# Strawberry Virus 1

a. Virus/pathogen name, including accepted acronyms and synonyms

Strawberry virus 1 (StrV-1), Family: *Rhabdoviridae,* Genus: *Alphacytorhabdovirus*

b. Host range, including resistance or tolerance within the crop hosts, alternate hosts

The virus was first detected using high throughput sequencing from plants exhibiting virus-like symptoms in the Czech Republic (Franova et al., 2019). The complete genomes of three distinct strains of the were obtained. The virus could be transmitted by *Aphis fabae* and *A. ruborum* to *Nicotiana occidentalis* 37B and then mechanically to *N. benthamiana* and *Physalis floridana.* In field settings the virus was only detected in *Fragaria* species and not in any weeds within or adjacent to the fields.

c. Symptoms on crop host including varietal differences with images of symptoms when available

Most symptomatic plants in the field had mixed infections making it difficult to ascribe symptoms to StrV-1. However, based on high throughput sequencing data a single strain of the StrV-1 without any other detectable viruses in *Frgaria ananassa* cv. Elkat showed symptoms of severe vein clearing and necrosis that was transmitted vegetatively. When grafted to *F. vesca* 'Alpine' the multiplication of clayx leaves was a diagnostic for StrV-1, other symptoms observed on indicator plants could be caused by other strawberry viruses (Franova et al., 2019). Symptomatic infections have an effece in plant growth and yield as shown by Valentova et al. (2022).

d. Geographic distribution:

StrV-1 has been reported in the Czech Republic (Franova et al., 2019) and in China (Ding et al., 2019).

e. Means of spread:

StrV-1 was transmitted by *Aphis fabae, A. ruborum* and *Acyrthosiphon malvae* but not by *Chaetosiphon fragaefolii* and through vegetative propagation (Franova et al., 2019).

f. Recognized diagnostic tests with cited references:

StrV-1 can be detected by RT-PCR (Franova et al., 2019). The virus was also detected by bioassays onto *F. vesca* indicator plants (Franova et al., 2019).

g. Sampling recommendations for each pathogen including timing and tissue to be sampled

The youngest fully expanded leaves collected early in the growing season or in the autumn should be used for detection. Three leaves per plant should be used for detection by RT-PCR.

h. Management strategies for the pathogen and the vector(s) of the pathogen

The use of virus-indexed planting stock is the most critical step in virus management. Avoid planting adjacent to older strawberry fields since they likely are a source of inoculum and potential vectors. In annual production systems, viruses are less importance especially in areas where there is a strawberry free period between production cycles.

Ding, X., Chen, D., Du, Z., Zhang, J. and Wu, Z. 2019. The complete genome sequence of a novel cytorhabdovirus identified in strawberry (*Fragaria ananassa* Duch.). Archives Virology164:3127-3131.

Fránová, J., Přibylová, J. and Koloniuk, I. 2019. Molecular and biological characterization of a new strawberry cytorhabdovirus. Viruses 11:982. https://doi.org/10.3390/v11110982

Valentova, L., Rejlova, M., Franova, J. and Cmejla, R., 2022. Symptomless infection by strawberry virus 1 (StrV‐1) leads to losses in strawberry yields. *Plant Pathology*, *71*(5), pp.1220-1228.

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