INNOVATIVE SOLUTIONS USING MODERN TECHNOLOGIES FOR BETTER MANAGEMENT, CONTROL AND ANALYSIS OF *Rhynchophorus ferrugineus* ERADICATION

Keith Cressman[1] Kiran Viparthi[2]

1 Senior Agriculture Officer, AGP, FAO
2 IT Officer, CIO, FAO

Red Palm Weevil (RPW), *Rhynchophorus ferrugineus* (Olivier), is a key pest associated with various palm species, including ornamental palms and coconuts. It was reported in the early 1980s and is now found in various regions and countries that span Asia, Africa, the Near East, Europe, Oceania, the Caribbean and the United States, causing an annual estimated loss of USD 6–26 million that is increasing on average about five percent per year.

A variety of strategies, methodologies, research and solutions have been proposed and developed during the past few decades to fight and eradicate RPW in infested areas but these have not been fully implemented. There is an urgent need to address RPW in a coherent manner at the local, national, regional and global levels in order to effectively and efficiently manage the pest on a sustainable basis.

In addition to a more global approach, the application of innovative solutions, including the integration of modern technologies such as Google Earth Engine, UAVs (drones), mobile devices, GIS, Internet of things (IoTs) such as smart traps and sensors, within the local context and conditions would further assist in:

- effective data collection and data management;
- effective planning and management;
- spatial management and visualization of the managed sites;
- spatial analysis for optimal decision-making;
- efficient management and optimization of human and technological resources;
- automated identification of the palm crops (where high resolution is available);
- program assessment and review of efficiency and effectiveness;
- assessment of the results and achievement of the objectives from readily available quality information;
- assessment of traps, servicing and workers;
- improvement of the communication at national, regional and global levels;
- migration and movement of palms including quarantine;
- implementation of the innovative solutions for improved monitoring as applicable.

Keywords: GIS, *Rhynchophorus ferrugineus*, Red Palm Weevil, palm trees, decision-making, eradication program, Earth Engine, UAVs, drones, IoTs, innovation