PT 11:
Irradiation treatment for
*Grapholita molesta* under hypoxia
This phytosanitary treatment was adopted by the Fifth Session of the Commission on Phytosanitary Measures in 2010. The annex is a prescriptive part of ISPM 28.

ISPM 28
Phytosanitary treatments for regulated pests

PT 11: Irradiation treatment for *Grapholita molesta* under hypoxia

*Adopted 2010; published 2016*

**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\(^1\) (*Guidelines for the use of irradiation as a phytosanitary measure*).

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

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

There is 95% confidence that the treatment according to this schedule prevents oviposition of not less than 99.9932% of *Grapholita molesta*.

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

**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.

---
\(^1\)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.
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

The present standard refers to International Standards for Phytosanitary Measures (ISPMs). ISPMs are available on the International Phytosanitary Portal (IPP) at https://www.ippc.int/core-activities/standards-setting/ispms.


Publication history

This is not an official part of the standard

2006-04 CPM-1 added topic Irradiation treatment for Grapholita molesta under hypoxia (2006-127B)

2006-12 TPPT developed draft text and recommended to the SC

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


2015-07 IPPC Secretariat incorporated editorial amendments and reformatted standards following revoking of standards procedure from CPM-10 (2015).

2016-04 CPM-11 noted ink amendments in relation to "effective dose".

2016-04 IPPC Secretariat incorporated ink amendments from CPM-11 (2016).

Publication history last modified: 2016-04.
The International Plant Protection Convention (IPPC) is an international plant health agreement that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. International travel and trade are greater than ever before. As people and commodities move around the world, organisms that present risks to plants travel with them.

**Organization**

- There are over 180 contracting parties to the IPPC.
- Each contracting party has a national plant protection organization (NPPO) and an Official IPPC contact point.
- Nine regional plant protection organizations (RPPOs) work to facilitate the implementation of the IPPC in countries.
- IPPC liaises with relevant international organizations to help build regional and national capacities.
- The Secretariat is provided by the Food and Agriculture Organization of the United Nations (FAO).