Influence of soil attributes on 'Petit Verdot' productivity in the São Francisco Valley, Brazil

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The São Francisco Valley is a pioneer in the production of fine grapes for wine. The region has excelled on the national economy, being the only region in the world that produces two harvests a year. Studies aiming to characterize the potential grapevine growing regions indicate the potential of several cultivars adapted to local conditions and suitable to contribute for the typicality of the grapevine products of the region, as for example, the Petit Verdot cultivar (Ibravin, 2012). Some soil attributes, important to grape and wine quality, are related to water and nutrient availability (Leewen et al., 2004; Wang et al., 2015). The objective of this work is to relate the physical and chemical properties of soils to the productivity of the vine, Petit Verdot cultivar, in the São Francisco Valley. The study was conducted on a six acres vine planted with Petit Verdot, deployed to 12 years on Ducos Vinícola, located at the County of Lagoa Grande – Pernambuco. Three soil profiles were described and sampled, identifying the following soil types: Argissolo Amarelo (Ultisol), Cambissolo Háplico (Inceptisol) and Argissolo Vermelho-Amarelo (Ultisol). The productivity of the demarked areas was estimated, within each soil type. Fruits were sampled for wine elaboration. The Cambissolo Háplico presented more quantity of gravel and pebbles, in relation to other soils as well as average yield approximately 70% lower, in the two annual harvests, than other soils. However, this lower productivity can promote concentration levels of phenolic and aromatic compounds, which have great importance in enology, since they are related directly or indirectly to quality of wines, being responsible for its color, body and astringency.

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