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THE USE OF GAMMA RADIATIONS AS A QUARANTINE CONTROL MET AGAINST THE "ORANGE FRUIT BORER" *Ecdytolopha aurandana*

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Brazil is one of the most important fruit producing countries of the world and, among the fruits produced, oranges are one of the most important crops. The greatest production is concentrated in the State of Silo Paulo and the most part of the production is transformed into concentrated juice. Export of oranges "in natura" is small, and insects pests are the main obstacle to increase trading.

The present paper summarizes research on the application of gamma radiation against possible quarantine species. As an example, Faria prevented in 1994 the export of 45,000 boxes of grapefruits, all infested with the "orange fruit borer", to foreign countries. Formerly this species was not economically important, but the concentration of cultures within continuous orange fields without other crops intermixed beyond other wrong control measures increased the importance of this species. Thus, since the beginning of the nineties in the State of Sao Paulo and then in the whole country, the "orange fruit borer" turned into one of the most important insects pests to citrus orchards.

The main objective of this study was to determine the gamma radiation dose capable of avoiding emergency of adults of the "orange fruit borer" *Ecdytolopha aurantiana (Lima,* 1927), applied to orange fruits after harvesting, in the packing house before shipping.

The experiments were performed with infested fruits irradiated with doses of 0 (control), 50, *100,* 150, 200, 300, 400, 500, 600, 700 and 800 Gy at a dose rate of 1.34 kGy per hour. After irradiation the fruits were maintained under controlled environmental conditions in a rearing chamber between 23 and 25° C. From all irradiated insects only ten out of 275 turned into adults, and even these came from fruits irradiated with less than 300 Gy, which could be considered the disinfestation dose for this species. Also the outcomming insects, if irradiated with doses up to 300 Gy, had deformed wings and were probably also mechanically incapable to reproduce. Thus a dose of 400 Gy would be sufficient as a quarantine dose.