CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

***Frankliniella tritici* (Fitch): eastern flower thrips**

Thysanoptera: Thripidae

Current Rating: A

Proposed Rating: B

Comment Period: 10/19/2021 – 12/03/2021

Initiating Event:

Frankliniella tritici is established in Orange County, California. It has not previously been rated. A pest rating proposal is needed.

History & Status:

Background: *Frankliniella tritici* is a polyphagous thrips that is reported to feed on pollen in flowers, although it feeds on other plant parts as well (Reed et al., 2006). Some reported hosts include tomato, bell pepper, cotton, and a variety of weeds (Baez et al., 2011; Mailhot et al., 2007; Northfield et al., 2008; Reed et al., 2006; Srivastava et al., 2008). It is reported to be common on seedling cotton (Reed et al., 2006). Nault and Speese (2002) suggested that *F. tritici* may be responsible for much of the thrips-caused dimpling of tomatoes in Virginia. *Frankliniella tritici* is reported to be the most important thrips responsible for bronzing of strawberry in Canada. Feeding occurs on the fruit during development, and losses can reach at least 20 percent of the crop (Fruit bronzing of strawberry; Matos and Obrycki, 2004). This thrips does not appear to impact strawberries in all situations, however. Climate, cultivar, or other factors may influence the degree of damage (Matos and Obrycki, 2004; Obrycki and Matos, 2004). Boyce (1955) described damage to cherry, European plum, and peach caused by oviposition in blossoms, causing a loss of up to 50 percent of cherry and

plum blossoms. With *F. tritici*, as well as with other thrips, it is difficult to determine the damage caused by an individual species because multiple species often co-occur.

Development of *F. tritici* is rapid; in a laboratory experiment at 28°C, complete development (egg to adult) required only 11 days (Reitz, 2008).

Khan and Griffin (1999) reported several pyrethroids to be effective against *F. tritici*. In Florida, spinetorum and Spinosad appear to be effective and they do not impact the natural enemy *Orius insidiosus* (Srivastava et al., 2008).

Worldwide Distribution: *Frankliniella tritici* is native to the southeastern United States (Northfield et al., 2008). It has been introduced to Asia (Georgia, Iraq, and Kazakhstan), the Caribbean (Puerto Rico) (note: this may be part of the native range), Europe (Czech Republic, Hungary, Poland, Romania, Russia, Spain, and Ukraine), North America (California), and South America (Brazil). It is reported to be present in Canada, but it is not known if this is part of the native or introduced range or if these populations persist through winter (CABI Invasive Species Compendium).

Official Control: *Frankliniella tritici* is on the A1 list in Kazakhstan and the Eurasian Economic Union (EPPO Global Database). It is not considered reportable by the United States Department of Agriculture.

California Distribution: *Frankliniella tritici* is established in Orange County, California. It was found on roses at a residence there on August 10, 2021. These roses were treated by the resident twice, but the infestation was still present on August 31, 2021. This represents the first known record of this thrips in the environment of California (CDFA; M. Forthman, pers. comm.).

California Interceptions: *Frankliniella tritici* is intercepted frequently at California border stations on nursery stock and other plant material.

The risk *Frankliniella tritici* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Frankliniella tritici* is found in areas representing temperate, Mediterranean, and subtropical/tropical climates. It feeds on a wide variety of plants. It is already established in Orange County, and it could likely spread to a significant portion of California. Therefore, *F. tritici* receives a **High (3)** 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:** *Frankliniella tritici* is polyphagous. Therefore, it receives a **High (3)** 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:** *Frankliniella tritici* has a very short generation time, as low as 11 days. It can likely spread through movement of infested plant material. 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**. *Frankliniella tritici* is reported to be a pest of several crops, although see Uncertainty below. Damage attributed to it includes loss of fruit crops, including strawberries. It is not known to vector any diseases. It is a regulated pest in some countries. 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**. *Frankliniella tritici* is known to impact ornamental and garden plants. It could trigger treatments; this occurred in response to the Orange County infestation. Therefore, *F. tritici* 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 *Frankliniella tritici*: High (15)

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:** *Frankliniella tritici* is established in Orange County, California. It receives a **Low (-1)** 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: High (14)

Uncertainty:

There are no ongoing surveys for *F. tritici*, so it is possible that this thrips is established more widely in California. There is very little evidence of serious economic damage clearly attributable to this thrips, but as explained earlier, this may simply be because multiple species of thrips often occur together.

Conclusion and Rating Justification:

Frankliniella tritici is a polyphagous pest thrips that is reported to cause damage to various crops, in some cases serious damage. It is, however, established in Orange County. For these reasons, a "B" rating is justified.

References:

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Reitz, S. R. 2008. Comparative bionomics of *Frankliniella occidentalis* and *Frankliniella tritici*. Florida Entomologist 91:474-476.

Srivastava, M., Bosco, L., Funderburk, J., Olson, S., and Weiss, A. 2008. Spinetorum is compatible with the key natural enemy of *Frankliniella* species thrips in pepper. Plant Management Network

Responsible Party:

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*Comment Period: 10/19/2021 – 12/03/2021

*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.

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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;

  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: B