Whitewashing "king of fertilizer" by bringing eco-friendly products into the value chain: What quality attributes matter for stakeholders?

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Abstract: Despite the fact that it is very soluble in water; not as stable as other plant nutrients, and decomposes even at room temperatures, 'Urea' maintains its position as the leading nitrogenous fertilizer, especially in paddy farming. To overcome these shortfalls, while maintaining its favorable conditions like high nitrogen content, and relatively low production cost, "Rice-husk biochar-based slow-release urea" was innovated as an Eco-Friendly Fertilizer (EFF) through a multi-objective, multi-phased project. This paper presents the outcome of an analysis focused on the "most preferred quality attributes" of an EFF by stakeholders along the fertilizer supply/value chain. A structured questionnaire-based survey was carried out with participation stakeholders (n=80). The 25 quality attributes were identified and classified into 03 categories to signal the state of the information environment, *i.e.*, 'Search', 'Experience', and 'Credence'. Ten-point Likert-scale was set to obtain stakeholder preference on each attribute and the Mean Attribute Score and Relative Importance Index were estimated. It revealed that stakeholders, in general, mostly preferred attributes listed under the 'Experience' category, including "Ease of handling", "Incorporation of organic matter", "Possibility to improve crop productivity", and "Keepability". Unsurprisingly, the attributes explaining 'Price' and 'Market sustainability' were recorded with high Relative Importance Index (RII) values. This implies the importance of taking into account that stakeholders highly preferred quality attributes in attempts to promote newly innovated slow-release urea, as an incentive-based regulatory mechanism provide the necessary strength for such a product to fight against the "king of fertilizer" effectively and economically.

Keywords: Eco-friendly fertilizer, Market promotion, Plant nutrients, Product quality, Stakeholder perceptions