

## HVX Update 3/8/08

To date we have collected and propagated a large crop of susceptible host plants: *Hosta* 'Honeybells'. In addition, we have acquired and are raising other susceptible varieties. These plants are currently very small. These stock plants will be used in experimentation to determine how HVX is transmitted.

We have collected eight isolates of HVX from different varieties of *Hosta*. These plants will be used a source of HVX. We will attempt to transmit these isolates to susceptible varieties of *Hosta*.

The first phase of the experimentation has been completed as we have successfully transmitted the virus from infected plants to uninfected plants by mechanical means. The next phase of experimentation will include different modes of mechanical transmission including contact with tools, fingers, plant debris in soil and root contact.

As we have attempted to transmit the virus, we have begun to consider not only how but also when it is transmitted. While completing the experimentation to answer the initial question, observations have been that the concentration of virus in *Hosta* may fluctuate over time. In addition, susceptibility varies with the time of season, which may affect the ease of infection. These questions, while not in the original plan of action, are a natural outcome of the experimental process and appear to be important practical considerations.

We will continue to observe inoculated plants, noting not only how long it takes for viral symptoms to show but also what period of growth they are in and the conditions that favor transmission. Plants with what appear to be strong symptoms but test negative for HVX continue to be observed and will be retested at intervals.

Testing of subject plants is being done a number of ways. In addition to PCR (Polymerase Chain Reaction), ELISA (Enzyme-Linked ImmunoSorbent Assay) and other molecular techniques, we look very specifically for HVX with the electron microscope using a technique called ISEM (ImmunoSorbent Electron Microscopy). (See photo of Ben at the Electron Microscope\*\*) This process involves trapping the virus particles on a special grid coated with antiserum specific to HVX. These trapped particles are then exposed to homologous antiserum, which results in the virus becoming "decorated" or visibly covered with antibody molecules. This grid is then examined under very high power (+/- 10,000-35,000x) with the electron microscope. ISEM is highly reliable, as sensitive as ELISA and relatively fast. We are able to use this technique because of our access to the electron microscope.

The project continues to be exciting and many questions are being answered while new ones are developing. We are pleased with the progress made to date and looking forward to continuing to work on this project for AHS.

*Grace Anderson*

\*\* photo is on main HVX page