The paper presents a global tillage dataset by generating a clear classification of tillage practices and mapping the crop-specific tillage systems and the probability of cropland areas suitable for conversation agriculture at a resolution of 5 arc-minutes. As an improvement relative to previous studies cited in the paper, this dataset used water erosion, aridity, field size, and crop mix data per grid cell as spatial predictors to determine the distribution of national reported conversation agriculture area within a country in a logit model. The high-resolution map of tillage can improve modeling the soil carbon cycle in global Earth system models. The presentation is almost clear, but the English can be improved. I recommend publication of this paper in Earth Syst. Sci. Data. There are some minor comments below.

Specific comments:

Line 58: What is HYDE?

Line 60: “For downscaling national values Prestele et al. (2018) …” this sentence is too complicated. Should be rephrased.

Line 94: What is ESM?

Line 106: I do not understand the sentence “… or can assess different tillage impacts just in form of scenarios”. Should be rephrased.

Line 110: “increase understanding of the drivers for different tillage practices”. What do the authors mean by “drivers”?

Line 222: “We developed several mapping rules have been in order to allocate the…” this sentence is too complicated. Should be rephrased.

Line 228: Here the authors mentioned the depth of 15 cm, but claimed that “we decided for a minimum depth of mechanized tillage of 20 cm” above. Please explain this inconsistency (the same for Figure 2).

Line 533: “global ecosystem models currently run on 0.5° resolution and may have to aggregate the data for input usage” this is not always the case. In many ecosystem models (e.g. ORCHIDEE), their dynamics are simulated at a coarse resolution, but they divide the large model pixel to smaller ones in considering the agricultural processes.