CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile

Laminicoccus pandani (Cockerell): a mealybug

Hemiptera: Pseudococcidae

Pest Rating: A

Comment Period: 02/23/2022 – 04/09/2022

Initiating Event:

Laminicoccus pandani is occasionally intercepted on from Hawaii (California Department of Food and Agriculture). It has not been rated. A pest rating proposal is needed.

History & Status:

Background: Hosts are reported to include plants in four families: **Musaceae:** *Musa* sp.; **Lythraceae:** *Pemphis acidula*; **Pandanaceae:** *Freycinetia* sp., *Pandanus odoratissimus*, *P. tectorius*; **Poaceae:** *Saccharum officinarum* (Beardsley, 1966; Hodgson and Łagowska, 2011; Loope and Pascal, 2006; Williams and Watson, 1988, as cited in García Morales et al., 2016). Early records on Cocos nucifera (Arecaceae) (Veitch and Greenwood, 1924; Simmonds, 1925) may refer to *L. vitiensis* (Williams and Watson, 1988). The CDFA occasionally intercepts this mealybug from Hawaii, mostly on *Pandanus* but also on *Dracaena* (Asparagaceae), *Linum* (Linaceae), and at least one unidentified plant.

Laminicoccus pandani was reported to have destroyed plantations of *Pandanus tectorius* in the Cook Islands (Loope and Pascal, 2006). Very little additional information on impacts was found.

Worldwide Distribution: **Oceania:** Carolina Atolls, Cook Islands, Hawaii, Fiji, Gilbert Islands, Marquesas Islands, Marshall Islands, Niue, Tahiti (Beardsley, 1966; Hodgson and Łagowska, 2011; Loope and Pascal, 2006; McKenzie et al., 2001; Nakahara, 1981).

Official Control: *Laminicoccus pandani* is not known to be under official control anywhere.

California Distribution: *Laminicoccus pandani* is not known to be established in California.

California Interceptions: *Laminicoccus pandani* is occasionally intercepted, usually on *Pandanus*, from Hawaii (California Department of Food and Agriculture).

The risk *Laminicoccus pandani* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Laminicoccus pandani* is only reported from areas with a tropical climate. Although there is significant uncertainty regarding host range, specifically the suitability of plants outside the Pandanaceae as hosts, there are native Lythraceae and Poaceae in California. Climate, however, would likely limit the distribution of this species to southern and coastal areas. Therefore, it receives a **Low (1)** 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:** Literature suggests that *L. pandani* feeds on plants in four families. CDFA interceptions suggest hosts in at least two additional plant 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:** *Laminicoccus pandani* can be moved with infested plant material. 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**. Plants in the family Pandanaceae may be grown in warmer parts of California as ornamentals. If *L*. *pandani* was established in California, production costs of these plants could increase. Sugarcane is a reported host but is grown mostly in desert areas in California, where *L*. *pandani* is unlikely to establish. Therefore, *L*. *pandani* 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**. *Laminicoccus pandani* could impact ornamental plantings of plants in the family Pandanaceae, and this could trigger treatments. Therefore, *L. pandani* receives a **High (3)** in this category.

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: 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 *Laminicoccus pandani*: Medium (9)

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:** *Laminicoccus pandani* 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 (9)

Uncertainty:

There is a high degree of uncertainty regarding the potential for this mealybug to feed on and cause impacts to plants outside of the family Pandanaceae. As there are no native California plants in this family and only very limited ornamental cultivation in the state, this imparts a high degree of uncertainty to the level of risk that *L. pandani* poses to California.

Conclusion and Rating Justification:

Although it appears to be relatively low-risk compared to many other potential pests that have been assessed for California, *Laminicoccus pandani* is a mealybug that threatens ornamental plants in the family Pandanaceae and could also threaten a much wider variety of crop, ornamental, and native plants (with a high degree of uncertainty). It is not known to be established in California. For these reasons, an “A” rating is justified.

References:

Beardsley, J. W. 1966. Homoptera: Coccoidea. Insects of Micronesia 6:377-460.

California Department of Food and Agriculture. Pest and damage record database. Accessed February 3, 2021: https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

García Morales, M., Denno, B.D., Miller, D.R., Miller, G.L., Ben-Dov, Y., and N.B. Hardy. 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Accessed December 15, 2021: http://scalenet.info.

Hodgson, C. J. and Łagowska, B. 2011. New scale insect (Hemiptera: Sternorrhyncha: Coccoidea) records from Fiji: Three new species, records of several new invasive species and an updated checklist of Coccoidea. Zootaxa 2766:1-29.

Loope, L. and Pascal, M. 2006. Quelques espèces animals envahissantes aux frontiers de la Nouvelle-Calédonie aux frontiers de la Nouvelle-Calédonie et présentant un risqué environmental majeur. 246-257 in (Beauvais, M. -L., Coléno, A., and Jourdan, H., scientific coordinators) Les espèces envahissantes dans l'archipel néo-calédonien. IRD Éditions, Paris, France.

McKenzie, E. H. C., Liebregts, W., and Tairea, B. M. 2001. Niue pest survey. Short term consultancy – final report. Landcare Research New Zealand Ltd.

Nakahara, S. 1981. List of the Hawaiian Coccoidea (Homoptera: Sternorrhyncha). Proceedings of the Hawaiian Entomological Society 23:387-424.

Simmonds, H. W. 1925. Pests and diseases of the coconut palm in the islands of the Southern Pacific. Bulletin, Department of Agriculture, Fiji 16:1-31.

Veitch, R. and Greenwood, W. 1924. The food plants or hosts of some Fijian insects. Part 2. Proceedings of the Linnean Society of New South Wales 49:153-161.

Williams, D. J. and Watson, G. W. 1988. The Scale Insects of the Tropical South Pacific Region. Part 2: The Mealybugs (Pseudococcidae). CAB International Wallingford, U.K.

Responsible Party:

Kyle Beucke, 1220 N Street, Sacramento, CA 95814, 916-698-3034, permits[@]cdfa.ca.gov

***Comment Period: 02/23/2022 – 04/09/2022**

CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

***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.

Pest Rating: A