

# ***Interactive comment on “Uncertainties in the land use flux resulting from land use change reconstructions and gross land transitions” by Anita D. Bayer et al.***

## **Anonymous Referee #2**

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The manuscript by Bayer et al compares and contrasts the implementation of different land cover change products on carbon emissions. Four land cover datasets were considered, and the implementation varied by using either net or gross transitions. The LPJ-GUESS model, modified to include pasture/crop management, as well as deforestation and regrowth, was used to estimate carbon fluxes with the different land cover modeling data and approaches. Accounting for sub-grid (gross) land cover conversions had significant effects on carbon stocks and fluxes. The study reinforces the importance of how the implementation of land cover change can significantly alter the estimation of land cover change carbon emissions.

The paper is very well organized and clearly described, there are a few citation prob-

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lems that can be easily addressed.

Mainly, the manuscript would be strengthened by:

1. Including in the discussion a critique of how wood harvest can be included in the future, and what sorts of feedbacks would be expected on the component flux emissions
2. Is forest age structure included in the model? The authors mention that 'young stands are harvested before old stands'. This implies there is age structure. Also, what is the logic for harvesting the young stands first rather than the old stands? What would be the implications of doing this in reverse?
3. Fire is not discussed in the manuscript – how would the authors plan to include fire feedbacks and the reorganization of forest structure in their sub-grid cell based transitions?

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