ADS Virus Update — 2024 Season

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The ADS Virus Team has been working with Professor Hanu Pappu at Washington State University on a project to re-duce the pres-ence of virus in dahlias for almost 10 years. The results of those efforts are thoroughly documented in the "Virus" section of the ADS website, dahlia.org. WSU has been working on virus in dahlias since the '90's. The creation of the Chuey Endowed Chair in 2017 significantly enhanced the dahlia research efforts at WSU.

The results of testing in 2023 provided a turning point in our efforts. They showed that while we had succeeded in identifying techniques to improve control over the key RNA viruses (TSV, TSWV, and INSV), a DNA virus (DMV and/or DCMV) was widespread in almost all our gardens. As a result of that observation, the broad, open testing of member and vendor gardens was suspended in 2024 to allow us to reduce the testing load and let us focus on DMV and specific test gardens.

Perhaps the most important results found in that 2023 season were from a number of vendors who had succeeded in controlling not only the RNA viruses listed above, but their gardens were also free of DMV. Those successful suppliers provided us with in-sights into their success. We were pleased to find that key elements of their strategies were consistent with the practices that we've promoted for a clean garden: If in doubt, throw it out; Clean between; and Start with clean stock. However, most im-portantly, they also tested their cuttings routinely and extensively and tracked the parentage of the cuttings rigorously. Stock that showed virus was discarded; clean stock was propagated extensively. The result was the creation of a lot of clean stock! There was another factor that was a key to the success of one of the sup-pliers; that was to focus on growing and propagating seedlings while following the clean stock strategies.

With the help of several of the clean stock vendors, a small garden with all clean stock was planted in 2024. (Picture at right.) No spe-cial treatment was used to control insects but the patch was well separated (~150') from any other dahlias. All the plants were tested for DMV by Professor Pappu's team at WSU as soon as they were large enough to be tested. All were free of that virus. (DMV and TSV were detected in both the other dahlia gardens on the proper-ty.) All the plants in the isolated garden were tested for DMV and TSV again at the end of the season and all were still clean. That is, the isolation of the bed was sufficient to prevent them from being infected during the season.

Another key experiment by the Virus Team in 2024 was to test new seedlings grown in a typical dahlia garden setting. Thirty-four

2024 seedlings were grown in a setting of dahlias with mixed, and, from a virus point of view, largely unknown history. Note, how-ever, that none of the plants would have come from obviously virused parents. Each of the 34 seedlings was tested for DMV and TSV at the end of the season and all 34 were free of those viruses. That result is entirely consistent with our previous experience that seedlings tend to be clean. Nearly 70% of the other plants in that garden were positive for DMV!

The other important development last year was the increasing availability of clean stock from a number of vendors, including some who had not participated in the ADS project in 2023. While we did not test plants from most of them, it is reasonable to expect their plants to be clean as they are using procedures that should produce clean stock. WSU has demonstrated that meri-stem and tissue culture procedures can yield clean stock.

The authors wish to thank the vendors that participated in the 2023 testing project. Their inputs and guidance were the key ele-ments in helping us to get back on track for reducing and controlling DMV in our gardens. We will likely not begin the open testing program in 2025 like we had in 2023 and earlier but will, rather, continue to focus on testing and expanding the DMV clean stock in our test gardens again. One objective, with the support of the Scheetz-Chuey Foundation and WSU, will be to determine if the basic techniques for controlling the RNA viruses are also effective for DMV in a large garden as long as you can start with clean stock.

Photo by Ron Miner