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Opportunities and challenges in crop residue management: implications for integrated soil fertility management adoption in northern Ghana

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Abstract

The successful implementation of Integrated Soil Fertility Management (ISFM) in northern Ghana, a key concept to sustainably improve any kind of crop production be it organic or conventional, is closely tied to the effective knowledge and use of crop residues as organic fertiliser. Different practices and mechanisms of crop residue management exist in many farming systems, and most farmers are at least partially aware of the value of crop residues for increasing soil fertility and yields. However, the persistent competing interest for crop residue use, coupled with the lack of enabling measures and the non-targeted knowledge transfer methods on sustainable residue management impede smallholders' ability to use crop residue as organic amendment. Hence, it is important to document successful models of crop residue management and equip farmers with the knowledge and awareness of the effects of using crop residue as an organic amendment. Using a combination of different approaches, we gathered insights from literature, knowledge cafés with experts and surveys with farmers. This study resumes the insights on the perceived benefits and challenges smallholder farmers in northern Ghana have in relation to crop residue management and their ambitions to adopt ISFM. Further, different strategies that have been used to convince farmers of the benefits of crop residue as well as strategies to reduce the conflicting interest for crop residue use were also uncovered. We also documented the different successful and context-specific crop residue management models that can improve soil fertility and increase crop productivity. Our aim is to document these models in the right format for extension services to leverage on in training farmers. Lastly, we also provide recommendations on the enabling factors that must be put in place to empower farmers and ensure the incorporation of crop residue as a component of ISFM. This study is tailored to advance and preserve crop residue management knowledge and practices towards more sustainable agricultural systems.

Keywords: Knowledge management, knowledge transfer, soil fertility, sustainable land management