

Virus Results 2018

Three major initiatives were undertaken in studying virus in our dahlia gardens in the 2018 growing season. First, dahlia vendors were invited to participate in a confidential analysis of their stock at no cost to them. They submitted leaves from plants that looked very healthy and from plants that concerned them. Second, members from the Virus Team submitted samples targeting the answers to several different questions. Finally, several clubs and individuals submitted samples to serve as a basis for 'clean' tubers for tuber and plant sales this spring.

All the testing was made possible by the support and cooperation of Professor Pappu at Washington State University (WSU) and the financial support of the Scheetz-Chuey Foundation.

Vendor Analyses

About 40% of the samples submitted by our dahlia suppliers tested positive for virus; TSV (Tobacco Streak Virus) and TSWV (tomato spotted wilt virus) were the most common of the viruses detected. Over half of the samples that exhibited questionable or concerning foliage were positive for virus. Less than one-third of those with excellent foliage tested positive.

Foliage	Virus
Questionable	51%
Excellent	32%

The percentage of infected plants varied widely among the vendors. The best results were achieved by suppliers who work aggressively to control insects (thrips!) in their gardens and/or those who aggressively follow the "if in doubt, throw it out" approach espoused by Professor Pappu and your ADS Virus Team.

The key objective of the vendor work last summer was to encourage our dahlia suppliers to follow the best roguing and disinfecting practices developed in our virus studies. The consequence of those changes will be to improve the quality of the stock available to our ADS members.

Team Analyses

Perhaps the most important of the analyses performed by the team was the determination of the performance of the "Gx" plants in our gardens. The term Gx refers to the plants that were tested and found to be free of virus over the last "x" years. More than 83% of our Gx samples were found to be free of virus in 2018. That result strongly reinforces the effectiveness of using clean parent stock to minimize virus in our gardens! Nineteen of our 2018 plants were G3; i.e., were plants that had been found to be free of virus over each of the previous 3 years. It is very interesting that none of those G3 plants had virus.

History	Virus
Clean, Gx	17%
Untested	35%

Those excellent results are also certainly dependent on careful adherence to the tool disinfecting practices previously described in the December 2018 Bulletin. By contrast, 35% of the plants not tested in 2017 tested positive for virus in 2018.

The trend for plants with poor foliage to show a higher incidence of virus continued in 2018. Twenty-six percent of all the plants with excellent foliage tested positive for virus while 48 percent of plants with poor foliage had virus. The conclusion from that result is, “when in doubt, throw it out!” Here again, however, the results varied from one virus to another. The incidence of TSWV was much higher in plants with poor foliage. However, the trend was less clear for TSV and INSV.

Rather surprising results were found on previously virused plants. A relatively small number of plants with virus in 2017 were grown again in 2018. As expected, virtually all of the 2017 plants with TSV had TSV in 2018. However, a large portion of the plants with INSV in 2017 exhibited no virus in 2018. We do not currently have a simple explanation for that result. It is becoming clear that the different viruses can behave differently.

The 2018 data did not show the same relationship between Form and virus that the 2017 data showed. In 2017, the Ball forms showed the least tendency to develop virus and the Open-Centered forms showed the greatest tendency to have virus. This summer’s results are consistent with latter conclusion but not the former. The 2018 ball results are largely the same as the other fully double forms.

The plan for 2019 is being developed. Professor Pappu has agreed to continue the testing and Jim Chuey has agreed to continue to provide funding from the Scheetz-Chuey Foundation so we will be able to extend the work into next summer. Our current thinking is that the propagation of clean stock and the testing of vendor products should be high priorities in 2019.

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