

Allowing Multiple Shoots to Develop From Freeze Injured Trunks on 2- and 3-Year Vines  
Date: 6/26/2007

Connie Fisk, Muscadine Extension Associate, Dept. of Horticultural Science, NCSU  
Barclay Poling, Professor, Dept. of Horticultural Science, NCSU  
Whit Jones, Agent, NCCES, Duplin County Center, NCSU  
Bill Cline, Extension Plant Pathologist, Dept. of Plant Pathology, NCSU

We received a question from an agent last week, "What is the main management issue RIGHT NOW for 2-3 year old muscadine vines that had significant sections of their arms (cordons) removed in May/June because of cold injury?"

The answer to this question is that there are really several concerns at this time, and not just any one thing. The first concern is keeping the vine canopy healthy, and that means keeping up with spray programs for disease and insect management (e.g. Japanese beetles), and not allowing the vines to suffer drought stress. Also, by the 1st of July, no more nitrogen fertilizer applications are recommended for the rest of the summer in muscadines.

In more direct response to your question about the "2-3 year old Carlos muscadine vines that had significant sections of their arms (cordons) removed in May/June", we wish to share some information from a vineyard we visited June 19 in Scotland County. In this vineyard, the grower did not cut off most of the cold injured cordons, despite the cracks in the wood and visible "browning" of the wood beneath the bark. However, he did cut back the cordons more severely on some "test vines" back on May 25th, and these vines are now producing very vigorous, dense shoot growth near the head of the vine (Figure 1).



Figure 1. Connie Fisk pruning tips of bull shoots near head of severely pruned muscadine vine.

What follows here is a discussion with this grower, who wants to know, "How do I best manage these vines (with cordons cut back severely) for the rest of this growing season?" Also, it is our view that it is getting "too late" in the season now to be making any further severe cuts such as the ones we recommended for badly injured 2 and 3 year old Carlos vines in May and early June.

Grower Que. 1) Why am I getting so much vigorous growth on the vines where I did cut off most of the cordons?

Ans. 1) We should not be surprised by this vigor. Before the Easter freeze, these were very healthy Carlos vines coming into their third season. These vines had a very large root system, and also a very large capacity for shoot growth. By removing 2/3rds or more of the cordons on these vines in May to get rid of the cracked wood that is very susceptible to disease infection, we also created a new problem --> the shoots on the remaining "cordon stubs" have literally taken off in June! In vinifera and hybrid grapes, growers are so concerned about this problem of getting extremely vigorous shoots in response to heavy cordon pruning, that most of these growers in the western part of the state elected not to make similar kinds of cordon cuts that we have been recommending in 2 and 3 year old freeze injured muscadines. The "good news" is that by making these cuts in May and early June, muscadine growers have removed most of the cracked and split cordon-wood that has a high potential for disease infection (especially *Botryosphaeria*) during the growing season. The bad news is that most of these remaining shoots are simply too vigorous, and have minimal value as replacement arms. Our most critical objective now is to encourage the development of some shoots of "just moderate vigor" that can be used for cordon replacement next year. This means that we still have some work to do this summer!

Que. 2) Well, what are you suggesting?

Ans. 2) The first thing to do? We recommend pinching, or cutting back, the terminal ends of these very vigorous shoots you see near the head of the vine **as soon as possible**. If they are not tipped now, they will continue to make excessive growth. Tipping, or pruning off 6 inches to a foot or so of growth on these very aggressive shoots near the head of the vine will help to "re-distribute" growth into shoots that we want for actual arm replacement. **BUT**, be sure **NOT** to pinch the tips of the shoots that have good potential as replacement arms next year (read on).

Que. 3) Tell me more about getting some "good shoots to select from next winter for arm replacement"?

Ans. 3) The goal is to get 2 or 3 moderately vigorous shoots per arm to grow this summer that are in the right **location**, have **modest vigor** and good **orientation**.

*Location:* You may remember a large photo on the second page of our last Easter freeze update ([www.ces.ncsu.edu/disaster/freeze/Musc\\_Update\\_3.pdf](http://www.ces.ncsu.edu/disaster/freeze/Musc_Update_3.pdf)) that clearly showed the location of potential buds for arm replacement shoots, and you will note that these buds are just an inch or two away from where the cordon was cut off. Shoots from this area are very desirable, however, any shoots growing back in the "V" junction of the cordon (where the 2 arms split off beneath the wire), are definitely not desirable candidates for arm replacement. Furthermore, most of the shoots that have emerged "just past" the "V" section of the cordon are not likely to be desirable because of their extreme vigor! Vigor is discussed next.

*Vigor issues:* Some of those "wild looking" shoots that you see growing near the head of the vine right now are definitely "way too vigorous" to consider as suitable candidates for arm

replacement. They are at risk for winter injury, and their wood will not be desirable for cordon replacement. We are not recommending removal of any these shoots, but one thing you can do **right now** is to tip them, or cut them back at the terminal end.

*Orientation issues:* If you want to avoid any weird looking "elbows" in your cordon, then please be sure to avoid using any shoots for arm replacement that are growing "vertically" in the summer of 2007 (these are the ones closest to the head of the vine). What you really want are shoots that grow more horizontally (Figure 2), and that can be way be "laid down" and fastened more conveniently to the trellis wire than those more upright bull canes, or canes of moderate vigor, but are growing in the "wrong direction" (back towards the head of the vine).



Figure 2. Horizontal shoot, with potential to develop into replacement cordon.



Figure 3. Potential shoots for replacement cordon. These shoots require careful handling.

**Bottom line:** You really need to examine any shoots that have emerged near the location where the cordon was cut off in May or early June as your best candidates for arm replacement (Figure 3). You can identify 2 or 3 shoots as having arm replacement potential, but you don't have to select the "winner" (the best cane) until you prune in late winter (first half of February 2008). The "winner" will be the cane that appears to have the best quality wood, is free of cold injury, and has good orientation. And, don't forget to "tip back" those wild bull canes at the head of the vine at your earliest opportunity!