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Home > Blogs > Mixed Case: Opinion and Advice

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Rise of the Machines

The evolution of the most important wine-industry innovation in nearly 150 years

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By Robert Taylor

The Northern Hemisphere harvest begins this month, and in the vast, vast majority of the world's vineyards, it starts with a heavy machinery operator turning the ignition on a mechanical grape harvester.

Many wine lovers might imagine—or might prefer—a scenario that involved skilled harvesters gently selecting the very best bunches of grapes, all by hand. And in some vineyards, that's truly the case. In some cases, it's actually the law. In Châteauneuf-du-Pape, for example, appellation regulations require hand-harvesting.

But the half-dozen experts I polled—including industry insiders, vintners and mechanical harvester operators—conceded that 90 percent or more of the world's wine grapes are likely harvested mechanically. (Hard numbers are hard to come by; vintners need not report how their grapes went from vine to vat, as long as their appellation doesn't prohibit mechanical harvesting, and most don't.)

If you're interested in the intersection of quality and value, you should be grateful. One Napa vintner related the story of harvesting alternating vine rows mechanically and by hand and offering a winemaker their choice between the two. The winemaker preferred the quality of the mechanically harvested grapes.

Today's self-propelled mechanical grape harvesters—which also transform into mechanical pruners and sprayers—are highly sophisticated engineering marvels.

The route to mechanical grape harvesting began in the 1940s. During World War II and the Korean War, American manpower shortages left farmers of all crops, not just grapes, with little help at harvesttime. Women filled in as much as possible, as did labor recruited from Mexico as part of the United States' "Bracero Program," a controversial guest worker program that was discontinued in 1964.

The first mechanical harvesters for grapes in California date to the early 1950s. But they were a bust. The cutter-bar harvester system so proficient with grains tended to mangle both vines and grapes alike.

On the other side of the country, however, innovations were happening in New York's Finger Lakes wine region. In the early 1960s, Profs. Stanley Shepardson and Nelson Shaulis and their teams at Cornell University developed the Cornell Grape Harvester, which passed over the top of a row of grapes, straddling it while shaking the clusters off the vine. At about the same time, Riply, N.Y., grapegrowers Max and Roy Orton developed a horizontal-action machine, which beat the trellis rather than shook the vines. The Cornell and Orton machines were commercially built in 1963 and 1967, respectively, by the Chisholm-Ryder Company of Niagara Falls, N.Y. Later that decade, grape farmer and John Deere dealership owner Vito Mecca of North Collins, N.Y., developed the Mecca-Nized harvester, which he manufactured in Buffalo, N.Y.

Isaac Newton/Gottfried Leibniz-style priority disputes ensued, and supporters of all three innovators still argue over who "invented" the modern-day mechanical harvester. Shepardson went so far as to file a patent-infringement lawsuit, which ended disastrously in 1977 with a U.S. District Court judge not only denying his claim, but throwing out his original patent altogether.

None of the early harvesters were perfect. Grape skins were broken, and vines were damaged by the violent beating and shaking; leaves, sticks and worse ended up in the bins with the grapes. But the Industrial Vineyard Revolution was on.

Today, the self-propelled mechanical grape harvester is remarkable to behold, as is its price tag of up to \$375,000. Companies like Braud (New Holland), Pellenc, Gregoire and others make state-of-the-art machines adjustable for numerous trellising and canopy systems that can operate 24 hours a day; night-harvesting when temperatures are cooler is a particular advantage. Lighter plastic and nylon curved shaking rods are much gentler on the grapes and vines. Fans clean the fruit as it's harvested, blowing away leaves and twigs. Hydraulics allow the wheels to be individually raised and lowered, making the machines capable of harvesting hillside vineyards. They can even be equipped with destemmers. Harvesting at 2 acres an hour or more, they do the work of 30 field hands.

They're the No. 1 reason that we can drink so well, so cheaply today, and I think that makes the mechanical grape harvester the most important wine-industry innovation since American viticulturists grafted *Vitis vinifera* vines onto the roots of phylloxera-resistant American rootstock in the 1870s to fight the devastating vine pest.

So, what say you, wine lovers? Is the machine friend or foe? What other 20th-century innovations would you credit with changing the wine world for the better?

[Note: Special thanks to the staff of Cornell University, especially Frank A. Lee Library Coordinator Michael Fordon, for providing access to the school's archives, including "Mechanical Harvesting of Berry Crops," by Adam Dale, Justin Morris, et al., 1994.]

Member comments 3 comment(s)

Thomas Matthews — New York City — September 18, 2012 5:41pm ET

I saw my first mechanical harvester in Bordeaux in 1979. I was picking by hand with a team of Spanish workers, and they were dumbfounded; they literally saw the end of a long tradition climbing over the hill towards them. It made me sad for what we were losing -- lively harvest lunches around a big table, a babble of many



David Yellen

Mixed Case

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