

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on **essd-2022-118**

Anonymous Referee #2

Referee comment on "Holocene spatiotemporal millet agricultural patterns in northern China: a dataset of archaeobotanical macroremains" by Keyang He et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-118-RC2>, 2022

Millet agriculture were initially domesticated in northern China and played an important role in early agriculture evolution and the formation of the Chinese civilization. The manuscript reports a dataset of archaeobotanical macroremains spanning the Neolithic and Bronze Ages in northern China. Authors also suggest a significant spatiotemporal divergence of millet agriculture, discuss the past human-environment interaction, and provide a valuable perspective of agricultural sustainability for the future. This manuscript meets the scope of Earth System Science Data and could arise a wide audience as well. I would like to suggest a publication after a moderate revision.

Major comments:

- In Introduction Part and Fig. 1. I suggest that authors check the names of different regions in North China, which belong to geographical division or archaeological culture division. For example, many archaeological sites distribute in Loess Plateau and are not in Guanzhong basin. Yanbei region is not clear.

A reference (Zhou et al., 2011) need to be cited which has discussed the significant divergence of millet west Loess Plateau around 5500 BP.

Xinying Zhou, Xiaoqiang Li, keliang Zhao, John Dodson, Nan Sun, Qing Yang. Early agricultural development and environmental effects in the Neolithic Longdong basin (eastern Gansu). Chinese Science Bulletin, 2011, 56(8), 762-771

- In Discuss Part.

Line 170-175

The description on “The spread of millet intensified from the late Yangshao to Longshan periods in two directions (Figures 5C–D and H–I): westward routine to the Ganqing region and northward routine to the Yanbei region” and Fig. 5 need more evidences and the references to support.

Line 195-210

The discussion on the possible biases of archaeobotanical macroremains and the reason of divergence of the foxtail and broomcorn millet need to add some information on the different ecological habits and the way of seed yield from the foxtail and broomcorn millet. I think that the discussion of phytolithy and Fig. 6 are not necessary, which can't support the changes and divergence of the foxtail and broomcorn millet during the Neolithic.

Line 259-269

The manuring enhanced the crop yields and provide the possible reasons that human adapt the environmental changes and can't well understand the divergence of the foxtail and broomcorn millet around 6000 BP. Authors need to more discussions on the driving factors.