# CURRENT STATUS OF GENERIC PHYTOSANITARY IRRADIATION TREATMENTS AND RESEARCH NEEDS

Andrea Beam*[1], Guy Hallman[2], Woodward Bailey[1] and Laura Jeffers[3]
[1] USDA-APHIS-PPQ-CPHST, Miami, FL
[2] Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture, IAEA, Vienna, Austria
[3]USDA-APHIS-PPQ-CPHST, Raleigh, NC

Use of phytosanitary irradiation (PI) is increasing, and this treatment holds promise to solve many quarantine problems, including the need for methyl bromide alternatives. The large majority of PI treatments use generic doses. For example, a dose of 150 Gy is used for Tephritidae fruit flies for citrus, mango and manzano pepper imported into the United States (U.S.) from Mexico. In addition, APHIS has approved a generic dose of 400 Gy for all insects except pupae and adults of Lepidoptera, and this treatment is used for fruits imported into the U.S. from Thailand, India, Pakistan, Mexico and Vietnam. Australia also uses generic PI treatments for exporting fruits to New Zealand and Malaysia (Hallman, 2012).

The International Atomic Energy Agency (IAEA) sponsored a 5 year cooperative research project with 12 nations to develop generic PI treatments. This project was completed in 2014, and may lead to acceptance of additional generic treatments by the International Plant Protection Convention (IPPC). However, research is still needed to support further generic treatments. Hallman (2012) identified several groups of organisms for which generic treatments would be beneficial because they appear frequently in pest risk analyses: Lepidoptera, mealybugs, and scale insects. There may already be sufficient research to support a generic dose for mealybugs and the family Tortricidae of Lepidoptera.

Therefore, future research to develop generic PI treatments should concentrate on scale insects and families of Lepidoptera other than Tortricidae. Mites also frequently appear in pest risk analyses and are managed by inspection rather than commodity treatment. However, inspection is time consuming and may not detect low infestation levels; thus, research to develop a generic PI treatment for mites is also recommended.

Reference:
Hallman, G., 2012. Generic phytosanitary irradiation treatments. Radiation Physics and Chemistry. 81:861–866.