



XA9951671

FAO/IAEA Int. Conf. on Area-Wide  
Control of Insect Pests,  
Penang, May 28 to June 2, 1998

Fifth International Symposium on Fruit Flies  
of Economic Importance  
1 - 5 June, 1998. Penang, Malaysia.

II-12

## THE COST-BENEFIT ANALYSIS OF WIDE-AREA BACKYARD FRUIT FLY CONTROL

Harnaivo Rasamimanana<sup>1</sup>, Aruna Manrakhan<sup>1</sup>, Simon Fowler<sup>1</sup>,  
Nigel Price<sup>1</sup> and John Mumford<sup>2</sup>

<sup>1</sup> COI/EU Indian Ocean Regional Applied Fruit Fly Research Programme, Réduit, Mauritius

<sup>2</sup> Imperial College of Science, Technology and Medicine, London, UK

This research aims to measure the costs and benefits of different options for fruit fly control, and in particular their seasonal fluctuations - how with seasonally-varying levels of fruit production and fly populations the values of fruit production, value and damage, and therefore control cost-benefit ratios, change, for different host fruits, pest flies and control techniques.

Costs of control for the two main techniques used to manage the fruit fly problem in Mauritius - Bait Application Technique (BAT) and Male Annihilation Technique (MAT) - have been estimated from the National Fruit Fly Programme in Mauritius.

A study on the distribution and density of host and non-host fruit trees in areas under control in Mauritius has shown that the majority of fruit trees (65-73%) are found in domestic backyards, as isolated trees in built up areas. The study of fruit production, value and fruit fly damage has entailed a large, detailed questionnaire survey in these domestic backyards.

The detailed cost-benefit comparisons have been used to build a model of the relative costs of control, and their components, allowing the contribution of each to be assessed - for example 82% of the total cost of BAT is labour and supervision; conversely, 72% of the cost of MAT is the imported parapheromone attractants themselves - particularly trimedlure needed to attract *Ceratitis capitata*.

Additional economic research has comprised focused experiments on the materials and products used in fruit fly control. For example in an experimental evaluation of the optimum size and shape for MAT blocks, more male fruit flies were found to be attracted to rectangular blocks than square blocks of the same area. The increase in attraction to rectangular blocks was 123% for *Ceratitis rosa* and 56% for *Bactrocera zonata* - both greater than the increase in the area of exposed edge of the plywood block produced by the shape change (25%).