

# Mites and Microscopes: Inmates helping with IPM

By David James, WSU-IAREC

At the turn of the 21st century, when most people were concerned about 'Y2K bugs', Washington grape growers were spending a great deal of time and money combating a different pest: spider mites.

At that time, pest management for other insects besides mites often included the use of broad-spectrum (BS) insecticides. While effective at killing the target insect, these products also had adverse effects on insect predators in the vineyard. The loss of vineyard insect predators, which preyed on spider mites keeping population explosions under control, resulted in regular spider mite outbreaks.

When the BS insecticides were replaced by more selective materials in the early 2000s, insect predators reestablished, and spider mite outbreaks curtailed. But natural systems are a constantly changing environment. In this new insecticide-minimized setting, a different mite population developed: rust mites. After causing panic for a season or two, natural predators and sulfur restored calm. Since then, it has been fairly quiet on the mite front except for some 'odd' occurrences of 'strange' mites we didn't know lived on Washington grapevines. It was about that same time that Washington State University did a detailed survey on grapevine mites (2001-2002).

Of course, a lot can happen in 10+ years, especially in the rapidly expanding Washington grape industry. It was obvious that another mite survey was long overdue. However, the trouble with mites is that they are very tiny. To conduct a mite survey, you need to collect a lot of leaves and spend many hours peering down a microscope recording, and counting, what you see. So to be effective at conducting



*Inmates at the Washington State Penitentiary, in Walla Walla, WA are providing the much-needed help in the WA grape pest survey. Photo by Lorraine Seymour.*

this survey, and to do so in a timely, cost-effective manner, scientists at WSU-IAREC got creative, and were able to recruit a set of trainable, dedicated, enthusiastic workforce to the world of grapes, leaves and the insects and mites that call them home.

This workforce is highly motivated with unlimited time for work and takes great pride in doing a good job. They also work for "free." Who is this workforce? They are a select, small group of inmates or 'offenders' resident at the Washington State Penitentiary (WSP) in Walla Walla, WA. These inmates were trained this summer to recognize, identify, and enumerate all arthropods on grape leaves, including mites.

Peering in on the microscopic world likely gives our offenders a new perspective on their lives, just as their

experience last year did with rearing butterflies. Doing meaningful tasks like these, gives the offenders a much needed sense of achievement and purpose, which in turn helps with prison harmony and sustainability. It is win-win, win for researchers, inmates and the grape industry!

To date, our surveying has shown generally small populations of spider and rust mites, and a healthy number and diversity of predators. This data has largely originated from the new 'lab' at WSP. It is still early in the survey, and the new workforce is still learning, but the signs are good that we are creating some valuable entomological expertise at WSP that will benefit WSU and the Washington grape industry. Detailed results will appear in a future issue of the Viticulture and Enology Extension News.

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