

Frequently Asked Questions about Wine Grape Management
After the Big Freeze Part I
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Note: Please stay posted for updates through the season. The situation is very fluid, even if we have not had enough rain lately!!!

1. What should my vines look like now (late May)?

If are irrigating your vines, you should have significant shoot growth on vines/cordons that are going to be salvageable for this growing season. Many have more than a foot or two of growth and some varieties are going to have at least a partial crop.

If you have not irrigated, it is very likely that you have very minimal shoot growth. The growth may appear spindly and pale.

2. Since I have a lot of good growth, there is nothing wrong with my vines, right?

Unfortunately, there are still major recovery issues with vines that have good growth at the present time. Every vine west of Raleigh that is more than one or two years old has some degree of wood injury. Therefore, the vines should not undergo stress.

3. What is the best thing I can do for my grapevines?

Water. Soil conditions in most of the state are extremely dry *Injured grapevines should not under go water stress.* The essential area will be your 3 foot weed-free, in-row strip and to a depth of 3 feet (if you have 3 feet of soil). Reducing water stress also includes keeping weed competition to a minimum in the root zone.

4. How much water should I apply?

For both catch-up and maintenance water applications, I am only going to concern myself with drip irrigation and the area of the root system in the immediate area of the emitters. Most of the grape roots will be in the vicinity of the drip emitters, we are just going to consider the 6' (or whatever your in-row vine spacing) x 3' (in-row weed/cover crop free strip) x 3' (rooting depth – if it is less than 3' reduce water proportionately). Most, not all, of the functional roots will be in this area. My other assumptions are that soil

moisture as of May 30, 2007 was about 21% and that the soil is or is similar to a clay loam.

- a. “Catch-up water”: If you have not irrigated, you need about 41 gallons/vine just to catch up. By applying this amount of water/vine, soil moisture should be below field capacity, but still be comfortably above the permanent wilting point. If you have been irrigating, calculate how much water you have applied on a per vine basis and use that figure to bring the total to 41 gallons/vine. This should put soil moisture roughly at 30% (assuming soil similar to a clay loam). I must note that it is very difficult to catch-up using drip-irrigation.
- b. Maintenance water: In this hot weather, soil moisture is continuing to be lost through evaporation and use by the plant (transpiration). During the past week, evapotranspiration (plant water use + evaporative loss) was 1.8 inches. Assuming that soil moisture levels have been raised to about 30%, vines should receive about 20 gallons of water/vine per week.
- c. Application: For clay soils, the infiltration rate for water into the soil drops rapidly. After one hour, water will tend to run-off these soils rather than penetrate the depth of the soil. Water should be pulsed on rather than applied for long sets. Water should be applied for 1-hour, allow a 2 hour “rest” period, and then apply another 1-hour set of water. This pattern will allow the water to penetrate more of the soil depth than if the water is just turned on for 4 hours and then off. Continue the cycle until water application is completed. Do several sets a day. You can break up the 20 gallons/vine and apply the water every other day or every several days. For “catch-up” water, you will need to do more sets just to get to a maintenance level.
- d. Notes: Use a shovel or a soil probe to check the depth of water penetration into the soil. If you get significant effective rainfall (not 2” in 30 minutes) or the temperatures drop, you can cut back on the amount of water applied/week. If you have an NC Climatology Office weather station nearby, check the evapotranspiration rate for the previous week and adjust water applications accordingly. Not all of the stations report evapotranspiration. Evapotranspiration is abbreviated ET and is often shown that way.

5. What spray program should I use?

Dr. Turner Sutton published a memo with spray recommendations and also put out an alert for Botrytis. Keep up your spray programs, now is NOT the time to slack-off.

6. Should I remove suckers?

If you have scion buds pushing and rootstock suckers breaking, remove the rootstock suckers, unless you intend to regraft.

If you have wood injury to the phloem and vascular cambium, those vines can repair themselves, but **ONLY** if they have growing shoots. Re-growth of the phloem and vascular cambium is stimulated by the shoots. The direction of regeneration is from the bud **DOWN** not from the graft union up. The more live shoots and buds, the higher the degree of “re-connection” between them and the root-system. Once shoots are removed, regrowth of the vascular tissues from that point ceases.

If you have wood injury to the phloem, vascular cambium **AND** xylem, those are the vines that should have cordons removed. Do not remove the trunk at this point. Make the cut just below the crotch. This will allow you to begin development of your new cordon/vine structure.

7. Should I worry about weeds?

Weed control is as important, if not more so, with injured vines as with healthy vines. Weeds compete with the vine for nutrients and water. Again, injured vines should not undergo water stress. If you have excessively vigorous growth, weeds may help to reduce vigor by competing.

8. I have some fruit clusters. Can I crop my vines?

As the season develops, we will know more about the potential for at least some fruit yield. Although yields may not be economically feasible for harvest, crop insurance may require that **SOME** level of crop is harvested. However, please keep in mind, that if you have wood injury to the vines, fruit load/vine will have a negative impact if it is excessive. I realize that those primary buds that survived the freeze are likely in bloom or are beyond.

Fruit removal decisions should be made between pea size and bunch closure. Here are some guidelines:

- a. If a shoot is less than 1-foot in length, **REMOVE ALL FRUIT** from that shoot.
- b. If a shoot is more than 1-foot and up to two feet in length, leave **ONE** cluster on that shoot. For the in between lengths, use your best judgment on overall vine vigor. If it is marginal, you may not want to leave any clusters. Or, you may alternate fruit removal with leaving one cluster.
- c. If a shoot is more than 2-foot and up to three feet in length, leave two clusters on that shoot. For the in between lengths, use your best judgment

of overall vine vigor. If it is marginal, you may not want to leave any clusters. Or, you may alternate one and two clusters/shoot.

9. Can I cordon sucker?

Do not remove suckers on the trunk or on the cordon. If you are worried about diseases, leaf removal around the cordon and cluster are an alternative.

Dr. Sutton indicated that leafing would help open the canopy for downy mildew control. Leafing probably wouldn't have much affect on powdery mildew since youngest leaves are affected and black rot and phomopsis are about done for the season.

I'll reemphasize, in order to regenerate any vascular connection to the root system you need growing shoots. If those shoots are removed, regeneration at the former site of that shoot ceases. The more shoots you have, the more vascular reconnections you will have.

10. Shoots on my vine have begun to wilt. They were fine last week and even yesterday. What is wrong?

Injury to the trunk has finally caught up to the growing shoots. Damage to the vascular system disconnected the growing shoots from the root system. It is time for a new trunk or cordon, depending on the status of the other cordon. Again, if you decide to develop new trunks, make your cut high rather than low on the trunk.

11. If my vines begin to collapse, what should I do?

Lop off the cordons just below the crotch of the vine and let every sucker that develops on the trunk grow.

12. Should I apply fertilizer?

You should not apply nitrogen fertilizer to injured vines.

You may apply potassium, phosphorous, and lime. The potassium and phosphorous will help with root health. Have your soil and vines tested for nutrient status.

13. I have very short shoots with chlorotic leaves on my vine. What is wrong?

You have significant wood damage. Water flow, that also carries the nutrients from the roots to the shoots, is blocked. This is more apparent on non-irrigated vines. Recovery will be difficult, even for irrigated vines.

14. Can I top my vines when the shoots are getting too long?

Yes, but wait until a month after bloom. You will not get as many laterals breaking, thereby reducing canopy density concerns for later in the season.

15. Are there any pests that I should be concerned with?

Ambrosia beetles are attracted to injured woody tissues. We have a lot of injured woody tissue in vineyards. You can monitor for presence of the beetles. Construction of a trap is described at

<http://www.ces.ncsu.edu/depts/ent/notes/O&T/trees/note122/note122.html>

16. Can I replant dead vines now?

Replanting with warm to hot weather approaching is risky. Additionally, this late in the season, nurseries are not going to be able to provide you with the best selection of rootstocks, clones, or top grade planting stock. There is no advantage in planting a C-grade vine this year over waiting until next spring to plant an A-grade vine.