Use of fruit bags to manage grape diseases in Virginia vineyards.

Mizuho Nita, Charlotte Oliver, and Alex Wong, Virginia Tech,

Alson H. Smith Agricultural Research and Extension Center

Winchester, VA 22602

The main reason why organic wine grape production is not common in VA or any other states located the east of Rockies is fungal diseases, which are driven by frequent rain events during summer months. Thus, the Nita lab has established two experimental vineyards with financial aid from the USDA/NIFA VDACS Specialty Crop Research Initiative Block Grant in 2012. Although we identified several cultivars that may do well with the organic practice, there are two big challenges: a disease called black rot, which none of the OMRI-certified chemicals works sufficiently, and a potential loss of copper fungicides due to a trend of tighter regulations in other countries. Rather than searching for other chemical components, which is usually in the hands of chemical companies, what we tested was the use of paper bags or umbrella to individually protect grape clusters. These bags and umbrellas are made out of water resistant paper, designed to fit grape cluster, easily applicable with an embedded wire, with small holes for ventilation and water drain, and expected to last for a whole season.

We set up two vineyard trials to: 1) Determine the efficacy of paper bags and umbrellas against development of multiple fungal diseases on wine grape cluster grown with organic practices; 2) Determine the timing of bagging/umbrella application for the optimal disease control; 3) Examine the efficacy of fungicide-pre-coated paper bags; and 4) Examine economic benefits and hurdles of using individual cluster protection method.

Preliminary results showed that the earlier application of fruits bags significantly reduced black rot disease intensity (both incidence and severity), but umbrella was not able provide the same level of protection, probably due to the canopy structure. Also, we noted the reduction of coloring with red colored cultivars. We will repeat the experiment in 2018 to confirm the results.