American Hosta Society

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Fellow hosta lovers,

Hostas continue to enjoy an all time high in popularity, and more and more garden enthusiasts are becoming increasingly aware of all the positives this plant has to offer. Unfortunately, one issue that continues to impact all of us in some fashion is Hosta Virus X (HVX).

The American Hosta Society, in keeping with our mission statement to further the education and understanding of the genus *Hosta*, has recently completed an initial phase of HVX study and research. This research was funded entirely by you as interested individuals, local and regional hosta societies, and hosta growers. On behalf of The American Hosta Society I wish to thank you for your generous support.

The purpose of the study was to clarify methods of HVX transmission and to understand the dynamics of HVX spread so that we might reduce exposure to and perpetuation of the virus. Like most research, the findings can often surprise us as we increase our knowledge base. A summary report of this research project and findings is attached. Of particular interest is the finding that the HVX virus can persist in soil in an infective form long after an infected hosta has been removed. We have also confirmed that HVX can be spread by cutting tools but have not yet defined a protocol for tool decontamination.

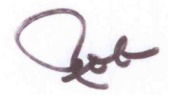
It is not uncommon in the world of research to take two steps forward and one back as we learn. Our recent research findings beg answers to new questions. As a result, it is our intent to embark on a second phase of HVX research. We plan to continue to work with Dr. Benham Lockhart and Grace Anderson at the University of Minnesota. This will maintain continuity as we build on their considerable existing knowledge base. Dr. Lockhart remains committed to the project and, knowing we are a non-profit entity, has demonstrated considerate use of our funds. A research proposal has recently been requested by the AHS and received from Dr. Lockhart for this next phase of research. A copy of his proposal is also attached.

The proposed budget for this next phase of research is USD $41,500 ($39,000 for the actual research plus $1500 for printing and mailing of the final report). Our hope is that we can fund the entire proposed scope of research. Our intent is to confirm our available funding level this year with the research to begin in the spring of 2011. We expect completion of this project within two calendar years.

I am requesting all individual AHS members, local and regional hosta societies, and hosta growers to consider a generous contribution to this project. As this is a two-year project, you may opt to make a one-time donation, or you may make a partial donation at this time and pledge additional funds for next year.

We can improve the health and vitality of our hosta gardens through education and knowledge. We can assist the general public by sharing that information. Please help support our mission by making a contribution today. **Please make your check payable to: "The American Hosta Society" and designate it for "HVX Research Project".** Contributions can be mailed to me at my home address listed above. **Your response by November 1st will enable us to confirm our available funding.**

Hosta'ly yours,



American Hosta Society
HVX Research Project – Phase 2
Pledge Form

Name	
Organization (if applicable)	
Street Address	
City, State, Zip	
Phone Number	
Total Amount Pledged	
Check Enclosed for	
Comments	

Please make your check payable to: “The American Hosta Society” and designate it for “HVX Research Project”.

Please return your pledge form and check to:
Rob Mortko
AHS VP – Genus Hosta
16370 W. 138th Terr
Olathe, KS 66062

Thank you for your commitment to The American Hosta Society.

Further Research on Hosta Virus X: Answering Some New Questions

Benham E. Lockhart, Professor, Plant Pathology

I. Objectives of Proposed Research

The AHS-funded HVX research project carried out during 2007-2009 was designed to answer a number of questions that are of frequent concern to hosta growers; in particular the means by which the virus can be spread to and infect healthy hostas. Among the results that were obtained, two were of particular interest and judged to warrant further investigation. These were the following:

1) HVX can be transmitted from infected to healthy hostas on cutting tools.
2) HVX can be transmitted to healthy hostas from infected residual root tissue present in the soil.

Based on these results, an additional research project is proposed to address the following issues:

1) What are the most effective and practical means of decontaminating cutting tools in order to avoid spread of HVX?
2) For how long does HVX-infected residual root tissue remain infectious to roots of healthy replacement hosta?
3) How much virus-infected residual root tissue is needed to cause root infection?
4) Are any perennials planted to replace HVX-infected hostas susceptible to root infection by residual hosta roots present in soil?
5) Can root-to-root spread of HVX occur during post-harvest washing of roots for removal of soil?

II. Experimental Methods

To achieve the research objectives listed above the following experimental approaches will be adopted.

1) Cutting tool decontamination tests using readily available, non-hazardous liquids (e.g. detergents, milk protein, oxidizing agents) to determine which are most effective in eliminating HVX surface contamination.
2) Plant healthy hosta test plants in soil containing HVX-infected root remnants at increasing intervals after removal of the original virus-infected plants. Test plants will be grown for two seasons and assayed for HVX infection by disease symptom development and serological and PCR testing.
3) HVX-infected root pieces will be mixed in varying amounts into garden soil in which healthy hosta test plants will be planted. These test plants will be observed and assayed as described above for evidence of root-to-root HVX transmission.
4) A range of shade-adapted perennials, possible replacement plants for HVX-infected hostas, will be inoculated experimentally with five different isolates of HVX. These plants will be observed and tested for evidence of HVX infection as described above.
5) To determine whether root-to-root spread of HVX can occur during post-harvest washing, healthy and HVX-infected hostas will be bound together and subjected to water-washing under conditions comparable to those employed in commercial nursery operations. Healthy hosta test plants will be observed and tested for evidence of HVX infection as described above.

III. Duration of Proposed Research Project

This second HVX research project is designed to be carried out over a period of two years. Previous experience has shown that experiments involving hostas need to be conducted under natural field or garden conditions and not in the greenhouse, where the plants do not undergo their normal physiological and developmental cycles, both of which have profound effects on virus infection and disease development. Past experience has also shown that in some cases HVX infection develops slowly, and can be detected in the second year although not in the first. For these reasons it is highly desirable to carry out these trials over two full growing seasons. Experimental inoculation experiments to determine whether any other candidate shade perennials are susceptible to HVX infection, will, on the other hand, be done in the greenhouse. All the experiments described above will be done at the St. Paul campus of the University of Minnesota.

IV. Proposed Budget

Budget Item	Year 1	Year 2	Total
1. Part-time student research assistant (20 hrs/wk)	**12,000**	**12,000**	**24,000**
2. Greenhouse and field plot rental charges	**2,400**	**2,400**	**4,800**
3. Chemicals, biological reagents and expendable lab supplies, test plant purchase	**3,600**	**3,600**	**7,200**
4. Service charges for electron microscopy, DNA sequencing	**1,500**	**1,500**	**3,000**
	19,500	**19,500**	**39,000**