

Biogeosciences Discuss., referee comment RC2
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Anonymous Referee #2

Referee comment on "Modeling the effects of alternative crop–livestock management scenarios on important ecosystem services for smallholder farming from a landscape perspective" by Mirjam Pfeiffer et al., Biogeosciences Discuss.,
<https://doi.org/10.5194/bg-2022-61-RC2>, 2022

The present manuscript by Pfeiffer et al. is a comprehensive review of key factors involved in the sustainability and productivity of African smallholder farms. I found the analysis to be insightful and appropriate and only have minor comments.

The abstract would benefit from more numbers to make it more quantitative to help describe exactly what was found.

There are minor usage issues throughout, the first is on line 34 (p. 2): "Livestock" is plural so the correct usage is 'Livestock provide..' (see also line 35; a quick review will correct any minor issues.) More: space after the period on L. 70, etc. (L. 89: "and cowpea" to distinguish between tubers after the comma.)

I found the last paragraph of the Introduction to be a bit confusing: listing the questions first then the approach used would help lead into the specific study.

section 2.2: some of the crops are listed twice in the paragraphs beginning lines 99 and 105.

Please describe t/ha to distinguish between metric tons (or tonnes) and imperial tons. Obviously the former is more appropriate and I assume is used here, but the latter is in common usage in many places.

LU is not defined at first use.

Results: I feel that there are probably too many significant digits for a modeling study throughout. For example 53 ± 23 is probably more correct than 53.2 ± 22.9 , etc. The results were comprehensive but somewhat long, and an eye toward brevity would improve the Results section.

I guess that my biggest question regarding the outcomes is is the suggestion for irrigation feasible? This usually involves considerable expense and can have other deleterious consequences. A brief analysis of the likelihood or sustainability of irrigation would strengthen the conclusions.