

Interactive comment on “Eco-efficient agriculture for producing higher yields with lower greenhouse gas emissions: a case study of intensive irrigation wheat production in China” by Z. L. Cui et al.

Anonymous Referee #1

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Overall:

I think that once manuscript will undergo major editing and revision for a clarity of the presentation it can be accepted for publication. The manuscript relatively similar to Cui et al., 2013 study published in ES&T earlier this year, but valuable due to inclusion of more farms in the survey and addition of other GHG sources, beside N fertilizers.

More important, as I have mentioned in my review, the manuscript is lacking defined hypothesis and scientific question. I think that once authors will find one it will help them to present the results in clear and meaningful way.

The manuscript have some problems, mostly related to poor presentation quality see
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below:

General:

The manuscript needs very intensive editorial work to improve English and clarity of the presentation. Especially important to revise English, as it now, the manuscript is very difficult to read due to fairly poor language.

Title:

Too cryptic and general - how Eco-efficient agriculture is defined if you apply more than 200 kg N ha⁻¹? Why not to make it simpler? When you will rewrite your hypothesis to be more specific, you can find more specific title. While in the manuscript you are speaking about tradeoffs is not reflected in hypothesis and title. May be "Tradeoffs between high yields and GHG emissions in irrigated wheat production"?

Abstract:

Hypothesis not presented, instead of hypothesis authors describe what they “discussing”. I think that once authors will define the hypothesis for their research, the overall quality of the manuscript will be improved. The hypothesis will lead authors toward better presentation of their results.

Change of units, i.e. 6.05 Mg ha⁻¹ vs. 4783 kg CO₂eq ha⁻¹ – I would like to ask authors to decide on the dimension and use similar units through the manuscript.

Overall – abstract should be rewritten in the way reader will understand 1) background and research question, 2) methods for answering this research question, and 3) results and brief discussion.

I'm confident that abstract should be written in the same way as manuscript and provide reader with all needed information to understand presented research. As it now, the abstract is not satisfactory.

Introduction:

Language editing is necessary (I'm not providing to many examples, everything should be rewritten).

Line 19 – “produce useful products” – seems to have lack of definition of what useful products are.

Line 28 – HY plot – or plots, how many plots have you used?

Overall need to be concentrated and to the point of the research, as it now – too general, feels like authors wanted to add words and not well understand what was the purpose of the research. This is supported by very vague hypothesis. If I understand correct the major hypothesis is that if we make improvements in plant varieties and better agronomic management we can achieve higher yields with lower GHG emissions – seems too general.

Methods:

The methods description is not satisfactory. Annual cumulative temperature mean of 4000 – 5000 °C – why to provide these numbers?

Five fertilization levels – What they are?

New varieties – What varieties?

Right combinations – define what “right” combination is?

Data analysis is not described well, especially the logic behind equations 1 – 3, I haven't found the equations in their presented form in Cui et al., 2013b.

Results and Discussion:

Results and discussion need to be rewritten accordingly to (to be defined) hypothesis.

Overall I found it interesting, but poorly presented.

Interactive comment on Biogeosciences Discuss., 10, 16879, 2013.

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