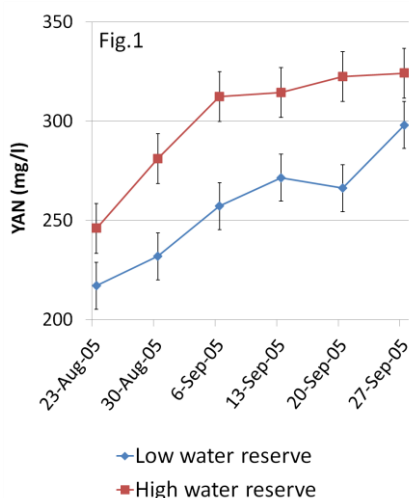


Performance of the Pinot Noir cv. in the Valais area, Switzerland

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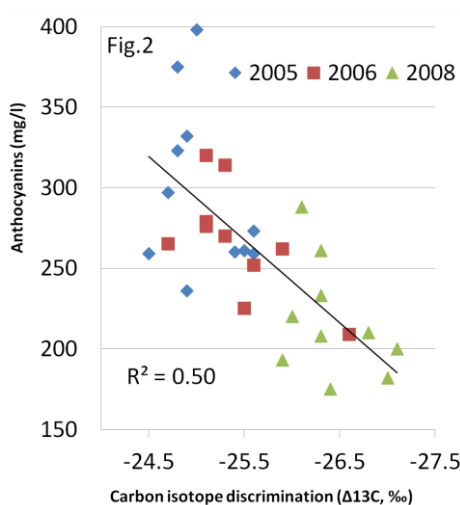
Introduction

The Valais area is the driest of Switzerland with only 575 mm of precipitation per year. The average daily temperature is 10.1°C, with a minimum of -0.1°C in January and a maximum of 20.1°C in July (average 1981-2010, Sion). The altitude of the vineyard varies between 450 and 900 meters above sea level.



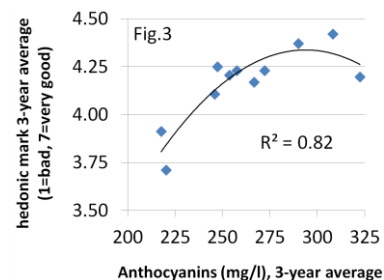
Material & Methods

11 plots planted with Pinot noir (clone 9-18 grafted on Fercal) were chosen spread out over a 60-km-long area. For three years (2005, 2006 and 2008), phenological development and agronomic behaviour of the vines were monitored, musts and wines were analysed. The carbon isotope discrimination ($\Delta^{13}\text{C}$), showing the global water constraint from veraison to harvest, was also evaluated.



Results

The precocity of the phenology was highly correlated with the altitude of each site and with the daily temperature. The vigour was more important in the plots with high soil water reserves by comparison with the plots with low water reserve (+10 g/m of pruned wood in 2005). The plots above 500 m were harvested 5 to 10 days after the others plots. The yeast available nitrogen (YAN) was globally high in all the musts, but even so it varied with the size of the water reserves of each site (Fig.1). The water restriction during the grape maturation significantly enhanced the concentration of anthocyanins (Fig.2). Wines with higher anthocyanin contents were preferred for their structures and their bouquets (Fig.3).



- Although the water restriction was not severe during the 3 years of observation, it had a key role on the physiological behaviour of the grapevines, particularly on the vigour of the vines and on the yeast available nitrogen in the musts.
- This chemical and sensory analysis of the wines confirmed the positive role of a moderate water restriction during the maturation of the grapes on the quality of the wine.
- The altitude of the vineyards determined the precocity of the phenological stages and the speed of development. Slower maturation seemed to have a positive effect on the accumulation of anthocyanins and on the bouquet of the wines.



Abstract

The present study allowed characterizing the influence of the pedological and climatic factors on the physiological aspects of the cv. Pinot noir in the pedoclimatic conditions of the Valais area in Switzerland.

For three years, observations and analysis from the vines to the wines have confirmed the positive influence of both moderate water constraint and cooler temperatures during grape maturation on the quality of the wine.