

Overview of RSPM 34

Development of Phytosanitary Treatment Protocols for Regulated Arthropod Pests of Fresh Fruits or Vegetables

Purpose: Phytosanitary treatments reduce risk by killing or sterilizing pests to prevent their entry and establishment in areas where they are not currently present. Phytosanitary treatment protocols demonstrate and validate the effectiveness of treatments for controlling pests. This standard describes the elements that must be considered when developing treatment protocols for arthropod pests (insects, mites, spiders, millipedes) on fresh fruits and vegetables.

Contents: The body of the standard describes elements that must be considered when developing protocols for chemical (fumigation) or physical (heat, cold, irradiation, controlled atmospheres) treatments that are used to control arthropod pests. These elements include experimental design, testing, post-treatment handling of fruits and vegetables, interpretation of results, and record-keeping.



Summary of RSPM 34: The purpose of a treatment protocol is to demonstrate the effectiveness of a specific treatment against a specific pest on specific commodities. Experiments used to design treatment protocols must be replicated and statistically validated. A high level of efficacy (effectiveness in killing pests) may be required for stand-alone treatments. A lower level of efficacy may be acceptable when treatments may be combined in a systems approach. Experimental design should consider the source of the arthropods (laboratory-reared or natural populations); the condition of the fruits or vegetables (commercial grade and commercial handling procedures); controls (untreated and treated commodities should be identical, and untreated pests should come from the same

group, colony, or population as the treated pests).

Testing is required to determine the most tolerant life stage of the pest (the most difficult life stage to kill or sterilize). Efficacy tests are conducted on the most tolerant life stage to determine the minimum effective dose or treatment level. Confirmatory tests are conducted to validate the minimum treatment level on a commercial scale. When relevant, commodities and their controls are held after treatment to determine the ability of treated and untreated pests to survive, develop, and reproduce. Efficacy levels demonstrated during testing and development of protocols can only be achieved in the field if treatment protocols are followed carefully. Records of protocol procedures and results should be kept and shared with the national plant protection organization (NPPO) of the importing country.

Appendix 1 describes statistical analyses to be used when analyzing treatment protocol data. It references analyses to be used in estimating control mortality; detecting differences between different treatment levels; estimating sample size; and estimating confidence levels for effectiveness when only a few arthropods survive on a host.

Please read RSPM 34 for more guidance on developing treatment protocols for arthropod pests of fruits and vegetables.

Photo source https://www.ippc.int/static/media/files/publications/en/2014/11/13/12_ecbd_2014_dec_miyazaki_presentation.pdf