

Influence of the number of CPPU applications on growth, mineral composition and Bunch Stem Necrosis incidence in table grape clusters

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Abstract (250 words)

The forchlorfenuron (CPPU) application is recommended in table-grape after fruit-set to boost berry sizing, albeit growers also apply CPPU during pre-flowering with controversial advantages. We examined the effect of single (BBCH 15) and double (BBCH 15 and 57) CPPU applications (2.25 mg/L a.s.) in a commercial vineyard. At each time, 75-100 bunches belonging to 6-9 vines were sprayed, and compared with unsprayed (CTRL). Leaf stomatal conductance (g_s), cluster stem diameter and length were measured. At harvest, 25 berries/repetition were sampled for chemical composition, BSN incidence was counted (N° necrotic laterals/10 cm of stem) in 40 bunches/repetition. To test the role of air VPD on mineral composition, at BBCH 77, 50 CTRL clusters were bagged to induce a low VPD .

Preliminary results showed a significant effect of CPPU on stem diameter when compared to that in untreated being 5.49 ± 0.22 SE, 6.05 ± 0.20 and 6.17 ± 0.24 mm in CTRL, single and double CPPU applications, respectively. Cluster length and g_s remained comparable across treatments. The number of CPPU applications did not affect berry Ca content (0.84 ± 0.08 –single- and 0.85 ± 0.03 mg berry⁻¹ -double), whereas BSN incidence was significantly higher ($2.63 \pm 0.33a$) in the double CPPU applications than single ($1.29 \pm 0.18b$) and comparable to CTRL ($1.75 \pm 0.24ab$), leaving some open questions.

Based on the significant effect of VPD on berry Ca content (0.39 ± 0.04 –bagged-, 1.81 ± 0.84 mg berry⁻¹ -CTRL), the use of management options (*i.e.* training systems, plant distances, covering, canopy manipulation) to increase Ca accumulation is discussed as alternative to chemical spray.

Keywords: PGRs, hormones, cytokinin, pre-anthesis, *Vitis vinifera* L.