

## Electrical Properties in Vineyard Soils

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Geophysical imaging provides valuable information on the spatial variability of soil properties by resolving for the quasi-continuous variations in subsurface properties. In particular, changes in the electrical properties can be used to delineate lithological changes and preferential groundwater flow paths. Hence, within this study, we investigate the applicability of electrical and electromagnetic methods to obtain information on the subsurface electrical resistivity distribution in vineyards aiming at a better understanding of the link between textural and electrical properties of the subsurface and their connection with grapevine quality. In particular, we applied the low-induction number electromagnetic (EMI) and Induced Polarization (IP) techniques in two different wine-growing regions in Austria (Burgenland and Lower Austria). The first measurements were conducted in Apetlon (in March, 2017), along six profiles; whereas during the second campaign, measurements were performed in Höflein (in April, 2017), along fourteen profiles. Soil information, provided by the Geological Survey of Austria (GBA), was incorporated for an improved interpretation of the electrical signatures in terms of the textural properties of the soil. Our results permitted a comparison of both the EMI and IP methods regarding the depth of investigation and resolution in the imaging results. Moreover, the combination of both techniques, as well as the geological data, lead to an improved delineation of lithological structures and the characterization of preferential groundwater flow patterns.