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[\[PDF \(2574K\)\]](#) [\[References\]](#)**Varietal Differences in Endosperm Structure Related to High-degree Polishing Properties of “Hattan Varieties” of Rice Suitable for Brewing Original Hiroshima Sake**[Masahiko Tamaki](#)¹⁾, [Rie Kihara](#)²⁾ and [Takao Tsuchiya](#)³⁾

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Abstract: This study was conducted to clarify the effect of varietal differences in the endosperm structure on the high-degree polishing properties of Hattan varieties of rice suitable for brewing original Hiroshima sake. Four varieties were used: Hattan No.35, Hattan-nishiki No.1, Hattan-nishiki No.2, and Yamada-nishiki. Ellipsoidal-white-core grains occurred at a higher rate in Hattan-nishiki No.1 and No.2, whereas lined-white-core grains were observed at a higher rate in Hattan No.35 and Yamada-nishiki. Hattan No.35 and Yamada-nishiki showed low void polishing rates, and Hattan-nishiki No.1 and No.2 high void polishing rates after 50% polishing. Hattan-nishiki No.1 and No.2 showed inferior properties; that is, many broken and cracked grains, particularly cracked grains, after 50% polishing. The contents of broken grains and cracked grains in Hattan No.35 were higher than those in Yamada-nishiki and lower than those in Hattan-nishiki No.1 and No.2. In Hattan No.35 and Yamada-nishiki, fewer airspaces were observed between the amyloplasts at the center of the white-core as compared with Hattan-nishiki No.1 and No.2. This study showed that the differences in the endosperm structure of white-cores in the brewers' rice grain are related to varietal differences in the tolerance to high-degree polishing.

Keywords: [Brewers' rice](#), [Endosperm structure](#), [Hattan varieties](#), [High-degree polishing properties](#)

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