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

Anonymous Referee #2

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This manuscript entitled "Viticulture microzoning: a functional approach aiming to grape and wine Qualities" by A. Bonfante et al. presents a viticultural zoning analysis with interesting experimental data about soils and grape quality. The methods and results are well described. However, in my view the discussion and the conclusion sections should be revised. More discussion is needed, in which the results observed in this work are commented in relation to other zoning procedure or other works done in similar topic. The novelties of the work and those of the applied procedure should be more enhanced. On the other hand, the conclusions should be reduced avoiding in this section new or repeated discussions. Conclusions should not include references. The number of figures and tables is appropriated although some legends should be completed. The manuscrip should be revised (grammar and writing style). The para-

graphs tend to be very short with only one sentence in them in many cases. In other cases the sentences should be revised because is something missing. All text should be revised by a native English speaker. The acronyms should be defined the first time they appear and then do not repeat the full name every time. In addition units should follow the same format throughout the manuscript (both in the text and in the Tables or figures). If this is the selcetd format: (μmol 311 m$-$2 s$-$1), use it througout the text: (mg L-1 instead of mg/L); (g kg-1 instead of g/kg); (cmol kg-1 instead of cmol*kg-1) ; (kwh m-2 instead of kwh/m2), (gL-1 instead of g/l or g/L); and so on. Similarly, use the same notation for decimals throughout the manuscript ($p < 0.05$ instead of p> 0,05).

Some specific comments are commented below:

1-Abstract: the abstract contains material and methods. However, the main results should be also summarized.

Line 130: "the very same climatic conditions": eliminate very

2-Introduction: review the writing. Most paragraphs (very short) consist of sentences that should not be separated from the previous one, because there is a link between them.

3- Material and Methods -Data and methods are in general well described. However, it needs a revision of the writing. Among other sentences:

Lines 178-180: Review the sentence. "Allowing a better planning of the field investigation in the pedological survey and improving the soil map resolution emphasizing the spatial soil micro-variability (traditional soil surveys and soil analysis are usually time-consuming and expensive, especially for high resolution maps)." It is linked to the previous one ?

Lines 191-193: Review the sentence "However soils, like every other geological materials, are not uniform, consequently what is specifically measured is an apparent electrical conductivity (ECa), which can be defined as the actual conductivity of a rock

homogeneous and isotropic equivalent to a real heterogeneous and anisotropic."

-Soil data: it could be interesting to know the location of the points used in the study.

-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 different depths?

4- Results

-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 clarified or complete the description of the soils to avoid mistakes.

-Lines 375-276: The names of the soil properties should be in lower case letter.

-Lines 378: Insert a point after the parenthesis ". . . in the Calcisol)."

-Lines 388: Table 1. Describe in the Table legend all terms that appears in the Table (Qo, Ko, a, l, n). -In this Table, the textures should sum always 100. The percentage of coarse elements should also be included.

-Line 404: Rewrite the sentence or at least insert " in " before CAM.

-Lines 420-422: Rewrite the sentence; write in past tense and correct concordance with the subject.

-Line 436: A number seems to be missing: "average value of 4.6 bunches/plant for CAM and CAL respectively".

-Line 442; Change "poliphenols" by "polyphenols"

-Line 478: Review the sentence "Discriminating their different abilities to produce qual-

ity in wine by means 478 of three years of monitored plant responses (physiological, morphological and on must)." Is it linked to the previous one?

-Line 488: Is PFT referred to pedotransfer functions? If yes, insert parenthesis the first time it is defined in line 486 (PTF) and then change PFT by PTF in line 488.

-Line 492: Correct " for grapevine responses"

-Line 497: Review the sentence "This is clearly in agreement with the water stress felt by plants during the three years of monitoring (avg. 22% of LWP 496 increase in the CAL) in addition the r Pearson of CWSI estimated by model and LWP measured in field was-0.98."

5-Conclusions

As I already mentioned the conclusion section is too long and it should be reorganized together with the discussion section. Conclusion should not include references.

In line 571: it is said: ". . .., it is possible, through simulation realized with future climate conditions, to estimate future plants behaviour, emphasizing also if the future climate constrains will be an opportunity to improve product quality". In this work there was not a simulation with future climate conditions. . .?? If it is a new hypothesis the text should be revised.

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.

Interactive comment on SOIL Discuss., 1, 1203, 2014.