CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

Coccus viridis (Green): green scale

Hemiptera: Coccidae

Current Rating: A

Proposed Rating: B

Comment Period: 10/12/2022 – 11/26/2022

Initiating Event:

Coccus viridis was found in the environment in California. At the time of the writing of this proposal, it is rated "A." A new pest rating proposal is needed.

History & Status:

Background: *Coccus viridis* is a polyphagous, parthenogenetic soft scale. Males are apparently rare (Bess, 1958). It is reported to feed on at least 158 genera in 65 families, including: **Anacardiaceae:** *Mangifera indica*, *Metopium toxiferum*; **Apocynaceae:** *Alstonia scholaris*, *Plumeria rubra*; **Araliaceae:** *Aralia* sp.; **Arecaceae:** *Manicaria saccifera*; **Asteraceae:** *Ambrosia* sp., *Baccharis halimifolia*, *Senecio* sp.; **Lauraceae:** *Nectandra* sp.; **Malvaceae:** *Theobroma cacao*; **Melastomataceae:** *Tetrazygia* sp.; **Musaceae:** *Musa* sp.; **Myrtaceae:** *Psidium guajava*; **Oleaceae:** *Jasminum* sp.; **Orchidaceae:** *Mormolyca polyphylla*; **Polygonaceae:** *Coccoloba uvifera*; **Primulaceae:** *Ardisia squamulosa*, *Primula vulgaris*; **Rubiaceae:** *Cephalanthus occidentalis*, *Coffea arabica*, *Gardenia* sp., *Ixora coccinea*, *Rothmannia annae*; **Rutaceae:** *Citrus sinensis*; **Sapotaceae:** *Chrysophyllum* sp., *Manilkara zapota* (Dekle and Fasulo, 2012; Fredrick, 1943; Malumphy, 2014; Malumphy and Treseder, 2012).

Coccus viridis is reported to cause defoliation, reduced fruiting, and sooty mold in host plants (Crop Knowledge Master; Dekle and Fasulo, 2012; Fornazier et al., 2017). Gill et al. (1977) described

Baccharis and *Psidium guajava* plants "blackened" by sooty mold in Florida. Its citrus pest status is reported as "minor" in Taiwan and minor in Portugal (Carvalho et al., 1996; Chiu and Lo, 1985). Heavy infestations on citrus (up to 325 scales per leaf) were reported by Frederick (1943). Heavy infestations reported to kill groundsel plants (Frederick, 1943). In lab experiments, coffee plants suffered decreased growth when infested by *C. viridis* (Fernandes et al., 2009).

Worldwide Distribution: *Coccus viridis* is probably native to Brazil. It has been introduced widely across the tropics and subtropics and is reported from over 90 countries, including: **Africa:** Kenya, Seychelles, Tunisia, Zanzibar Islands; **Asia:** Indonesia, Philippine Islands, Taiwan; Ceylon **Caribbean:** Cuba, Dominican Republic, Jamaica, Saint Lucia; **Central America:** Honduras, Panama; **Europe:** Portugal; **North America:** United States: (California [based on the official find reported in this proposal], Florida); **Oceania:** Guam Island, Tahiti **South America:** Brazil, Colombia (Carvalho et al., 1996; Crop Knowledge Master; Dekle and Fasulo, 2012; Elimem et al., 2019; Fornazier et al., 2017; García Morales et al., 2016; Gill et al., 1977; Malumphy, 2014; Michael et al., 2021). This scale is also found in greenhouses in areas that may not support field populations (e.g., the United Kingdom) (Malumphy and Treseder, 2012).

Official Control: *Coccus viridis* is on the A1 list in Argentina and Jordan (EPPO).

California Distribution: *Coccus viridis* was found on a mandarin tree in Bell Gardens, California (Los Angeles County) in September 2022 (California Department of Food and Agriculture).

California Interceptions: *Coccus viridis* is intercepted frequently on nursery stock and on plants in parcels entering the state (California Department of Food and Agriculture).

The risk *Coccus viridis* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** This scale is reported mostly in tropical and subtropical areas, although it is reported from at least one country with a Mediterranean climate (Portugal). In California, the central and southern coast and possibly the Central Valley could have a suitable climate. It is polyphagous and host plants likely occur over much of 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:** *Coccus viridis* 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:** *Coccus viridis* is parthenogenetic and could be moved with 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:** Detailed information on economic impacts resulting from *C. viridis* were not found. However, impacts are reported, including defoliation, sooty mold, and plant death. It is

reasonable to assume that the presence of this scale in California could decrease yield and increase production costs. Therefore, it receives a **Medium (2)** in this category.

Economic Impact: A, 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: Medium

– 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:** *Coccus viridis* could trigger treatments and impact ornamental plantings. It could impact native plants as well, as it is polyphagous and it is not possible to eliminate the possibility that native California plants are potential hosts. Therefore, *C. viridis* receives a **High (3)** in this category.

Environmental Impact: B, 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 *Coccus viridis*: High (13)

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:** *Coccus viridis* is known to be established in Los Angeles County. 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: Medium (12)

Uncertainty:

Coccus viridis may not be capable to establishing widely in California. Its pest potential may have been overestimated in this proposal; although it is reported to impact plant health, reports of economic impacts attributed to this species were not found. Perhaps the greatest uncertainty is that regarding its distribution in California. This commonly-intercepted scale may be more widely established in California than is currently known.

Conclusion and Rating Justification:

Coccus viridis is a soft scale that is established in Los Angeles County. It is reported to cause significant impacts to some host plants and is considered a potential pest of agriculture and environment in California. For these reasons, a "B" rating is justified.

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***Comment Period: 10/12/2022 – 11/26/2022**

***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: B