

Reply to Referee 2

We would like to thank you for your constructive comments and feedback on this manuscript. We think that the suggested revisions based on the Referee's comments will certainly improve the article. Please find our responses (in blue) to the main points raised (shown in black) below.

The paper entitled "Assessing agriculture's vulnerability to drought in European pre-Alpine regions" aims to evaluate and understand agriculture's vulnerability to drought in two different case studies in the pre-Alpine region. The methodological approach, based on recent literature on impact chains (IC) aims at integrate quantitative and qualitative information for assessing drought risk condition. It is applied in this manuscript on two case studies in Switzerland and Slovenia. Overall, the manuscript is well written, even if:

-The results section is too much dispersive (many of the information in the text of the results paragraphs should be synthesized in tables);

→ Thanks for this point. We will revise the results section, shorten it and move information to tables where possible.

-The conclusion section is too much concise, poorly explaining the practical impacts and benefits of this approach. In the conclusion section, it would be also interesting to read future developments of this methodology in relation with the "non-linearities" the authors are referring to.

→ We appreciate the summary on limitations and prospects provided by the reviewer and will expand the conclusion with more thoughts on those aspects, especially with the focus on the benefits of the mixed-method and on how this can be applied in other regions. Further, we will elaborate more, how the approach can be improved for follow-up studies.

My main concern about this manuscript lies in the application of the methodology. Identifying Vulnerability factors through semi-structured interviews, produces highly site-specific results. Even in the usage of equal weighting method, vulnerability factors are different between two case studies. In expert weighting method, this difference is clearly more evident, highlighting that for some of the specific vulnerability factors (Figure 3), as reported (in Figure S1) unfortunately are not available information (such as regarding irrigation infrastructures). In order to built a strength methodology based on semi-structured interviews, information should be collected on a wider data sample (with numerous case studies) otherwise findings are too site-specific, as it is understandable that for their specific characteristics, the two case studies have different vulnerability factors, but without a wider comparison it is difficult to identify main common ones. This represents a weakness of the manuscript. In addition, lack of data regarding the management strategies doesn't help, as they can represent a key point for testing the methodology. From this perspective, scientific soundness of the whole manuscript should be improved, even if it represents an interesting an useful piece of knowledge specifically for both case studies.

→ Thanks for raising your concerns. We agree that a majority of the identified vulnerability factors are site-specific. In particular, this study aims to identify site-specific factors in order to evaluate and discuss agriculture's vulnerability to drought conditions in the two case study

areas. Through the involvement of the experts in the qualitative analysis (Figure 2) we were able to integrate quantitative data with their opinions and narratives on regional conditions (i.e., in Thurgau and Podravska) for interpreting and validating the final results. We acknowledge that for some factors spatial and sub-regional data was not available to describe local conditions (e.g. for drought management). However, the involved experts confirmed and supported the final vulnerability maps and their hotspots through qualitative information on the regional context (e.g., group interview for validation).

Further, we agree that having a higher number of case study regions would support the transferability of this study to broader areas. We will clarify the use of site-specific information and results in the description of the study objectives in the final part of the introduction as well as underlying it in the discussion. We can point to a broader analysis as a potential follow-up of this study to further support the transferability of this application to other pre-Alpine areas.

Some Minor Remarks:

- Figure S1 in supplement material: please, improve the quality of this figure.
- Figure S2 – S3: Text in legend is too small, please plot it bigger.

→ We will improve the quality of the Figures in the Supplementary Material.