

California Pest Rating Proposal for

Miscanthicoccus miscanthi (Takahashi) - *Miscanthus* mealybug

Hemiptera: Pseudococcidae

Current Pest Rating: Q

Proposed Pest Rating: B

Comment Period: **3/13/2020 through 4/27/2020**

Initiating Event:

Miscanthicoccus miscanthi was intercepted on October 9, 2019 during a nursery regulatory inspection. It has previously been found in the environment in Mendocino and Riverside counties and has been intercepted on several occasions during nursery regulatory inspections in southern California. It has a Q rating presently. A pest rating proposal is required to assign a permanent rating.

History & Status:

Background: *Miscanthicoccus miscanthi* is a pest of ornamental *Miscanthus* grasses. It sucks fluids from leaf sheaths of plants, resulting in yellowing and twisting of leaves, stunted growth and reduced flower production. These mealybugs may not be readily visible due to their feeding within leaf sheaths of crowns of plants. Symptoms on plants become visible only when this mealybug occurs in high numbers. Purple spots on plant stems are a good indicator of the presence of this mealybug (Hale and Cook, 2009).

Miscanthicoccus miscanthi females overwinter as egg bearing individuals and crawlers emerge by May. There are three generations per year in Central and Eastern United States. Crawlers of each generation take 3-4 weeks to mature. They can spread by propagation of infested plants or when emerging crawlers are blown to near by plants (Hale and Cook, 2009).

Worldwide Distribution: *Miscanthicoccus miscanthi* is distributed in China, Japan, Russia, and Taiwan. It was introduced to the United States in 1989 and is currently found in California, Delaware, Maryland, Pennsylvania, South Carolina, and Virginia (Ben-Dov, 1994; Garcia et al., 2016).

Official Control: *Miscanthicoccus miscanthi* is not listed as a harmful organism in any countries. However, its main host, grasses in the genus *Miscanthus*, have been listed as harmful in Morocco (USDA PCIT).

California Distribution: *Miscanthicoccus miscanthi* has been found in the environment in Ukiah (Mendocino County) and Menifee (Riverside County), California (CDFA PDR Database).

California Interceptions: *Miscanthicoccus miscanthi* has been intercepted 34 times by CDFA between 1990 and 2019 through regulatory pathways mainly through nursery regulatory inspections and high-risk pest exclusion activities (CDFA PDR Database).

The risk *Miscanthicoccus miscanthi* (*Miscanthus mealybug*) would pose to California is evaluated below.

Consequences of Introduction:

- 1) Climate/Host Interaction:** *Miscanthus* grass, a main host of *Miscanthicoccus miscanthi*, grows best in Mediterranean climates with long, hot summers and cool winters. Its commonly grown in California (Waggy, 2011). *Miscanthicoccus miscanthi* is likely to spread in nursery and ornamental landscapes within the state.

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:** *Miscanthicoccus miscanthi* feeds on two genera of grasses, *Miscanthus* and *Phragmites* (Garcia et al., 2016). The genus *Miscanthus* is comprised of 14-20 species of perennial grasses (Heaton et al., 2008). *Miscanthus sinensis*, the main host of this species, is an introduced species and occurs widely in California (NatureServe 2019).

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 Dispersal Potential:** *Miscanthicoccus miscanthi* has a high reproduction and dispersal rate. There are three generations in one year. Life cycle is completed in 3-4 weeks' time. This species spreads through propagation of infested plants and through wind dispersal of immatures (Hale and David,

2009). *Miscanthicoccus miscanthi* is likely to spread through movement of infested nursery and landscape plants in California.

Evaluate the natural and artificial dispersal potential of the pest.

Score: 3

- 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:** *Miscanthicoccus miscanthi* slows down plant growth by causing reduced flower production and stem elongation. It also damages plants by excreting sticky honeydew, resulting in black sooty mold fungus growth. It can reduce plant vigor and attractiveness. Severely damaged plants can become extremely distorted, with white powdery wax covering the lower stems. Due to its ability to hide within leaf sheaths, its damage can be overlooked in early stages of infestation in nursery and landscape plants (Frank and Baker, 2010). The species could cause significant losses to *Miscanthus* growing areas in nursery and landscapes of California.

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

Economic Impact: A, B, (letters followed by bolded bullets)

- 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: 2

- 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:** *Miscanthicoccus miscanthi* is likely to impact nursery and landscape plants as it can spread through transport of nursery plants in California. This species is not expected to lower biodiversity, change ecosystems, or affect any threatened or endangered species. Since *Miscanthus sinensis* is planted widely in California landscapes, its infestations would likely trigger chemical treatments by homeowners.

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.
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- 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: 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 *Miscanthiococcus miscanthi*:

Add up the total score and include it here. # (score followed by bolded bullet)

-Low = 5-8 points

-**Medium = 9-12 points**

-High = 13-15 points

- 6) Post Entry Distribution and Survey Information:** *Miscanthiococcus miscanthi* has been found in Mendocino and Riverside counties. It receives a score of **Low (-1)** in this category

Score: -1

-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.

- 7) The final score is the consequences of introduction score minus the post entry distribution and survey information score: **Medium (11)****

Uncertainty:

Miscanthiococcus miscanthi has been found in the environment in Mendocino and Riverside counties in California. It has also been intercepted by CDFA during nursery regulatory inspections in numerous occasions since 1990. There are nurseries in southern and central California that sell *Miscanthus miscanthi* and other ornamental grasses, the main hosts of this mealybug. There have not been any recent formal surveys for the presence of this species, and it is likely that this species is more widely distributed in California than available records indicate.

Conclusion and Rating Justification:

Miscanthicoccus miscanthi has been found in limited parts of California and has the potential to spread to a wider portion of the state. Since its hosts plants grow statewide, its establishment and spread in California could likely have significant economic and environmental impacts. A “B” rating is justified.

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***Comment Period: 3/13/2020 through 4/27/2020**

***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 [plant.health\[@\]cdfa.ca.gov](mailto:plant.health[@]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:

- ❖ 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]
