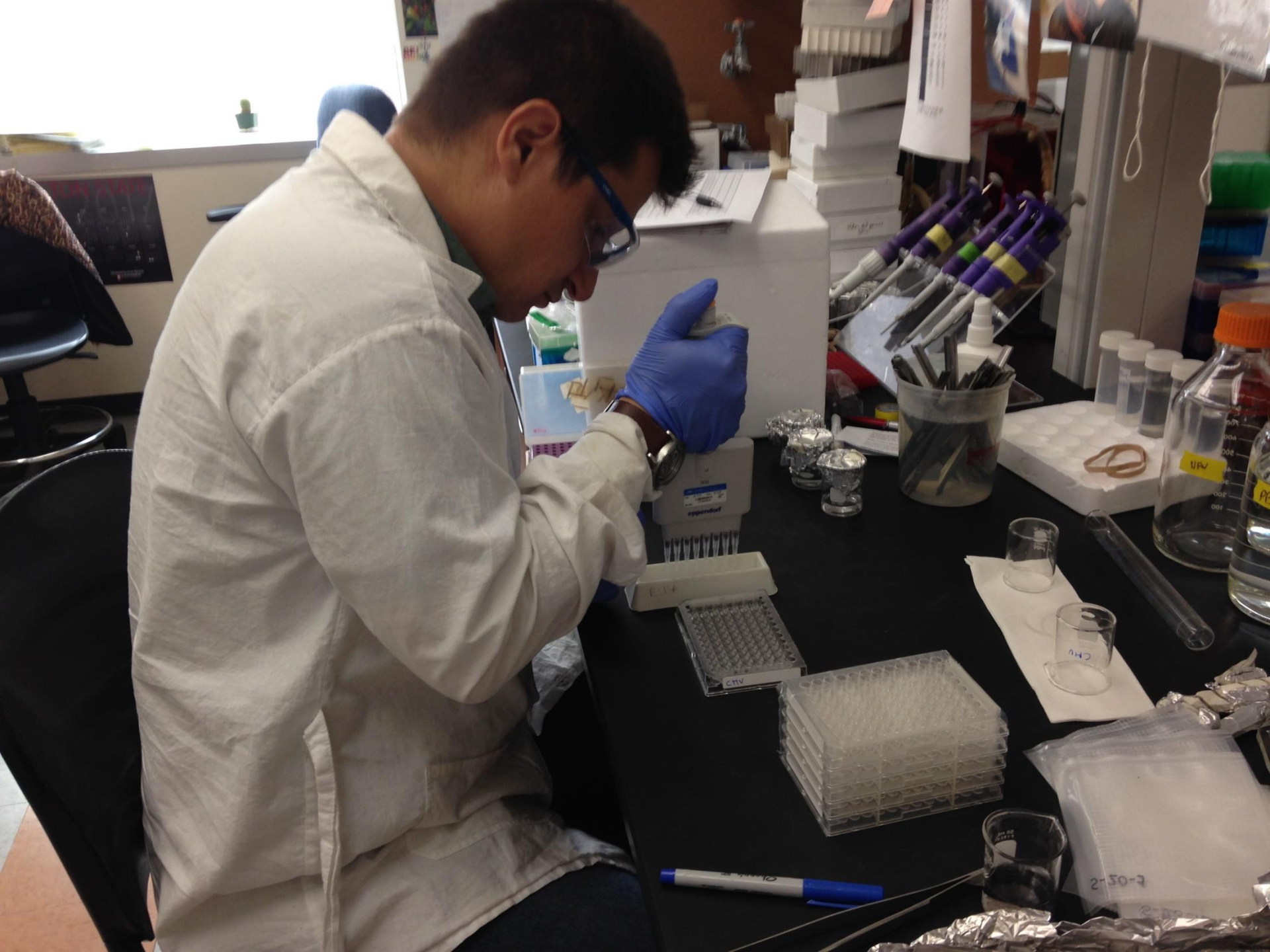
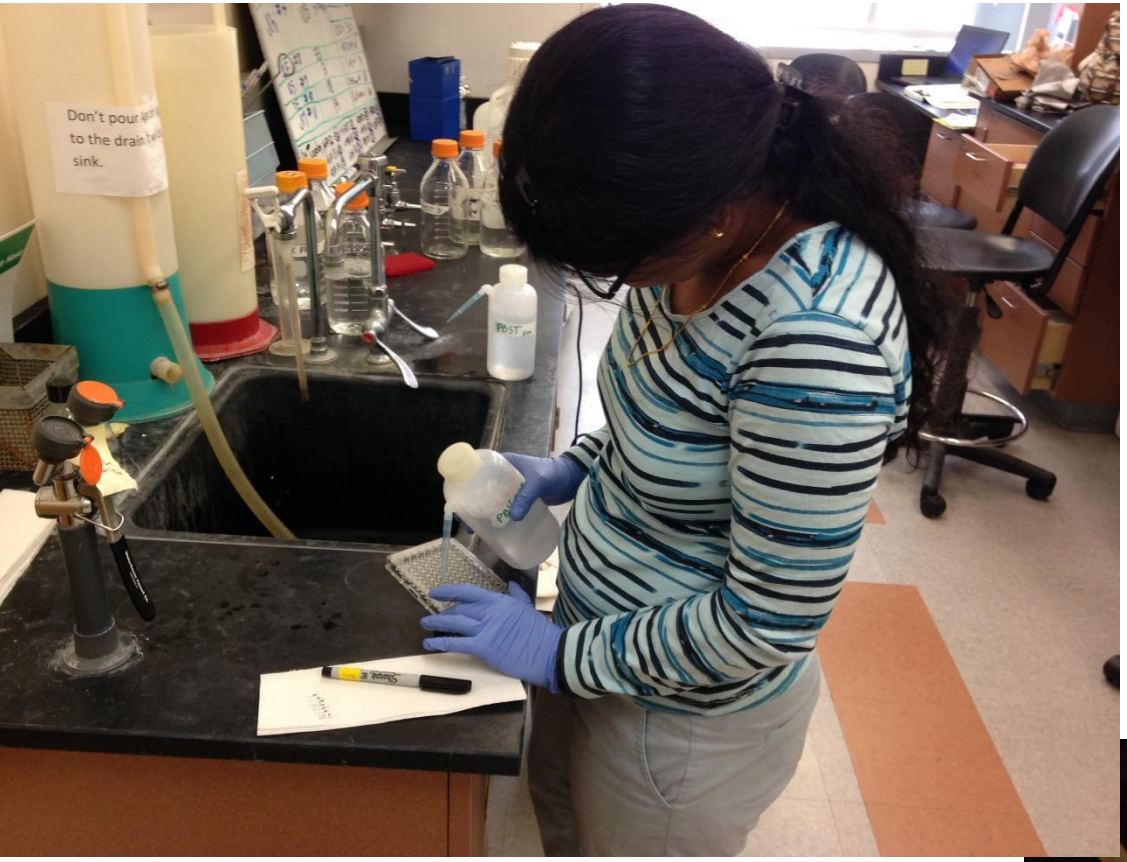
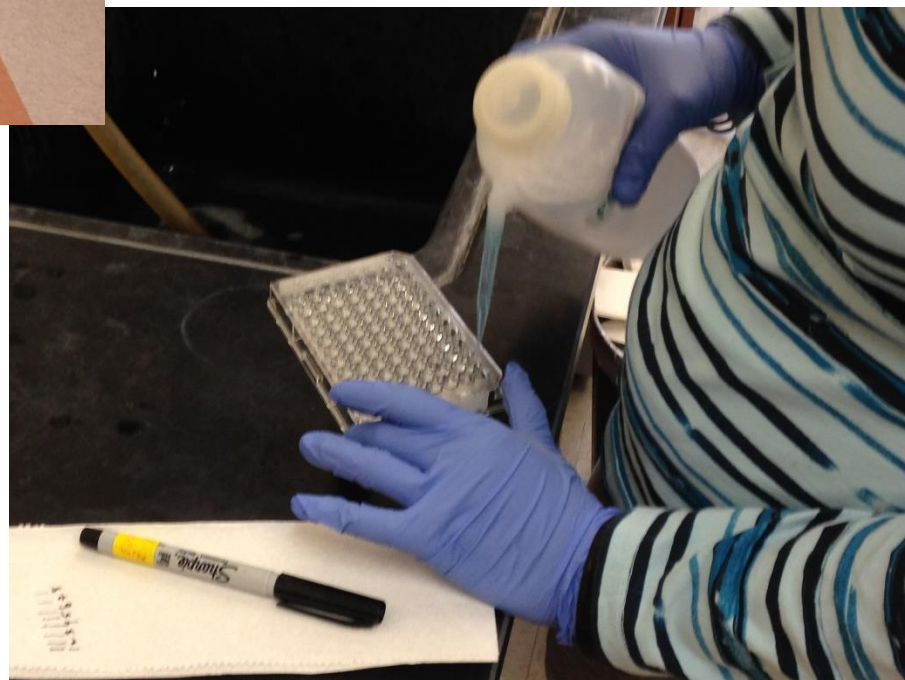
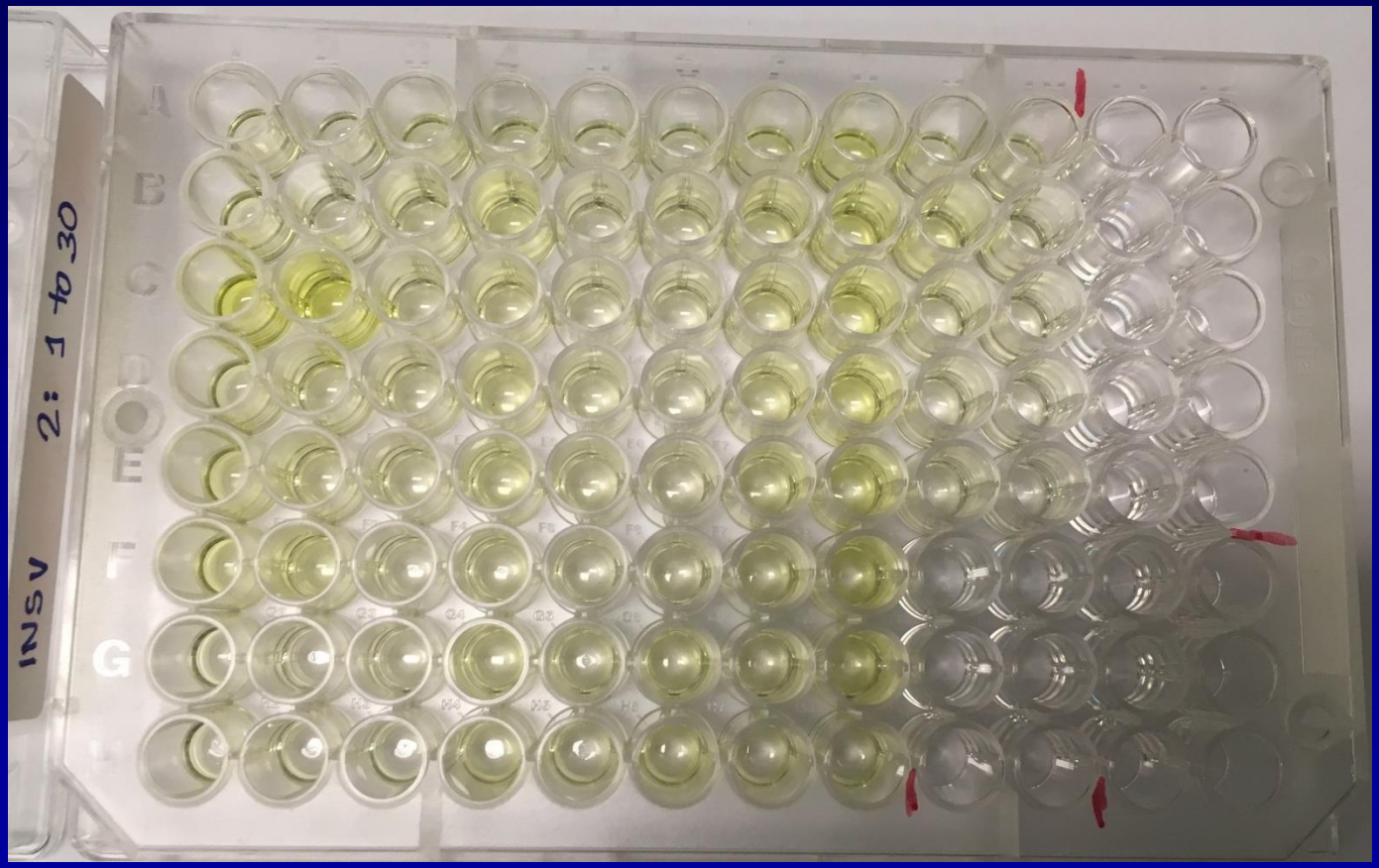

Vanlab
VORTEX MIXER
ETP
7150ST
1 1/2"
5
EMT CONNECTORS - GLAND COMPRESSION
Made in China
TSU



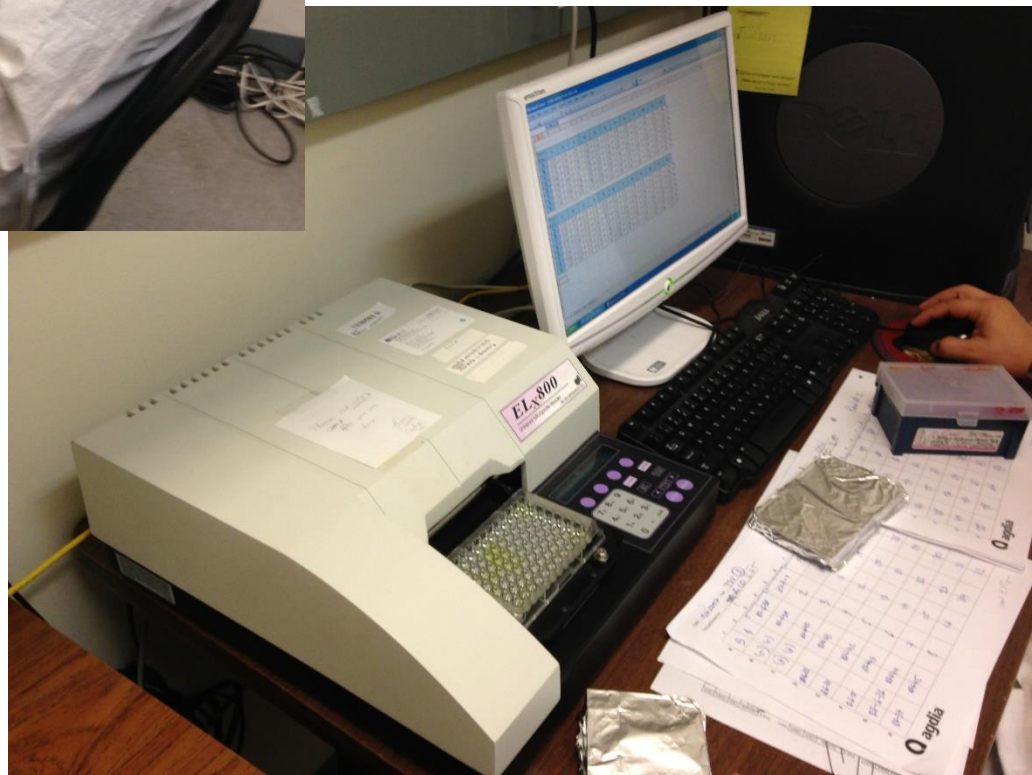

Don't pour
to the drain
sink.



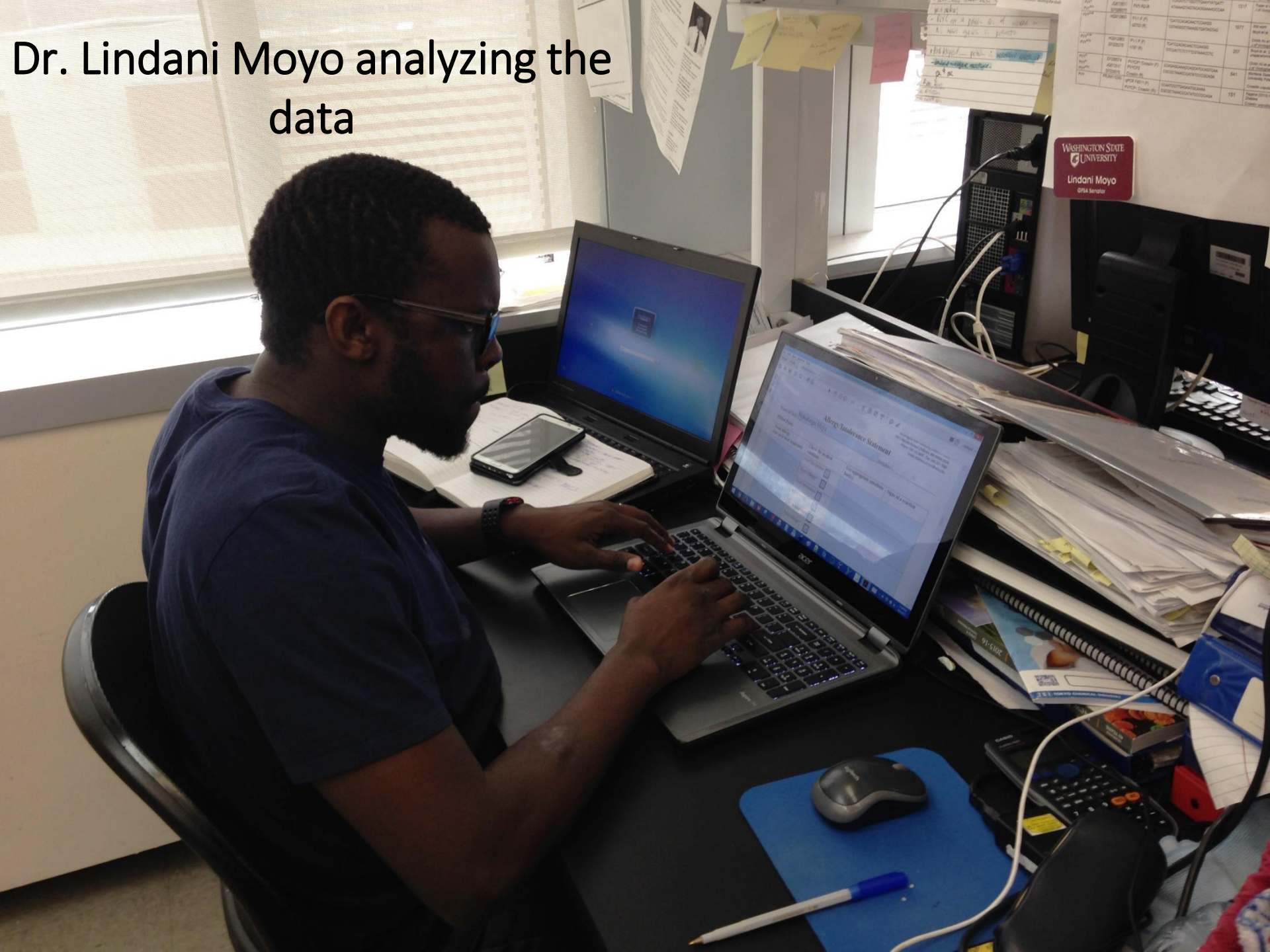
The end point: Wells with color indicative of virus presence in those samples; wells with colorless liquid: free of that particular virus



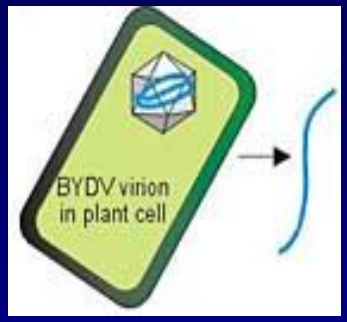
The intensity of the color measured using a plate reader and

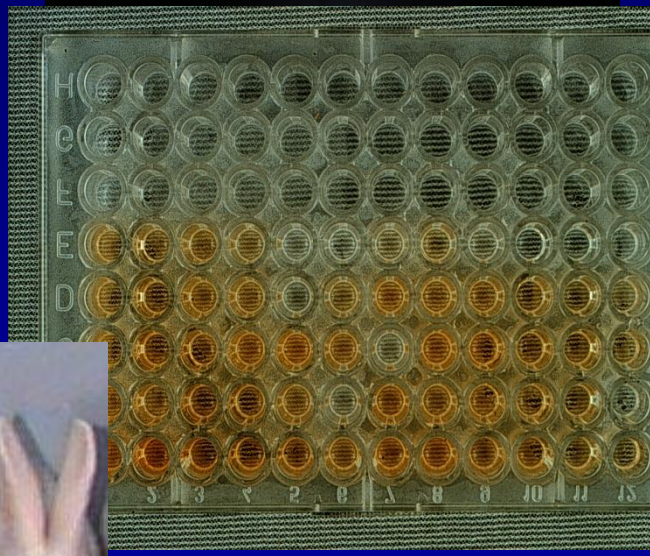


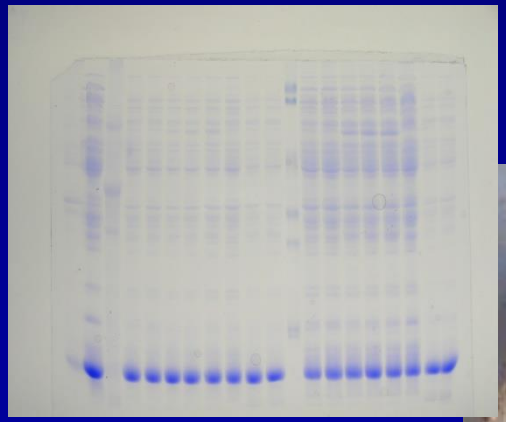
…converted into numbers (=absorbance values)


Dr. Lindani Moyo analyzing the data
Washington State University
Lindani Moyo
GPSA Senator
Allergy Intolerance Statement

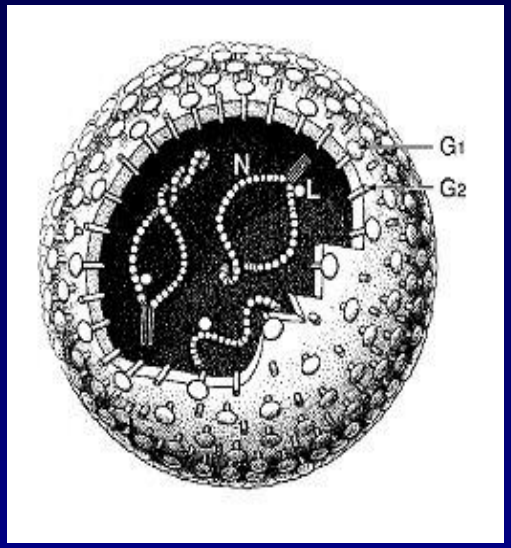
ELISA-based detection of viruses (viral protein)





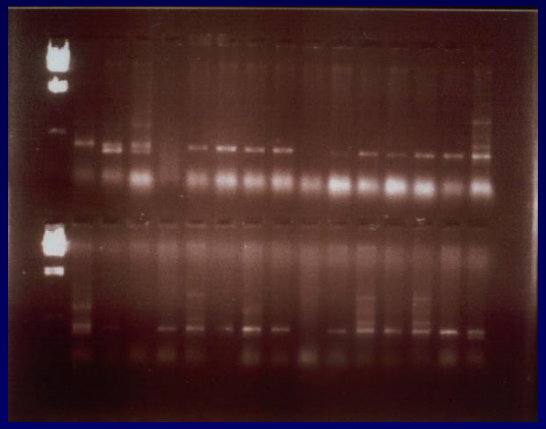


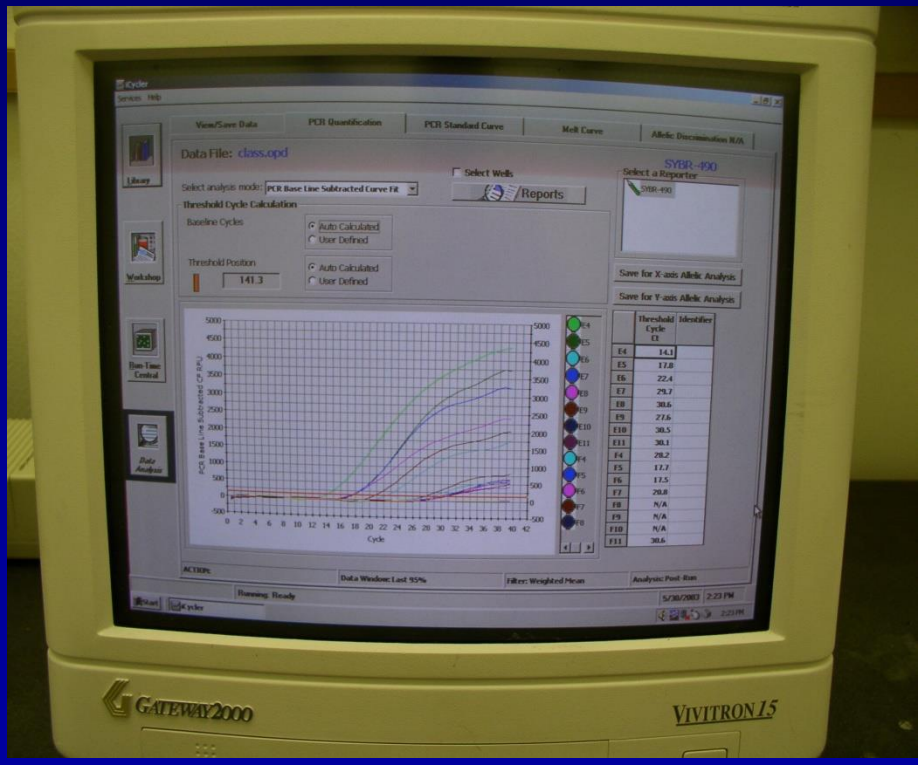
Virus Detection (RNA or DNA)



- To detect the presence of the viral genetic material (DNA or RNA)
- Highly sensitive and rapid
- But more expensive


GATEWAY2000
VIVITRON 15

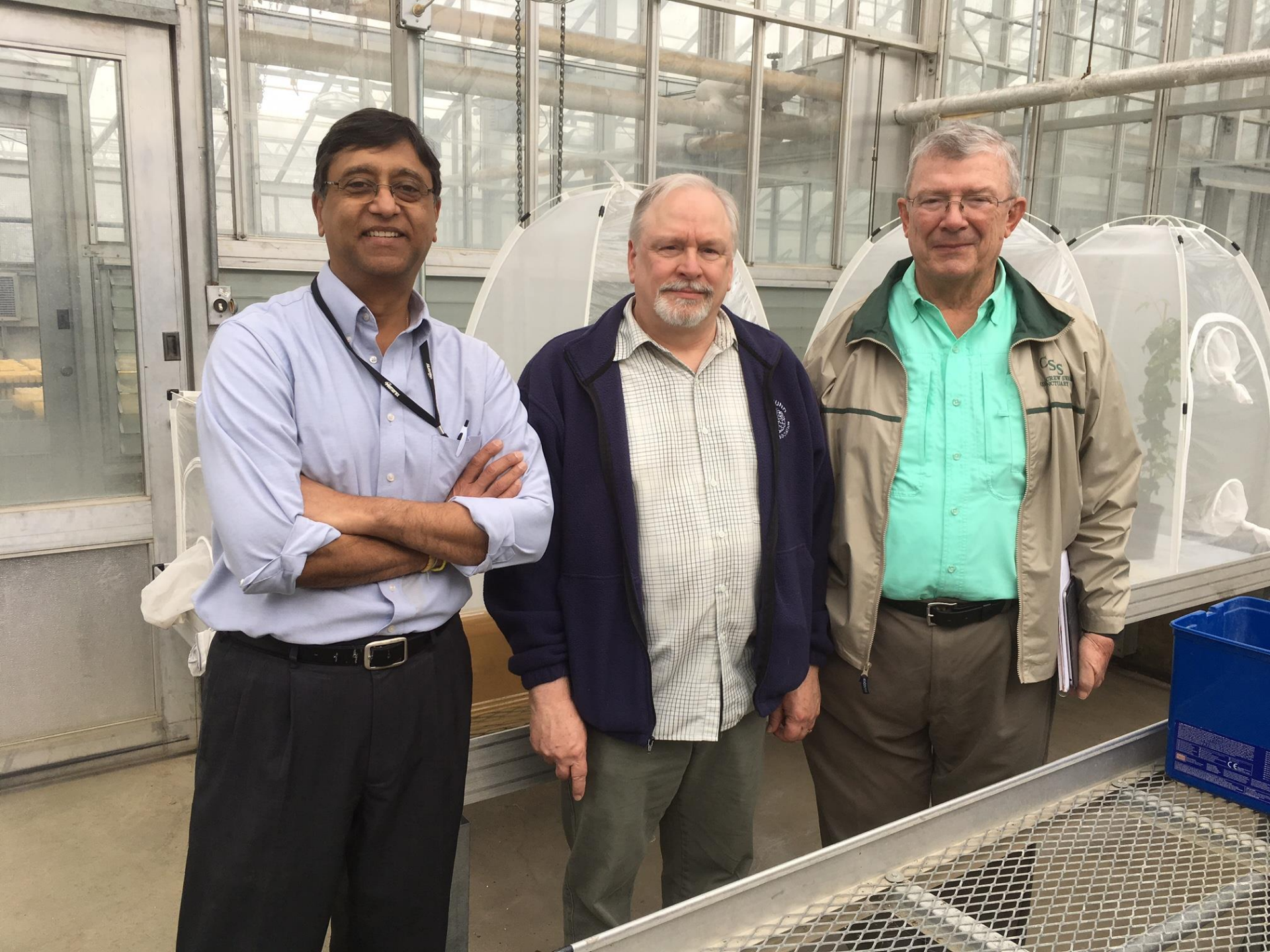



iCycler
View/Save Data
PCR Quantification
PCR Standard Curve
Melt Curve
Allelic Discrimination R/A
Data File: class.opd
Select Wells
Reports
SYBR-490
Select analysis mode: PCR Base Line Subtracted Curve Fit
Threshold Cycle Calculation
Baseline Cycles
Auto Calculated
User Defined
Threshold Position
141.3
Save for X-axis Allelic Analysis
Save for Y-axis Allelic Analysis
Threshold Cycle Ct
Identifier
E4 14.1
E5 17.8
E6 22.4
E7 29.7
E8 30.6
E9 27.6
E10 30.5
E11 30.1
F4 28.2
F5 17.7
F6 17.5
F7 20.8
F8 N/A
F9 N/A
F10 N/A
F11 30.6
Cycle
Workshop
Run Time Control
Data Analysis
Running Ready
GATEWAY2000
VIVITRON 15

Thermal Cyclers for DNA-based Virus Detection

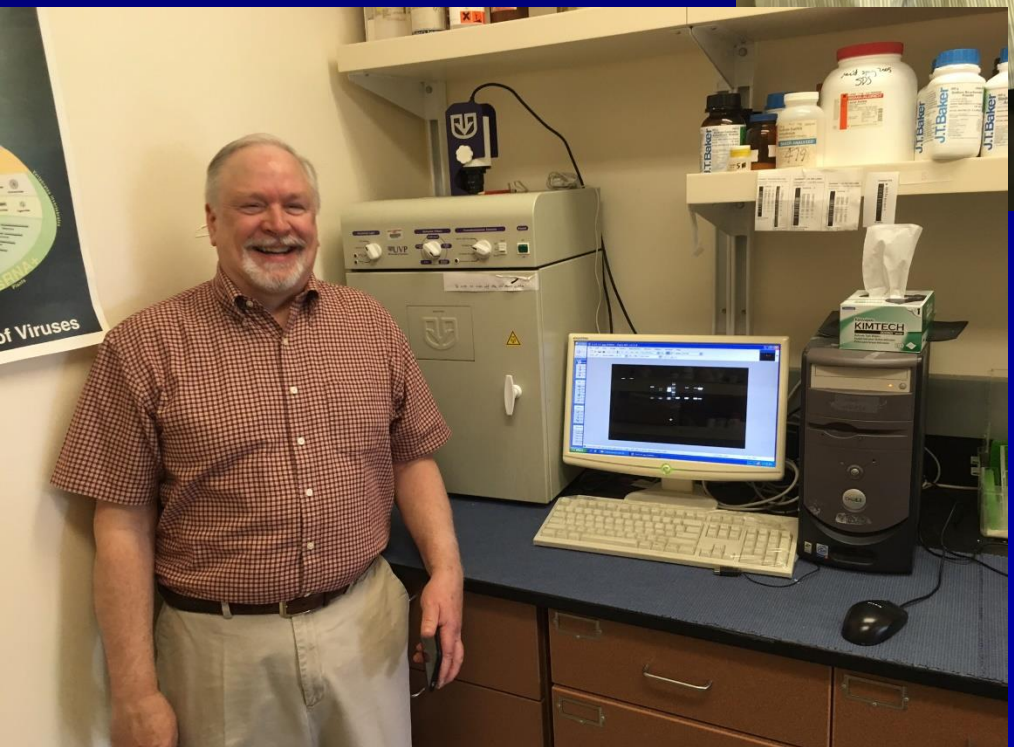

DNA Analysis System


ECKŌ
UNLTD.
Video




1 2 3 4 5 6


J.T.Baker
KIMTECH


of Viruses
J.T.Baker
KIMTECH


Plant Pathology
Washington State University
Shoot Blight
Bacterial or Fungal
Rust
Fungal
Mosaic
Viral
Canker
Bacterial or Fungal
Scab
Fungal
Wilt
Bacterial or Fungal
Chlorotic Spots
Viral
Root Rot
Fungal
Lesions
Nematodes
Girdling
Nematodes
Root Knot
Nematodes
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Root Rot
Fungal
Lesions
Nematodes
Girdling
Nematodes
Root Knot
Nematodes


DO NOT HANDLE OR CARRY ANY BAGGAGE BUT YOUR OWN
Go
1-800-GO-COUGS
1-800-325-SEAT
www.wsu.edu

Virus Testing: Findings from last two years

More than 1,000 samples tested for five viruses

"All dahlias have the virus." **NOT TRUE!**

(there are pieces of a viral DNA that exists as part of the dahlia genome: may plants have these remnants). Even our own DNA has pieces of viral genome integrated.

Of the viruses that are known to infect dahlias: Tobacco streak virus seems to be more prevalent than others. This virus is spread by thrips.

Using virus-tested/virus-free plants to propagate further – will reduce the virus infections to a minimum.

Some of the symptoms are specific and unique to virus infection: visually screening and discarding plants with those symptoms is recommended.

Viruses: how do they spread?

Natural means: Insects

Human activities:
Gardening tools/implements

Propagating material (tubers, cuttings)

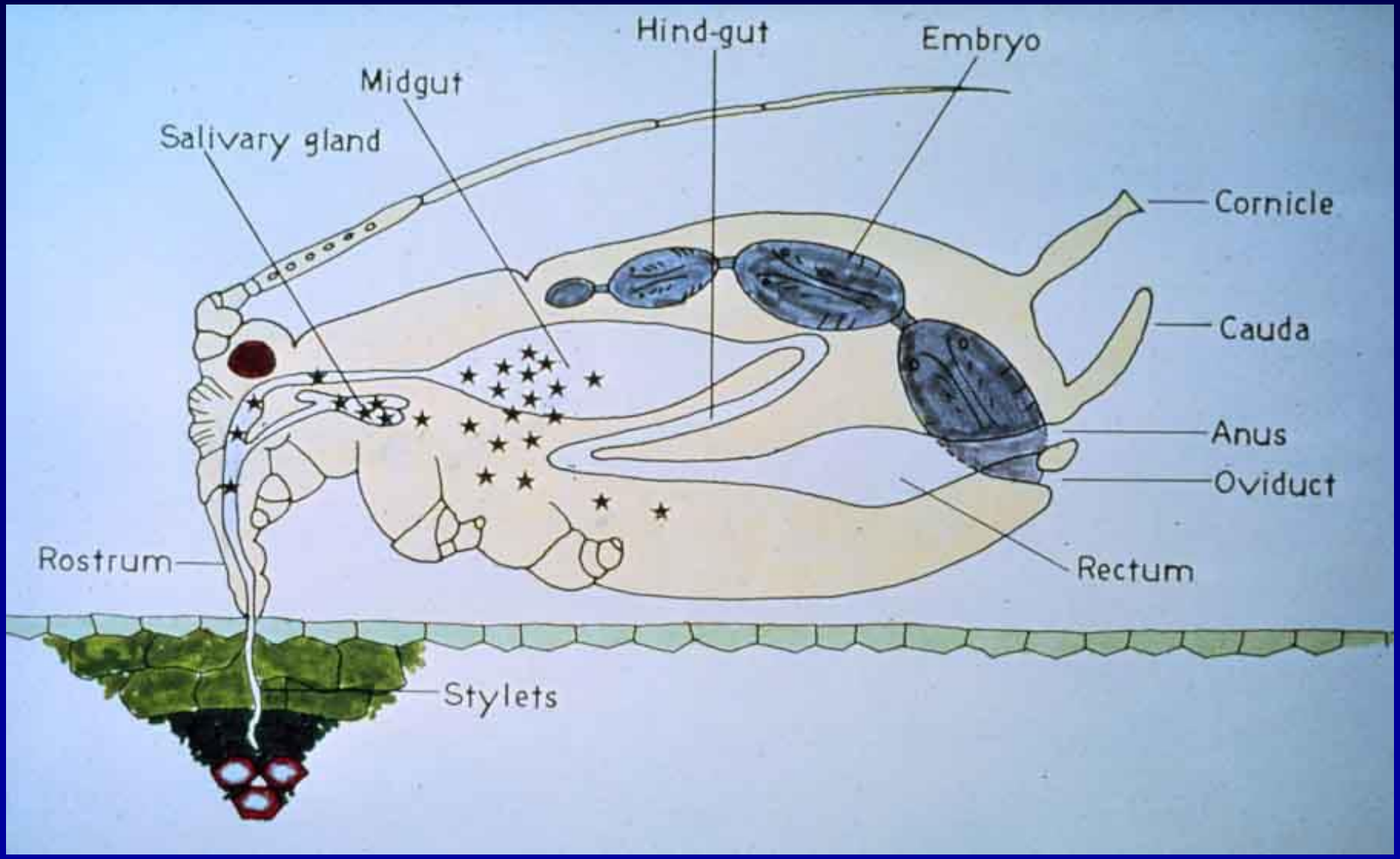
Tobacco thrips

male

female

Western flower thrips

Vector Transmission



Control of plant viruses

Once the plant gets 'sick' (=got infected with a virus):
There is little that could be done to 'cure' that plant or
'get rid of the virus' from that plant

Control of plant viruses

As a result,

Most of the control options are directed at PREVENTING infection

Managing Virus Diseases

- Start with virus-free/healthy, vigorously growing plants
- Eliminate infected plants (and tubers)
- Avoid contamination
- Disinfect tools

Control

- Early detection of infected plants
- Discarding infected plants (to minimize further spread)
- Disinfect tools frequently to avoid Contamination (=carry over)

Disinfectants

- 10% household bleach
- DAWN detergent solution

2 teaspoons of Dawn in 600 mls of water, giving it about a 1.6% solution. 1.6%

Control of Viruses: Three time-tested methods!

Clean stock
Clean stock
Clean stock

FAQs

I pulled out a diseased plant. Is it okay to plant in the same soil again?

>Depends. If the disease was due to a virus, you may plant again in the same soil. Many viruses do not survive in soil

FAQs

I really take good care of my plants and I don't see much of a disease issues!

- Stresses like lack of water or poor soil fertility could weaken your plants and could make the plants prone to disease

FAQs

Is it possible to make dahlias resistant to viruses?

›Yes. Through the process called plant breeding. For this, we first need to identify genes that provide that resistance and move them into desirable cultivars

FAQs

Is it possible to make dahlias resistant to viruses?

>In my experience, those with dark foliage tend to have less disease. These could have genes for virus resistance.

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FAQs

Some of my plants looked diseased but new growth looked fine rest of the season. Why is that?

> This happens some times. Plants fight back and try to recover from the disease. This does not mean that they got rid of the virus

FAQs

My plants looked like diseased with leaves showing symptoms similar to what Dr. Pappu showed. But the flowers came out normal. Should I keep using the tubers/cuttings from these plants?

› Not a good idea! Viruses accumulate and pass on from generation to generation and can cause more damage.

FAQs

What can I do to reduce virus spread?

- Disinfecting knives/tools goes a long way!
- 10% household bleach can be very effective in inactivating many viruses

FAQs

Is there something that I can spray to 'cure' my diseased plants?

- No
- There are no known chemical therapies for plant viruses – to 'get rid of/kill' a virus from a diseased plant

FAQs

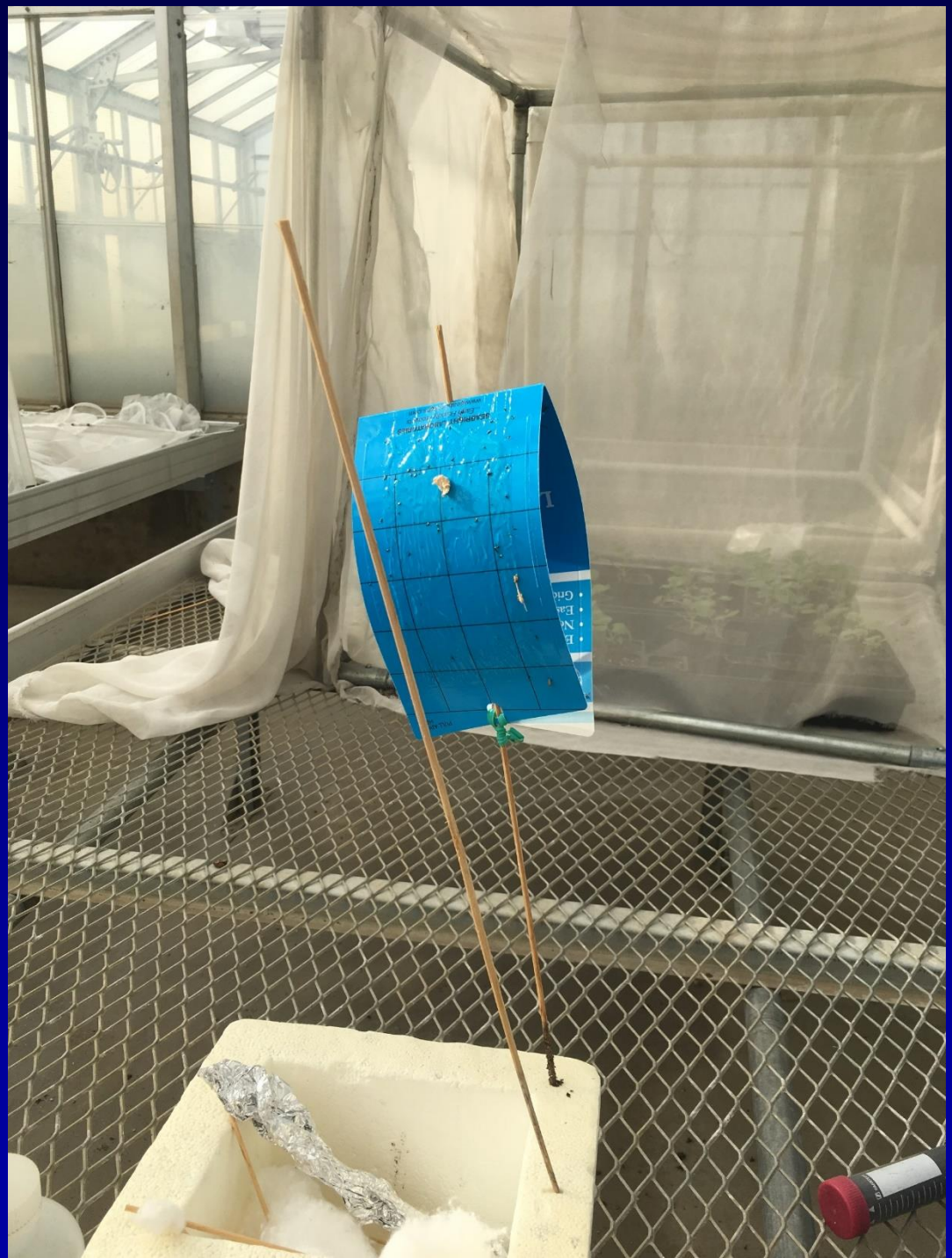
I pulled out a few diseased plants. Is it okay to compost them?

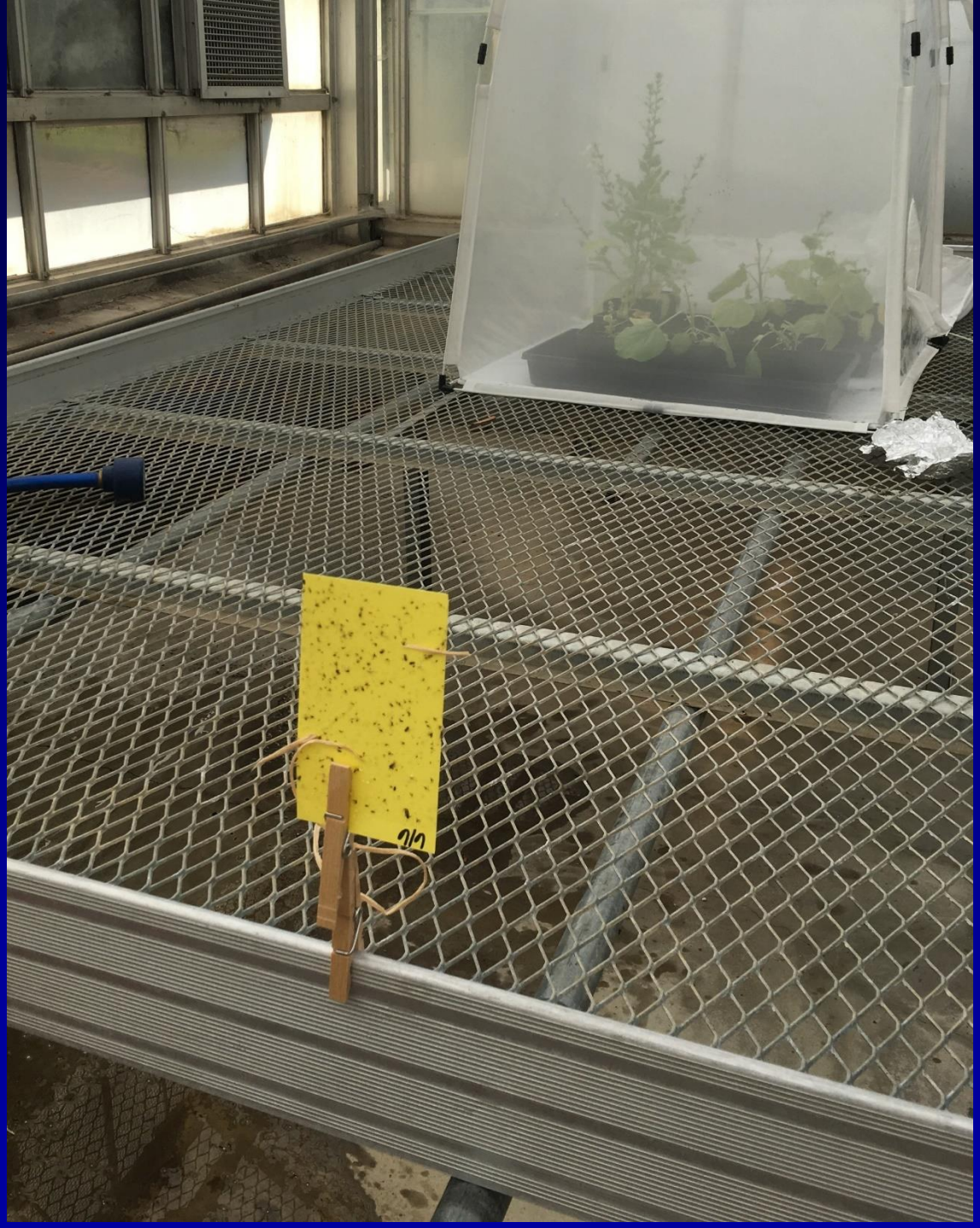
- It is better if you don't. It depends o the region: where summer temperatures are higher, the composting process could inactivate the viruses

FAQs

You just said dahlia viruses are spread by bugs. What can I do about it?

- Yes, many of the dahlia viruses are spread by insects – but their relative importance in disease spread in household gardens is relatively low.
- Removing leaves with symptoms – first time they appear and become visible – reduces the amount of virus that could be spread by insects





Remember!

Removing plants with disease as soon as you notice them and not using/selling/sharing tubers from those plants is the surest way to reduce the virus problem over time.

Those who have been doing this over the years have virus-free plants.

Start Clean; Stay Clean!

Big Thanks to the Lab Gang

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WASHINGTON STATE UNIVERSITY

Thank you!