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## Ex-post impact of the digital and personalized recommendations in rice production: a case study of RiceAdvice application in the Senegal river valley

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### Abstract

The rice sector in sub-Saharan Africa (SSA) is facing important constraints that need to be addressed to ensure sustainable economic development. Although good progresses were, especially in terms of increasing production volumes, SSA countries have not yet achieved food self-sufficiency in rice due to high yield gaps. In addition, rice consumption has become important for food security in many countries including Senegal. However, blanket recommendations of nutrient management still widely used in sub-Saharan Africa failed to account for the site-specific and socio-economic context of producers. The development of the rice value chain requires technological advances in rice production to increase yield while reducing environmental footprint. AfricaRice and partners have developed a decision support tool called RiceAdvice which enables to provide digital and personalized recommendations leading to higher smallholder farmers’ efficiency. This study assessed the ex-post impact of personalized recommendations for rice nutrient management among farmers in the dry and wet seasons in Senegal. Data were collected from 1229 rice farmers in the regions of Dagana and Podor in the Senegal River Valley. Marginal Treatment Effect with parametric and semi-parametric specifications which allows to account for both observable and non-observable characteristics was used. Results showed that most rice farmers grew rice during the dry season in Senegal and the adoption of RiceAdvice increased their yield and profit by 4% and 6% respectively. Socio-economic, institutional and perception characteristics affect the adoption of the RiceAdvice by rice farmers. We conclude that the more targeted information to farmers can improve livelihood and prevent negative environmental effects.

**Keywords:** Personalized recommendations, profit, RiceAdvice, Senegal, yield