Researchers demonstrate that fruit and wine quality are not affected by grafting

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While Washington winemakers grow most of their grapes on their natural rootstock, the coveted quality of their crop--and wines--is unlikely to change if they join the rest of the world and start grafting their varieties to more disease- and pest-resistant roots. That day will probably come, say WSU experts, but growers have little to fear.

The spectre of a vine-destroying invasion has been lurking in the shadows of Washington vineyards for years. What if, wine industry professionals have fretted, growers had to start grafting in order to beat the insects and worms? Would grafting affect wine quality? Are Washington wines great in part because their grapes grow on own-rooted vines?

No significant differences detected

Answers to those questions have been years in the coming and required a monumental, multi-year effort on the part of Washington State University researchers. A team of scientists led by WSU viticulturist Markus Keller just completed a project that their predecessors began in 1999, with results published in a pair of papers in the March issue of the *American Journal of Enology and Viticulture*.

"The short answer," said Keller, the Chateau Ste. Michelle Professor of Viticulture based at WSU's Irrigated Agriculture Research and Extension Center in Prosser, "is don't be afraid."

Enologist Jim Harbertson, also based at the Prosser station and a cooperator in the study, agreed. "The big push back against grafted rootstocks in Washington has been the fear that wine quality won't be as good. But what we saw is that, for all practical purposes, there is no difference."

Climate, not rootstock, an influence

Keller pointed out that since Washington growers use deficit irrigation -- controlled amounts of water -- to manage vine vigor, there were also no differences in canopy size. "Water deficit overrides any vigor-promoting influence a rootstock might exert in wetter climates." In other words, growers will be able to continue using the vineyard management techniques they've already mastered, even if they grow grafted vines.

"It's the climate, not the rootstock," Keller said, referring to Washington's excellent reputation for producing high-quality fruit. "The differences we did see over the course of this experiment had to do with vintage." Both scientists said that their multi-year experiment confirms the fact that scion, vineyard location, and vintage are the driving factors of grape and wine quality, and pointed out that this is something growers and winemakers already know. "We just need to be reminded once in a while."

Three varieties tested over three seasons

The advice to "have no fear" of grafting comes from data collected over three growing seasons, with three wine-grape varieties - Merlot, Syrah, and Chardonnay - evaluated on six common, commercial rootstocks as well as on their own roots. One rootstock failed the trial because it over-wintered poorly and was deemed unsuitable for use in Washington's growing environment. Each year then, wine was made from each grape/root combination, and tested for multiple indicators of quality,

including those critical to red wine quality.

Results of this complex, long-term experiment are published in a pair of papers, one focused on plant vigor, yield formation, and fruit ripening, the other on grape and wine composition. The viticultural results show that variations are due to "scion cultivar, spatial differences across the vineyard site, and climate variation among years." In other words, the dominating factors affecting grape growth are vintage and vineyard site and soil variability -- not rootstock. Likewise, the enological results "showed that rootstock caused few significant differences in fruit and wine composition and, instead, the dominant variables were scion and, to a lesser extent, vintage."

Provided by Washington State University