

# Evaluation of crop forcing technique in Syrah (*Vitis vinifera* L.) to increase wine quality



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## INTRODUCTION

In warm climates, grape varieties reach enough soluble solids content, however color intensity is low to obtain wines of high quality. Crop forcing technique, force the regrowth of the buds in the same season of development and change the phenology of the vines. So the period from veraison to harvest occurred with lower temperatures. The aim of this study was to assess the effect of crop forcing technique on phenology, yield and wine quality of Syrah, trained on a vertical trellis system, in San Juan-Argentina

## MATERIAL AND METHODS

The experiment was carried out in 2016, at the experimental field of INTA-EEA San Juan. Vines were own rooted cv Syrah of 12 years old. Vines were arranged with a row by vine spacing of 2.5x1.5m. With drip irrigation.

The treatments consisted on spring pruning of primary shoots to seven buds, with total remove of leaf, lateral growth and clusters.

**CF 1:** pruned on 18 november

**CF 2:** pruned on 6 december

**Control:** traditional winter pruning.

CF1 and CF2 were also pruned in winter (two buds spur)

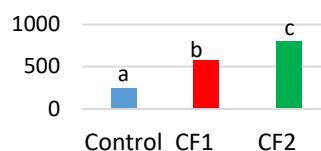
The experimental design was complete randomized, with 4 repetitions.



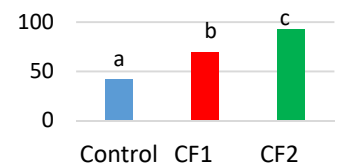
November prune CF1

CF1 at harvest (left) and control (right) in april

a) Anthocyanins in wine (mg/L)



b) Total polyphenol index



c) Color intensity



Figure 1: a) Anthocyanins content b) Total polyphenol index, c) Color intensity in wine in control and treatments. Different letters means significative differences by Tukey test. ( $p \leq 0.05$ )

## RESULTS

Table 1: Dates of veraison and harvest (24°Brix) of the control and treatments

Treatments	Veraison	Harvest
Control	19 december	16 february
CF1	16 february	21 april
CF2	1 march	24 april

Table 2: Yield per plant and number of clusters of the control and treatments

Treatments	Yield (kg/plant)	Number of clusters
Control	5,35 b	42 b
CF1	4,93 b	58 b
CF2	1,09 a	15 a

Ripening in the Control occurred from december to february, while in forced treatments from february to april (CF1) and from march to april (CF2). Yield per plant was similar in Control and CF1, and lower in CF2. The number of clusters followed the same trend. Forced treatments increased anthocyanins content (mg/L), total polyphenol index and color intensity of wines when compared to Control.

## CONCLUSION

Results showed that the best forced treatment was in november, and that crop forcing in Syrah increased wine quality in San Juan, Argentina.