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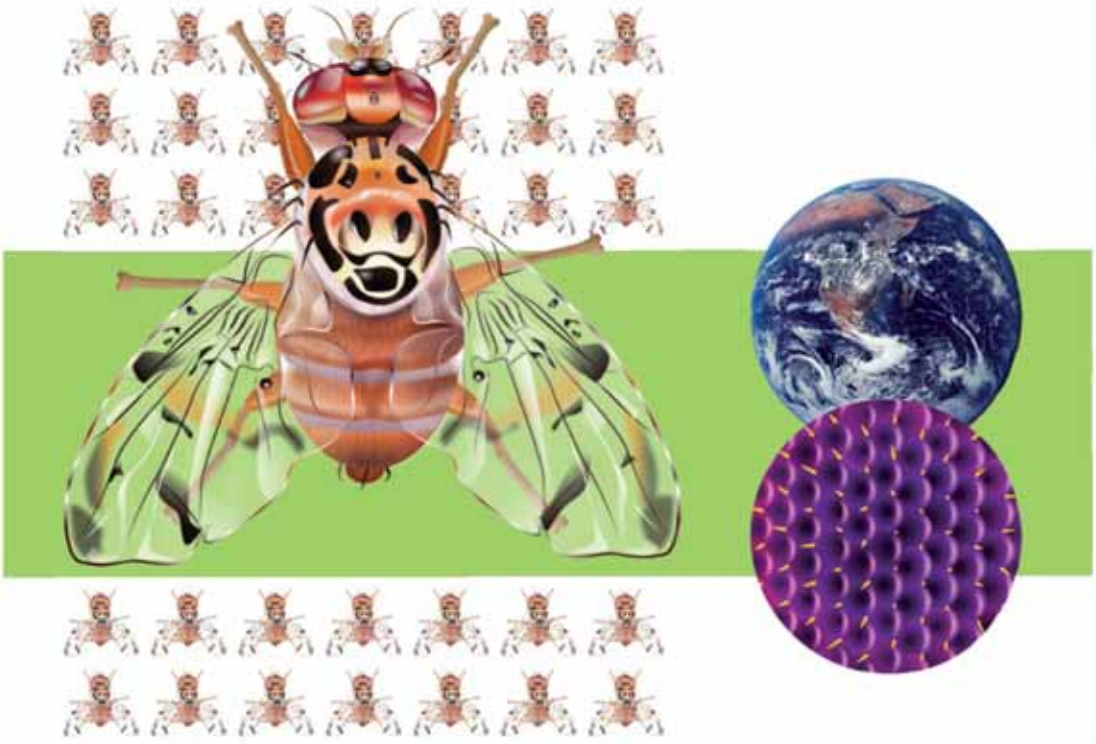
Guidance for packing, shipping, holding and release of sterile flies in area-wide fruit fly control programmes



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Joint FAO/IAEA Programme of Nuclear Techniques
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Foreword

The International Plant Protection Convention (IPPC) is the international treaty under which the International Standards for Phytosanitary Measures (ISPM) are adopted. ISPMs enable the development of technically justified measures for imported plants and plant products, and are intended to harmonize phytosanitary measures applied in international trade. These standards are the accepted reference under the World Trade Organization (WTO) Agreement on Sanitary and Phytosanitary Measures (SPS Agreement). The use and transboundary shipment of sterile insects was not part of ISPM No. 3, "Code of Conduct for the Import and Release of Exotic Biological Control Agents" adopted in 1995, because biological control agents had been defined as *self-replicating* organisms. Since the implementation of the Sterile Insect Technique (SIT) has largely been dominated by the public sector, this did not represent a problem for the transboundary shipment of sterile insects. However, the lack of regulatory framework did discourage private investment in the production and shipment of sterile insects.

Over the last three years (2002–2005) ISPM No. 3 has undergone a major revision to update and broaden its scope. In particular, we have been involved in explicitly including sterile insects as *beneficials* in the revised standard.

The revised ISPM No.3 "Guidelines for the Export, Shipment, Import, and Release of Biological Control Agents and Other Beneficial Organisms" was drafted in 2004 and submitted for country consultation. The revised ISPM No. 3 was adopted by the governing body of the IPPC, the Interim Commission for Phytosanitary Measures (ICPM), in April 2005 at FAO headquarters in Rome. Thus sterile insects are considered in parallel to other beneficial organisms by the IPPC through the adoption of the revised ISPM No. 3 and this should facilitate their use, especially in terms of commercialisation of the SIT and international trade of sterile insects.

In view of these developments, there is the need for harmonized guidelines and standard operating procedures for the various post-production processes and procedures involved in SIT application, so that they can be used in relation to the above mentioned revised ISPM No. 3 and other relevant ISPMs on fruit flies, such as ISPM No. 26 "Establishment of Pest Free Areas for Fruit Flies (Tephritidae)". Under the leadership of the Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture, some guidelines related to the SIT such as the Product Quality Control and Shipping Procedures for Sterile Mass-Reared Tephritid Fruit Flies and the Gafchromic® Dosimetry System for the SIT already exist or are being developed (FAO/IAEA/USDA 2003, FAO/IAEA 2000). On the other hand there has been little harmonization for the processes involved in the handling and release of sterile insects after the production in mass rearing facilities. There is no harmonized guidance available to transfer this technology to FAO or IAEA Member States that want to embark on SIT activities. There is also increased interest by the private sector in investing in sterile insect production and/or other SIT activities, and this harmonized guidance on the post-production phase will facilitate SIT application and foster the commercialisation of the SIT.

This guidance resulted from two FAO/IAEA consultants meetings with representatives of relevant SIT programmes, the first held in Sarasota, Florida (April 2004) and the second in Vienna (August 2005) (list of contributors to this guidance, see Appendix 1). It has identified a number of gaps in knowledge as well as procedures that are often based on conventional wisdom, but which need scientific verification or optimisation. A 5-year FAO/IAEA coordinated research project on "Improving Sterile Male Performance in Fruit Fly SIT Programmes" has been initiated in 2004 to address these gaps in post–factory processes and to develop procedures to improve sterile male performance through improved handling and the use of nutritional, hormonal and semiochemical supplements. The findings resulting from this R&D will be incorporated into future updated versions of this guidance document.

The officer responsible for this publication was W. Enkerlin of the Joint FAO/IAEA Programme of Nuclear Techniques in Food and Agriculture.

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