

Interactive comment on “Cultivated grasslands present a higher soil organic carbon sequestration efficiency under leguminous than under gramineous species” by Yu Liu et al.

Anonymous Referee #2

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The authors addressed an interesting topic that the sowing pasture could enhance the ecosystem service for soil carbon sink compared to the abandoned cropland and marginal land in the dry area of northern China. However the way the authors design this experiment can not answer the scientific questions which the authors presented. Also some basic conceptions and definitions for carbon fixation and storage were confused in the manuscripts. For example, SOC sequestration efficiency is commonly expressed by the relationship between annual C input and SOC accumulation rate, however the authors didn't evaluate the difference C input caused by sowing different plant species. Soil bulk density has large variation in the soil depth, the authors didn't describe how to measure and calculate soil bulk density within 100cm, so did SOC

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concentration in table 2, is this an average value of 100cm soil depth or something else?

Experiment design and measurement in section 2 is not clear. Many presentation mistakes in the manuscript, line 42-43 (reference sequence), line 47, 53-54, 82.

Interactive comment on Solid Earth Discuss., doi:10.5194/se-2016-109, 2016.

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