

■ FRITZ WESTOVER

The Proof Is in the Pruning: Early Season Canopy Assessment

Bud break and young shoot growth occurs rapidly across winegrowing regions, and warm temperatures hasten the workload for vineyard-management crews. Canopy management, shoot thinning and selective shoot removal are on the minds of most growers at this time. It is easy to get lost in the details of the next task when shoots are growing rapidly, but let's not miss the opportunity to take a critical look back at the pruning work that has occupied the past few months.

Pruning is arguably the most important vineyard task. If done properly, it will greatly improve vineyard management during the season. A critical assessment of your pruning job is best accomplished between bud break and bloom. Hence, the proof of success of your pruning strategy is by now (or soon will be) evident.

Bud count vs. shoot number

Realistically, no experienced pruner will take the time to count buds on each final pruned vine. When training new pruning crews, I often suggest they count buds on the first 20 vines pruned to calibrate their eyes. After the eye is trained, an occasional follow-up count on a vine will help test their proficiency.

Within a few weeks of bud break, we can truly assess if the bud number retained per vine resulted in a similar number of shoots. When leaving two count buds on a spur, we expect see two fruitful shoots developing from that spur. The disagreement from bud count to shoot number often occurs when the pruner does not properly identify count vs. non-count buds (see photo at right).

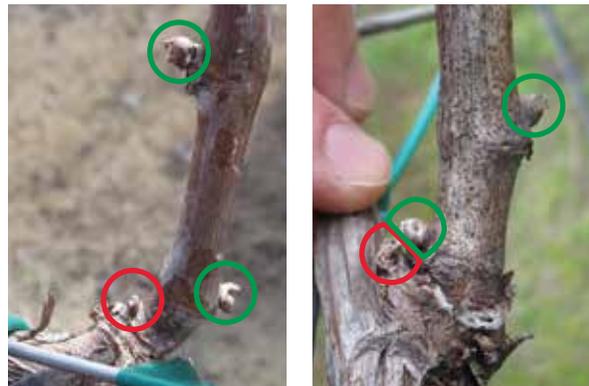
Distinguishing count buds can be a challenge for new growers, which is why it can be very helpful to look at what sprouts out of the vine this time of year.

Count buds are the fruitful buds retained during dormant pruning and derived from node positions distinctly separated from wood that is two years old or more. Non-count buds are smaller and located where the one-year-old wood contacts older wood. They have potential to produce shoots that are typically non-fruitful.

Fruitfulness of buds is in part determined by genetics, but other factors such as freeze damage, vine nutri-



Small lateral shoots with diameters thinner than a pencil (above left) should be removed when pruning (above right).



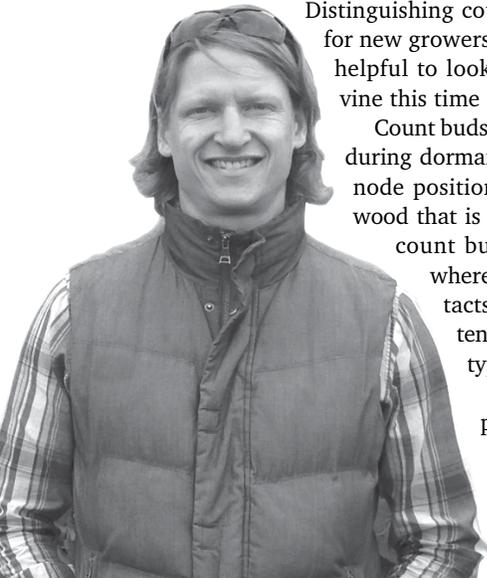
Count buds are identified in green, while non-count buds are red.

tion, virus and poor weather conditions during bud development in the previous season can affect the survival and fruitfulness of a primary bud. Some varieties are also notorious for pushing non-count shoots, such as French-American hybrids Seyval Blanc and Chambourcin.

If follow-up counts are made on a few vines per block, after a few years of observation one can adjust bud counts to better target the resulting number of fruitful shoots for each variety in the vineyard. Bud counts at pruning time can then be adjusted up or down to achieve the target shoot density and yield more closely.

Shoot distribution uniformity

Part of the art of dormant pruning is not only eyeballing the proper number of count buds, but also retaining them in a way that promotes uniform distribution of shoots along



a fruiting wire (see photo at right). The two most common areas of shoot “congestion” occur near the head of a vine, where non-count buds commonly push, and at the end of cordons/canes, where overlap can occur from a neighboring vine’s cordon or cane. Vigor of shoots derived from those two areas can also be greater, which adds to the congestion (and shading and disease pressure in the canopy).

Shoot thinning early in the season is one way to overcome crowding in these areas. One tip for spur pruning that I often implement with new growers is to allow a hand’s width between each spur position and also between the ends of neighboring cordons. A little follow-up may still be needed to shoot thin in the spring, but it will likely be faster and more economical. I recommend growers strive to reduce the workload at thinning time by pruning for uniform distribution and following up after bud break to see if the bud count strategy needs adjusting in future seasons.

Size matters

After more than a decade working as an extension educator and consultant, it is my observation that the most common mistake by dormant grapevine pruners is retaining small-diameter wood (see example on page 28). The ideal range of acceptable, fruitful wood for spurs



One- and two-bud spurs are evenly distributed on a vine with vertical shoot positioning (VSP) trellising.

and canes is between 5/16 and a half inch in diameter, or about pencil- to Sharpie-sized wood. Wood smaller than this range is often weak and produces smaller shoots and weak spur positions in succeeding years. It is also a poor choice for developing trunks or cordons on young vines (in which case the larger end of the range is preferred).

There can also be some disadvantages for wood larger than this range. Large-caliber wood, often referred to as “bull wood,” does not push buds as reliably and can often have long internodes, leading to problems with shoot distribution uniformity. Likewise, there can be many gaps in the canopy from non-push buds if bull wood is used for cane pruning or cordon development.

My two favorite mantras for dormant grapevine pruning are “no wimpy wood” and “when in doubt, cut it out.” I also have been known to say “no junk on the trunk,” but we can save

that for a future article about vine suckering. The effects of leaving weak, small-diameter wood can best be observed when shoots are 12-24 inches long. At that time, differences in shoot size can be visually correlated to wood size retained at dormant pruning.

Renewal experience

In general, there are two reasons to lay down canes to renew your cordons:

- 1) You are training a young vine and you do not yet have a cordon.
- 2) You are experiencing cordon dieback due to fungal diseases in the wood and/or poor vine training. Grapevines are well known to express apical dominance in bud positions most distal from the base of one-year-old wood (see bottom photo on page 30). When developing cordons in either the renewal or the initial development stage, it is best to do so in a stepwise fashion and allow no more than

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Stepwise development of a second-year vine (the trunk formed in the first year) pruned with five to seven nodes on each developing cordon.

five to seven buds or 18 inches of cane laid down per season (see photo at left). Leaving shorter canes promotes more even bud break and results in fewer blank spots on the fruiting wire. When vines are cane pruned, this rule is often disregarded because the cane is removed each year.

Cordon renewal can be a daunting task in large vineyard blocks, requiring trained crews and multiple years for completion. This is why we often see short-cut fixes to blank spaces on cordons, such as the ugly but common bridging approach. These practices are more often used simply to sustain production when the block

is destined for a replant in the coming years. The first few weeks after bud break is a good time to assess gaps in the canopy and their impact on yields. Nonproductive gaps of 6 to 12 inches per vine can lead to losses of a half-ton to 1 ton per acre in potential fruit loss.

Summary

Early season canopy assessment from bud break through bloom is a simple practice for helping growers understand the effectiveness of their pruning strategy and the skill of their crew. Counting shoots and comparing to the target number of count buds retained per vine will reveal if the current bud count strategy is effective at achieving desired vine yields while reducing the need for follow-up work, including shoot and fruit removal. Differences in fruitfulness of varieties and their propensity to push non-count shoots can also be recorded so that count bud numbers can be adjusted up or down in future seasons to fine tune the expected canopy density.

Without the follow-up, there is a chance that poor pruning practices will be repeated. If you believe as I do that the best way to learn is by doing, be sure to get the crew that pruned out to the site to participate in the assessment. If you are fortunate to have the same labor in your vineyard each year, you can expect to see improvements in vineyard management efficiency in future seasons. 🍷

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Dominance of apical buds is shown on canes of a *Vitis vinifera* cultivar. Note the slower bud break of the lowest node positions to be retained after spur pruning.

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