Australian Government
Australian Centre for International Agricultural Research

Global Program

Implementation of a sustainable integrated pest management program to combat fruit flies

Overview

Mango and other high-value horticultural crops are key drivers of economic development in sub-Saharan Africa. Farmers producing fruit crops in the region can earn higher farm incomes than those growing staple crops.

Compared to other agricultural sectors, fruit crops require more labour and provide more on and off-farm employment opportunities for smallholders, especially women.

The quality and quantity of the mango crop is, however, being reduced by fruit fly infestations, which affect both domestic and export markets.

The use of conventional, synthetic insecticides to manage these pests is unsustainable, due to impacts on human health and the environment, and increasing resistance among the insect population.

Fruit fly infestations also cause indirect economic damage in the form of reduced foreign exchange earnings from fruit crops due to quarantine restrictions, and the loss of access to lucrative global markets.

Mangoes provide a source of nutrition, employment and opportunities for improved livelihoods. This project will introduce new, sustainable integrated pest management systems to the sub-Saharan region.

KEY FACTS

ACIAR Project No. GP-2019-175
Duration: April 2019 to September 2022 (3.5 years)
Target areas: Malawi, Mozambique, Zambia and Zimbabwe
Budget: A$2,803,300

Project Leader
Samira Mohammed, International Centre of Insect Physiology

Key partners
- Department of Research and Specialist Services, Zimbabwe
- Zambia Agriculture Research Institute
- The Eduardo Mondlane University, Mozambique
- Department of Agricultural Research Services, Malawi

ACIAR Research Program Manager
Dr Anna Okello

Objective

The aim of this project is to implement integrated pest management interventions that have been developed and tested with successful results.

The objectives are to:

- Adapt and promote wide-scale adoption of integrated pest management interventions in Malawi, Mozambique, Zambia and Zimbabwe.
- Test a series of interventions including baiting techniques, male annihilation, biopesticide application, orchard sanitation, and augmentoria (tent-like structures used to sequester infested, culled fruit and trap the pest), in different agro-ecological zones to increase their relevance to specific locations.
- Determine the effectiveness of techniques using semiochemicals, tri-trophic interaction, parasitoid modelling and mass-rearing of introduced parasitoids.
- Assess the socioeconomic impacts of integrated pest management options, particularly on women and youth.

Expected scientific results

- Development, assessment and application of new interventions to form an integrated pest management system for fruit flies in sub-Saharan mango crops.
- Increased capacity of institutional partners, and farmers in the field, to use the newly developed integrated pest management interventions.
- Reduced application of synthetic chemical insecticides.

Expected impact/outcomes

- Adoption of one or more integrated pest management technologies by 500,000 mango farmers.
- Improved food and nutrition security for sub-Saharan mango growers, including resource-poor men and women farmers.
- Provision of income generation opportunities and improved livelihoods for horticultural farmers.
- Access to lucrative export markets for fresh fruits.
- Establishment of a regional network to implement pest management technologies.

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