Strawberry Vein Banding Virus

a. Virus/pathogen name, including accepted acronyms and synonyms
Strawberry vein banding virus, SVBV -- Genus *Caulimovirus,* Family *Caulimoviridae* (ICTV)

b. Host range, including resistance or tolerance within the crop hosts, alternate hosts: *Fragaria* species are susceptible. *Sanguisorba minor*, the garden burnet, has been identified as an experimental host. The virus can be transmitted by leaf grafting and by several *Chaetosiphon* aphid species. *F. vesca* and *F. virginiana* are used as indicators ('UC-6' and 'UC-12').

c. Symptoms on crop host including varietal differences with images of symptoms when available: In *Fragaria vesca*, the indicator plant of choice, yellowish vein banding pattern along the main and secondary veins appear upon infection. Symptoms initially appear in youngest leaf, and are typically very mild. Affected leaflets usually exhibit epinasty, mild crinkling, and wavy margins. Later, symptoms may disappear and reappear sporadically depending on the temperature. As affected leaves mature, the symptomatic areas may gradually disappear, or they may become brownish-red or necrotic. In greenhouse grown plants the veins become discolored, without previous chlorosis. Commercial cultivars do not exhibit symptoms but in mixed infections with other viruses. Loss of vigor, stunting, reduced runner production, and lower yields have been observed (l7% the 1st yr and 88% the 3rd yr of harvest). Plants inoculated with the combination latent C-vein banding-mottle failed to produce runners.

d. Geographic distribution: Brazil, Chile, China, Japan, Egypt, Czech Republic, Italy, Serbia, Slovakia, Australia, Norway, North America (US and Canada), and Germany.

e. Means of spread:
Semi-persistent transmission by *Chaetosiphon fragaefolli, C. jacobi,* and *C. tomasi*
Dodder
Grafting
Clonal propagation of infected plants by runners

f. Recognized diagnostic tests with cited references:
Real time PCR assay, about 1000x sensitivity to traditional PCR (Miao *et al.* 2016)
Coupled dot-blot hybridization and PCR (Mraz *et al.* 1999)

g. Sampling recommendations for each pathogen including timing and tissue to be sampled: For PCR, optimum extraction- 5mg of tissue from older symptomatic leaves suspended in 500uL of sterile water after extraction.

h. Management strategies for the pathogen and the vector(s) of the pathogen: Control of aphids with insecticide can help control spread of the virus, but in perennial systems this is insufficient. Using clean plant material is the most effective management strategy.

i. References

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