

Interactive comment on “Determining the optimal nitrogen rate for summer maize in China by integrating agronomic, economic, and environmental aspects” by G. L. Wang et al.

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C1210

We deeply appreciate the reviewers' time and effort to help improve the manuscript. And we have considered the suggestions seriously. Below are our replies to the detailed and constructive comments/suggestions of referee #2.

The authors have responded comprehensively to the comments posed by the two reviewers. Still, there is the issue that the system under study “wheat-maize cropping in North China Plains” seems to be managed unsustainably, although this research provides a valuable strategy to minimize the environmental burden of intensive N fertilization.

Apart from the risk of soil organic matter degradation there is also the question of resilience towards pest and diseases and weather extremes when a large agricultural area and its smallholders depend solely on wheat-maize cropping. In the revised version of the manuscript the critical aspects I have raised in my previous comment should be discussed in the manner, like the authors did in their response letter. And it should be made clear in this discussion that the approach to determine the optimal nitrogen rate for summer maize in China by integrating agronomic, economic, and environmental aspects seem to be a straight-forward option for agricultural sustainability in the short- and maybe mid-term but cannot be the only option for a long-term perspective.

Yes, there is a risk of agricultural unsustainability when a large agricultural area and its smallholders depend solely on wheat-maize cropping. However, considering food security and economic income, the government and farmer trend to plant wheat and maize with higher yield and profit rather than other crops such as soybean with lower in North China Plains. The goal of sustainable agricultural is to maximize the net benefits that society receives from agricultural production of the food and from ecosystem services. This will requires increased crop yield, increased efficiency of nutrient and water use, improve soil quality, ecologically based management practice, judicious use of pesticides and antibiotics, and adapting cropping systems to climate change. Advanced in fundamental understanding of agricultural-food-environment system's complex linkage at local and regional scale can contributed greatly to sustainability.

C1211

The critical aspects raised in the previous comment of referee #2 have all been answered in the last revised version of the manuscript (AC C698), in “page 8 line 9-11” and “page 19 line 4- page 20 line 4”. We also discussed in the end of the text that agricultural unsustainability need more measures as mentioned above.

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C1212