CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile

Dysmicoccus mackenziei Beardsley: McKenzie mealybug

Hemiptera: Pseudococcidae

Pest Rating: A

Comment Period: 02/08/2022 – 03/25/2022

Initiating Event:

Dysmicoccus mackenziei is occasionally intercepted on plant material and found in nurseries. It has not been rated. A pest rating proposal is needed.

History & Status:

Background: *Dysmicoccus mackenziei* is reported from plants in seven families: **Bromeliaceae:** *Ananas sativus*, *Ananas* sp., *Tillandsia brachycaulus*, *T. butsii*, *T. ionantha*, *T. punctulata*, *T. utriculata*, and *Vriesea* sp.; **Fabaceae:** *Inga ruiziana*; **Heliconiaceae:** *Heliconia* sp.; **Musaceae:** *Musa paradisiaca*, *Musa* sp.; **Orchidaceae:** *Epidendrum* sp.; **Rubiaceae:** *Coffea arabica*; **Solanaceae:** *Solanum tuberosum* (Beardsley, 1965; Caballero et al., 2019; Granara de Willink, 2009; Halbert, 2003). No reports were found indicating that this mealybug has significant impacts on plants.

Worldwide Distribution: **Asia:** Sri Lanka; **Caribbean:** Jamaica; **Central America:** Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama; **North America:** Mexico, United States (Florida); **South America:** (Colombia, Ecuador) (Beardsley, 1965; Ben-Dov, 1994, as cited in García Morales et al., 2016; Caballero et al., 2019; Granara de Willink, 2009; Halbert, 2003; Williams, 2004, as cited in García Morales et al., 2016; Williams and Granara de Willink, 1992, as cited in García Morales et al.,

2016). This mealybug has been found in additional countries, for example, in Italy, but these appear to represent greenhouse infestations (Longo et al., 1995).

Official Control: *Dysmicoccus mackenziei* is not known to be under official control anywhere.

California Distribution: *Dysmicoccus mackenziei* was described from material collected in Temple City and Culver City, both in Los Angeles County, California. The Culver City material was described as "originally from Mexico." It is not known if the plant material that the Temple City specimens were collected on originated from outside of California. There are no official records of *D. mackenziei* specimens known to have been collected from the environment in California, and this species is not currently considered to be established in the state.

California Interceptions: *Dysmicoccus mackenziei* is occasionally intercepted on incoming nursery stock (*Tillandsia* spp.) from Central America. It has also been found on *Tillandsia*, *Guzmania*, and *Vriesia* species in nurseries in Madera, San Diego, and San Mateo counties (California Department of Food and Agriculture).

The risk *Dysmicoccus mackenzie* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Dysmicoccus mackenziei* is moderately polyphagous, and it might find host plants over much of the state, although this is assuming that plants in families such as Fabaceae and Solanaceae are suitable hosts for development. This mealybug appears to be limited, at present, to areas with tropical or subtropical climate. This suggests that it would be limited to coastal and southern areas if it became established in California. Therefore, *D. mackenziei* 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:** *Dysmicoccus mackenziei* is known to feed on plants in seven families. Therefore, it receives a **Medium (2)** 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:** *Dysmicoccus mackenziei* can be moved with infested plant material. It was reported to be among the 10 most commonly-intercepted mealybugs at United States ports-of-entry (Miller et al., 2002). Therefore, it receives a **Medium (2)** 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**. *Dysmicoccus mackenziei* is known to feed on plants that are grown in California as crops (coffee, potato) and ornamentals (bromeliads). Infestations could increase the cost of productions. Therefore, *D*. *mackenziei* receives a **Low (1)** in this category.

Economic Impact: B

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: Low

– 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 ornamental and garden plants in California could trigger treatments. Therefore, *D. mackenziei* 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 *Dysmicoccus mackenziei*: Medium (10)

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:** *Dysmicoccus mackenziei* 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: Medium (10)

Uncertainty:

There are no ongoing surveys for *D. mackenziei,* so it is possible that this mealybug is already established in California. Reports were not found of this mealybug causing significant damage.

Conclusion and Rating Justification:

Dysmicoccus mackenziei is a mealybug that has moderately-broad feeding habits. Although it has not been reported to cause impacts elsewhere, it is not known to be established in California and it is

possible that it may be of greater significance in this state. Mealybugs in general have the capacity to cause damage to plants. For these reasons, an "A" rating is justified.

References:

Beardsley, J. W. 1965. Notes on the pineapple mealybug complex, with descriptions of two new species (Homoptera: Pesudococcidae). Proceedings of the Hawaiian Entomological Society 19:55-68.

Caballero, A., Ramos-Portilla, A. A., Suárez-González, D., Serna, F., Gil, Z. N., and Benavides, P. 2019. Scale insects (Hemiptera: Coccomorpha) on coffee roots (*Coffea arabica* L.) in Colombia, with records of associated ants (Hymenoptera: Formicidae). Ciencia y Tecnología Agropecuaria 20:93-116.

California Department of Food and Agriculture. Pest and damage record database. Accessed January 24, 2021:
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Halbert, S. E. 2003. Entomology section. Triology .42: 3-7.

Longo, S., Marotta, S., Pellizzari, G., Russo, A., and Tranfaglia, A. 1995. An annotated list of the scale insects (Homoptera: Coccoidea) of Italy. Israel Journal of Entomology 29:113-130.

Miller, D. R., Miller, G. L., and Watson, G. W. 2002. Invasive species of mealybugs (Hemiptera: Pseudococcidae) and their threat to U.S. agriculture. Proceedings of the Entomological Society of Washington 104:825-836.

Responsible Party:

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*Comment Period: 02/08/2022 – 03/25/2022

*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.

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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.

Pest Rating: A