

2022

January

Recent Methods and Technologies for an Early Detection of Red Palm Weevil Infestation: A Review

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The red palm weevil (RPW) (Rhynchophorus ferrugineus) is one of the world's most destructive pest of oil palm plantation as it can damage the entire palm and incur a total loss to the planters. Early detection of the RPW is difficult, and when the symptoms of infestation are discovered, usually the plant is not salvageable. The adult RPW lays the eggs inside the tree trunk and starts feeding on the tissue of the plant and remains inside until the tree dies. Intensive efforts have been explored to enhance the early detection process of RPW in the field. There are numerous detection methods for discovering the infected trees, such as manual visual inspection, acoustic detection, chemical odour/signal detection, canine detection, thermal sensing, remote sensing, Geographic Information System mapping (GIS), Internet of Things (IoT), cloud platform and data mining-based technology. In this article, the current methods and technologies used for the early detection of RPW are explored and discussed.

Keywords: *Red palm weevil, acoustic detection, canine detection, thermal sensing, early detection, IoT.*