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INTRODUCTION

The rational water management, in the moments of deficit becomes more and more necessary in a viticulture that for this region is not used to irrigation (Uruguay). Therefore, permanent and real-time monitoring of the water status of the vineyard is important to avoid negative consequences on the yield and composition of the grapes.

AIM

The objective of this work was to provide a reasonable water supply to the vineyard using digital tools that facilitate the management of the vineyard at a productive level.

MATERIALS AND METHODS:

Commercial vineyard of a 1,1 ha, located in Uruguay (34° 36 S, 56° 14 W). 2020 season
Vitis vinifera L. cv. Tannat, grafted with SO4 rootstock
Vertically shoot positioned on a double guyot system.
The spacing is 2.5 x 1.2 m (3333 vines ha-1).

Determinations: Leaf water potential, leaf area, yield. The used smartphone applications were VitiCanopy and ApexVigne.

Treatments: - Control: without irrigation
- Irrigation: 70% ETC



RESULTS

The data provided by the **apps** were **correlated with the variables obtained in the field.**

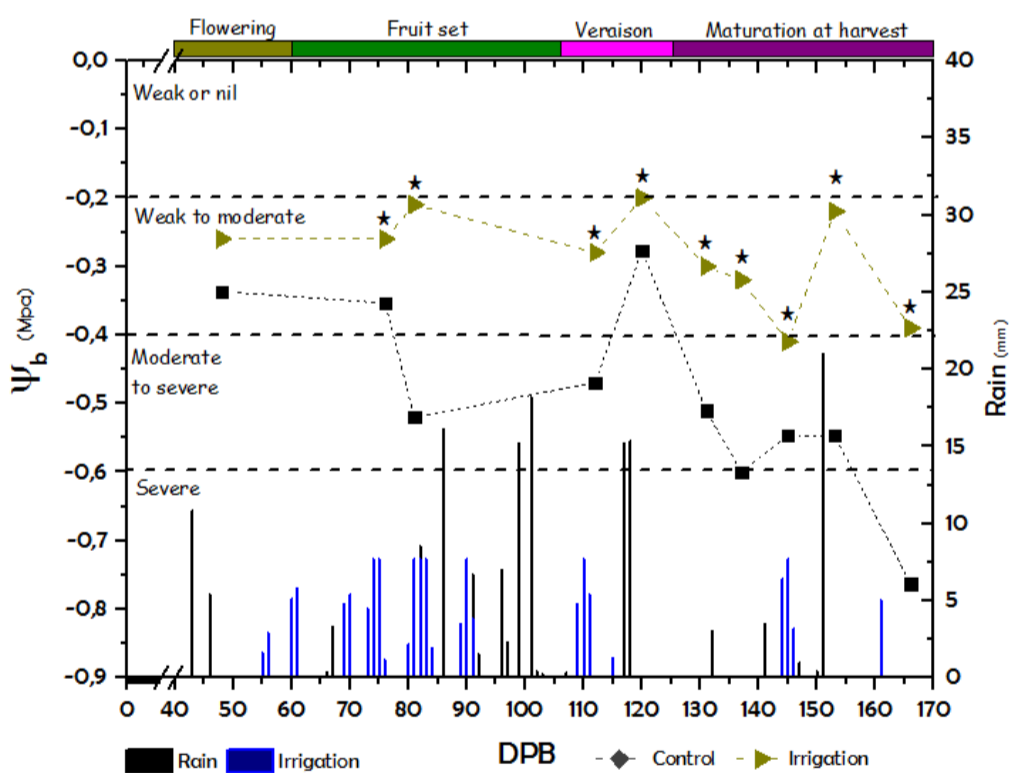


Figure 1: Water status evolution 2020. Water stress ranges.

EyL	Treatment	APP APEX VIGNE	Ψb
17	Control	Moderated	Moderated
	Irrigation	Moderated	Moderated
31	Control	Strong	Strong
	Irrigation	Absent	Moderated
34	Control	Severe	Strong
	Irrigation	Moderated	Moderated
36	Control	Severe	Severe
	Irrigation	Moderated	Moderated

Table 1: Pre-dawn water potential interpretation vs. APP water status

Table 2 : Water balance: Adjusted demand and water inputs 2020

	Treatment	ETc ¹ (mm)	R+I (mm)	Déficit/Superávit
Budbreak – flowering	Control	87	201	114
	Irrigation	94	217	123
Flowering-verasion	Control	160	81	-79
	Irrigation	205	189	-16
Veraison-harvest	Control	200	59	-141
	Irrigation	256	83	-173

It was possible to estimate the evolution of Kc in a quick and simple way, which allowed to made adjustments of the irrigation dose almost in real-time.

140 mm of water were applied for irrigation. The **yield** was increased by 35% while **sugar and phenolic** compounds concentrations were improved in the grape in comparison with the control sample.

The use of **smartphone applications** proven to be a useful **tool** for the winegrower to **manage the use of water resources.**

