

## ***Interactive comment on “Viticulture microzoning: a functional approach aiming to grape and wine qualities” by A. Bonfante et al.***

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We are grateful to the reviewer for his general and specific comments. In general, his comments match with evaluations by the other two referees especially with respect to the required improvement of discussion and conclusion chapters and the grammar and writing style of manuscript. The proposals and the specific requests are very important for us and will be taken into account to improve the manuscript. In particular, here we would like to give some answers to some specific points. *“About the use of CWSI, “The hydrological indicator: Crop Water Stress Index (CWSI): I understand that some data related to the water content were used in the study. Could you give some details about the calibration of the CWSI, if it was done? Was soil water content measured at*

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*different depths?” The model was calibrated and validated on soil water content data measured at 6 different depths for both profiles. Moreover, a strong correlation between CWSI (determined by the model) and Leaf Water Potential (measured in the field) was determined. Details can be found in the proceedings “Bonfante et al., Soil-plant water status and wine quality: a physically based approach to terroir analysis. Ixe International Terroir Congress 2012.” We will add more details in the revised manuscript. *“About the soil types” The main soil types. In lines 135-136 authors mentioned that “the main soil types in the area were Haplic Calcisols and Calcaric Cambisols”. Then, in line 366 indicated that “two main soil types were identified: Cambic Calcisol and Eutric Cambisol”. They are also indicated in Table 1. Try to clarify or complete the description of the soils to avoid mistakes. “. We reported the information about the representative soils taken from a coarse scale soil map (from Soil Map at 1:250,000 scale). Obviously, the pedological analysis at local scale shows more detailed results (also considering soil spatial variability) then it is not surprising that soil types maybe partly different. We will clarify in the revised manuscript. *“About the question “Related to the sentence in line 544-545. What could be the reason of the differences in hydrological behavior between both soils? The organic matter content, the percentage of coarse elements? (it could be interesting to have this information) or other properties that justify the differences”, The differences in soil behavior under the same upper and boundary conditions and plant development are due to the different soil horizon hydraulic properties, their vertical sequence along the soil profile and thickness. Despite the two soils are very close one each other they are very different, and specifically, is different their internal arrangement of soil particles which, in turn, produce different pore size distribution and different soil hydraulic properties. For example only in the Calcisol a Bk horizon was present, whose hydrological behavior is very characteristic. This is in accordance with the evidence (micromorphological data not shown) micro-crystalline calcium carbonate (micrite) can bridge different soil particles forming new pore space which in turn affect water retention and water movement***

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