

The case for double-pruning

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Before the days of modern frost protection, the primary techniques to keep vineyards from freezing involved site selection (upslope, since cold air drains downward like water); clean tillage (compacted, tilled soil retains heat, and weeds can be a source of ice-nucleating bacteria, increasing frost risk); planting varieties that bud out late; and double-pruning. The four techniques were widely used in the cooler parts of the North Coast of California on old, head-pruned vines such as Zinfandel, Carignane, and Petite Sirah.

When the vines are double-pruned, the canes that are selected to be cut back to spurs are left long, and then pruned after the buds begin to open in the spring. Since the terminal buds on the tip of the shoot produce auxin (indole acetic acid), there is a sequence of bud opening from shoot-tip to the base. The basal buds are inhibited from pushing open.

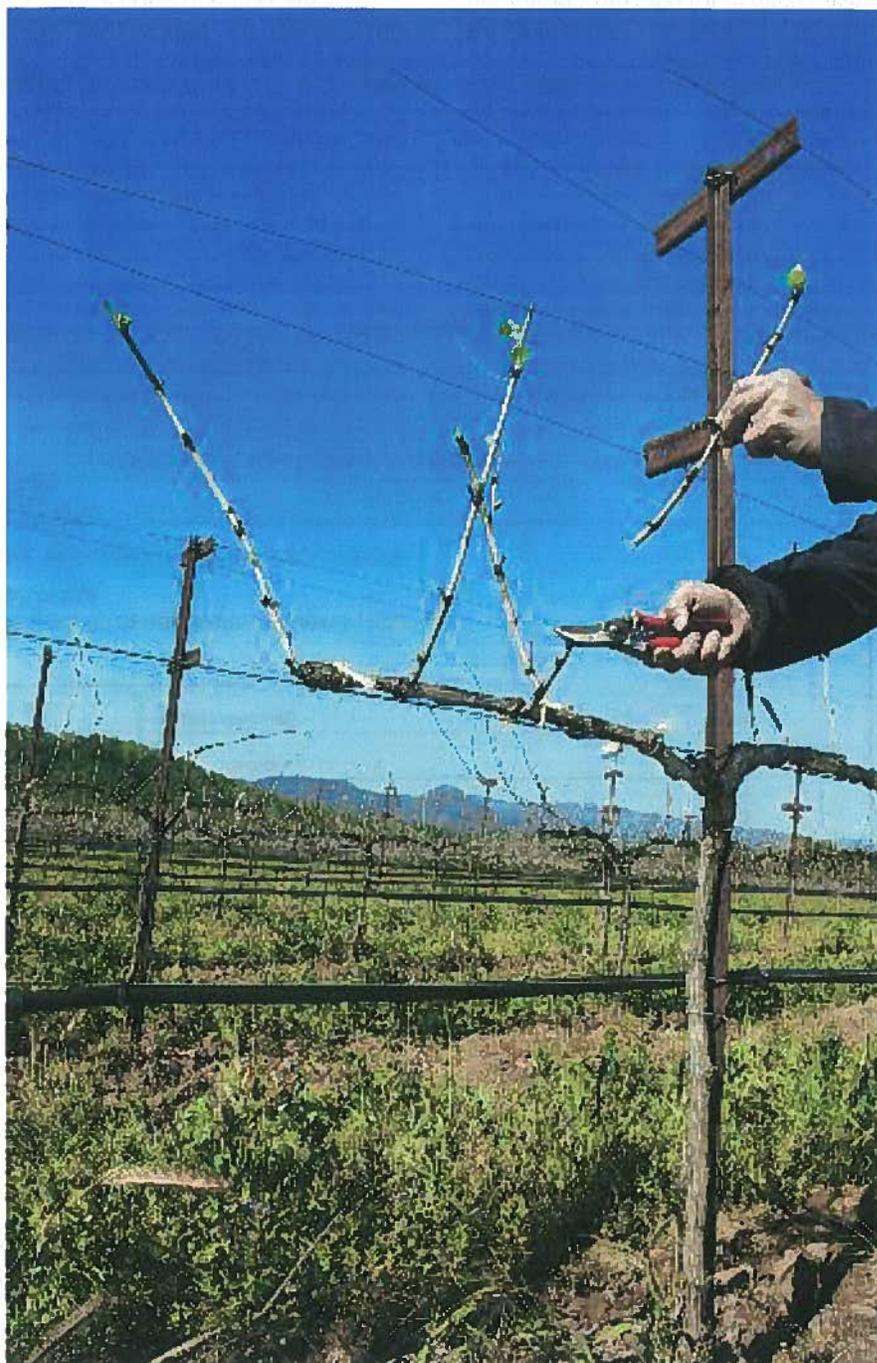
Seven to ten days may pass between the opening of the terminal buds and the basal buds. Sometimes the effect continues even after the terminal bud has been removed (especially in cool weather), since auxin is systemic. What growers do is wait for bud break on the tip of the shoots, and then cut above the two buds they want to keep.

Since frost events usually happen early in the season, this may keep those two basal buds in dormancy an extra week, which can be significantly helpful in protecting the crop. On the other hand, if you are in a location that is not likely to freeze in the spring, but the season is short due to low temperatures, you could lose one week of ripening weather during the growing season, which can affect quality at harvest if rains are a potential problem.

Another possible problem is that some varieties may become so inhibited by the auxin that they go into complete dormancy, and do not push a shoot following the second cut. You then end up with single canes on the spurs, and a reduced crop.

Dave Koball and Chad Bordman of Fetzer/Bonterra Vineyards experi-

mented with this technique during the 2009 growing season. They long-cane-pruned one block of Cabernet Sauvignon and then sequentially cut back the canes to see what kind of effect it would have to delay bud break. They found the technique effective, but the vines that were pruned the latest definitely showed a yield reduc-



tion. "There were fewer shoots and less fruit; we saw a significant yield reduction," reports Koball. Since it was an observational trial, no data were taken.

At Steele Winery (Kelseyville, CA), General Manager Steve Tylicki directs vineyard operations, including two heritage Zinfandel vineyards: the Pacini Vineyard on the Talmage Bench near Ukiah in Mendocino County, and the Catfish Vineyard on the Kelseyville Bench in Lake County.

Both vineyards produce small crops of intensely flavored fruit. Neither has a frost protection system. Tylicki uses two different approaches in pruning to address this. "Since Pacini is in an upland position, it rarely frosts there. That is one of the reasons that the vineyard was planted in 1943 by Italian immigrants. We think it is ideal when we have 'pussy willow' looking buds pushing at the tips of the canes, to finish the pruning at Catfish Vineyard.

"At Catfish, we long-prune. The difficult part is timing to get everything right. You need to keep an eye on things, which can be a challenge for me, since mostly I am at the winery, and the vineyard is two miles away. We prune off everything except the canes that we want to keep for current-year spurs.

"It is important to select a fairly vigorous shoot, and then cut the end-tip off just as it is starting to swell. If the shoot is too short, you do not have as good a delayed push of the basal buds. We find that if you have sap bleeding from the tip, you get more delay. If we leave a long shoot and remove the last couple of apical nodes, we obtain up to 10 days delay and frost protection.

"Finally, we wait for the pussy willow stage to do the final work and make a second cut when we think that freezing weather is over, removing the cane and retaining the two basal buds.

This approach works well for that location."

Double-pruning has another benefit. UC Extension Plant Pathologist Doug Gubler and his team of researchers have been working on wood-rotting fungal disease, which causes various cankers, including *Eutypa* and *Botryosphaera*. "There is no question that late pruning is a good way to help manage the disease," explains Gubler, "especially with susceptible varieties like Cabernet Sauvignon and Sauvignon Blanc.

"Spore release from the fruiting bodies of these diseases is timed with rainfall, so the drier it is when you prune, the less likely that spores will be released to cause significant infection. We are also working on evaluating treatments to stop the fungus from infecting pruning wounds." ■

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