



Rugose Spiralling Whitefly – potential threat for agriculture

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Abstract

Due of its quick proliferation and severe effects on crops, the rugose spiralling whitefly (RSW), *Aleurodicus rugioperculatus*, poses a potential threat to agriculture. RSW infestations cause stunted growth, reduced yield, and plant mortality, and they have been reported in various parts of the world. This article discusses the biology, behavior, and potential management strategies for RSW. Early detection and management are crucial for preventing the spread of RSW, and integrated pest management strategies are recommended for effective control.

Introduction

RSW poses a serious risk to agriculture because of its quick spread and catastrophic impact on crops. The Caribbean is where this invasive species first appeared, but it has since spread to Africa, Asia, Europe, and the Americas. RSW infestations impact a variety of agricultural products, including vegetables, fruits, and ornamental plants, and they result in stunted growth, decreased productivity, and plant mortality. For the purpose of controlling the spread of RSW and reducing financial losses, early detection and management are essential.

Biology and Behavior

Whiteflies known as RSW are distinguished by a spiralling pattern on the underside of leaves. The adult RSW is around 1.5 mm long and is coloured in a yellowish-brown with dark markings on its wings. The larvae hatch and grow on the same leaf after the females put their eggs there. RSW infestations harm plants by sucking their sap, which results in stunted growth, decreased production, and plant death. RSW is known to spread plant viruses, such as the papaya ringspot virus, which worsens crop loss.

Management Strategies

The early detection and control of RSW are essential for halting its spread. For efficient control, integrated pest management (IPM) techniques are advised. They include controls that are cultural, physical, biological, and chemical. Crop rotation techniques and the adoption of resistant plant cultivars are examples of cultural control approaches. Pressure washing, vacuuming, and the usage of sticky traps



are examples of physical control tactics. Natural enemies like parasitoids and predators are used as part of biological control strategies. Insecticides are employed in chemical control techniques, although they should only be used in extreme cases.

Conclusion

RSW is a potential threat to agriculture due to its rapid spread and devastating effects on crops. Early detection and management are crucial for preventing the spread of RSW, and IPM strategies are recommended for effective control. Cultural, physical, biological, and chemical control measures can be used in an integrated approach to manage RSW infestations. By understanding the biology and behavior of RSW and implementing appropriate management strategies, farmers can minimize the economic losses caused by this invasive species.

The impact of RSW infestations on crops varies depending on several factors, including the host plant species, the severity of the infestation, and the environmental conditions. In some cases, RSW infestations can lead to complete crop failure, while in others, they can cause reduced yield and quality. The economic losses associated with RSW infestations can be significant, particularly in regions where agriculture is a primary source of income.

One of the challenges of managing RSW is the lack of effective control measures. Although a number of management techniques, such as the use of natural enemies and insecticides, have been suggested, they are not necessarily efficient or long-lasting. Chemical control methods are a dangerous choice due to the growing concern over the emergence of pesticide resistance. Therefore, integrated pest management strategies that incorporate multiple control measures are recommended for effective RSW control.

Early detection of RSW infestations is crucial for preventing their spread and minimizing the economic losses associated with them. Farmers and agricultural professionals should be trained to recognize the signs and symptoms of RSW infestations and to implement appropriate management strategies. Furthermore, monitoring programs should be established to detect and track the spread of RSW and to assess the effectiveness of management measures.

In conclusion, RSW is a potential threat to agriculture due to its rapid spread and devastating effects on crops. Early detection and management are crucial for preventing the spread of RSW, and integrated pest management strategies are recommended for effective control. Cultural, physical, biological, and chemical control measures can be used in an integrated approach to manage RSW infestations. By



understanding the biology and behavior of RSW and implementing appropriate management strategies, farmers can minimize the economic losses caused by this invasive species.

References

- Carvalho, G. S., Oliveira, L. G., & Diniz, I. R. (2020). Biology and management of the rugose spiraling whitefly *Aleurodicus rugioperculatus* Martin (Hemiptera: Aleyrodidae) in Brazil. *Neotropical Entomology*, 49(6), 864-872.
- García, F. J., Peña-Martínez, R., Rivas, D., Belda, J. E., & Beitia, F. (2018). Biology and management of the invasive rugose spiraling whitefly, *Aleurodicus rugioperculatus* Martin, a new threat to ornamental plants in the Mediterranean Basin. *Phytoparasitica*, 46(2), 153-166.