

Effects of pergola and vertical shoot positioning trellis systems on vegetative and reproductive performance of vranac variety in Montenegro

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The thesis explored effects of two common trellis systems in Montenegro on autochthonous Vranac variety. Vertical shoot positioning (VSP) and pergola trellis system were studied. The study was conducted in family owned Božović vineyard, situated in Piperi area, Podgorica. Time period of the study was from November of 2022 to October 2023. Two separate parcels were main focus of the research, parcel number one is characterized with VSP and parcel number two with pergola trellis system. In each parcel, three groups consisting of three grapevines were made, resulting with 18 studied grapevines in total. Each phenophase was carefully monitored and every operational process in the vineyard was recorded. Data concerning weather showed possibility for high risk concerning plant protection. As a consequence, serious diseases have infested vineyard.

Measurements have been conducted since winter of 2022, when the mass of pruned material and bud load were monitored. Due to different structure, it was concluded that pergola trellis system could increase the mass of pruned material and bud load significantly. Conversely, percentage of buds bursting in the spring and mass of removed shoots during shoots thinning are not impacted by trellis systems. Another examples showing how trellis systems influence grapevine production are number of clusters per vine and yield per vine. In both cases, pergola trellis system records higher values. On the contrary, yield per hectare is no significantly different between two trellis systems, due to higher vine density in VSP system. Average cluster weight, length and width are not influenced by trellis system, similarly to mass of one berry. Important aspect of grape quality, the sugar content is also not statistically and significantly impacted by choice of trellis system. The thesis provides valuable insight in comparison of VSP and pergola trellis system on Vranac grapevine cultivation in Montenegro and highlights the importance of further studying of this topic.