CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

Resseliella citrifrugis Jiang: Citrus fruit midge

Diptera: Cecidomyiidae

Current Rating: Q

Proposed Rating: A

Comment Period: 11/10/2022 – 12/25/2022

Initiating Event:

Resseliella citrifrugis Jiang is reported to be a significant pest of citrus in China and it has the potential to be moved in infested fruit. In light of the significance of citrus to California agriculture and the potential of this pest to impact the state, a pest rating proposal is needed.

History & Status:

Background: *Resseliella citrifrugis* is a pest of citrus in China. Most of the primary research on this pest has been published in Chinese journals and was not available for review during the preparation of this proposal. Information from these sources was summarized by Xia et al. (2021).

Adult *R. citrifrugis* are approximately 2-3 mm in length. The larva, which lives in host fruit, reaches approximately 4 mm in length and is reddish in color. There are 2-4 generations per year in China. Mature larvae overwinter in soil or in fruit (Xia et al., 2021).

Resseliella citrifrugis is apparently restricted to citrus. Reported hosts include sweet orange (*Citrus sinensis*), mandarin (*C. reticulata*), pummelo (*C. maxima*), grapefruit (*C. paradisi*), tangerine (*C. tangerine*), satsuma (*C. unshiu*), and trifoliate orange (*Poncirus trifoliata*) (USDA; Xia et al., 2021). Feeding by the larvae causes yield losses, including from fruit drop, and infestation rates can reach

100%. Hundreds of larvae can be present in a single fruit (Xia et al., 2021). There are no known effective trapping methods and this pest is apparently not monitored in China. An effective management strategy does not appear to have been established. Reported control measures in China include sanitation (removal of infested fruit from ground), treatment of soil with insecticides, fruit bagging, and foliar insecticide sprays (Xia et al., 2021).

Worldwide Distribution: *Resseliella citrifrugis* is only known to occur in China, including Fujian, Hubei, Guangdong, Guanxi, Guizhou, and Sichuan provinces. This includes most of the Chinese citrus-growing regions (USDA).

Official Control: *Resseliella citrifrugis* does not appear to be a regulated pest. It is, however, of concern to some countries as it appears in various risk assessments and it would likely be considered reportable if it was intercepted by the United States Department of Agriculture.

California Distribution: There are no records of *Resseliella* species in citrus fruit in California.

California Interceptions: No *Resseliella* species have been intercepted on citrus fruit in California (California Department of Food and Agriculture).

The risk *Resseliella citrifrugis* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** This midge is widely distributed in China, and much of this area appears to have a temperate climate. Citrus is widely distributed in California. As *R. citrifrugis* is not known to be present in any area with a Mediterranean climate, there is some uncertainty regarding its ability to become established or widespread in California. Therefore, it receives a **Medium (2)** in this category.

– 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:** *Resseliella citrifrugis* is only known to feed on citrus (two genera in the Rutaceae). Therefore, it receives a **Low (1)** in this category.

– 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 and Dispersal Potential:** *Resseliella citrifrugis* has multiple generations per year. The adults can fly. The larvae live in fruit and could be moved that way. Larvae could escape detection in fruit (USDA). Infested fruit were intercepted in the Netherlands in 2020 (Quick scan: *Resseliella citrifrugis*). Therefore, it receives a **High (3)** in this category.

– 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:** *Resseliella citrifrugis* is reported to cause significant damage to citrus in China, including causing fruit drop, and infestation rates can reach 100% with hundreds of larvae per fruit. Cecidomyids are not currently citrus pests in the United States, so pest management measures may have to be modified to control this pest (USDA). Therefore, it receives a **High (3)** in this category.

Economic Impact: A, B, C

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: High

– 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.

5) **Environmental Impact:** Infestations of *R*. *citrifrugis* could trigger treatments in citrus groves and impact residential citrus plantings. Therefore, it receives a **High (3)** in this category.

Environmental Impact: D, E

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: High (3)

– 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 *Resseliella citrifrugis*: Medium (12)

Add up the total score and include it here.

–Low = 5-8 points

–Medium = 9-12 points

–High = 13-15 points

6) **Post Entry Distribution and Survey Information:** *Resseliella citrifrugis* is not known to be established in California. It receives a **Not established (0)** in this category.

–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.

Final Score:

7) The final score is the consequences of introduction score minus the post entry distribution and survey information score: Low (12)

Uncertainty:

There is uncertainty regarding the potential for this pest to become established in California's Mediterranean climate.

Conclusion and Rating Justification:

Resseliella citrifrugis is a pest of citrus that is not known to be present in California. It would be a new type of pest in California citrus if it became established here. For these reasons, an "A" rating is justified.

References:

California Department of Food and Agriculture. Pest and damage record database. Accessed May 12, 2022:
https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

Quick scan: *Resseliella citrifrugis*. Accessed October 18, 2022:
https://pra.eppo.int/pra/d38241f8-b33b-403d-82f2-1d0c906307ce

USDA. 2020. Importation of *Citrus* spp. (Rutaceae) fruit from China into the continental United States. A qualitative, pathway-initiated pest risk assessment.

Xia, Y., Ouyang, G. -C., and Takeuchi, Y. 2021. A brief review of *Resseliella citrifrugis* (Diptera: Cecidomyiidae), a lesser-known destructive citrus fruit pest. Journal of Integrated Pest Management 12:1-7.

Responsible Party:

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*Comment Period: 11/10/2022 – 12/25/2022

*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.

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;

  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.

Proposed Pest Rating: A