

IMPLICATIONS OF THE RESPECT OF PRUNING PRINCIPLES ON GRAPEVINE DEVELOPMENT

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Abstract:

Context and purpose of the study –

After some decades sunk into oblivion, pruning has recently recovered the focus of grape growers and viticulturists worldwide. Attention is now being paid to the respect the sap flow continuity and to pruning wounds, as they may affect the general performance and longevity of the plant. The longevity and profitability are strongly affected by the increasing incidence of grapevine wood diseases (GWD), intensified by the omission of good pruning practices and leading to an increasingly aggressive pruning. The purpose of this study is to provide an objective evaluation of the short- and mid-term implications of different pruning practices that differ in the degree of observation several of pruning principles.

Material and methods - Trials were conducted in four commercial vineyards from La Rioja and Navarra (Spain), planted with cv. Tempranillo grafted onto Richter 110. Three different pruning strategies were applied: i) winegrower pruning, according to the winegrower criteria of the area (WIN); ii) respectful pruning, leaving protection wood and respecting the sap flow (RES); and iii) aggressive pruning, without protection wood or respecting the sap flow (AGGR). The treatments were applied following a randomized block experimental design, with three replicates of 10 vines per treatment. Green and winter pruning was carried out during three seasons (2020-2022) and the vegetative growth and yield were monitored throughout these seasons.

Results – In young vineyards, three-season data showed that vegetative growth was significantly higher in the RES pruning compared to WIN and AGGR strategies. Our results corroborated that a respectful pruning on young grapevines with wood protection and respecting the sap flow, leads to a higher spring growth, and consequently, a higher development of shoots the following winter. In adult vineyards, the results were less consistent, although AGGR increased the pruning weight and the individual shoot weight, and tended to decrease the amount of vegetation removed during the green pruning. Considering all the results, the observation of pruning principles showed to have a significant impact on the growth of the vines, although the effect was also dependent on the age and characteristics of the vineyard. The mid- and long-term effects will be evaluated in the following years, as pruning practices can also affect the longevity and sanitary status of the vines.

Keywords: Longevity, profitability, protection wood, sap flow, respectful pruning, aggressive pruning.