Quick response:

We thank the referee for his/her helpful comments and suggestions.

Here we would like to give our quick response concerning some comments of the referee. A point-to-point response will be available later when we correct and update the manuscript as a revised version.

We totally agree with the referee that the problem should be presented in a better way. To improve the manuscript, we plan to add one/more sections about the characteristic of the model, crop information, and/or weather-yield analysis. These factors had been already considered, but we did not show them in the manuscript, so we will add them in the revised version.

We agree with the referee that the (fundamental) analysis is much more complicated than the present weather-yield impact model. In reality, many factors (e.g., soil characteristics, the spillover effects from previous seasons, or extreme events) could affect the yield. For instance, the extremes during the growing season can largely influence the yield of that year (Beillouin et al., 2020; Mathieu and Aires 2018; Vogel et al., 2019). However, in practice, this is not possible for a statistical model. In fact, the crop database is, most of the time, very limited in time (often about 10 to 20 years). This means that there are not enough samples to calibrate a very complex statistical model with many input factors and a description of their interaction.

Actually, the main objective of this paper is to introduce the leave-two-out technique that measures, in a robust way, the true capacity of a statistical crop model. This technique told us in the two studied crops here that we simply cannot introduce more input parameters in the statistical model; this would be misleading and wrong.

You are right; it is a bit misleading when we say we can explain 30% of the yield variance with climate. We mean that considering the historical yield record, we can only set up a statistical model that can explain 30%. This is a lower estimate, and climate could explain more than that, but to go into deeper details of the plant physiology, we would require many more samples. Please note that we are extremely rigorous in our statistical modelling practice (this is why we introduced this leave-two-out method) and that many other studies are not so rigorous and claim they can explain a larger part of the variance. We think this is not honest, and it comes from the over-fitting process. We were probably not clear enough in the first version of the paper, and we hope that the new version will clarify the overall meaning and strategy of our analysis.

Concerning the resolution of climate data, the 0.1° x 0.1° resolution data should be considered an adequate input for this type of statistical model over different administrative levels (i.e., district level and department level). Also, the data are compatible with what can be obtained from

climate models (e.g., CMIP6 (Eyring et al., 2016)) and thus is adapted to the climate change impact study that we want to perform later on.

Finally, we also plan to change the title: “Using the leave-two-out method to determine **the optimal complexity** of the statistical crop model” to be more explicit about the target of the study. This is not to optimise a very sophistical model that would explain all the crop physiology, but instead to find the optimal complexity of the model in a context of a very short time-record database.

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