

Interactive comment on “Integrated soil fertility management in sub-Saharan Africa: unravelling local adaptation” by B. Vanlauwe et al.

Anonymous Referee #2

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1. Overall Comments Provides good synthesis of the status of knowledge on the benefits of integrated Soil Fertility Management (ISFM) that includes fertilizer use at plot level. It goes beyond to highlight the complexity of taking the solutions from plot to farm scale level, complexity that arises from inter – and intra farm variation in soil fertility conditions and household decision process in terms of allocation of their limited resources (fertilizer, manure, labour etc.) and it provides some decision support tool that can be used at both plot and farm scale level in guiding investment ISFM in ways that increase yields and agro economic efficiency. Although the target client of the paper is not articulated, the rich information provided can be used by a wide range of stakeholders, particularly the agricultural research and extension community in sub-Saharan Africa.

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2. Specific Comments – State who the target audience of the paper are? – Would be good to indicate the yield gains at scale, if any, from upscaling ISFM? Given that it is a package of interventions and not a single technology, what would be logical progression in ‘localizing its adaptation’ in a given region and farming system? – P.1244 – home gardens. It is worth mentioning the Chagga homegarden of Tanzania that is much published. – P. 1248 (3.1 Liming effects) – suggest you indicate the proportion of sub-Saharan Africa’s potential agricultural land that is acidic or has al toxicity problems and that requires lime application. This will help put the problem into perspective. Would also be good to mention that the high cost of transportation limits the use of lime. It is generally not an expensive product but its transport is partly because it is often found in areas far from main agricultural production areas. The application rates are also often high, often 2-4 t/ha, adding to its application costs. – Soil Taxonomy used in the paper: suggest both FAO and its equivalent USDA taxonomy are used. This will enhance the readership of the paper. – P.1253 – the statement on effect of water harvesting on AE – N. Would this be true for irrigated rice? – P. 1257 – Moving knowledge on local adaptation . . . one comment: Nutrition – good but it is important to state that the negative nutrient balances will result in positive yield gains if fertilizers were applied. State clearly the utility of the model for farm level decision-making. – Has any of the models – Nutmon, Nuances, NE, etc. been used at scale by both public and private sector institutions in guiding the role of ISFM practices? If not, what would it take to do that? AfSIS deserves a bit more mention since it is now used widely in Ethiopia for diagnosing soil fertility at scale.

3. Conclusion Good but would be great to include the human and institutional capacity development needs to further improve the local adaptation and scale up of ISFM technologies. Is the limited uptake of ISFM technologies related to limited human capacity research and extension? If so, what numbers do we need to train? Some concluding remarks on this issue would add value and enhance the readership of the paper.