



Does management intensity in inter rows effect soil physical properties in Austrian and Romanian vineyards?

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Successful viticulture is mainly influenced by soil and climate. The availability of water during the growing season highly influences wine quality and quantity. To protect soil from being eroded most of the winegrowers keep the inter row zones of the vineyards green. Greening also helps to provide water-stress to the grapes for harvesting high quality wines. However, these greening strategies concerning the intensity of inter row management differ from farm to farm and are mainly based on personal experience of the winegrowers. However to what extent different inter row management practices affect soil physical properties are not clearly understood yet.

To measure possible effects of inter row management in vineyards on soil physical parameters we selected paired vineyards with different inter row management in Austria and Romania. In total more than 7000 soil analysis were conducted for saturated and unsaturated hydraulic conductivity, soil water retention, water stable aggregates, total organic carbon, cation exchange capacity, potassium, phosphorous, soil texture, bulk density and water infiltration. The comparison between high intensity management with at least one soil disturbance per year, medium intensity with one soil disturbance every second inter row per year and low intensity management with no soil disturbance since at least 5 years indicates that investigated soil physical properties did not improve for the upper soil layer (3-8cm).

This is in contrast to general perceptions of improved soil physical properties due to low intensity of inter row management, i.e. permanent vegetated inter rows. This may be attributed to long term and high frequency mechanical stress by agricultural machinery in inter rows.