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"Reconcile land system changes
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Assessing the impact of social networks on the adoption of integrated soil fertility management in northern Ghana

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Abstract

Providing effective recommendations for scaling agricultural innovations requires a comprehensive understanding of farmers' networks with other agrarian actors. These actors provide vital resources necessary for the success of agricultural innovations. Integrated Soil Fertility Management (ISFM) is increasingly promoted as an agricultural innovation to increase yields, enhance food security, and improve farmers' livelihoods on existing land while minimising adverse impacts on natural, social, and human capital. However, ISFM could only be effective if there is a strong network between farmers and supply chain actors, who play a vital role in the success of day-to-day farming activities by providing important resources for ISFM. Northern Ghana's cultural and systemic barriers dictate how these networks are formed and could affect ISFM adoption. Currently, not enough is known about these networks and how they can affect ISFM adoption. What is needed is an overview of networks, missing links and recommendations for leverage points to improve these networks. Using graph theory, we generate a farmer-centric social network to map the complex interactions between farmers and agricultural supply chain actors who can hinder or promote the adoption of ISFM practices in northern Ghana. We use a customized Agent-Based model to assess network links and relationships to ISFM adoption. The models reveal missing links between actors in the network, the reasons for missing links and the barriers preventing the formation of these links. Our results help uncover the strategies for overcoming missing network links and provide recommendations that create change in specific network nodes that could act as leverage points in the system.

Keywords: Network theory, participatory modelling, scaling innovation, stakeholder engagement

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