

Title           A generic irradiation dose for postharvest control of fruit flies worldwide.  
Author         Follett, P. A. and Armstrong, J. W.  
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#### **Abstract**

In 1986, based on data for many fruit fly species and a limited number of other insect pests, the International Consultative group on Food Irradiation recommended a generic irradiation dose of 150 Gy for tephritid fruit flies and 300 Gy for other insects. Although no country has adopted generic doses, a dose for all tephritid fruit flies may be forthcoming in the USA. Melon fly (*Bactrocera cucurbitae*), medfly (*Ceratitidis capitata*) and Oriental fruit fly (*Bactrocera dorsalis*) infesting fruits and vegetables for export from Hawaii to the US mainland were tested at 210, 225, and 250 Gy, respectively. Mature third instars (of wild and laboratory strains) were transferred to pawpaw or diet 24 h before treatment. Of the three species, melon fly was the most tolerant of irradiation. Medfly was significantly less tolerant than melon fly or Oriental fruit fly, contrary to earlier findings. Melon fly laboratory strain was equally tolerant of irradiation compared with the wild strain. Therefore, the two strains could be used interchangeably in irradiation testing. Melon fly was significantly more tolerant of irradiation when given the pawpaw fruit than the synthetic diet. Therefore, irradiation tests should always use insects in fruits. In large-scale tests, 150, 120 and <100 Gy applied to 50 000, 30 000 and 30 000 mature third instars of melon flies, Oriental fruit flies and medflies, respectively, in pawpaws all resulted in 0 survivors to the adult stage.