

Interactive comment on “Conversion of tropical forests to smallholder rubber and oil palm plantations impacts nutrient leaching losses and nutrient retention efficiency in highly weathered soils” by Syahrul Kurniawan et al.

K. Fujii (Referee)

fkazumichi@affrc.go.jp

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General comments: The paper has dealt with effects of land use change and soil texture on nutrient losses from the systems. The data are based on the proper methodology and the data are reasonable, but there is some room to add discussion before reaching conclusion.

One of major issues is soil classification (Acrisols). Sumatra soils are more or less affected by volcanic ash deposition. Soils are relatively young among Indonesian soils.

C1

I am afraid whether the soils studied satisfy Acrisols' low clay activity. Please confirm the soil profile data especially in the Bt horizon. Low CEC/clay is required. In addition, both loam and clay Acrisols contain high contents of clays. Please clarify how two types were separated.

L447 The authors link between N leaching and the acid-buffering capacity of the soils, but link between N leaching and clay contents will be precise. Exchangeable Al as well as pH is a record of soil acidification, but quantitative link between N loss and soil ANC can not be supported by calculating proton budgets in soil.

There were some draughts or dry-wet cycles in Indonesia. This has strong impacts on solute concentration and leaching flux. I recommend to add correlation analyses between water flux (or soil water content) and solute concentration to check dilution or condensation effects by dry-wet cycles. This effect can affect annual nutrient loss as well. At least, adding discussion will improve manuscript.

Throughout the paper, the authors use the ambiguous term “soil fertility”. The definition of soil fertility is not same among the readers. Please define it in the beginning of the paper. Most of soil scientists avoid to use the term “soil fertility” in scientific paper.

Specific comments: The authors regarded jungle rubber as original vegetation, but it is introduced from Brazil some hundreds of years ago. It is not native vegetation.

The authors ascribed the greater nutrient losses from loam Acrisols than those from clay Acrisols. However, tree composition is not same between two sites. The authors need to add careful discussion on this topic.

L525-527 erosion and enhanced microbial mineralization of the native SOM can also contribute to low SOC stocks in oil palm plantation.

L505-506 What data can support this statement?

Table A2 sp. or spp. should not be written in italic. Dipterocarpaceae spp. include Shorea spp. The tree composition should be re-checked.

C2

Throughout the paper, “l-1” and “L-1” are used inconsistently. Please use terms consistently.

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