



# GOOD MORNING/AFTERNOON/EVENING

THIS PRESENTATION IS A INTERNATIONAL EVENT

**THE DAHLIA VIRUS PRESENTATION WILL  
START AT 10:00 AM PDT**

*KITSAP COUNTY DAHLIA SOCIETY*

*KITSAPCOUNTYDAHLIASOCIETY@GMAIL.COM*

*POULSBO, WASHINGTON, USA*

*APPRECIATES YOUR PARTICIPATION*

This presentation  
is being recorded  
and will be  
available upon  
request.

- **Participants:**
- Please mute you microphone when we start.
- Questions will be taken via the Chat Box after completion of the two presentations.

1. Dahlia Viruses and the Home Gardener

by Deborah Pavich – MSN,FNP-BC and ADS Board of Directors

2. Frequently Ask Questions

by Dr. Hanu R. Pappu, Ph.D. – WSU Professor

We are also joined and will be assisted by Dr. Ron Miner – American Dahlia Society



# DAHLIA VIRUSES AND THE HOME GARDENER

- Saturday, June 25<sup>th</sup>
- Deborah Pavich

# Goals of Presentation

- How to recognize the symptoms of dahlia viruses in your garden
- How to decrease the spread of dahlia virus in the home garden
- Provide resources for the home gardener to learn more about dahlia viruses

**Give you an opportunity to ask the experts**

- Dr. Hanu Pappu – WSU and Dr. Ron Miner - ADS

# Common Dahlia Viruses

- Dahlia Mosaic Virus- DMV
- Dahlia Common Mosaic Virus-DCMV
- Cucumber Mosaic Virus-CMV
- Tomato Spotted Wilt Virus-TSWV
- Impatiens Necrotic Spot Virus- INSV
- Tobacco Streak Virus- TSV



# NO CURE

- Once infected with virus, there is no cure.
- Virus symptoms range from none to severe disease.
- Different viruses have different symptoms and vary by cultivar.
- Virus symptoms vary by season.



# SYMPTOMS

- Chlorosis- Reduction or loss of normal green color of leaves usually along the leaf veins.
- Mosaic pattern- light green or yellow pattern gives a mottled appearance.
- Ringspot- light green or yellow concentric rings.
- Stunted growth of new foliage/plant.
- Leaf malformation.



**FOLLOWING  
ARE IMAGES  
OF THE  
COMMON  
DAHLIA  
VIRUS**





# Cucumber Mosaic Virus

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Dr. Keith Hammet





# Impatiens Necrotic Spot Virus

R. Wick – U Mass



# Tomato Spotted Wilt Virus

Dr. Keith Hammet



# DAHLIA COMMON MOSAIC VIRUS

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# DAHLIA MOSAIC VIRUS

UTAH STATE





# TOBACCO STREAK VIRUS

IPM

# WHAT CAN I DO ?

## THINK CLEAN - START CLEAN STAY CLEAN & BE CLEAN

### Sources of Infection:

- Infected - tubers, cuttings, and plants

### Spread by:

- Insects - thrips, aphids, leaf hoppers and other bugs
- Human Intervention - tools that cut - snips, pruners, scissors, loppers, shovels



# BEST PRACTICES

If it looks sick, it “probably” is sick.

- Dig it up and throw it out.

(not in compost)

**When in doubt throw it out !**

- Don't trade, sell, or save potentially infected tubers.
- The biggest impact a gardener can have is to clean tools between plants.

**Sanitize your tools:**

1 cup of bleach in 1 gallon of water.

One dip in the bleach solution and one cutting of the plant then trade snips.



# TESTING PLANTS FOR A VIRUS

(IS AVAILABLE)

- **WSU** - Through Dahlia Societies and Vendors
- **AGDIA - (Agdia.com)**  
Has developed a rapid at home test for DMV and DCMV.  
Have a dahlia panel that tests for 22 viruses





# WHAT IS THE AMERICAN DAHLIA SOCIETY “CLEAN STOCK INITIATIVE”?

The **Clean Stock Initiative** is an ADS program that offers reduced testing costs for virus to ADS Clubs/Societies and commercial growers.

Subsidized by the Scheetz-Chuey Foundation. The testing is done at Washington State University under the direction of Dr. Hanu Pappu.

The goal is to increase knowledge of dahlia viruses and to reduce the amount of virus stock in circulation.

Testing is voluntary and results are confidential.



# CLEAN GARDEN

- CMV and DMV are spread by aphids.
- INSV, TSV, and TSWV are spread by thrips.

Get rid of environments that are friendly to thrips and aphids.



# SUGGESTED PEST MANAGEMENT ALTERNATIVES

Blue and yellow sticky cards above the plant canopy attracts thrips.

Insect Spray – Spinosad (aphids & thrips). OMRI Certified.

Predatory mites that feed on thrips. ex. amblyseius cucumeris.

Spray with commercially available Neem Oil or Insecticidal Soap. (Aphids)

Release Lady Bugs for aphid control.

Pirate bug, Orius. A predator for thrips.

Plant an ornamental pepper “Purple Flash” with dahlias.  
(Provides a habitat for the insect predator pirate bug)

Beneficial nematodes are naturally occurring microscopic organisms in the soil that inject bacteria that kills the host pest.



Always read labels and  
follow instructions



## A FEW TAKE AWAYS



A combination of clean stock and careful disinfecting of garden tools greatly decreases the presence of virus infected dahlias in your garden.

Clean gardens are created over several growing seasons but it is never too late to start now.

If you are a member of a Dahlia Society that has display gardens, ask their Board of Directors about testing plants for dahlia viruses.

# RESOURCES

**Dahlia Mosaic Virus: A Pictorial Guide to Symptoms and Diagnosis ...**

Dr. Pappu, Associate Professor, Department of Plant Pathology,. Washington State University, Pullman, WA.

<https://s3.wp.wsu.edu/uploads/sites/2193/2017/08/Binder11.pdf>

**American Dahlia Society** – [www.dahlia.org](http://www.dahlia.org) Menu heading is Research  
Links to brochures to print for your Club, links to articles regarding dahlia virus

[Virus Diseases of Dahlia Research Project at WSU – The American Dahlia Society](#)

**Washington State University**- [wsu.edu](http://wsu.edu). I type in dahlia in the search bar

[Virus Diseases of Dahlia | Washington State University \(wsu.edu\)](#)

Linda Taylor's Flickr files (Oregon State) - numerous photos of dahlia virus symptoms.

[www.flickr.com/photos/141837887](http://www.flickr.com/photos/141837887)

**Abrico.com**- Information /products for pest management, Testing of agricultural products

# RESOURCE FOR NUTRIENT DISORDERS

- [Preview YouTube video Dahlia Nutrient Disorders](#)
- [Dahlia Nutrient Disorders](#)



1<sup>st</sup> International e-GRO Webinar Conference

**e-GRO** Electronic Grower Resources Online

Sponsored by: **fine**

12:00 to 12:20

**Dahlia Nutrient Disorders**

Brian Whipker

NC STATE UNIVERSITY

A portrait of Brian Whipker, a man with glasses and a blue jacket, is shown on the right side of the poster.

# FREQUENTLY ASKED QUESTIONS

- **Dr. Pappu, Ph.D.**

**Carl F., James J. Chuey - Endowed Chair – Plant Pathology**

- Professor, Department of Plant Pathology,. Washington State University, Pullman, WA.

## Dahlia Viruses: A Few FAQs

Hanu R. Pappu

Carl F. & James J. Chuey Endowed Chair

Samuel H. Smith Distinguished Professor

WSU, Pullman

[hrp@wsu.edu](mailto:hrp@wsu.edu)



I removed diseased plants in my garden. Is it okay to plant in the same soil/area?

Is it okay to compost virus-infected/diseased plants?

Some plants look 'odd/strange/sick': what should I do?

I am tempted to save tubers from plants that had symptoms suggestive of virus infection...

How do these viruses spread?

Do they spread through the seed?

**Is it possible to produce virus resistant dahlias?**

**Is it possible to produce virus-free dahlias?**

QUESTIONS FROM THE ATTENDEES WILL BE TAKEN FROM THE CHAT BOX

? Questions ?





**THANK YOU FOR ATTENDING.  
WE HOPE YOU HAVE LEARN TO APPRECIATE THE  
ISSUES WITH DAHLIA VIRUSES.**