

## **Foliar potassium application has limited effect on berry composition in grapevine red blotch virus-infected grapevines**

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Delayed ripening is one of the most commonly reported fruit symptoms in Grapevine red blotch virus-infected (GRBV+) grapevines, and has been attributed to reduced sugar translocation. Potassium (K) nutrition is closely linked with berry ripening, and early studies on K nutrition in GRBV+ grapevines indicated low K status in GRBV+ leaves. Thus, it was hypothesized that foliar K application would improve berry ripening through an improvement of leaf K status and sugar translocation. A field experiment was conducted in 2020 to test two formulations of foliar K fertilizers (0-0-24) against a water control. The three treatments were applied weekly for four weeks to previously identified healthy (GRBV-) and infected grapevines beginning at 50% veraison. At each application, the equivalent of 1.2 L/ha. was applied with a backpack sprayer to eight single-vine replicates. Treatments were arranged in a randomized complete block design with a split-plot treatment structure whereby GRBV status was main plot and foliar application was split-plot. Leaf blades and petioles were sampled for nutrient analyses both before and after treatment application, and berry composition were measured at harvest. There was little to no effect of K application on K status in blades or petioles, with all values in the normal range. Berry fresh weight (FW) was slightly reduced (-10%,  $p = 0.003$ ) in vines sprayed with K, independent of GRBV status. Concomitantly, berry total soluble solids (TSS) at harvest were increased (+1.6 °Brix,  $p = 0.002$ ) by both K fertilizers independent of GRBV status. However, there were no significant effects of K application on berry phenolic composition. The lack of treatment effects on berry composition suggests that while foliar K application has limited effects on fruit quality in GRBV+ grapevines, the increased TSS may advance harvest date in heavily infected blocks.