

SMALL HIVE BEETLE; RISK ASSESSMENT FOR TURKEY

Levent Aydin

Department of Parasitology, Faculty of Veterinary Medicine, Uludag University
Bursa, Turkey

Turkey is the second largest world producer of honey; however the beekeeping industry is not supported with appropriate income, especially from the export of honey and honey products. The main reason for this is the presence of pesticide residues in the honey.

In addition, many bee diseases are present in Turkey. In this report, a detailed description of the epidemiology of small hive beetle (SHB) has been performed: While SHB is not present in Turkey a risk assessment and consequence assessment was performed to better prepare should SHB be introduced and identify introduction pathways. The process of risk assessment was performed in several stages: i) hazard identification; ii) identification of risk pathways; iii) assessing of risk for introduction with identified pathways; and iv) consequence assessment and assessing the risk that diseases becomes endemic after introduction in Turkey. A spreadsheet using RiskAMP add-in for excel was constructed with probability distribution for each route of introduction as per the adopted pathways and simulations were conducted using the Monte Carlo method.

With the given assumptions for the simulations, the probability of introduction of small hive beetle in Turkey varies from the lowest 0.17 per 1,000 events/days (or 1.7 per 10,000 days or 27 years) to the highest level of probability of introduction of SHB in Turkey of 0.6 per 1,000 events/imports (or 6 per 10,000 days or in 27 years) for the year no. 2 of the simulation. According to the results of the simulation, the highest likelihood of introduction comes from importation of fruit (11/15) and importation of soil/compost (4/15). The mean probability of introduction of SHB infestation after 1000 iterations of the constructed model is 0.37 per 1,000 events/days (or 3.7 within 10,000 events/days i.e. 27 years).

Consequences of the destruction caused by the introduction of SHB are great: Simulated average consequence after introduction of SHB is 520 million USD.

Keywords: *Aethina tumida*; SHB; Risk; Turkey