

## ***Interactive comment on “Estimating global cropland production from 1961 to 2010” by Pengfei Han et al.***

### **Anonymous Referee #2**

Received and published: 28 July 2017

This study simulates global cropland NPP from 1961 to 2010 using the VEGAS model and compares the simulation with FAO statistical data on continental and country scales. The comparison indicates general agreement between the model simulation and the statistical data, yet the scientific importance of such comparisons may be questionable. Because the study essentially tuned the model parameters to fit the FAO data, the agreement found in the comparison may only demonstrate the success of the adopted model-tuning methods.

Some of the technical drawbacks of the studies include: 1) The temporal trend of the Green Revolution seems to be totally decided by Eqs. (1) and (5). Are the two equations (which use the same reference year 1960 and the same temporal scale factor of 70 years) representative for all continents/countries under consideration?

Printer-friendly version

Discussion paper



2) How should we interpret/compare the values of M1r? The values in Tables 2 and 3 appear as "magic numbers" to me. For instance, in Table 3 the new M1r values of France and Canada are roughly three times and twice as high as US. What does these values really mean?

3) Fig. 8 and corresponding text: Avoid the use of "Tg C per 0.5 deg grid cell" as the unit for crop NPP as the area of "0.5 deg grid cell" varies at different latitudes. The results shown in the figure thus are potentially misleading.

4) a minor comment: Lines 257-260 on Page 11 state that the adjusted M1r parameters produced "dramatically" different estimations for continents include Oceania (Fig. 5j). Why? It appears to me that the difference in Africa (Fig. 5a) is much more "dramatic" than Oceania.

Otherwise the paper is well written and easy to read.

---

Interactive comment on Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2017-49>, 2017.

Printer-friendly version

Discussion paper

