

**Title** Recent advances in rough rice drying: application of glass transition principles  
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### **Abstract**

**Purpose of the review:** This review highlights recent advances in rough rice drying through knowledge gained about fundamental principles underlying the drying process and application of novel dryer types or processes.

**Findings:** High temperature (60–150°C) dryers such as the fluidised bed dryer have gained interest due to rapid moisture removal rates, possible improvement in milling quality, and uniform moisture content distribution throughout the rice bed. Improvements have also been made to common dryers, along with investigations into the use of non-conventional drying methods, although such research will not be discussed in detail in this review. An important advance in rough rice drying has been the knowledge gained of the physical and thermal properties of rice kernels in relation to the kernel glass transition temperature, which has helped explain fissure formation and head rice yield reduction during the drying process.

**Limitations/implications:** With knowledge of the glass transition hypothesis, suitable drying and tempering temperatures and durations crucial to maintaining milling quality can be determined on a scientific basis for any dryer type. Each type of dryer, however, is limited by its design and economic features.

**Directions for future research:** The greatest challenges to future researchers will be to utilise knowledge of the glass transition hypothesis to optimise promising drying methods and develop equipment that will maximise moisture removal rates, rice quality, and energy utilisation.