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ABSTRACTS

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Assessing water scarcity footprint of wine production in the Alentejo region, Portugal: preliminary results

Pedro Presumido (1), Artur Gonçalves (1), Artur Saraiva (2), Célia Jorge(3), António Castro Ribeiro (1), José Silvestre (4,5), Pedro Oliveira e Silva (3), Sofia Ramôa (3), Margarida Oliveira (2,4), Manuel Feliciano (1) (1)*

*Centro de Investigação de Montanha (CIMO), ESA, Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5301-855 Bragança, Portugal. * +351 935 829 831 and pedrohpresumido@gmail.com*

(2) ESAS, UIIPS, Instituto Politécnico Santarém, Quinta do Galinheiro, S. Pedro, 2001-904 Santarém, Portugal (3) ESAB, Instituto Politécnico Beja, Rua Pedro Soares, Apartado 6155 7800-295 Beja, Portugal (4) LEAF - Linking Landscape, Environment, Agriculture and Food, Instituto Superior de Agronomia, Universidade de Lisboa, Tapada da Ajuda, 1349-017 Lisboa, Portugal (5) INIAV, Instituto Nacional de Investigação Agrária e Veterinária. Quinta da Almoinha 2565191 Dois Portos, Torres Vedras, Portugal

1. Introduction – For multiple reasons, climate change is likely to contribute to the increase in water consumption and to the deterioration of its quality. Water scarcity has been a major concern to the wine sector, given the strong impact that can it have on the vineyard productivity, wine quality and on the vineyard environment. In Portugal, there is an alarming trend in the annual mean temperature increase, as fear grows that it may aggravate water scarcity, so there is a concern that justifies the increase in the number of the studies in these scientific areas. Environmental footprint indicators have frequently been calculated through the use of life cycle approaches (LCA). The aim of this study was to evaluate the water scarcity footprint (WSF) for the production of a bottle of wine thus providing additional support for strategic decisions made in these sectors.

2. Experimental - The assessment of WSF in the wine production in the south of Portugal (Alentejo region) was based on the methodological framework defined in the ISO 14046 standard. The functional unit (UF) selected for the study was a 0.75L wine bottle. A cradle-to-gate approach was adopted in the study, and, therefore, the system under study was limited to the viticulture stage and wine production. For this WSF study, the GaBi Software (Thinkstep) was used with its professional database. The main water scarcity regional characterization factors used in this study were Water Scarcity Index, AWaRe (WULCA), and UBP.

3. Results and Discussion - The preliminary results show the difference between the proposed methodologies for water scarcity footprint assessment when applied to wine production in the Alentejo region of Portugal. The water scarcity footprint methods may give different results depending on their assumptions. Furthermore, the preliminary assessment identified that upstream and downstream processes were both relevant to the WSF. With the identification of hotspots and the implementation of actions for water conservation and saving it is expected that it will minimize the environmental impact of winegrowing and reduce the vulnerability of the vine-wine chain.

4. Conclusions - The WSF should be included as an indicator to determine the uses and consumptions of water in wine production as it is a useful decision-making tool for both companies and governmental authorities. In addition, the results from this work may prompt the comparison between water footprints in regions of Portugal and the rest of the world.