

# **Water deficit synchronizes berry color development in crimson seedless table grapes**

Calderon-Orellana, A., Bambach, N., Aburto, F., & Calderón, M. (2018). Water Deficits Synchronizes Color Development among Berries in Crimson Seedless Table Grapes. *American Journal of Enology and Viticulture*. <10.5344/ajev.2018.17070> Accessed 24 Jul 2020.

## **Abstract**

Crimson Seedless is one of the most important table grape cultivars in the world, but often exhibits uneven berry color when grown in warm climates. Deficit irrigation is used extensively by growers during the ripening phase to advance fruit maturity and color, but there is a lack of information about the relationship between irrigation practices and fruit ripening variability. We imposed deficit irrigation in a commercial Crimson Seedless vineyard in the Maipo Valley, Chile, from veraison to harvest in two consecutive seasons. The fruit was tested for uniformity of Brix, firmness, and the color parameters “L”, “a”, “b”, and the Color Index of Red Grapes using analysis of variance on absolute residuals (Levene’s test). Postveraison water stress increased water productivity, Brix, and slightly improved berry coloration, but did not affect berry weight, size, or firmness. Moderate levels of water stress improved color uniformity at harvest, as lower values of leaf water potential were associated with a lower percentage of green berries that never matured. These results confirmed the role of deficit irrigation in the table grape ripening process. In contrast, extending the fruit ripening period by delaying harvest beyond 18 Brix did not increase color accumulation, but did increase berry shatter.

## **Keywords**

berry color, Crimson seedless, Deficit irrigation, Delayed harvest, Fruit variability, Ripening synchronization