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²Wohlfahrt Y., Collins C., Stoll M. 2019. Grapevine bud fertility under conditions of elevated carbon dioxide. OENO One **53**(2), 303-314. <https://doi.org/10.20870/oeno-one.2019.53.2.2428>

³Wohlfahrt Y., Tittmann S., Schmidt D., Rauhut D., Honermeier B., Stoll M. 2020. The effect of elevated CO₂ on berry development and bunch structure of *Vitis vinifera* L. cvs. Riesling and Cabernet Sauvignon. Appl. Sci. **10**(7), 2486, 1-24. <https://doi.org/10.3390/app10072486>

⁴Wohlfahrt Y., Patz C.-D., Schmidt D., Rauhut D., Honermeier B., Stoll M. 2021. Responses on must and wine composition of *Vitis vinifera* L. cvs. Riesling and Cabernet Sauvignon under a Free Air CO₂ Enrichment (FACE). Foods **10**(1), 145, 1-23. <https://doi.org/10.3390/foods10010145>