Impact of the Easter Freeze on Muscadine Grapes in North Carolina
Date: 6/29/07

Connie Fisk, Muscadine Extension Associate, Department of Horticultural Science, NCSU


<<The following is a summary of freeze reports that Dr. Barclay Poling, Bill Cline, Whit Jones and I posted to the NCSU Cooperative Extension Service's Freeze Damage website.>>

During the weeks following the Easter weekend freeze, we have been involved in assessing cold injury in muscadine vineyards across the state, with most of our time spent in the severely hit counties of southeastern North Carolina. 'Carlos' broke bud in mid-March in these southeastern counties, and had reached first- to fourth-leaf developmental stages (with visible clusters), depending on vineyard location, by April 8th. Carlos was the variety that sustained the most damage and is the variety with the greatest number of planted acreage. Though we have been surprised by the fruitfulness of the base and latent buds that are breaking, Carlos yield may only be about 60% of normal this year and will also be low next year as a result of the damaged wood I will discuss below. Magnolia also had considerable damage in some vineyards, but most other varieties, including fresh market varieties, have very little damage because they are so much later than Carlos. Further inland, muscadine vines were not as far along developmentally and sustained only moderate bud/shoot injury by comparison to the southeastern counties in the state.

To summarize the damage we're seeing, on last year's growth (where this year's fruit should arise) the outer layers of tissue, including the phloem, vascular meristem and possibly the new xylem, are splitting and separating from the older xylem tissue. Even if new buds have broken on this damaged wood, we are seeing them collapse as the limited reserves in the tissue are depleted. On young vines in some vineyards we are seeing this same splitting of cordons and even some trunks (notably on vines in grow tubes). In the long run, cold-injured trunks and cordons will never recover, and though it is difficult to think right now about lopping off nearly an entire cordon on an injured 2- or 3-year-old muscadine vine, it is nonetheless an important step to take in fully restoring the muscadine vine's "food and water pipe system," as well as to prevent disease infection from crown gall and *Botryosphaeria*.

Our recommendations in April and May were to prune off the severely damaged wood and train a new shoot or sucker to replace what was lost. At this late date though we are encouraging growers to wait to perform any more hard pruning until the vines go dormant this winter. For those that did make severe cuts, based on feedback from growers with experience replacing damaged cordons and trunks, we feel that it is better to leave several new shoots or suckers during the growing season to compete with each other and control vigor. A grower in Bladen County found that he had much better winter survival when he allowed multiple shoots or suckers to grow after making a large pruning cut into the trunk. In contrast, they just kept "losing vines" where they made a severe cut, and then tried to push just one shoot for the rest of the season.

Other recommendations include applying no more fertilizer so that these already fragile vines don't have trouble hardening off this fall. It is also important to minimize vine stress by making sure to control for weeds, insects and diseases and by supplying adequate irrigation.