Effect of Rootstock on Yield Components of ‘Chardonnay’ in Oklahoma

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Abstract
Rootstocks can offer benefits such as pest resistance, improved cold hardiness, and tolerance of certain soil characteristics. The objective of this study was to determine if own-rooted ‘Chardonnay’ and ‘Chardonnay’ grafted onto six rootstocks differed in a number of measured yield variables. The plots consisted of Clone 4 ‘Chardonnay’ with six different rootstocks: 1103P, 140R, 3309C, 5BBK, St. George, and Freedom. Rootstock had a significant effect on yield produced by ‘Chardonnay’ when compared to own-rooted vines; however, rootstocks were not significantly different from each other. The overall yield of the own-rooted vines was the lowest, but not significantly different from vines grafted onto 3309C, 5 BBK, and 1103P. Year of harvest was a significant main effect with respect to total yield. The lowest yield occurred in the first year of harvest (2003), with significant increases in 2004 and 2005. Yield in 2006 was significantly less than 2004 and 2005 due to extreme heat and drought conditions during the 2006 growing season, and cold injury during the winter of 2005-2006. Average berry weight and average harvest date were not affected by rootstock, but were by year. A significant interaction of year × rootstock for average cluster weight was observed as well. With additional data, it may be possible to identify rootstocks that are advantageous to Oklahomans growing ‘Chardonnay’.