

**Rootstock effect on the physiology of Cabernet Sauvignon grapevine.****Miele, A.<sup>1</sup>**; Rizzon, L.A.<sup>1</sup><sup>1</sup>*Embrapa Uva e Vinho, 95700-000 Bento Gonçalves, RS, Brasil.  
e-mail: miele@cnpuv.embrapa.br*

Since phylloxera infested European vineyards in the XIX<sup>th</sup> century, growers began to graft grapevines to American species of *Vitis* due to their resistance to this insect. Now, this agricultural procedure is performed in almost all viticultural regions worldwide. Besides phylloxera resistance, rootstocks are also indicated to other specific objectives such as those related to soil – humidity, acidity, pH –, fungal diseases – *Fusarium* –, nematodes, insects – Brazilian ground pearl –, plant vigor and wine quality. Considering the different effects they can induce, this work was carried out with the objective to determine the effect of 15 rootstocks on the physiology of Cabernet Sauvignon grapevine. The experiment was conducted during two years and consisted of grafting this cultivar on 15 rootstocks, i.e., Rupestris du Lot, 101-14, 3309, 420A, 5BB, 161-49, SO4, Solferino, Paulsen 1103, R99, R110, Gravesac, Fercal, Dogridge and Isabella (considered a hybrid of *Vitis labrusca* and *Vitis vinifera*). The experimental design was in randomized blocks, with 15 treatments and three replicates using 10 plants/plot. Pruning weight, yield/pruning weight, leaf area/plant, leaf area index and leaf area/fruit fresh weight were evaluated. Average data of two years evaluations were analyzed by the Principal Component Analysis (PCA). The main results show that the Principal Component 1 (PC1) represented 60.37% of the total variation and the Principal Component 2 (PC2) 30.45%, totalizing 90.82%. PC1 discriminated eight rootstocks, where 161-49, R110, R99, Rupestris du Lot and Paulsen 1103 accounted for higher values of the variable yield/pruning weight, while Dogridge, Fercal and SO4 by lower ones; however, they also presented higher values of leaf area index and leaf area/plant. PC2 discriminated two rootstocks, Gravesac and Isabella, where the former was characterized by higher leaf area/fresh fruit weight and the latter one by higher values of pruning weight. These results show that the differences due to the rootstock effect on the physiology of Cabernet Sauvignon grapevine cultivated under the conditions of Serra Gaúcha viticultural region could also have implications on grape and wine quality.

**Keywords:** *Vitis* species, grapevine, rootstock, grape physiology, PCA.