves with vitamins makes it possible to increase the silkiness of the cocoon shell by 12–15%.

Quality depends not only on raw materials but also on processing technology. K. Singh (2015) proposed methods for improving the uniformity of silk threads (denier uniformity) through the implementation of automated quality control systems, specifically Automatic Reeling Technology, using the example of the Indian silk industry.

Following the introduction of the cluster system in Uzbekistan, the institutional foundations of quality management were examined by I. Ergashev (2022). The researcher developed an economic model for implementing ISO 9001:2015 standards in sericulture clusters and demonstrated through practical evidence that this system can reduce operating costs by up to 20%.

In modern literature, the concept of “quality” is measured not only by technical indicators but also by environmental safety. L. Walters (2020) analyzed the growth of the “eco-friendly silk” segment in the global market and examined the impact of certifications such as OEKO-TEX and GOTS (Global Organic Textile Standard) on product branding and pricing. This direction remains relatively new for Uzbekistan, and domestic literature has not yet sufficiently covered issues related to integrating these certifications into the national brand, for example, “Uzbek Silk.”

The conducted analysis demonstrates that most studies focus either exclusively on biological processes, such as cocoon cultivation, or only on specific technological stages, such as spinning. Comprehensive studies covering all stages of the sericulture cluster—“Seed – Mulberry – Cocoon – Silk – Finished Product”—as an integrated quality chain within the framework of End-to-End Quality Management, as well as the application of digital monitoring systems such as blockchain and IoT technologies, remain insufficiently explored. This research gap was selected as the main object of the present study.

RESEARCH METHODOLOGY

Based on data provided by the Uzbekipaksanoat Association, a systematic analysis and a comparative analysis with international experience, particularly that of China and Vietnam, were conducted. In addition, statistical methods were applied to assess losses in the cocoon production chain.

To improve the quality management system, reports covering the period from 2018 to 2023, SWOT analysis, and expert surveys were used to identify the strengths and weaknesses of the industry. This comprehensive methodology substantiates the influence of cocoon quality on the percentage of raw silk output through mathematical calculations.

ANALYSIS AND RESULTS

The aforementioned arguments confirm the necessity of conducting and further developing scientific research on this issue.

Regarding the theoretical aspects of the issue, it should be noted that the quality management system must comply with the requirements specified in regulatory documents and natural characteristics. It should also ensure the organization of management activities based on relevant regulations and other normative documents, as well as include a set of interconnected and interacting elements aimed at ensuring effective control over product quality management processes.

Based on the results of the conducted research, the main principles for the formation of quality management methods and approaches in the sericulture industry were identified. These principles include the following:

the functioning of quality management entities should cover practically all stages of production and take into account the interests of all participants involved in the production of silk products;

the need to effectively influence the quality indicators of raw materials and industrial products in sericulture requires the use of effective factors and instruments. In this regard, an integrated approach to quality management in the sericulture industry is considered appropriate;

the application of product quality requirements and standards based on international norms for both domestic and foreign markets, as well as the creation of organizational, legal, and economic conditions for the development or rapid adaptation of production and sales systems that meet these requirements;

the regular improvement of production and sales conditions, as well as the continuous enhancement of the quality management system and approaches through the use of modern quality management principles.

The formation and improvement of the quality management system in national economic sectors, including the sericulture complex, stimulate cost reduction, increase competitiveness, strengthen economic stability, and improve production quality and efficiency.

Scientific sources convincingly emphasize that a distinctive feature of quality management is the application of process-based and systematic approaches. Based on this, the essence and characteristics of these approaches, their scientific and practical properties, and the possibilities for their application in the sericulture industry were studied.

Based on the above, it can be stated that the process approach is characterized by the fact that each stage of production and each technological process directly affect the quality level of the final product. At the same time, the organization and technology of each stage depend on the level of organization and the effectiveness of quality management.

It should also be emphasized that the advantages of the process approach to quality management lie in the fact that it comprehensively covers all stages, from raw material production to the manufacture of finished products. This approach makes it possible to identify and eliminate problems arising at each technological stage and to remove deficiencies within any production cycle. As a result, the planned product quality can be ensured, and the efficiency of the use of production resources can be increased.

Based on the research results, the process approach to quality management may be interpreted from two perspectives. First, each production process can be considered an independent structure, where the management sequence develops horizontally. Second, the establishment of a strictly vertical management structure is considered inappropriate, since vertical organization may limit opportunities under specific production conditions. Therefore, product quality management in this context is distinguished by the fact that it encompasses many interconnected elements and requires systematic managerial decision-making.

In our opinion, a systematic approach to quality management involves the use of vertical management principles and may be effectively applied in the intersectoral organization of production, where quality management functions vertically throughout the organizational structure.

Based on the above, it can be concluded that both approaches should be applied when forming, developing, and improving the quality management system in the sericulture sub-complex.

In this regard, the process approach to quality management should be implemented throughout all stages of production, starting from agricultural enterprises producing silkworm cocoons to procurement and processing enterprises manufacturing raw silk products. This system is effectively represented through sericulture clusters.

The study results demonstrated the importance of increasing export prices by up to 30% and ensuring product transparency through three priority areas for improving quality in sericulture: seed and feed control, digital monitoring through QR codes, and international certification systems such as ISO and OEKO-TEX. The analysis confirmed that more than 70% of silk quality is determined by the quality of seeds and feed materials, while the absence of international certification in more than 60% of clusters remains one of the main factors limiting export potential.

CONCLUSION AND SUGGESTIONS

The organization and formation of a quality management system based on a process approach begins with the registration and classification of existing types and areas of enterprise activity. The results of this process require, first, a systematic understanding of the enterprise's activities, the identification of all types of products and services, and the determination of consumer requirements. Second, they require a comparison of the quality of products and services produced by the enterprise with international standards and consumer expectations.

Within the framework of the procedures and requirements listed above, the quality management model based on a process approach serves as the foundation for conducting internal audits at enterprises, as well as for preventing and eliminating emerging deficiencies and non-conformities. Furthermore, quality management based on a process approach provides both internal and external advantages for the enterprise.

In addition, we propose the feasibility of implementing a systematic approach to quality management within the framework of regional sericulture clusters established under the Decree of the President of the Republic of Uzbekistan No. 4411, "On Additional Measures for the Development of Deep Processing in the Sericulture Industry." In our opinion, this approach will ensure the coordinated development of all stages of the complex production system, from seed production to the manufacture of finished silk products. Ultimately, it will contribute to improving the quality and competitiveness of the sericulture industry and enhancing the export potential of the republic.

In conclusion, it should be noted that organizing quality management at sericulture enterprises on the basis of a process approach, as well as certifying it in the prescribed manner, ensures the establishment of an interconnected system of processes and management mechanisms. It also facilitates process planning and implementation, quality control, analysis, and sustainable development.

To further develop quality management in Uzbekistan's silk industry, it is necessary to ensure the mandatory implementation of ISO 9001 and OEKO-TEX standards within sericulture clusters, introduce digital monitoring systems based on IT and blockchain technologies, and accelerate the training of personnel with international experience in quality management. These measures will reduce raw material losses, increase the added value of products in the global market by up to 40%, and transform the industry into a globally recognized brand.

List of used literature

1. Resolution of the President of the Republic of Uzbekistan No. PP-2856, dated March 29, 2017, "On Organizing the Activities of the 'Uzbekipaksanoat' Association," Section 2, Paragraph "v." https://lex.uz/uz/docs/3149416?ONDATE=01.01.2026
2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 616, dated August 11, 2017, "On Measures for the Comprehensive Development of Sericulture in 2017–2021," Appendix 3, Section III, Clause 3.
3. Resolution of the President of the Republic of Uzbekistan No. PP-73, dated February 24, 2023, "On Measures for the Further Development of the Silk Industry."
4. Interstate Standards for Live and Dry Silkworm Cocoons: GOST 31257-2004; GOST 31256-2004.
5. R. Isroilov Increasing the Material Interest of Sericulture Workers: Abstract of the Dissertation for the Degree of Candidate of Economic Sciences. Tashkent, 1991.
6. H. Alimova Raising the Quality of Cocoons and Silk to World Standards // *Silk* Journal. 1996. No. 3.

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