

Plant Pathology Seminar Series

“Grapevine Red Blotch”

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Abstract:

Grapevines are one of the most important and prolific crops grown commercially, with about 6.05 million tons of grapes grown annually in the United States with an average of 69 tons of grapes produced per acre, valued at 5.53 million dollars. Because grapes are such an important crop in the United States, it is important to consider all aspects of grapevine health. Recently, an emergent pathogen called Grapevine Red Blotch (GRBaV) has damaged grapevine and limited production of usable grapes on the west coast and primarily in California and Oregon. One of the primary symptoms of the virus is leafroll, which is indicative of many viruses affecting grapevines, although tests run on diseased grapevines did not yield positive results for any known virus. This led to the discovery of GRBaV and an emphasis has been placed on the study of the pathogen to limit its spread.

Research on GRBaV includes studying the genetic material and determining what causes the spread of the virus. Since being discovered, the genome of 15 isolates have been sequenced, and 2 distinct groups have been identified, although there does not appear to be a biological difference between the two groups. The virus is monopartite and contains a circular strand of ssDNA. Additionally, several studies have been done to determine the ways through which the virus is spread. It was determined through PCR techniques by multiple researchers that GRBaV is spread by an insect vector called the three-cornered alfalfa hopper, *Spissistilus festinus*. One group concluded that in addition to the insect vector, there is a possibility that there are host plants which do not exhibit symptoms, but rather host the virus until a vector is able to transmit the pathogen, but further research is needed to confirm this hypothesis. A \$3 million USDA -NIFA grant has been issued to UC Davis, UC Berkeley, and Oregon State University to continue research on this virus, as the only known treatment for GRBaV is to remove the entire vine. The partnership between these universities will allow progress to be made quickly and ensure successful yield of healthy grapes.

References:

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Zoom Link: <https://wsu.zoom.us/j/95501196325?pwd=aGdCeTZGM0pQaXZoY05qT3M0SFVHQ09>

Meeting ID: 955 0119 6325 **Passcode:** 5498

Call in number: 1 253 215 8782



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Flasco, M., Hoyle, V., Cieniewicz, E. J., Roy, B. G., McLane, H. L., Perry, K. L., et al. 2021. Grapevine Red Blotch Virus Is Transmitted by the Three-Cornered Alfalfa Hopper in a Circulative, Nonpropagative Mode with Unique Attributes. *Phytopathology*[®]. 111:1851–1861.

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Rumbaugh, A. C., Durbin-Johnson, B., Padhi, E., Lerno, L., Cauduro Girardello, R., Britton, M., et al. 2022. Investigating Grapevine Red Blotch Virus Infection in *Vitis vinifera* L. cv. Cabernet Sauvignon Grapes: A Multi-Omics Approach. *IJMS*. 23:13248.

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