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Statistical Analysis and Computer Simulation of Random Occurrence of Stripes in the Seriplane Panel of Raw Silk

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Abstract

Seriplane tests have played an important role in classifying the quality of raw silk since the early days of raw silk testing. However, the introduction of machine-based quality inspection has been strongly desired by users of raw silk who are not satisfied with the seriplane tests which depend on judges' personal feelings. In this paper, two probability models were applied to seriplane evenness tests to consider the statistical property of the tests. Under the first model, the probability of test panels judged as Evenness Variation II or III was evaluated. The results revealed the fundamental relationship between the seriplane evenness tests and the size deviation of raw silk. In the second model, the probability of stripes appearing in a seriplane panel was assessed. Computer simulation was carried out to verify the theoretical results.

Keywords

[Seriplane test](#), [Evenness test](#), [Raw silk](#), [Statistical model](#), [Computer simulation](#)

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