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Does nutrition information increase consumer acceptance of black rice? Evidence from a cluster randomised controlled trial

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Abstract

Black rice (*Oryza sativa*) is a nutrient-dense crop rich in anthocyanins and essential micronutrients, with potential to contribute to improved diets. However, its acceptance among consumers in Sub-Saharan Africa remains largely unexplored. The National Cereals Research Program of Uganda's National Agricultural Research Organisation (NARO) is working to introduce it to address the challenge of malnutrition in the country. This study investigates the role of nutrition information and sensory attributes in shaping consumer acceptance of black rice in Uganda, using an extended Theory of Planned Behaviour (TPB) framework. In particular, nutrition information represents an information-based cognitive stimulus that may shape consumers' perceptions of health benefits while sensory attributes capture experiential evaluations derived from direct product tasting. Integrating these elements within the TPB framework allows for a more comprehensive understanding of how cognitive, experiential, and socio-psychological factors jointly influence consumer responses to unfamiliar foods. Data were collected from 765 respondents through a cluster randomised controlled trial (cRCT), and analysed using an ordered logit generalised structural equation model (GSEM). The results indicate that provision of nutrition information significantly increases consumer acceptance. Among sensory attributes, aroma has a positive effect on acceptance, whereas shape and taste are negatively associated with it. Behavioural factors, including perceived benefits and perceived behavioural control, positively influence acceptance, while food-related disgust reduces it. Results suggest that a combination of targeted information, sensory optimisation, and trust-building measures is likely to support broader consumer acceptance and integration of black rice into local diets. Our study provides much-needed evidence to guide early-stage consumer preference insights to the on-going breeding process of black rice at NARO. Additionally, the study contributes to the literature on consumer food choice by providing empirical evidence on the determinants of acceptance of a novel, nutrient-rich staple in an emerging market context.

Keywords: Black rice, consumer acceptance, nutrition information, sensory attributes

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