

COMMISSION ON PHYTOSANITARY MEASURES

TWENTIETH SESSION

REPORT FROM THE JOINT FAO/IAEA CENTRE OF NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE TO CPM-20 (2026)

AGENDA ITEM 22.3

1. The International Atomic Energy Agency (IAEA), in partnership with the Food and Agriculture Organization of the United Nations (FAO), through their Joint FAO/IAEA Centre of Nuclear Techniques in Food and Agriculture (Joint FAO/IAEA Centre), since 2004 has been actively supporting the Secretariat of the International Plant Protection Convention (IPPC) in the development and review of International Standards for Phytosanitary Measures (ISPMs) and its activities to improve phytosanitary capacity of IPPC Contracting Parties.
2. The Joint FAO/IAEA Centre continued to support the IPPC Secretariat in 2025.
3. To celebrate the 2025 International Day of Plant Health, 18 African countries have come together to discuss environmentally friendly ways to protect fruit and vegetable harvests from insect pests in Agadir, Morocco. The country recently completed the construction of a new mass-rearing facility with a capacity of 130 million sterile Mediterranean fruit flies per week to apply the sterile insect technique (SIT) to protect citrus harvests, which plays a significant role in the country's economy. To leverage this new infrastructure, a workshop on using the SIT for integrated pest management was held in Agadir, Morocco. (<https://www.iaea.org/newscenter/news/international-day-of-plant-health-suppressing-fruit-flies-in-africa>).
4. The Joint FAO/IAEA Centre organized a side event at the 2025 United Nations Climate Change Conference (COP30) in Belém, Brazil on “Turning the Tide on Pests: Harnessing sterile insects for climate-smart farming in Latin America and the Caribbean”. The conference featured panellist from Brazil, Chile, Mexico and FAO/IAEA, and had the following outcome:
 - increased visibility of the sterile insect technique (SIT) as a successful and environmentally friendly method for managing fruit fly pests
 - enhance global awareness of how SIT can support international trade and promote sustainable food systems
 - encourage greater collaboration between countries and organizations to implement SIT programmes
5. In support of the *Technical Panel on Phytosanitary Treatments* (TPPT) activities, the Joint FAO/IAEA Centre provided technical expertise, reviewed supporting data related to ISPMs, and conducted research to fulfil requirements for treatment recommendation. The support included leading the revision and draft of the promising phytosanitary irradiation treatment of fresh commodities against *Liriomyza sativa*, *L. trifolii*, and *L. huidobrensis* (2018-001), now recommended for country consultation to the Standard Committee (SC) as annex to ISPM 28. The Joint FAO/IAEA Centre also led the revision of the generic irradiation treatment against all insects except pupae and adults

of Lepidoptera (2017-030). The TPPT agreed with the proposed approach to use a species sensitivity distribution analysis to assess whether the 300 Gy generic irradiation treatment could be supported for Insecta, excluding pupal and adult Lepidoptera, as proposed in treatment 2017-030.

6. The Insect Pest Control Laboratory (IPCL) of the Joint FAO/IAEA Centre completed scientific research projects on phytosanitary irradiation treatment for *Drosophila suzukii* under modified atmosphere and chilling conditions. Our results indicate that modified atmosphere alone, or combine with chilling, does not reduce the efficacy of phytosanitary irradiation for *D. suzukii*. These findings can be used to support the future application of phytosanitary irradiation treatment for *D. suzukii* under modified atmosphere without restrictions. Results from confirmatory tests on phytosanitary irradiation for *D. suzukii* and cold treatment for *Zeugodacus tau* conducted at the IPCL were used as baseline information to support the irradiation treatment for *Drosophila suzukii* (2025-004), recently added to the IPPC List of Topics, and the recommendation for country consultation of the cold treatment for *Zeugodacus tau* on *Citrus sinensis* (2023-004). Ongoing studies targeting *Bactrocera carambolae* and *B. dorsalis* are evaluating the efficacy of hot water and vapor heat treatments.
7. In addition, the FAO/IAEA Centre also contributed to the following adoptions at the CPM 19: PT 1 (Irradiation treatment for *Anastrepha ludens*) PT 2 (Irradiation treatment for *Anastrepha obliqua*) and PT 3 (Irradiation treatment for *Anastrepha serpentina*) were revoked, as their treatments are covered by PT 39 (Irradiation treatment for the genus *Anastrepha*).
8. The Joint FAO/IAEA Centre is implementing a coordinated research initiative on Novel Irradiation Technology for Phytosanitary Treatment of Food Commodities and Promotion of Trade (CRP D61026). With 17 institutions collaborating to validate radiation doses that can be considered as generic irradiation treatments for key groups of pests. Research is also investigating factors that might affect treatment efficacy. The 3rd research coordination meeting was held in December 2024, with an online participation of the IPPC Secretariat providing valuable inputs to the meeting. Research activities are on target to yield data to support dose treatments for five generic groups: weevils, mealybugs, egg and larval Lepidoptera, pupal Lepidoptera, and all insects except pupae and adult Lepidoptera. So far, four new irradiation treatments have been submitted to TPPT (IPPC) for inclusion as annexes in ICPM 28. Research work is still ongoing, and the final coordination meeting will be scheduled for Q4-2026.
9. During May 2025, following a request from IPPC Secretariat, the progress on work of the Joint Centre on Banana Foc TR4 including R&D on mutation breeding and diagnostics was presented to the Implementation and Facilitation Committee, in response to a CPM mandate and a proposal from GRULAC.
10. In 2025, the Joint FAO/IAEA Centre co-convened a hybrid symposium and meeting towards strengthening Member State capacities to combat banana Fusarium Wilt (TR4). Over 37 participants from Asia, Africa, and Latin American regions participated at the symposium. This diverse group, including international experts, and representatives from National Agricultural Research Systems (NARS) and National Plant Protection Organizations (NPPOs), together with delegates from international organizations such as GIZ and IICA met to exchange expertise and define global and regional priorities. The training supported hand on practical knowledge on timely

diagnosis, early warning, and response activities using molecular methods, to strengthen preparedness and management strategies.

11. The Joint FAO/IAEA Centre is implementing a coordinated research project on Integrative Approach to Enhance Disease Resistance Against Fusarium Wilt (*Foc* TR4) in Banana engaging 13 institutions from 12 countries throughout Asia, Africa, and Latin America. The third research coordination meeting held in May 2025, highlighted significant advancements in all project areas. Specifically, researchers have successfully developed mutant lines for Cavendish and various local cultivars, several showing confirmed resistance to *Foc* STR4 that will be tested for *Foc* TR4, and tested disease detection methods under field conditions.
12. In terms of development of technical materials to support the implementation of the ISPMs, upon the request of FAO Members and IAEA Member States the following materials were produced in 2025:
 - FAO/IAEA. (2025). *Thematic Plan for Fruit Fly Management Using the Sterile Insect Technique*. Vienna, Austria. 62 pp. <https://www.iaea.org/sites/default/files/ff-thematic-plan.pdf>
 - FAO/IAEA. (2025). *Guidelines for mass-rearing of the Mexican fruit fly Anastrepha ludens (Loew)*. Yeudiel Gómez-Simuta, Walther Enkerlin and M. Teresa Vera (eds.). Food and Agriculture Organisation of the United Nations/International Atomic Energy Agency. Vienna, Austria. 42 pp. https://www.iaea.org/sites/default/files/mass-rearing_al.pdf
 - FAO/OIEA. (2025). *Guía para la cría masiva de la mosca mexicana de la fruta Anastrepha ludens (Loew)*. Yeudiel Gómez-Simuta, Walther Enkerlin y M. Teresa Vera (eds.). Organización de las Naciones Unidas para la Agricultura y Alimentación/Organismo Internacional de Energía Atómica. Viena, Austria. 45 pp. https://www.iaea.org/sites/default/files/cria_masiva_al.pdf
 - FAO/IAEA. (2025). *Guidelines for mass-rearing of the West Indian fruit fly Anastrepha obliqua (Macquart)*. Yeudiel Gómez-Simuta, Walther Enkerlin and M. Teresa Vera (eds.). Food and Agriculture Organisation of the United Nations/International Atomic Energy Agency. Vienna, Austria. 41 pp. <https://www.iaea.org/sites/default/files/mass-rearing-ao.pdf>
 - FAO/IAEA. (2025). *Guía para la cría masiva de la mosca de las Indias Occidentales Anastrepha obliqua (Macquart)*. Yeudiel Gómez-Simuta, Walther Enkerlin y M. Teresa Vera (eds.), Organización de las Naciones Unidas para la Agricultura y Alimentación/Organismo Internacional de Energía Atómica. Viena, Austria. 43 pp. <https://www.iaea.org/sites/default/files/cria-masiva-ao.pdf>
13. In terms of capacity building, the Joint FAO/IAEA Centre has devoted part of its technical assistance to regulatory aspects and facilitated the implementation of the ISPMs in developing countries through regional workshops and technical meetings. In 2025, seven FAO/IAEA training events (courses and workshops) were held, addressing the following topics:
 - FAO/IAEA Regional Training Course on GIS and Database on Fruit Fly Management (under Regional TC Project RAS5097). 3–7 March 2025, Hanoi, Viet Nam.

- *FAO/IAEA Regional Workshop on Sterile Insect Technique (SIT) for Fruit Fly Area Wide Integrated Pest Management (under Regional TC Project RAF5092). 28–30 April 2025, Agadir, Morocco.*
- *FAO/IAEA Regional Training Course on Fruit Fly Molecular Identification (under Regional TC Project RAS5097). 7–11 July 2025, Beijing, China.*
- *FAO/IAEA Meeting and Symposium on Enabling Technologies for Resistance and Management of Banana Fusarium Wilt (Tropical Race TR4) (under Interregional TC Project INT5158). 11–15 August 2025, Kunming, Yunnan, China.*
- *FAO/IAEA Regional Training Course on Area-wide Fruit Fly Integrated Pest Management including Sterile Insect Technique (SIT) and Male Annihilation Technology (MAT) (Under Regional TC Project RAS5097). 27-31 October 2025, Bangkok, Thailand,*
- *Side event “Turning the Tide on Pests: Harnessing sterile insects for climate-smart farming in Latin America and the Caribbean” at the 2025 United Nations Climate Change Conference (COP30) on 14 November 2025 in Belém, Pará, Brazil.*
- *FAO/IAEA Regional Training Course on Advanced Methods of Ground and Aerial Release of Sterile Male Fruit Flies 1-5 Dec 2025. General Roca, Argentina.*