

Crush Alert: Raising Awareness of Mealybug in Oregon

In the past several months, the Oregon wine grape industry had discussions about maintaining clean plant materials and enhancing our state quarantine rules to keep Oregon's industry free of the pests and disease that plague our neighbors to the North and South. Both California and Washington vineyards have significant grapevine leaf roll virus incidence, and it is spreading at an alarming rate due to the movement of scale insects. Mealybugs (MBs) are currently seen as the main culprit and various species are documented to transmit the virus to other vines and vineyards in the area. The rapid spread of these vectors throughout both states is believed to be aided by the transfer of MB with fruit from highly infested areas. This spread can be minimized by awareness and appropriate action when disposing of shipped grape pomace.

The facts...

Mealybugs are associated with Grapevine Leafroll Virus (GLRaV). There are two parts of the equation:

Grapevine Leafroll Virus infested plants + Mealybug = Rampant Virus Spread

Vines infested by GLRaV have been found in many parts of Oregon. It is known to be spread (vectored) by phloem-feeding (sap sucking) insects that act as an agent that spread the virus to neighboring vines that have no infection with the virus. We know that MBs can transfer GLRaV to other vines after feeding on virus-infected vines. There is cause for concern because we know that many vineyards in Oregon have vines with virus infection. The only missing link to the above equation is widespread MB incidence. Some parts of the state have been found to have MB, including southern Oregon where there have been documented observations of Grape MB in pear orchards and isolated spots in vineyards. The other location of great concern is the Walla Walla region of eastern Oregon. This area is in close proximity to the Washington wine industry where there is great concern over virus spread aided by MBs.

What to look for...

Check all grapes on the crush pad for MB infestation. The most important checks should be made on fruit coming in from "high risk" areas that are known to have MB such as any region in California, Washington, eastern Oregon and southern Oregon. When looking at fruit, look for signs of MB infestations:

1. Honeydew and sooty mold growing on honeydew due which is MB excrement. (Figure 1)
2. Significant presence of ants.
3. Presence of any of the MBs at various stages of development. Usually vine mealybug infestations are accompanied by large quantities of white wax on the surface of their bodies. (Figure 2 a, b).

Precautions:

Pomace that may contain MBs need to be disposed of to minimize vineyard infestations. There are several methods that will kill the majority of possible mealybug infestations including covering of pomace with plastic sheeting and not using it as compost in vineyards (see link below).

Conclusions:

Prevention is better than cure! Take action this crush season to avoid spread! Growers in Oregon should be aware of possible influx of plant materials either with harvest or nursery plant materials to avoid severe infestation of the invasive MB and the potential for rapid leafroll virus spread.



Figure 1. Clusters infested with MBs often have sooty mold growing on them (left). In severe cases the white bodies of MBs can be seen (right). Photos: Rhonda Smith & Kent Daane.



Figure 2 a. Grape, obscure and long-tailed MBs (left to right). Adult females of grape MB excrete red liquid when disturbed, compared to obscure that excrete clear liquid. Long-tailed MB has much longer tail filaments than the other two.



Figure 2 b. Vine MB have filaments of approximately similar length and excrete much more honeydew than the above species. Photos: Kent Daane.



Figure 3. Pomace from MB infested areas needs to be covered in plastic sheets to increase temperatures during composting to kill any surviving MBs. It is not advised to compost with this pomace.

Further Reading

Managing vine mealybug in winery waste: <http://cesonoma.ucdavis.edu/viticulture717/Mealybugs.htm>

Formidable Pest Spreading through California Vineyards Practical Winery and Vineyard 2004

<http://www.practicalwinery.com/mayjune04/mayjun04p60.htm>

Grape Vine Mealy Bug, UC-IPM Network <http://www.ipm.ucdavis.edu/PMG/r302301911.html>

Grape Mealy Bug, Washington State University <http://jenny.tfrec.wsu.edu/opm/displaySpecies.php?pn=130>

Mealy Bug Mating Disruption Promising, Western Farm Press July 2008.

<http://westernfarmpress.com/grapes/mealybug-mating-0711/>

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