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Evaluation for the luster and the color as new characteristics of silkworm cocoon

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Abstract

Silk user is interested in the characteristics of luster and color, but these characteristics have not been investigated. To breed a new characteristic silkworm race in cocoon filament, we researched about the luster and the color with raw silk and established an appraisal method. Four silkworm races, "Hakugin", "Shin-Akebono", "J137 × C146 (J*C)" and "Ariake" were used, and we enabled the measurement of the raw silk by winding it up to a plane bobbin. The luster values were measured in the parallel and the rectangular direction to the fiber. "Hakugin" showed high values in both directions. On the other hand, "J*C" was low. In the measurement of whiteness, "Hakugin" was high and "Shin-Akebono" was low value. Furthermore, negative correlation was recognized by size of cocoon filament and the luster/color though its degree was low, and the race of thin size showed the inclination of high values. To investigate the factor of these results, a cross section of the raw silk in each race was observed. The raw silk of Hakugin had smooth surface, and its inside was filled up enough by cocoon filament. These are regarded as the factor that luster value and whiteness level are high.

Keywords

silkworm, cocoon filament, raw silk, luster, color, whiteness, breeding

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