

## Progress Report

Sufficient progress has been made in our research project at WSU that it is time for us to put some of the results to work in our gardens. There are two key conclusions from the work that allow us to become actively involved in controlling virus. The first is that not all plants have virus. We can therefore strive to have virusfree gardens. The second is that plants that exhibit certain leaf appearances have virus. That is, those leaf appearances are not caused by nutritional deficiencies. In the past, we have sometimes blamed nutritional issues for causing those appearances. Now we are in a position to be able to take positive actions to remove plants with virus from our gardens!

Dr. Pappu's research has determined that the plants shown in the pictures inside this brochure have virus. If you have plants with leaves that look like these, your best course of action is to remove them from the garden. If you let them continue to grow, insects can readily move the virus to nearby plants. The tubers from those plants will all produce new plants with virus. If you were to trade or sell those tubers, you will transfer the virus problem to someone else's garden. Aggressive treatments with fertilizers could mask

the appearance, but cannot eliminate the virus.

The great good news is that we now have a strategy that we can actively pursue to reduce the incidence of virus! A lot of self-discipline may be required to throw out a plant from an expensive or scarce or favorite cultivar; but the benefits to all of us for following that approach are tremendous. **If in doubt, throw it out!**

Additional details on the WSU research results can be found in the ADS Bulletins as well as on the WSU and ADS websites. Additional pictures of virus can be found on both the ADS and the WSU websites.

Professor Hanu Pappu is responsible for the research work this brochure presents. The American Dahlia Society supports the research project.

*Prepared by Jim Chuey and Ron Miner, in honor of Prof. Carl Chuey and on behalf of the ADS and the Sheetz-Chuey Foundation.*



## American Dahlia Society

### How Virus Effects Dahlia Foliage

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# Virus Pictures

This pictorial guide includes some of the wide range of symptoms that result from virus infections in dahlias. Most virus-induced symptoms are more easily observed on leaves and the symptoms are due to the breakdown of chlorophyll and interference with the internal transport of the plant metabolites. The most common effect is somewhat unique to virus infections and is called 'mosaic'. The symptoms include a mixture of dark green and light green islands on leaves. Under bright Sun, mosaic may not be readily visible, but it becomes apparent under **shade**.

Other symptoms that are usually associated with virus infections in dahlia include ringspots (circular spots with dead cells that appear black in color), chlorolosis (breakdown of chlorophyll leading to yellowing of leaves), and irregularly distributed patches of light green islands.



Vein clearing (areas along the veins become lighter green compared to rest of the leaf) is another symptom associated with virus infection.

**Professor H. R. Pappu**

