

Low $\delta^{13}\text{C}$ variability and high vessel density reveal anisohydric olive cultivar as most drought-resilient

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Climate change

Challenges in agriculture: impacts and adaptation



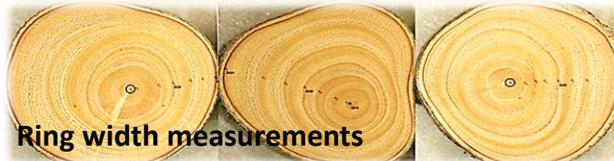
Olive orchard

Spello (Umbria)
Rainfed
High density
Arbequina, Arbosana, Koroneiki cultivars

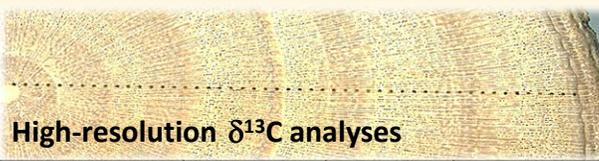
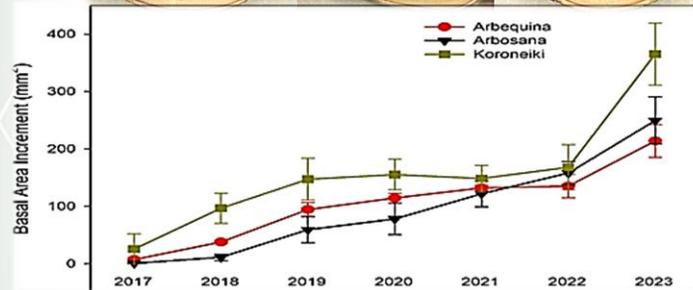


Research question

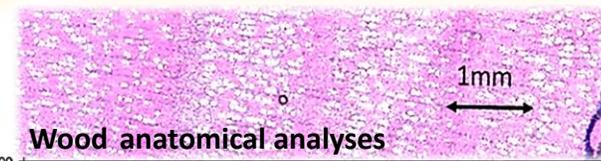
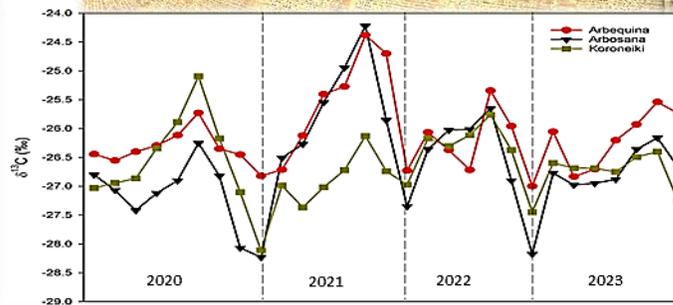
How do three distinct olive cultivars differ in their physiological and anatomical responses to environmental variation



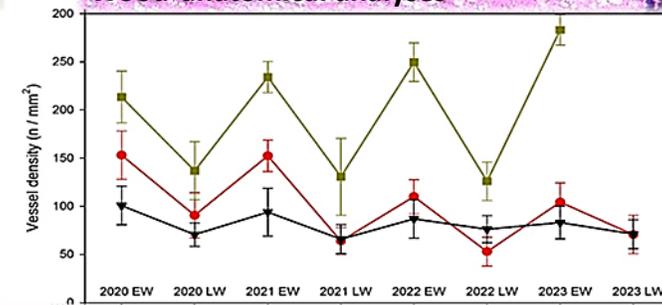
Ring width measurements



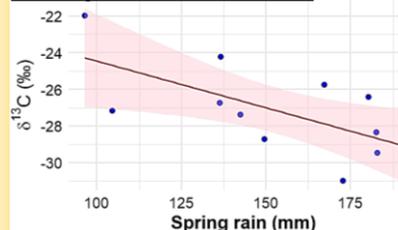
High-resolution $\delta^{13}\text{C}$ analyses



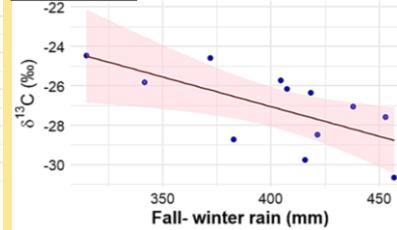
Wood anatomical analyses



Arbequina & Arbosana



Koroneiki



Conclusion

Stomatal behavior: Arbequina & Arbosana: isohydric behavior, conserving water by closing stomata during summer stress; Koroneiki: more anisohydric behavior, using carbon reserves for xylem formation.

Hydraulic efficiency: Koroneiki: higher vessel densities, enhanced hydraulic capacity supporting efficient water transport and productivity.

Silvia Portarena

