The current state of the art research and technologies on RPW management

Hassan Yahya Al-Ayedh

Professor of Entomology, Life Science And Environment Research Institute, National Center of Agriculture Technology, King Abdulaziz City for Science And Technology, Riyadh , Saudi Arabia. P.O. Box 6086 Riyadh 11442.
alayedh@kacst.edu.sa

Date palm is the major crop of agriculture sector in Arabian Peninsula. More than five thousand years *Phoenix dactylifera* is cultivated. However, for the last three decades *Rhynchophorus ferrugineus* has caused significant annual production losses. Red palm weevil (RPW) *Rhynchophorus ferrugineus* is a major pest of palm species globally and is known to cause heavy damages annually in different places in the world such as Far-east and Middle eastern countries. Initially after emerging from south Asia this pest flourished in the middle eastern countries where it causes annual loss of millions of dollars. And significant percent of date palm production is lost because of this pest. In the Gulf region the number of date palm trees have been estimated to be 109 million yielding with 4.2 million metric tons. The RPW attacks different palm species including *Phoenix dactylifera*, *Areca catechu,*and about 15 more. Since very beginning of its emergence in local date palm orchards, this pest has been mainly controlled by the use of synthetic insecticides.

In order to control RPW, number of researches carried out in different fields. However, bibliographic data reveals that to manage this pest, a few aspects were under more focus as compared to others. Generally, more work has been done post-emergence of this pest where control measures including insecticides, pheromone traps and biological control measures to avoid expanding of this pest, but the angles that have been neglected include early detection of this pest, molecular studies, cellular studies etc.

In this study we tried to estimate, how the world's research community is responding to counter the pressure of this notorious pest. During this study, assessment was made on how much focus has been given on certain research angles and the points that have been neglected and need further work.

The overview of the work on RPW reveals that there was a lot of repetition and redundancy of the work. There are a number of areas that were heavily worked on. However, I think it is necessary to concentrate on some areas that are needed and minimize the work on others. Therefore, the research priorities should be given to Early detection and forecasting, Insecticides delivery techniques, systemic insecticides, Insect plant tritrophic relationship and applied Molecular cell studies.