

## California Pest Rating Proposal for

### Cherry virus A

**Current Pest Rating: C**

**Proposed Pest Rating: D**

Domain: Virus; Group: "Positive-sense ssRNA viruses"

Group: "RNA viruses"; Order: Tymovirales;

Family: Betaflexiviridae; Genus: Capillovirus

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**Comment Period: 03/23/2021 through 05/07/2021**

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#### Initiating Event:

A request for a re-evaluation of the current rating of Cherry virus A (CVA) was made by CDFA's Nursery, Seed, and Cotton Program. A new demand for conditionally released plant material and an interest in harmonizing our nursery practices with partner states initiated the request. The status and risk of Cherry virus A to California is re-assessed here and a rating change is proposed.

#### History & Status:

**Background:** Cherry virus A was first discovered in Germany during a study to extract little cherry disease-related dsRNA from sweet cherry plant tissue to enable cDNA cloning. In that study, a second dsRNA representing a new species of the genus Capillovirus and named Cherry virus A was discovered in addition to the virus that causes Little cherry disease (Jelkmann, 1995). CVA has usually been found in cherry plants infected with other viruses and in symptomless trees. It was also determined in the study that CVA cannot be directly associated with any specific disease in its known host, *Prunus* spp. (Sabanadzovic et al., 2005). CVA has been reported from a few countries, including the United States (see 'Worldwide Distribution'). The symptomless nature of CVA-infected plants suggests that the virus is likely more widely distributed than reported (CABI, 2021).

**Hosts:** At present, CVA has not been directly associated with any specific disease symptoms in its known hosts, all of which are in the genus *Prunus*: *P. armeniaca* (apricot), *P. avium* (sweet cherry), *P. avium* x *P. pseudocerasus* (Colt cherry), *P. cerasus* (sour cherry), *P. domestica* subsp. *insititia* (Mirabelle plum), *P. persica* (peach), and *P. serrulata* cv. *Kwanzan* (CABI-CPC, 2021)

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**Symptoms:** Cherry virus A has only been found in symptomless trees and therefore, has yet to be associated with any specific disease symptoms in its reported hosts. The virus has also been found in host plants infected by other viruses, such as, sweet cherry infected by little cherry virus or Mirabelle plum infected by Prune dwarf virus (CABI, 2021).

**Transmission:** No vector is known to transmit the virus. However, it is graft-transmissible (Svanella-Dumas et al., 2005). The capability of CVA being seedborne has been suggested. In Japan, CVA was detected in sweet cherry root stock that had never been grafted with sweet cherry trees (Isogai et al., 2004). Also, ‘Mazzard’ cherry rootstock grown from seed tested positive, by PCR, for CVA, thereby, suggesting the likelihood of seed transmission (Personal communication: Dr. S. J. Harper, Clean Plant Center Northwest, Washington State University; Dr. M. Al Rwahnih, University of California, Davis).

**Damage Potential:** There are no reports of fruit damage or yield loss of infected trees caused by Cherry virus A alone (Komoroska & Cieślińska, 2004). When this virus is found in *Prunus* trees that are also infected with other viruses, it may then have a synergistic effect in enhancing the severity of symptoms (James & Jelkmann, 1998).

**Worldwide Distribution:** *Asia:* China, India, Japan; *North America:* Canada, United States (California, District of Columbia); *Europe:* Czechia, France, Germany, Italy, Poland, Serbia, Spain, United Kingdom; *Oceania:* Australia. (CABI, 2021; Jelkmann, 1995, 1997; Komoroska & Cieślińska, 2004).

**Official Control:** Cherry virus A is on the ‘Harmful Organism’ list for Georgia, Japan, and Taiwan (USDA PCIT, 2021). Since 2009, CVA has been labeled a ‘quarantine pest’ in Israel (EPPO, 2021). Presently, in California it was given a C rating January 25, 2018, indicating that it is an organism of known economic and/or environmental detriment but generally distributed in the state.

**California Distribution:** El Dorado, Kern, San Joaquin, and Yolo counties (Sabanadzovic et al., 2005; French, 1989; CDFA PDR database). The symptomless nature of CVA-infected plants suggests that the virus may be more widely distributed than currently reported (CABI, 2021).

**California Interceptions:** None reported.

The risk **Cherry virus A** would pose to California is evaluated below.

## Consequences of Introduction:

### 1) Climate/Host Interaction:

Cherry virus A has already been detected in sweet cherry orchards in northern California, including the main cherry production regions of the state. CVA has usually been found in cherry plants infected with other viruses and in symptomless trees, suggesting that its distribution in California may be wider than what is currently known. The virus is likely to establish wherever its host plants are able to grow. Therefore a ‘High’ rating is given to this category.

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Evaluate if the pest would have suitable hosts and climate to establish in California.

**Score: 3**

- Low (1) Not likely to establish in California; or likely to establish in very limited areas.
- Medium (2) may be able to establish in a larger but limited part of California.
- **High (3) likely to establish a widespread distribution in California.**

**2) Known Pest Host Range:** Presently, the known host range of CVA is limited to *Prunus* spp.

Evaluate the host range of the pest.

**Score: 1**

- **Low (1) has a very limited host range.**
- Medium (2) has a moderate host range.
- High (3) has a wide host range.

**3) Pest Reproductive Potential:** CVA is graft-transmitted and may be spread through asymptomatic *Prunus* stock or those infected with other cherry viruses. No vector is known to transmit this virus.

Evaluate the natural and artificial dispersal potential of the pest.

**Score: 1**

- **Low (1) does not have high reproductive or dispersal potential.**
- Medium (2) has either high reproductive or dispersal potential.
- High (3) has both high reproduction and dispersal potential.

**4) Economic Impact:** There are no reports of fruit damage or yield loss caused by the virus. It is suggested that CVA may enhance symptom expression caused by other cherry viruses co-infecting a host plant, but this connection has not been confirmed.

Evaluate the economic impact of the pest to California using the criteria below.

**Economic Impact:**

- A. The pest could lower crop yield.
- B. The pest could lower crop value (includes increasing crop production costs).
- C. The pest could trigger the loss of markets (includes quarantines).
- D. The pest could negatively change normal cultural practices.
- E. The pest can vector, or is vectored, by another pestiferous organism.
- F. The organism is injurious or poisonous to agriculturally important animals.
- G. The organism can interfere with the delivery or supply of water for agricultural uses.

**Economic Impact Score: 1**

- **Low (1) causes 0 or 1 of these impacts.**
  - Medium (2) causes 2 of these impacts.
  - High (3) causes 3 or more of these impacts.
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**5) Environmental Impact:** There are no reports of damage to environmental plants and localities caused specifically by CVA.

**Environmental Impact:**

- A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.
- B. The pest could directly affect threatened or endangered species.
- C. The pest could impact threatened or endangered species by disrupting critical habitats.
- D. The pest could trigger additional official or private treatment programs.
- E. The pest significantly impacts cultural practices, home/urban gardening or ornamental plantings.

**Environmental Impact Score: 1**

- **Low (1) causes none of the above to occur.**
- Medium (2) causes one of the above to occur.
- High (3) causes two or more of the above to occur.

**Consequences of Introduction to California for Cherry virus A: Low**

Add up the total score and include it here. **7**

- Low = 5-8 points**
- Medium = 9-12 points
- High = 13-15 points

**6) Post Entry Distribution and Survey Information:** Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication, or have been delimited with no further detections should not be included.

Presently, Cherry virus A has official samples from Kern, San Joaquin, Yolo, and El Dorado counties.

***Evaluation is 'Medium'.***

**Score: -2**

- Not established (0) Pest never detected in California or known only from incursions.
  - Low (-1) Pest has a localized distribution in California or is established in one suitable climate/host area (region).
  - Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.**
  - High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.
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**7) The final score is** the consequences of introduction score minus the post entry distribution and survey information score: (Score)

**Final Score:** *Score of Consequences of Introduction – Score of Post Entry Distribution and Survey Information = 5*

### **Uncertainty:**

Specific symptoms and damage to host plants has not been reported, but it is a regulated pest in some jurisdictions. Cherry virus A can potentially act in a synergistic way with other viruses. Future research may clarify these relationships.

### **Conclusion and Rating Justification:**

Based on the evidence provided above, the proposed rating for Cherry virus A is D. The “D”-rating is for an organism which scores low and is known to be of little or no economic importance to the agricultural industry or environmental detriment, and has an extremely low likelihood of invasiveness, Authorized mitigating regulatory actions: None.

### **References:**

CABI. 2021. Cherry virus A full datasheet. CABI Crop Protection Compendium. <https://www.cabi.org/cpc/datasheet/44379>

EPPO. 2021. Cherry virus A (CVA000). PQR database. Paris, France: European and Mediterranean Plant Protection Organization. <https://gd.eppo.int/>

French, A. M. 1989. California Plant Disease Host Index. California Department of Food and Agriculture, Sacramento (Updated online version by T. Tidwell, May 2, 2017).

Isogai, M., Aoyagi, J., Nakagawa, M., Kubodera, Y., Satoh, K., Katoh, T., Inamori, M., Yamashita, K., and Yoshikawa, N. 2004. Molecular detection of five cherry viruses from sweet cherry trees in Japan. *Journal of General Plant Pathology*, 70:288-291.

James, D., and Jelkmann, W. 1998. Detection of Cherry virus A in Canada and Germany. *Acta Horticulturae*, No. 472:299-303.

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Komorowska, B., and Cieslinska, M. 2004. First report of Cherry virus A and Little cherry virus 1 in Poland. *Plant Disease*, 88:909.

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Sabanadzovic, S., Abou Ghanem-Sabanadzovic, N., Rowhani, A., Grant, J. A., and Uyemoto, J. K. 2005. Detection of Cherry Virus A, Cherry Necrotic Rusty Mottle Virus and Little Cherry Virus 1 in California Orchards. *Journal of Plant Pathology*, 87:173-177.

Svanella-Dumas, L., Marais, A., Lamorte, J., and Candresse, T. 2005. First report on the natural occurrence of Cherry virus A in Mirabelle plum (*Prunus domestica* var. *insititia*). *Plant Disease*, 89:433.

USDA PCIT. 2021. USDA Phytosanitary Certificate Issuance & Tracking System. Retrieved January 17, 2018. 1:15:31 pm CST. <https://pcit.aphis.usda.gov/PEXD/faces/ReportHarmOrgs.jsp>.

### **Responsible Party:**

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**\*Comment Period: 03/23/2021 through 05/07/2021**

### **\*NOTE:**

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at [permits\[@\]cdfa.ca.gov](mailto:permits[@]cdfa.ca.gov).

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### **Comment Format:**

- ❖ Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

#### **Example Comment:**

Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to "Climate/Host Interaction" here.]

- ❖ Posted comments will not be able to be viewed immediately.
- ❖ Comments may not be posted if they:

Contain inappropriate language which is not germane to the pest rating proposal;

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Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;

Violates agency regulations prohibiting sexual harassment or other forms of discrimination;

Violates agency regulations prohibiting workplace violence, including threats.

- ❖ Comments may be edited prior to posting to ensure they are entirely germane.
- ❖ Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.

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**Proposed Pest Rating: D**

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