

Last week I was able to travel as a part of the UGA Extension Viticulture team to Charlottesville, VA to attend my first American Society for Enology and Viticulture / Eastern Section (ASEV/ES) meeting. I have to say, the trip was definitely worth my time to attend. Not only were we able to tour the Charlottesville area and visit some of the biggest *vinifera* vineyards on the East coast, but we also had the opportunity to listen to many specialist and graduate students whose research is impacting how we grow grapes and make wines on the East coast. There were several topics that were presented at the ASEV/ES conference that I feel everyone growing bunch grapes for wine production in Georgia should know about, and I'm sure the other agents that attended will speak on those. However, but I wanted to share what I learned about leaf removal and new trellising techniques that may have their place in Georgia.

**LEAF REMOVAL:** Since Dr. Cain Hickey has arrived at Georgia, he has continued similar leaf removal studies to those that he conducted while pursuing his doctoral research. . Our local research looks into pre-bloom, bloom, and post-fruit set leaf removal of three and six leaves – in red and white varieties. We will examine light exposure, bunch rot incidence and severity, anthocyanins, primary fruit chemistry, and crop yield. While six leaves seemed like an extreme, I was surprised to see many of the vineyards that we visited near Charlottesville were removing fruit-zone leaves to similar magnitudes (Fig 1). Most said they begin leaf removal before bloom and finish a couple of weeks after bloom. They stated they saw more benefits than hindrances with the practice of heavy leaf removal as it improved disease control and cluster openness, and wine quality potential. To echo their experiences in the field, there were two presentations at the conference dealing with leaf removal practices.

One study found removing five basal leaves at trace bloom and fruit set reduced yields 13.4% and 14.2%, respectively, as compared to an un-thinned control. Trace bloom leaf removal (TBLR) and fruit set leaf removal treatments (FSLR) had similar numbers of clusters per vine and average cluster weight across both years, but exhibited lower berry weight in one season. One would assume, that although cluster weights were the same even with a decrease in berry weight meant that there were more berries per cluster in the leaf removal treatments. The study found that by removing five basal leaves; there was a decrease in cluster compactness, reduced botrytis bunch rot, only a slight yield loss, and no impacts on pH and titratable acidity. Another research study found similar results by stating that both pre-bloom and bloom leaf removal only slightly reduce yields and lowered sour rot significantly compared to the control.

Although many of us don't practice heavy leaf removal during pre-bloom, it's definitely something I feel we should be experimenting more of in North Georgia. In our research trials we have seen very little, if any, sunburn incidence in our well exposed plots, even though temperatures have been very warm since we have removed leaves



Fig. 1. Left-Intensive fruit-zone leaf removal in a cane-pruned Viognier vineyard in Virginia.Right- Cabernet Sauvignon with intensive leaf removal in fruiting zone from Virginia vineyard.

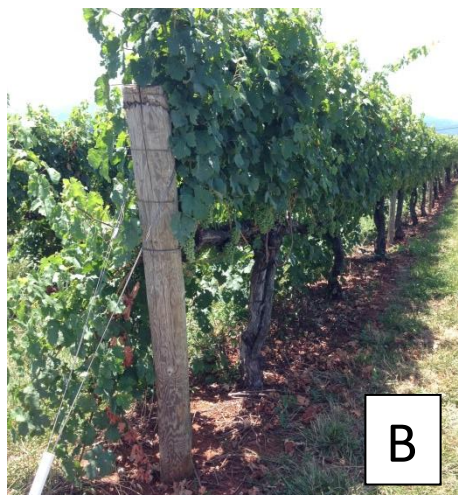
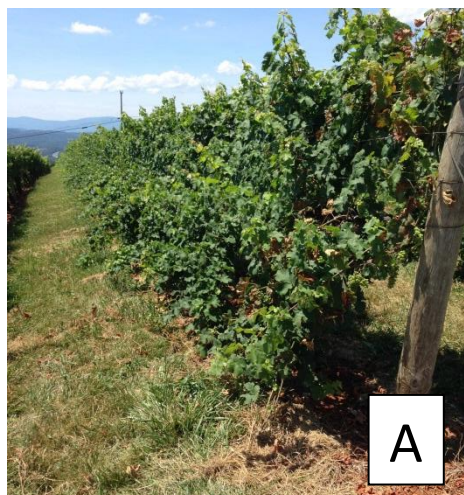
## Smart Dyson Ballerina Trellis:

Many vineyard managers in central Virginia have opted to increase the exposed leaf area in the canopy when compared to traditional tight vertically shoot positioned (VSP) system. The goal with increasing exposed leaf area is to intercept sunlight which can ultimately improve fruit quality and potentially hasten ripening. I wanted to share a few photos of some trellising ideas/designs that we witnessed in central Virginia.

The designs we saw in central Virginia were those that were vertically divided – the canopy was divided above and below the fruiting cordon. The first design is the ballerina trellis system. Its name obviously comes from that fact that it looks like a ballerina. I had never heard about this trellis design, though come to find out it is used in different areas of the world. From the cordon upwards the ballerina trellis looks like an ordinary low-bilateral cordon, VSP system. The only difference is that side, downward-facing, or alternating shoots are positioned downwards on both canopy sides. One dense canopy is therefore divided into three sparser canopies (Fig. 2), which means that more sunlight is intercepted by the well-exposed leaves in each of the sparser canopies. Effective interception of sunlight is critical for photosynthesis and the production of sugars, acids, aromas etc. For hastened grape ripening, the leaves require sunlight exposure and cannot be shaded. You can also do a partial ballerina by only laying down one side (Fig.3). This may allow for better spray penetration and fruit exposure for increased sunlight and airflow. One caveat here is that these trellis systems perform better in wider row spacing (11-12ft) as compared to your typical 9-10 ft. row spacing. These systems may have their merit in older vineyards that were planted to wider rows with a VSP trellising system. Our UGA Extension Viticulture Team recently received a grant to work on a project evaluating pruning methods as well as retro-fitting VSP systems by dividing the canopy horizontally (to either side of the fruiting cordon) into a “sprawl” or “Y” system (Fig. 4). Like the above-mentioned systems, we are evaluating if dividing the canopy in this fashion improves ripening of two white and two red varieties grown in northern GA. We will present our findings this year at the Georgia Wine Producers Conference, and maybe at next year’s ASEV/ES Conference in Pennsylvania!

Full Ballerina (Fig.2)

Partial Ballerina (Fig.3)



Partial Ballerina from Virginia. (A) Back side- shoots are 45 degree downward on the West Facing slope. (B) Front Side- Open fruit zone achieved with heavy leaf removal. Facing East.





Fig. 4. A horizontally-divided Cabernet franc VSP system in northern Georgia.

### Canopy Extension:

Lastly, one vineyard manager at an acclaimed Virginia winery was attempting to gain more canopy exposure on his Petit Verdot VSP trellis by extending the length of his canopy. He was not happy with the amount of sunlight interception he was getting with his 6-foot-tall posts. He achieved a longer canopy, and increased sunlight interception, by lowering his fruiting wire. He felt this helped shorten his ripening timeline. It's hard to tell from the photo below, but the fruiting wire is probably only 24 inches from the ground. This might make harvest a bit more aggravating, but he felt it was worth it with this particular grape.

