

Category	: International Rice Research Conference
Select Theme	: Food systems for the future
Endorsement email	:
Keyword 1	: Value chain analysis
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Title of Entry	: Rice quality: An interdisciplinary review from consumers, food science, genetics
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**Abstract** : Quality is a powerful engine in rice value chain (VC) upgrading. However, the rice sector currently lacks consensus on how “rice quality” should be defined and measured. We adopt a Lancasterian definition of rice quality as a bundle of intrinsic and extrinsic attributes. We then review how rice quality is (i) perceived and defined by consumers and stakeholders in rice VC in Southeast (SEA) and South Asia (SA) based on multi-country consumer surveys and key informant interviews; (ii) measured and defined by food technologists; and (iii) predicted through genetics. Our review indicated that consumers are heterogeneous with respect to their perceived differentiation of rice quality among regions, countries, cities, and urbanization levels and that quality classes are perceived as a gradient. Premium quality is defined by nutritional benefits, softness and aroma in SEA, and by the physical appearance of the grains (uniformity, whiteness, slenderness) and satiety in SA. These trends are found to be consistent with industry perceptions. Because rice is traded internationally, there is a need to standardize definitions of quality. However, food technologists have not reached unanimity on quality classes definition and quantitative measurement, particularly with respect to grain size and shape, chalkiness, head rice recovery, amylose content, and gelatinization temperature; routine indicators need to be complemented by descriptive profiles elicited through sensory evaluation panels. Finally, because rice quality is controlled by multiple interacting genes expressed through environmental conditions, predicting grain quality requires associating genetic information with grain quality phenotypes in different environments. Our review identified challenges in defining rice quality from consumers to genetics. The more rice VCs become demand-driven, the more urgent a uniform definition becomes. This definition is important for consumers to match their quality expectations with their preferences; for VC actors to match consumers’ expectations with supply and pricing; for rice breeders to set relevant breeding trait targets that correspond to regional preferences and local market segments; and finally for policy-makers to set relevant targets for investment in agricultural research, infrastructure, and value chain upgrading to increase regional and national food and nutrition security.

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