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Consumers’ willingness to pay for genetically biofortified foods: Evidence from Nigeria

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Abstract

Micronutrient deficiency is a persistent challenge in low and middle-income countries, but biofortification, which increases the density of micronutrients in staple foods, is recognised as an effective strategy. And compared to conventional breeding methods, genetic engineering has been found to be more effective in biofortification due to its ability to add multiple nutrients in a cost-effective and timely manner. However, the use of genetic engineering in biofortification remains a topic of debate. This study investigates the effect of two types of information treatments on consumers’ willingness to pay for attributes of biofortified foods with a focus on breeding methods. Using the case of biofortified cassava product (gari) in Nigeria, the attributes considered are the nutrient attributes, i.e., Vitamin A and Iron, and the methods attributes, i.e., conventional breeding (CB), genetic modification (GM), and gene editing (GE) methods. A discrete choice experiment (DCE) was conducted with a representative sample of 352 participants drawn from rural and urban areas in Nigeria. Respondents were randomly assigned to one of three groups based on the information treatments: no information (control group), information on the health risks of Vitamin A and Iron deficiencies, and nutritional benefits of biofortification (nutrition group), or information on the scientific process of biofortification methods (breeding group). A balance test shows that the randomisation of the participants was successful. The DCE data were fitted to random parameter logit models. Our findings indicate that consumers initially preferred nutrient attributes but discounted GM and GE methods compared to CB. However, providing the first information treatment made consumers willing to pay for GM and GE methods. Conversely, the second information reduced the discount for GM and GE methods but the effect was not statistically significant. Overall, we observe that providing information on breeding methods made consumers focus more on nutrient-related attributes when making their choices. Although it is apparent that consumers in our study relatively prefer CB, we cautiously conclude that the use of GM and GE is not likely to significantly affect consumers’ acceptance of biofortified food opening up opportunities for scaling genetically biofortified foods in sub-Saharan Africa

Keywords: Biofortification, discrete choice experiment, genetic engineering