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Managing irrigation in Karst vineyards could improve quality and profitability in Refošk grapes

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WHICH ARE THE PERSPECTIVES LOOKING AT THE CLIMATE CHANGE?

In the next decades drought will be ever more recurrent in our region. Therefore, there is the need to save water maintaining at the same time crop productivity and profitability.

WHY PHENOLS COMPOSITION IS SO IMPORTANT?

Anthocyanins are the most important polyphenols since are responsible for colour properties in red wines. Instead, proanthocyanidins structure is closely related with the organoleptic wine perception.

RESEARCH QUESTION & RELEVANCE

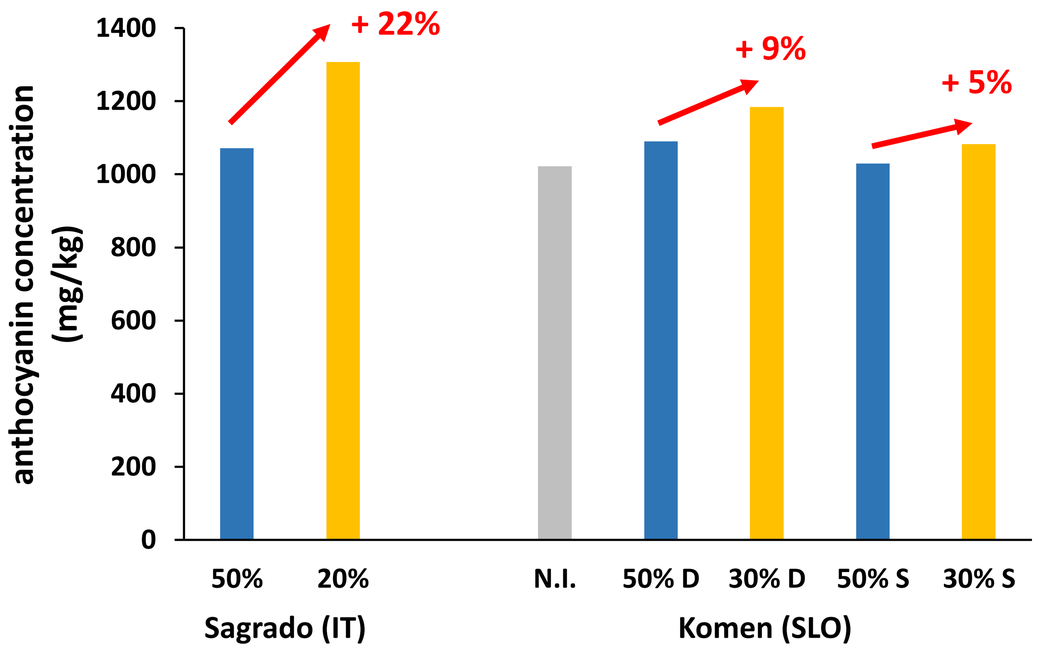
Is it a low irrigation regime favourable to improve Refošk grape quality in Karst area?

In Karst area water availability in soil and for irrigation is scarce, and its optimization is needed. Autochthonous varieties are well adapted and might have good performance also in limiting conditions.

EXPERIMENTAL APPROACH

- Two irrigation experiments were carried on in Karst, testing different water regimes (50%, 20-30% of ETc*, and non irrigated; *ETc = crop evapotranspiration).
- On collected berries we analysed phenolic composition and structure in wine-like solution.
- We estimate the potential number of bottles for each treatment to perform a costs-benefits analysis.

EXPERIMENTAL RESULTS



← Less irrigated vines (orange) resulted richer in anthocyanins as compared to more irrigated (blue) or non irrigated (grey) vines.

N.I. = non irrigated; D = drop irrigation; S = subirrigation. % values are referred to the corresponding ETc restitution.

From Sagrado data	Water regime	
	50% Etc	**20% Etc**
yield (Kg/vine)	1,93	1,33
bottle number	7130	4925
bottle price (B.E.P.) (€)	**6,80 €**	**7,30 €**

↑ Determination of the Break Even Point (costs = earnings) of the wine bottles produced with the two different water regimes. If the yield is lower, bottle price must be higher.

CONCLUSIONS & PERSPECTIVES

- All the water regimes avoid a severe drought condition for vines.
- The lower water regimes reduced yields, but improved grape quality in terms of colour and phenols : higher extractable anthocyanins and better proanthocyanidins structure.
- An increase in price bottle should be justified by both the yield reduction and he higher wine quality.

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