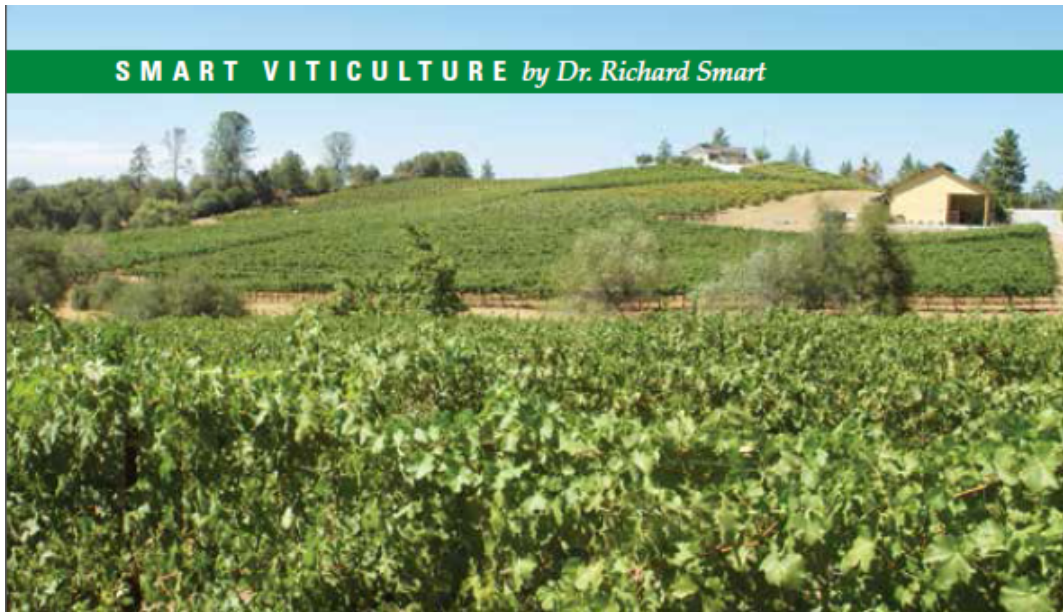


Grape-specific Trellises in Sierra Foothills Vineyard

SMART VITICULTURE *by Dr. Richard Smart*

Cedarville Vineyard in the Sierra Foothills of El Dorado County, northeast of Sacramento, Calif, was introduced to me by Don Neel, *PWW* editor. The vineyard is owned by University of California Davis enology graduates Jonathan Lachs and Susan Marks, and is making its mark in a region where the reputation is for Zinfandel wines.



Lachs and Marks met at Davis and graduated in 1983. They worked in the wine industry in Napa Valley and Central Coast of California through the mid-1980s, before they switched professions to save money to purchase their own vineyard.

In 1995 they purchased a 20-acre property with 5 acres of recently planted Syrah and Zinfandel on their own roots. In 1996 and 1997 they made further plantings, expanding the total vineyard to 13 acres. They commuted each weekend from San Jose, Calif., to the vineyard, moving there in 1999.



Lachs and Marks soon realized big changes had occurred in the industry between 1983 and 1993, and many were in viticulture rather than winemaking.

After investigating new vineyard developments, and I am pleased to say read my book *Sunlight into Wine* as one of their key references, they planted varieties not common in the Sierra Foothills. They were determined to evaluate a range of trellis systems in their new vineyard, and Bill Naylor of Naylor Farms in Fair Play, Calif., was hired as vineyard manager and consultant.

The vineyard

The vineyard site has primarily south-facing exposure (9 acres) at 2,500 feet elevation, among the higher vineyards of the region, 2 acres facing north and 2 acres facing east. The landscape has granite outcrops, and the soil is decomposed granite. The tractor rows are 11 feet wide, and vines are spaced 7 feet apart, although on some of the steepest slopes the spacing is 12 x 8 feet.

Varieties planted include Cabernet Sauvignon, Grenache, Syrah, Viognier, and Zinfandel. Two additional acres of Zinfandel and the Grenache were grafted onto the preferred 110R rootstock. No more 110R was available, and the Cabernet Sauvignon and Viognier were grafted onto more vigorous rootstocks 5C and 5BB when planted.

The historical annual average of length of harvest to achieve optimum maturity of the five grape varieties is 34 days, harvest in 2014 was 30 calendar days. Harvest in 2013 was 20 days. "Historically, we are a high Region 2 or low Region 3 climate," says Lachs. "At our elevation, we experience low humidity during the growing season."

About one-half of the grapes are sold to other wineries, the remainder used for winemaking under the Cedarville Vineyard brand. The vineyard is farmed organically, with strict sustainability motives in mind.

By and large the vineyard has been vigorous, which led to review of Lachs' irrigation practices. A neutron probe service is used to assist in irrigation scheduling.



Because of the drought in California, water availability from a well is limited, and this led Lachs to delay commencing irrigation until July 1. In 2014 he reduced water use by 70%, and the delayed start to irrigation is a significant contributor.

Annual rainfall in south El Dorado County is historically about 35 inches, but was only 32, 28 and 23 inches in the last three years.

"The property was previously pine and oak forest, and the soils had naturally good vigor," says Lachs. "Vigor has diminished over time, which led us to supplementing our soil with compost, manure and cover cropping."

As for many California growers I meet, Lachs uses a long irrigation cycle of two to three weeks. I challenged him that this was using his drip-irrigation system as a flood-irrigation system, by adding infrequent irrigation with large volumes.

Drip-irrigation systems are designed to allow frequent irrigation of small amounts of water. I encouraged him to investigate irrigating every two to three days with small volumes of water, which would allow better control of vine vigor by irrigation. This may well solve his vigor problem. (See "Vineyard Irrigation the Smart Way," in the October 2013 *PWV*.)

Vine-training systems

Lachs and Marks did not intend their vineyard to be an experimental farm. They chose what they thought would be the best training system for each variety, but there are no "control" blocks, and so no comparisons can be made apart from between varieties and training systems.

Syrah was planted on some of the steepest ground, and the vine rows were terraced. The vines were trained to the California "quad" system with four high cordons trained 5 feet above ground, on average, and 42 inches wide. The height of the cordons varies on the steep, terraced hillsides. Because of pruning and shoot positioning, the shoots grow downward.



Quadrilateral-cordon GDC Syrah, east-west vine rows.



Quadrilateral-lyre Grenache, north-south vine rows.

Lachs reports that this system is achieving good ripeness. Initially they thought there would be a need for more crop thinning, but this has turned out not to be the case. The so-called “California quad” is in fact the geneva double curtain (GDC) system renamed.

The GDC was developed by professor Nelson Shaulis in New York state. In my experience this trellis system is very well-suited for high-vigor vineyards. This is because the downward growth of shoots helps to devigorate them. Also, there is good fruit exposure with this system. I frequently recommend the GDC for high-vigor red grape vineyards, where substantial improvements in yield and quality are forthcoming.

Lachs and Marks predicted even larger vigor problems with Grenache. This is an interesting variety with large bunches and large berries, and the wines can be poorly colored unless the vines are well managed. In the hope of devigoration, they reduced the normal vine spacing in the row to 3.5 feet between vines.

I do not agree with this approach. In my experience, close spacing in the vine row is the principal cause of excessive vigor, as the vines get into a vegetative growth cycle, and yield and quality typically decline. This concept is well covered in my book, *Sunlight Into Wine*.

My approach in many vineyard situations is to **remove every second vine** to increase the vine spacing. A recent column about double-header pruning illustrated this principle for cane-pruned vines. (See “Double-header solution for high-vigor vines in cool climates,” in the July 2013 *PWV*.)

The Grenache trained to the lyre system has performed very well. The divided canopy has given more color to the fruit and allowed better spray penetration, which is important for control of powdery mildew and botrytis.



Bilateral cordon Grenache, east-west rows.

Viognier was originally trained to a vertical shoot positioned (VSP) trellis with a bilateral cordon using steel highway posts. This block is on a north-facing slope, and there is no water available for frost protection. In two out of three years there has been frost damage, and the crop load reduced to half of normal.

In an effort to overcome the potential frost problem they have gradually introduced cane pruning, which they find can better accommodate frost damage. Lachs emphasizes that this is not a rigorously shoot-positioned VSP; it may be described as a "lazy VSP" that allows more sunlight to create dappled shadows in the fruit zone. This system provides for good fruit exposure, which is not always seen with VSP-trained vines.

Cabernet Sauvignon is trained to a traditional lyre system, 3 feet wide at the base and 4 feet wide at the top. These vines have good vigor. In the east-west vine rows, the owners notice a difference in the canopy on the north and south side. The south side canopy shows early basal leaf yellowing, obviously some response to more sunlight. Therefore the owners decided to avoid too-strict shoot positioning and leaf removal on the south side of the vines.

Zinfandel vines at Cedarville are head-trained and spur-pruned. The vines are given a lot of leaf removal and fruit thinning including the removal of shoulders of clusters, especially of second crop. I have seen Zinfandel grown very successfully on a lyre trellis. Fruit coloration is very sensitive to sunlight exposure.



Quadrilateral-lyre Grenache vines in north-south row orientation.



Quadrilateral-lyre Cabernet Sauvignon, east-west vine rows.



Conclusion

The standard trellis in the region for new vineyards is a bilateral cordon with VSP, although some older vineyards have the “Californian sprawl.” There is a tendency for new vineyards to be planted to narrow tractor rows of 6 to 8 feet wide, corresponding to the availability of a narrow tractor.

Lachs and Marks have been encouraged by their vineyard experience with several training systems. Cedarville wine quality is well-recognized, and from that viewpoint they should be happy. It is unusual to see a vineyard where owners have deliberately set out to try a range of training systems. More commonly there is a “cookie cutter” approach with the same training system used irrespective of variety, rootstock, row orientation and vigor. Typically that system is the VSP, a system that is less well-suited to high-vigor vineyards.

The opportunities to improve yield and quality by altering training systems are well-documented although not always appreciated and applied by vine growers. It is a shame, they could produce more income from their vineyards.

Dr. Richard Smart is rewriting and thoroughly revising *“Sunlight into Wine.”* Interested persons should contact Dr. Smart by email at richard@smartvit.com.au. Dr. Smart visits the U.S. frequently, and consulting appointments also can be made by email. See smartvit.com.au.

This entry was posted on January 2, 2015 [https://www.practicalwinerylibrary.com/?pokret_im_article=grape-specific-trellises-in-sierra-foothills-vineyard&pokret_im_issue=2015-january] .
