



## **INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES**

### **ISPM 28 PHYTOSANITARY TREATMENTS**

#### **PT 11: Irradiation treatment for *Grapholita molesta* under hypoxia (2010)**

##### **Scope of the treatment**

This treatment applies to the irradiation of fruits and vegetables at 232 Gy minimum absorbed dose under hypoxic conditions to prevent oviposition of *Grapholita molesta* at the stated efficacy. This treatment should be applied in accordance with the requirements outlined in ISPM 18:2003<sup>1</sup>.

##### **Treatment description**

<b>Name of treatment:</b>	Irradiation treatment for <i>Grapholita molesta</i> under hypoxia
<b>Active ingredient:</b>	N/A
<b>Treatment type:</b>	Irradiation
<b>Target pest:</b>	<i>Grapholita molesta</i> (Busck) (Lepidoptera: Tortricidae)
<b>Target regulated articles:</b>	All fruits and vegetables that are hosts of <i>Grapholita molesta</i> .

##### **Treatment schedule**

Minimum absorbed dose of 232 Gy to prevent oviposition of *Grapholita molesta*.

Efficacy and confidence level of the treatment is ED<sub>99,9932</sub> at the 95% confidence level.

Treatment should be applied in accordance with the requirements of ISPM 18:2003.

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<sup>1</sup> The scope of phytosanitary treatments does not include issues related to pesticide registration or other domestic requirements for approval of treatments. Treatments also do not provide information on specific effects on human health or food safety, which should be addressed using domestic procedures prior to approval of a treatment. In addition, potential effects of treatments on product quality are considered for some host commodities before their international adoption. However, evaluation of any effects of a treatment on the quality of commodities may require additional consideration. There is no obligation for a contracting party to approve, register or adopt the treatments for use in its territory.

### Other relevant information

Since irradiation may not result in outright mortality, inspectors may encounter live, but non-viable *Grapholita molesta* (larvae, pupae and/or adults) during the inspection process. This does not imply a failure of the treatment.

Although the treatment may result in the presence of irradiated adults, the following factors may affect the likelihood of adults being found in traps in importing countries:

- Only a very small percentage of adults are likely to emerge after irradiation.
- Irradiated adults are very unlikely to survive for more than one week, post-irradiation, and they are therefore less likely to spread than non-irradiated adults.

The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research work undertaken by Hallman (2004) that determined the efficacy of irradiation as a treatment for this pest in *Malus domestica*.

Extrapolation of treatment efficacy to all fruits and vegetables was based on knowledge and experience that radiation dosimetry systems measure the actual radiation dose absorbed by the target pest independent of host commodity, and evidence from research studies on a variety of pests and commodities. These include studies on the following pests and hosts: *Anastrepha ludens* (*Citrus paradisi* and *Mangifera indica*), *A. suspensa* (*Averrhoa carambola*, *Citrus paradisi* and *Mangifera indica*), *Bactrocera tryoni* (*Citrus sinensis*, *Lycopersicon lycopersicum*, *Malus domestica*, *Mangifera indica*, *Persea americana* and *Prunus avium*), *Cydia pomonella* (*Malus domestica* and artificial diet) and *Grapholita molesta* (*Malus domestica* and artificial diet) (Bustos *et al.*, 2004; Gould & von Windeguth, 1991; Hallman, 2004, Hallman & Martinez, 2001; Jessup *et al.*, 1992; Mansour, 2003; von Windeguth, 1986; von Windeguth & Ismail, 1987). It is recognized, however, that treatment efficacy has not been tested for all potential fruit and vegetable hosts of the target pest. If evidence becomes available to show that the extrapolation of the treatment to cover all hosts of this pest is incorrect, then the treatment will be reviewed.

### References

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- Gould, W.P. & von Windeguth, D.L. 1991. Gamma irradiation as a quarantine treatment for carambolas infested with Caribbean fruit flies. *Florida Entomologist*, 74: 297–300.
- Hallman, G.J. 2004. Ionizing irradiation quarantine treatment against Oriental fruit moth (Lepidoptera: Tortricidae) in ambient and hypoxic atmospheres. *Journal of Economic Entomology*, 97: 824–827.
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- Mansour, M. 2003. Gamma irradiation as a quarantine treatment for apples infested by codling moth (Lepidoptera: Tortricidae). *Journal of Applied Entomology*, 127: 137–141.
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- von Windeguth, D.L. & Ismail, M.A. 1987. Gamma irradiation as a quarantine treatment for Florida grapefruit infested with Caribbean fruit fly, *Anastrepha suspensa* (Loew). *Proceedings of the Florida State Horticultural Society*, 100: 5–7.

**Publication history**

*This is not an official part of the standard*

2006-04 CPM-1 added topic *Irradiation treatment for Grapholita melosa under hypoxia*

2006-12 TPPT developed draft text and recommended to the SC (2006-127B)

2007-07 SC revised draft text and approved for member consultation via email

2007-10 Member consultation under fast-track process

2008-07 TPPT reviewed and revised draft text via email

2008-12 SC revised draft text via e-decision

2009-03 Secretariat received formal objections prior to CPM-4

2009-05 SC requested the TPPT to review

2009-11 TPPT revised draft text via email

2009-11 SC revised draft text for adoption

2010-03 CPM-5 adopted Annex 11 to ISPM 28:2007

**ISPM 28. 2007: Annex 11** *Irradiation treatment for Grapholita molesta under hypoxia* (2010). Rome, IPPC, FAO.

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