

Title Determination of the optimum sterilizing radiation dose for control of the red date palm weevil *Rhynchophorus ferrugineus* Oliv. (Coleoptera: Curculionidae)

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Abstract

The optimum dose of gamma radiation for sterilizing the red date palm weevil was determined using newly emerged weevils obtained from colonies established on four date palm cultivars in the laboratory. Male weevils from each date palm cultivar were treated with gamma radiation doses of 10, 15, 20, 25 or 30 Gray (Gy) and then mated with similar aged females to determine egg hatchability and male lifespan. Hatchability percent was significantly reduced at 15 Gy and above, and male lifespan was decreased at 10-15 Gy and above. Date palm cultivar significantly affected average male lifespan as well as egg hatchability, and the interaction between radiation dose and date palm cultivar was significant for both parameters. These results indicate that 15 Gy of gamma radiation to be an optimum dose for sterilizing red date palm weevil.