

A successful biological invasion typically creates a stream of persistent negative impacts, possibly indefinitely. This usually puts a high price on failure of the surveillance and response systems. On the other hand, the cost of surveillance and other phytosanitary measures must be justified by the level of protection they afford the environmental and productive assets at risk from the invasion and their respective values. Early detection of a fruit fly invasion offers the prospect of a successful eradication, or possibly the benefits of a 'slow the spread' campaign. At the least, timely, accurate fruit fly surveillance can be used to trigger actions to protect valuable horticultural assets, as well as providing evidence of freedom from fruit fly pests. In this Deliverable we describe an optimisation strategy for surveillance of invasive fruit flies that are the subject of the FF-IPM project (FF). This strategy sets out the overarching framework for general optimized surveillance plans that will be tested and tailored for each study area of the FF-IPM. Because these plans rely upon data that is being collected within the project, they will be developed and tested over the next two years. The strategy seeks to optimize the surveillance system in regards cost density (total annual cost per unit of area covered), timeliness of detection, and efficacy. Of course, there are trade-offs between these three considerations, and a full economic consideration of costs should include the probability and consequence of surveillance failure. FF-IPM selected and characterized four areas in which the target fruit flies (*Ceratitis capitata*, *Bactrocera dorsalis* and *B. zonata*) are present or have been recently intercepted during the past. For that reason, Northern Greece and Dalmatia (Croatia) served as simulation stages of the expansion of *C. capitata*, while Northern Israel served as scenario for *B. zonata*. The area of Mpumalanga Province in South Africa was used to develop the strategy for *B. dorsalis*. To implement and test the proposed strategies, the four areas were characterized geographically (i.e., topography, land cover and agricultural use), and the populations of the target FF were monitored for at least 1 year.