

# Grapevine red blotch – vector update

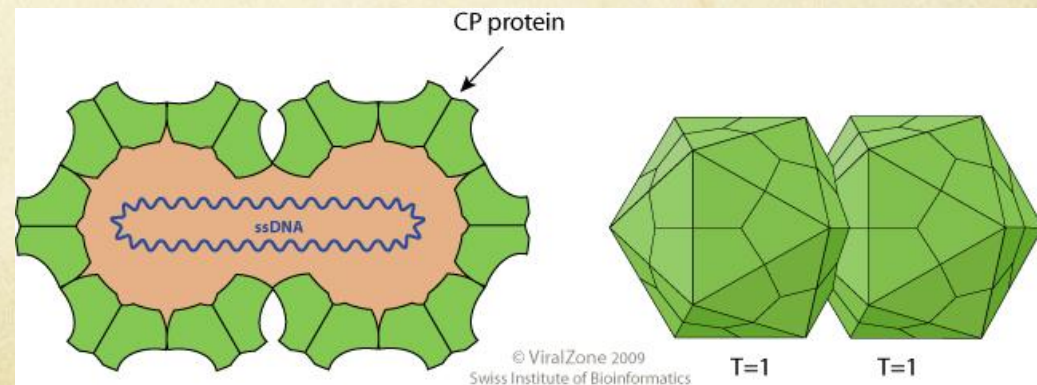
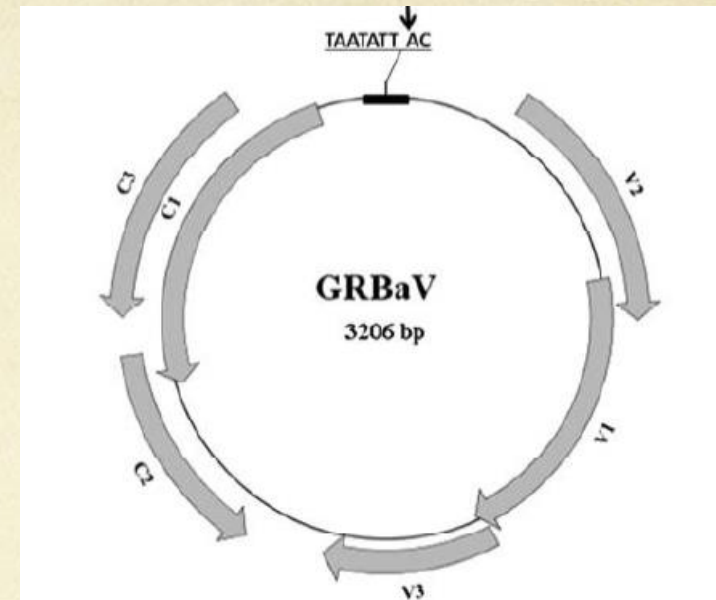
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Mysore Sudarshana

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# History

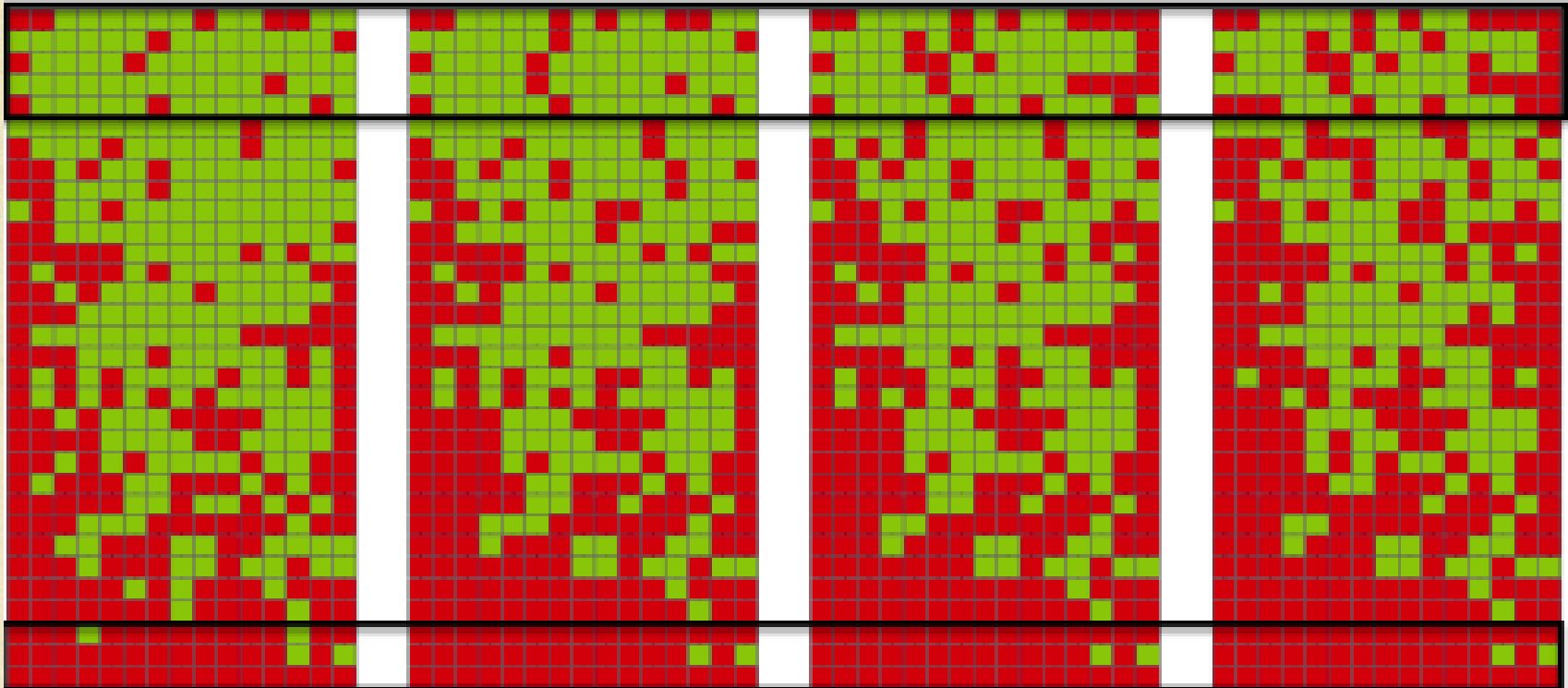
- Grapevine red blotch associated virus (GRBaV)
  - Geminivirus that was discovered in 2011 in wine grapes.
  - Spread documented from 2011 to 2014.
  - Has replaced GLRaV as the primary concern to grape growers in California.



# *Erythroneura* spp.

- 1.5 year test – individuals 48 hr. AAP
  - *Erythroneura ziczac*: 0/10
  - *Erythroneura elegantula*: 0/10
  - *Erythroneura variabilis*: 0/10
- 4 month test – cohorts of 25 72 hr. AAP
  - *Erythroneura ziczac*: 0/15
  - *Erythroneura elegantula*: 0/15
  - *Erythroneura variabilis*: 0/15





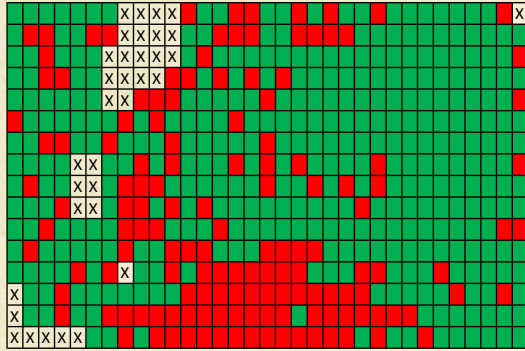
2011

2012

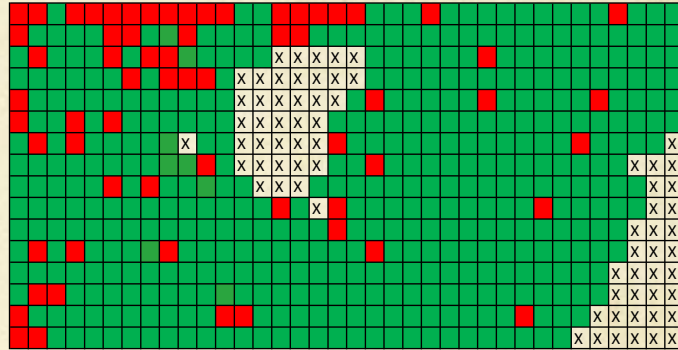
2013

2014

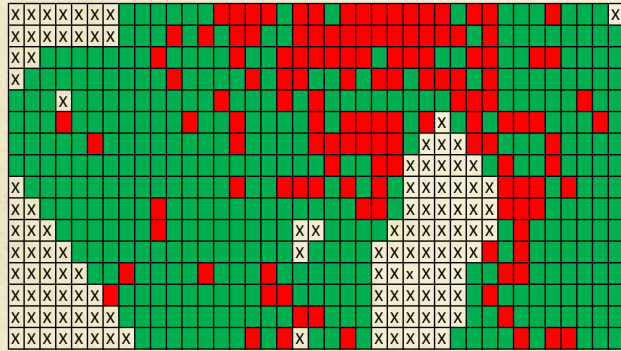
1\$



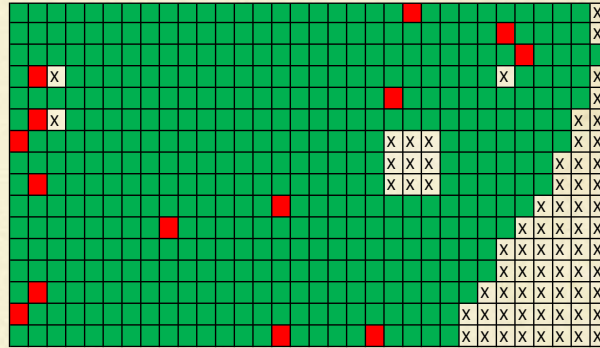
4\$



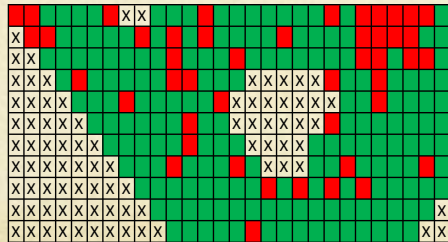
2\$



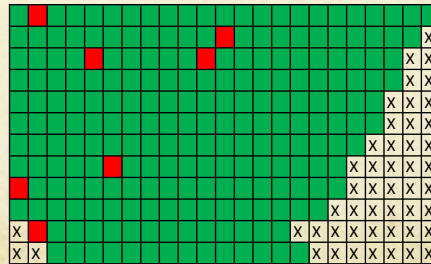
5\$



3\$



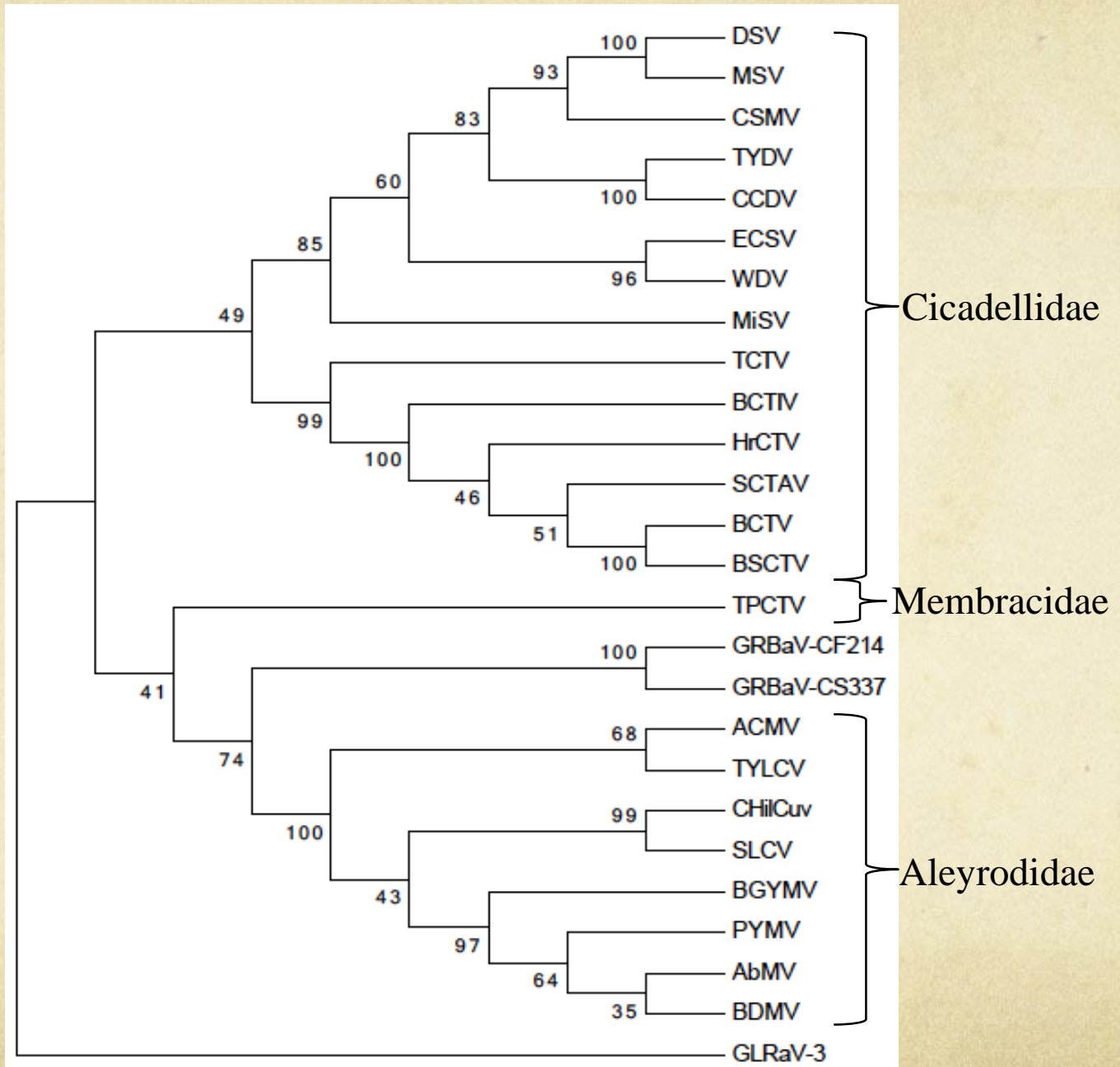
6\$



N\$

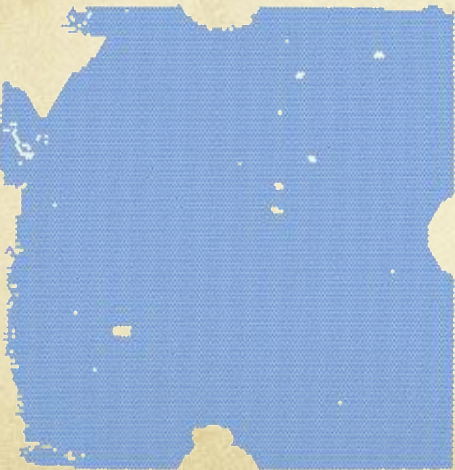




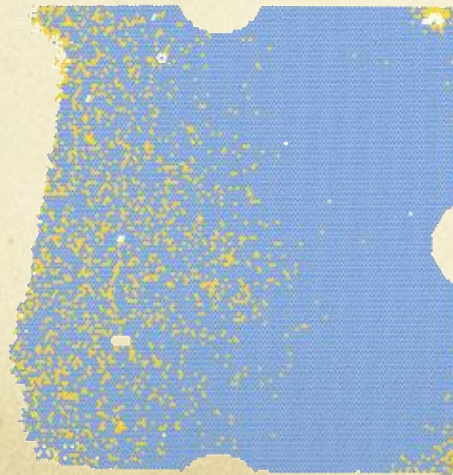


# dPCR

- 5x more sensitive than qPCR
- Testing cohorts of 15 plants
- Will allow us to detect virus in much lower titers both in the plants



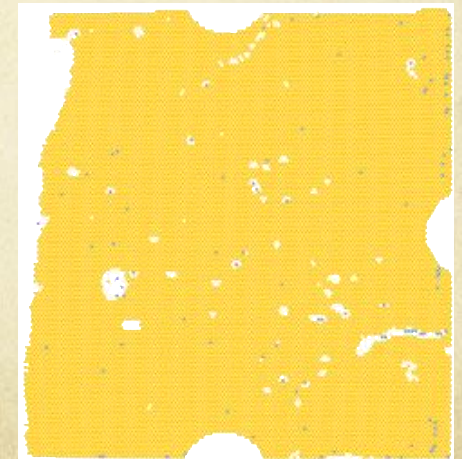
Pure Extract



1.0%



0.1%



0.0001%



# dPCR Results

Baseline negative

3 months

4 months

5 months



*Spissistilus festinus*

# Transmission Results - Update

Clade	5 months	7 months
I	0/15	9/15
II	3/15	5/15



# Epidemiology Update

- 86 overwintering adult *S. festinus* collected from February through March of 2016 at Oakville Research Station
- Found on *Medicago polymorpha* (California Burclover)
  - Same genus as alfalfa
- 30 specimens test for the presence of GRBaV
  - 17/30 positive



# Summary

- *Erythroneura* spp. are unlikely vectors
- *S. festinus* has transmitted under greenhouse conditions
- Capable of transmitting both clades (strains) of GRBaV
- Have detected GRBaV in overwintering adults

# Reference

- Accepted for publication in *Phytopathology*
  - Bahder, B. W., Zalom, F. G., Jayanth, M., and Sudarshana, M. R. 2016. Phylogeny of geminivirus coat protein sequences and digital PCR aid in identifying *Spissistilus festinus* (Say) as a vector of Grapevine red blotch-associated virus. *Phytopathology* doi:10.1094/PHYTO-03-16-0125-FI
- Available in 'First Look' section
- If you can't access it and would like a copy, email me:  
bwbahder@ucdavis.edu

# Acknowledgements

- CDFA
- USDA-ARS
- American Vineyard Foundation
- California Tree Fruit, Nut Crops and Grapevine Industry Board
- Michael Anderson
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