

Ready. Set. Prune.

Oddly, despite the often cold and rainy conditions in winter, pruning was one of my favorite activities in the vineyard cycle. The solitude of winter, the extreme quiet of the vineyard, especially when snow blanketed the ground, made the vineyard an special place to be. I also like pruning season because each day there was pretty much only one thing on the vineyard agenda. Get suited up, sharpen blades, get the hot drinks and head out. Unlike the growing season, when each morning is a confrontation of dozens of decisions about what to do on that day, pruning is easy. Just do it. Pruning itself may be one of the greatest creative and intellectual challenges to the grape grower. I think we all have in mind the image of the perfect vine but somehow are rarely able to achieve that utopian size and shape. Yet, every year we have an opportunity to move the vine more in that direction. With over 60,000 vines to prune at Temperance Hill, that represented plenty of opportunity. But a balanced vine is not really all that hard to attain if you have a clear image of what it should look like and you understand the fundamental nature of your soils and climate. I think the tremendous importance of pruning is generally underappreciated. After a year of growth, this is the chance to step back, assess vine performance and make necessary adjustments. Balance pruning a few vines per acre, particularly in weak or vigorous areas of the vineyard, will give you a clear idea of how to approach canopy management. It might require the dreaded "d" word - divide, but if you are able to bring your vine into better balance, you'll grow better wine. If you divide and balance, you'll make better wine and more of it.

Pruning can start now if you are recovered from harvest and already bored and need to get out among the vines again. We have had the cold weather needed to acclimate the vine into its dormant and cold hardy winter condition and periderm is fully formed. We often started after Thanksgiving. There are a couple of ways to approach this. The first I facetiously called the "blitzkrieg" method which is to get a large contract crew into the vineyard and, WA LA!, in just a few days or so, the vineyard is all pruned. It's very satisfying to have the job done and move on to sitting by the fireplace and sipping cognac. But, in my experience, quality of work is sacrificed for speed and in the long run, the vines suffered. I prefer the turtle method, a small, knowledgeable crew under close supervision that understands intimately the goals of the grower and prunes accordingly. I know this is not always possible at very large farms, but even in that situation, take the best pruners and have them do the vinifera with greater care and attention. Eventually, if you develop an experienced crew, you can just tell them to prune and you can still sit by the fireplace and sip cognac. But it takes years to develop that kind of talent. It's worth it. If I stress any one point about pruning is that you are the only person in the universe who knows how you want to prune your vines. If you are sharing the task with anyone else, do not assume they are mind readers and somehow understand your objectives. The only way to teach someone what you want to do is to be out there with them. Not for five minutes every morning. For a novice pruner, all day is more like it, for weeks on end. If you are a beginner yourself, then find a vineyard that looks good (chances are it was well pruned) and volunteer to work with the grower/crew and get some real live experience. Be knowledgeable about basic methods and terms going in and ask a lot of questions.

Balance pruning involves taking a fishing scale into the vineyard and weighing the pruned wood from individual vines. After you cut the wood, gather it up into a bundle and tie it together and place it on the scale. You will get X number of pounds which you divide by the number of feet of trellis per vine to get pounds per foot. This number for vinifera vines, according to most viticulturists, should be in the 0.4-0.5 lb/ft range. Perhaps a bit higher for hybrids and even higher for natives. This number should be compared to your visual sense during the season of balance of the canopy and the issues that may have developed from a canopy that was either too large, too small or, if you are lucky, just right. If you are just right, then you deserve a medal for picking just the right training system and vine density to match your soil vigor potential and you can prune as you always have. But, if like most, you too vigorous, you need to think of a way to get those bud numbers into balance - too many buds, too few linear feet of trellis = divided canopy. Or, withholding irrigation and fertilizer, managing the vineyard floor, buying a bigger hedger, there are a few options available. You can use the pruning weight to guide your decision of how many buds to leave after pruning. 5-10:1 buds per pound of pruning weight for a vinifera vine may seem like too wide a range but it should be balance with other measurements of vine balance that you can use. In small vine viticulture in California, this number is often <5. A lot depends on you overall viticulture goals for the vineyard. Again, the numbers are higher for both hybrids and natives. Shaulis' formula was developed for Concords at 20 + 20. Another guide can be your targeted tons/acre and lbs/vine. At a typical 9x5 spacing on VSP at 4 t/a, you can prune to 8-9 lb/vine. If you know your average harvest cluster weights this can be a guide to the proper bud numbers. Cross reference these various data sets to understand your vine balance and how to prune. In California, they are using normalized differential vegetative indexing (NDVI) imagery to detect the relative vigor of vines at veraison and determine which vines need more or fewer buds and the viticulture treatments to bring greater uniformity to the vineyard.

One good way to collect all this valuable data is to establish some sentinel vines in the vineyard. That involves choosing some average vines and using them to collect data throughout the season. Most growers feel they are too busy to do this, but those who do are collecting information of incredible viticulture value for their management practices. It helps to establish a historical record of vine performance and allows the grower to make adjustments to improve quality. It's also valuable for important things like winery relations and crop insurance. Data might include phenological markers (budbreak, bloom, veraison, etc.), cluster counts, lag phase weights, harvest weights, pruning weights, disease incidence, tissue analysis, etc. This kind of data, along with seasonal weather data, soil and tissue analysis, is great to have in order to understand the essential conditions and performance of your vines.

Commercial vineyards are generally pruned to either cordon or cane training with variations according to trellis type. Older systems, like umbrella kniffen and four-arm kniffen, are rarely found in newer vineyards. There are umpteen zillion texts on pruning and I find that it is something that is good to read about but better to do. Fortunately, vines are rather forgiving so you can whack away at one and chop it up and unless you

cut it off at the ground, you have a pretty good chance of recovering the size and shape later. Still, better to go in with a very clear idea of what you want to achieve. It all starts with a well trained vine. I think the good analogy is to wander into the backyard of an old house and look at a gnarly, ancient Concord vine that was never once pruned correctly and ask yourself what you would do. Panic, might be the obvious reaction. You don't want to be here in your vineyard. From day 1, vines need to be properly trained to exact specifications. The better it's done, the easier the pruning will be. In general, once you have decided how many buds you need to leave, the goal is to find the best way to evenly distribute those buds within the limits of the linear feet of trellis you have to work with. 4-5 buds per foot of trellis is the ballpark range for vinifera, and, as always, higher for hybrids and natives. Uniformity in all aspects is a worthy goal in vine architecture and will help to create a balanced vine. Always think ahead at least one year to the need for fruiting wood and make sure renewal spurs or canes are available and well positioned. Have winter injury in mind when pruning and a plan to replace parts when they go away. Empty trellis is the bane of all growers. It equates to lost dollars.

Here are some tips about pruning that I learned over the years that worked for me and may be helpful to you...

- Prune for quality first, position second. Both are really important but quality of wood trumps position. I'll take a spur or cane that will produce good fruit over one that is in less than ideal position assuming I can adjust the position next year. Position affects canopy configuration and all the attendant consequences so do not give up too much. Quality of wood involves bud survivability, wood size and quality, cane and internode length and cane position (sun or shade). Pruning for position means constantly maintaining the shape and size of the vine.
- Prune out dead and diseased wood. Hopefully you have marked vines that have succumbed to winter injury or other maladies and can replace vines and/or parts. While spur pruning, try to avoid the stair-step effect by looking for replace spurs in acceptable position.
- Make clean and well positioned pruning cuts. When cutting off one year old wood, cut as close to the old wood as possible to avoid the build up of masses of dead wood. This means not being a lazy pruner. It takes work to make a good, clean cut. At the end of spurs or canes, cut at least 1/2 inch from the last bud.
- Insurance. If we needed 2 fruiting canes per vine, we left 3 just in case one broke during tying. Canes were generally left long and pruned to proper length while tying, we found tying to be much easier in spring it would be a bit warmer and canes would bend easier and fingers wouldn't be quite so cold.
- Start with the natives > hybrids > vinifera in that order and within each, prune according to susceptibility to winter injury. If injury is sustained, adjust bud numbers according to damage assessment results. We often pruned in ascending order of value of each variety.
- Pull brush to every other row on lighter vines and every row on heavier vines. If the wood is laden with dormant disease and fruit mummies, it would be very advisable to remove it completely from the vineyard.

Here are some very good practical vineyard books with excellent sections on pruning vines:

1. Wine Grape Production Guide of Eastern North America. Wolf, et. al
2. Oregon Viticulture. Hellman, et.al
3. Viticulture: Practices Vol 2. Coombes and Dry

I cannot emphasize enough the importance of having the right equipment and proper care of this equipment. Also, proper clothing for working under often harsh conditions. If you are miserable, your vines will reflect that misery. Happy pruners do better work so figure out how to make you and your crew, if not happy, at least comfortable. Sharpen, sharpen, sharpen. Making hundreds of cuts each day is hard on the blade, bones and joints. The sharper the blade, the easier it is for everything. Change out blades when worn and sharpen each day before or after work. Sharpen during work with a small pocket stone. Keep plenty of WD-40 handy and replacement parts.

Pruning is really a great combination of art and science. You can do it by the numbers and never achieve a fully satisfactory result. Balance your data with your own sense of what a vine should look like and why. I always felt that pruning is a very intuitive process. You stand in front of each vine and figure out what to do next. That intuition is only gained by experience and a completely understanding of viticulture objectives carried completely through to wine at the other end. If you understand this amazing continuum, you can probably get a vine pruned correctly. It sure just doesn't happen on its own. Care enough about the outcome to take the time to learn to do it right. Pruning is way too important to not know what you are doing. The quality of your wine depends on it.

Pruning workshops are offered in Pennsylvania, Maryland and Virginia. I strongly encourage the novice, and even the self professed expert, to attend one or two to make sure that you are doing it right and well.

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