Review of: "A Study for Estimation of Greenhouse Gas Emissions of Cotton in Central Greece"

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Potential competing interests: No potential competing interests to declare.

Reviewer Comments

I am delighted to review the manuscript entitled “A Study for Estimation of Greenhouse Gas Emissions of Cotton in Central Greece”. In this research, author selected a typical crop in Greece-cotton as the research object, and identified the main components and driving factors of greenhouse gas (GHG) emissions of cotton production in Greece between 2020 and 2021 based on statistical data, combining Cool Farm Tool (CFT) and multi econometric methods. This is a meaningful topic with obvious practical significance under carbon reduction goal background globally. But some shortcomings affected the quality of the entire manuscript, as see below:

1. Introduction Section

(1) Sentence “greenhouse gas emissions from agriculture account for 24 % of total greenhouse gas (GHG) emissions (IPCC 2007)” should be updated as the volume has changed since 2007 till now.

(2) I kindly suggest author to update some citations of the manuscript to make it more persuasive. For example, (Mosier et al., 1998), (Oenema et al., 2005), please also check other parts of the manuscript carefully and make revision accordingly.

(3) The research question of this manuscript is unclear. Author presented that “The aim of the present study is to estimate GHG emissions from three cotton farm plots associated with the major cotton-producing regions in Greece” at the end of introduction section, but author also investigated the main components and driving factors of GHG emissions. So, does the elaboration of research question cover all the research content, please confirm it, and make revision if necessary.

(4) Research objectives and contributions should be proposed in the last part of introduction section.

(5) The innovations of this study are not clear, I knidly suggest authors to summarize the innovations and add them at the end of introduction section.

2. Materials and Methods section

(1) Figures would be more intuitive than numbers that presented in tables. I kindly suggest author to change Table 1, Table 2, Table 3, Table 4 into figures to improve its presentative. In addition, a detailed analysis of the study area needs to

be conducted based on the figures.

(2) I wonder where is the exact location of the study area in this research, please map a study area to promote its presentative.

(3) In “Data collection” section, author said “A total of twelve farmers in the three regions were selected for data collection”, which is farm insufficient for supporting the empirical analysis and problem revelation, and thereby make this research relatively weak.

(4) I kindly suggest author to provide the corresponding calculation formula in “Estimation of GHG emissions during the cultivation phase” section.

3. Results and Discussion section

(1) Figure 1 and figure 2 can be combined, and all other figures and tables in this paper require further improvement and optimization, please check all of them carefully and make revision thoroughly.

(2) In “GHG Emissions per region”, many econometric methods are used, but the analysis of the results is too weak, author only described the results, but didn’t analyze the reasons behind it.

(3) I noticed that author tried to investigate the major determinant or the main contributors in “Analysis of GHG emissions from different sources in the cotton field” section, for this propose, Thile index method might be a better choice, which can not only reveal the regional difference, but also can find out the contribution rate of sub-regional differences to the entire difference, which worth trying.

(4) In the last paragraph of results and discussions section, there is no need to repeat the “The purpose of the study was to identify the sources of GHG emissions in selected cotton regions.” It can be deleted directly.

4. Conclusions section

(1) Sentence “In addition, the opportunity provided by injecting biochar into soils is becoming a very popular means for reducing N_2O emissions and fostering long-term soil carbon sequestration (Lehmann et al., 2006; Yanai et al., 2007).” If the opportunity provided by injecting biochar into soils is a very popular means, why does the citations are from 2006 and 2007, why doesn’t author cite the newest researches? This is not convincing.

(2) Policy implications should be added as a separate section based on the research findings, the current policy implications embodied in “Conclusion” section is too weak to reveal its significance and the operability.

As such, this research appears rather limited in many aspects, the current version needs major revision before considering for further peer reviewing.