

We thank the reviewers for their detailed comments, which helped us to further improve our manuscript. We plane provide a revised pdf with highlighted changes in blue additional to the final manuscript.

A point-by-point response can be found below. Comments are in *italic* font; answers are in **bold** font.

## Reviewer #1

*The paper has in general excellent quality. Methods and analysis of results are well developed and sound. The only comment is that according to the underlying data bases (as well as indirect influence of spatial variability of soil conditions and soil+crop management) some more information should be provided regarding related uncertainties and limitations. For example, the potential influence of various maize cultivars used over Germany (on results) -through their different sensitivity to drought and heat stress - and related limitations as well as suggestions for future potential improvements of the demonstrated method in that context should be addressed, i.e. by application of high resolution Remote sensing data (Sentinel etc..).*

**We would like to thank the reviewer for her/his comments on our manuscript that helped to further improve it. In detail we plan to address the comments as follows. Regarding the maize cultivars, the basic assumptions and limitations of the models will be elaborated in greater detail. This includes mentioning two major assumptions. First, that the farmers optimized their production process, given their experience about a particular site, which also covers the choice of the variety. Second, it is assumed that the response of plants to inter-annual stressors is the same across all locations. Future potential improvements include the expansion of the model to different varieties to alleviate the second assumption mentioned above. Another improvement that we point to is using remote sensing data. With regard to future improvements, we plan to include this in the discussion section, as this note relates mainly to the underlying data. Here we point out that improvements can be achieved through data with higher temporal resolution, which better take into account certain growth stages.**