

#### **4/21/2019: Crown Gall, Phosphorous Acid and Stylet Oil:**

*A grower close to Asheville (elevation about 2500ft) did send me the following message:*

*We are getting ready to replace 300 petit manseng vines which mostly have crown gall + other diseases and I am wondering if there is any biofumigant I can put in the holes right before planting that won't harm the new vines? Can I plant some mustard seeds in with the vine? Would the competition make it not worth it? Most of the crown gall is at the graft union which you saw and I fear it is the frost. I plan to bury the graft union until the frost risk is over (Mid May) and then come back to bury it again in the fall.*

*I know we are not getting rid of the crown gall bacteria in the soil but what else can be done to prevent infection/ expression of the new vines?*

*So far, we have budbreak in our sangiovese, cabernet franc and petit manseng and they are between 1-2in shoots. We did 2 sprays of sulfurix, one dormant and one at budswell. Now we have done our first spray of mancozeb, kphyte and syntact. I have suggested sulfur but they seem resistant ( they have sprayed sulfur in the past and I think they mixed it with the syntact so it burned and they afraid now) so I will be rotating with vivando, quintec, and inspire super. With the JMS stylet oil, does the 1% solution mean we need an entire gallon of it per tank (100 gallon tank). I read it has to be at 1% concentration for powdery mildew. Just looking for a cheaper option and not wanting to develop resistance with those other ones. If we are only using quintec, vivando and inspire maybe we will develop resistance?*

*I have heard of disease resistance developing with the over use phosphorous acid. They have been spraying it in EVERY spray for years. I am worried and want to limit its use. Maybe we just use it two consecutive sprays once a month? That will cut it in half. Downy is one of our biggest problems so I assume the vines are being infected early on, but we are not at the point yet so we don't need to be spraying it right? Also is it more for powdery mildew or does it work on downy mildew colonies the same?*

*Also, I was thinking of removing some of the lose bark around the trunks-just what comes off easily by hand. Is this a good practice to limit what insects can burrow there or should I just leave it alone?*

Here my answer:

#### **Crown Gall:**

So, there is nothing I know of which could be put directly into the planting hole to control agrobacterium. It's a possibility to grow a cover crop for one year (Brassica) and plant next year. But even that might not help with agrobacterium. The most important part is to plant healthy plant material and don't stress those plants out over the first two-three years. Give them enough water, a little bit starting fertilizer and especially avoid spots with high cold damage potential. Always train two trunks and if the plant material is clean and the plants healthy, crown gall shouldn't be a big problem as long as you don't get cold damage.

Do you already have the planting material? Did you check the grafting unions and the root systems? Do they look healthy? You can also sacrifice some of the plants and cut them in the middle to look for discoloration or anything like that...

On cover crop suggestions, please see the Cornell Organic Grape Production Guide: <http://ulster.cce.cornell.edu/resources/organic-grape-production-guide>

I also have put together some resources on Crown Gall: <https://smallfruits.cals.ncsu.edu/crop-production-guides-and-ipm-information/vinifera-and-hybrids/> (just scroll down until you find 'Crown Gall')

The three most important factors are:

**Healthy planting material**  
**good growing conditions**  
**No cold injury**

#### Stylet Oil:

I would not replace a sulfur or sulfurix spray with Stylet Oil. In our climate, I see Stylet Oil more as a good tool to maybe limit pesticide use, but the LSS spray during dormant season is important. Stylet Oil is usually used at a rate between 1 - 1.5 fl. oz/gal of water. Which means in 100 gal of water, you would use 0.78 - 1.17 gal of Stylet Oil. So a 1% solution would be about .8 gallons, I would recommend to use 1 gal / 100 gal tank. Stylet oil controls powdery mildew in California, if applied on 14-day schedule.

Quintec (FRAC 13), vivando (FRAC 50) and inspire (FRAC 9 + 3) are all different FRAC Codes, so the possibility to build up resistance is minimal.

#### Phosphorous Acid:

I would say due to the mode of action of phosphorous acid, the risks are lower to build resistance, but there is certainly a chance (see this article: <https://extension.psu.edu/understanding-the-phosphonate-products>). So reducing its' use and not putting it into every single spray is probably a good idea.

#### Removing Bark:

The bark is not a problem. I would leave it on the vine, unless you have a specific problem in the vineyard...