

winemaking

The Use of Modern Crusher/Destemmers in Winemaking

Lance Cutler

Lance Cutler has been a working winemaker in Sonoma County for 35 years. He has been a contributing editor for *Wine Business Monthly* for more than 10 years. His unique perspective on winemaking has led to our Industry Roundtable series and Varietal Focus series. Lance is also the author of four books, including *The Tequila Lover's Guide to Mexico*.

IN THE PAST, GRAPES were picked in the cool, early morning hours and rushed to wineries as quickly as possible. After leaving the comfort and safety of their mothering vines, the first thing they encountered at a winery was the crusher/destemmer. This machine ripped the grapes from their stems, crushed them between two rollers, dropped them into a bin and then pumped them to tanks. It was a rude awakening to the winemaking process.

In the '80s, most crusher/destemmers copied the old Valley Foundry design, which used augers to convey the grapes to the crusher where they passed through rollers into a cage with holes that turned counter to a helical blade or pronged beaters inside. As grape clusters bounced around in this cage, berries would be knocked off their stems and fall through the holes in the cage where they would be pumped to tanks. Grape skins were torn, juice would run freely, seeds would be exposed (if not crushed), and bits of stem (jacks) chewed up in the process would drop through the holes into the must as the stems traveled out of the cage.

The evolutionary focus on developing crusher/destemmers was to be gentle with the grapes and to remove as much bad fruit and extraneous material as possible. Flat-belted conveyors replaced the auger system to move grapes and gave winemakers the opportunity to sort through them to remove moldy fruit, raisins and material other than grapes (MOG). This was first accomplished by hand, but more and more is being handled by optical recognition sorters. Inside the destemmers, metal beaters are being replaced by less abusive “fingers” with rubber tips. State-of-the-art destemmers are moving away from blades and fingers altogether, replacing them with oscillating cups that gently remove berries from the stems by inertia.

How have winemakers adapted their winemaking techniques to work with the new machines? Do these techniques vary, according to style or variety, and what are winemakers hoping to accomplish when they decide whether or not to “crush” their grapes?

Nate Rippey, VP of production at **The Vintner's Group**, uses a Delta E8 from **Bucher-Vaslin**. He finds it to be user-friendly with high throughput. It's reliable, easy to clean and relatively simple to work on.

“These days it is very infrequent for a customer to request rollers in the machine. The whole approach is to be as gentle with the fruit as possible,” explained Rippey. “White grapes never even go through the machine. They are all dumped directly to the press for whole cluster pressing.”

Rippey said he is starting to see more grapes coming in from mechanical harvesters after being run through optical sorters. In those cases, he just receives berries that get dumped directly to fermentors.



SCOTT SUMMERS

Gentler Handling of Grapes

Patrick Saboe, director of wine for **The Wine Foundry**, used a Delta E2 before shifting to a Delta Oscillys. “The cage is upright with helical arms. The whole thing oscillates (shakes), and berries fall through holes,” he said. “Berries are cracked but relatively uncrushed. Rollers are post-destem, but we haven't used the rollers in premium wine production in the last 10 to 15 years. Premium wines use more and more whole berries. To that end, we have different cages with different hole sizes to accommodate larger or smaller sized berries.”

Not crushing the berries gives me a level of control over extraction. I want to extract as much as I can from the skins and less from the seeds. If I busted up that fruit in the beginning, I'd be extracting both skin and seed tannin from the get go.

Stephan Tebb, winemaker, Robert Craig Winery

Saboe reasons that this gentle handling of fruit is an outgrowth of growers having improved at delivering fruit with solid tannic profiles. "The fruit is more structured, and so winemakers no longer have to extract as much tannin in the winemaking process."

Bill and Dawnine Dyer, winemaking partners for **Dyer Straits Wine Co.** and active consultants for several other wineries, talked about modern winemaking techniques that have changed the crushing regimens. "Back in the day when we picked grapes that tested 23° Brix, it most likely included grapes between 21° and 26° Brix," said Dawnine. "Now with green-thinning, leaf-pulling and experience, we are better able to harvest more evenly ripened fruit. In winemaking, cold soaks and minimizing the shredding of fruit gives us good extraction while avoiding those green and seed tannins that we don't want."

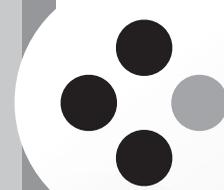
According to Bill, there is still a time and place for crushing grapes. "There are times when it is beneficial to crack skins on berries. A crusher over an open-top tank can deliver almost completely whole berries. There is no juice to start the fermentation, and with Cabernet, perhaps carbonic maceration is not what you are looking for. I think with Cabernet, broken berries are desirable, especially if you are looking for a more tannic-structured style that is capable of long-term aging."

He also pointed out that while few people are using rollers in their crusher/destemmers, the fruit is still getting crushed. "Nowadays, pumps that move the must serve the same function as rollers in a crusher, and they do it in a more gentle manner."

Finding the "Sweet Spot" to Eliminate Jacks

Jared Brandt is co-winemaker along with his wife **Tracey** at **Donkey and Goat Winery**. They have a **Marchisio** destemmer from which the rollers have been removed. Jared said he was trying to keep the berries as intact as possible. To that end he won't even use a must pump, preferring to move the grapes to tank by conveyor belt.

Most Donkey and Goat wines are made from Rhône varieties although they make some Pinot Noir as well. They will often use 30 to 40 percent whole cluster in their fermentors. "We will actually chew on the stems, checking the taste. When the tannins are ripe and the under-ripe, "green" tannin flavor has diminished, we'll use the whole cluster. Whether we use whole cluster or destemmed fruit, we prefer to foot crush in the fermentor because the pressure from foot crushing can't crack the seeds. We'd like to avoid the bitter tannins from seeds as much as possible."



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Brandt is also wary of jacks. He will wrap the last third to half of the cage on his crusher, which he said reduces the amount of jacks in his must by as much as 80 percent. He also varies the speed on his crusher. He finds there is a sweet spot for crusher speed for each different varietal that minimizes the amount of jacks.

Stephan Tebb is the winemaker for **Robert Craig Winery**. He has been using the Delta 2 but has switched to the Oscillys because he wants to reduce the amount of jacks in the must. He will use different sized cages, depending on variety; and while he treats varieties differently in the winery during cold soak and pump-over, how they are handled at the crusher is the same.

"I have never used crusher rollers on grapes," he said, "but I do use a pump to get the must to the tanks, which crushes the fruit enough. Not crushing the berries gives me a level of control over extraction. I want to extract as much as I can from the skins and less from the seeds. Being gentle with the fruit and going through a cold soak allows me to do that. I want to deplete the skin tannins and get some seed tannin. If I busted up that fruit in the beginning, I'd be extracting both skin and seed tannin from the get go. I prefer not to do that."

Ed Filice is senior winemaker for **Sonoma Wine Company**. With decades of experience in the wine industry, he echoed other winemakers. "We are looking for our crusher to separate the berries from the rakes with minimum damage to the berries themselves. We will either spread the rollers to minimize contact or remove them altogether. The grapes enter the fermentors, looking like ball bearings. We do use pumps to move the must, but these new pumps are also much gentler than the old ones. The only exception is Cabernet Sauvignon, where we will set the rollers for some minimal soft contact to gently split some skins."

Filice pointed out that most winery practices have moved to gentler handling of the fruit. Pump-overs are no longer performed by shooting powerful streams of fermenting juice through 2-inch hoses to plunge the cap down into the must. Instead, juice is broadcast over the cap to keep it moist without disturbing the grapes. Depending on tank size and configuration, punch-downs can be substituted for pump-overs. Filice suspects that the main positive of all this gentle handling is lower solids in the must, insisting that lower solids make better wine.

Conclusion

When it comes to winemaking, technology is constantly advancing and showing us ways to make better wine. Winemakers are looking to handle their fruit in the gentlest ways possible because they feel this leads to the extraction of finer, more structured tannins, while allowing for richer fruit aromatics and flavors. Moving must with pumps seems to macerate berries enough to get fermentations started, without exposing and cracking seeds as much as crusher rollers.

The emphasis on gentle handling of grapes has pretty much made crusher rollers an endangered species. The focus is now shifting to ways to minimize torn stems from entering the must. Along with new technology in the destemmers themselves to reduce the amount of jacks, techniques are moving from man-operated sorting to automated optical sorters. As technology moves forward and field harvesting (in conjunction with optical sorting) becomes more common, the winery crusher/destemmer may follow in the way of crusher rollers and turn into an antique piece of equipment that simply serves to remind us of the good old days. **WBM**