



Implementation of a sustainable IPM program to combat fruit flies

Mangoes are an important fruit crop in sub-Saharan Africa (SSA), as a source of nutritious food, employment, and opportunities for livelihood improvement. However, high infestation of insect pests, especially fruit flies (native and invasive), hamper mango productivity in the region. Researchers have developed and validated a fruit fly Integrated Pest Management (IPM) package. In this project, the team will apply the IPM interventions in Southern Africa.

The challenge

High-value horticultural crops, such as mango are key drivers of economic development in SSA. Evidence shows that farmers who engage in production of horticultural crops, especially fruit crops, can earn higher farm incomes than those that grow staple crops. Compared to other agricultural sectors, the fruit crop sector demands more labour and provides more on- and off-farm employment opportunities for smallholders, especially women. Fruit fly mango infestations reduce the quality and quantity produced for both local and foreign markets. Conventional use of synthetic insecticides for management of these pests is unsustainable (due to their risks to human health and the environment) and subject to increasing resistance. Fruit fly infestations also cause indirect damage to the economy by reducing foreign exchange earnings from fruit due to quarantine restrictions, and the loss of opportunities for export to lucrative global markets.

The research

Researchers will adapt and promote the wide-scale adoption of IPM interventions in Malawi, Mozambique, Zambia and Zimbabwe. A series of interventions such as baiting techniques, male annihilation, biopesticide application, orchard sanitation, and the use of augmentoria will be tested in different agro-ecological zones to increase their fit to specific locations. Additionally, innovative research will be done to explore the use of semiochemicals, tri-trophic interaction, parasitoid modelling and mass rearing of introduced parasitoids, among other techniques. The use of parasitoids will be refined through field releases, and post-release evaluation and assessment of the impact in the field for the suppression of invasive fruit flies.

With a specific focus on women and youth, the project team will also assess the socioeconomic impacts of IPM options alongside enhancing human and institutional capacity of partners to use the technologies. Reaching up to 4,000 mango growers, including resource-poor men and women farmers, the project will improve food and nutrition security, provide income generation opportunities and improve livelihoods of horticultural farmers.



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Expected outcomes

- Adoption of one or more IPM technology(ies) by 500,000 mango farmers;
- Access to lucrative international export markets for fresh fruits;
- Stakeholders and students informed and trained on IPM technologies;
- Reduced application of synthetic chemical insecticides;
- Regional network established for the implementation of pest management technologies.

Implementing partners:

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Countries: Malawi, Mozambique, Zambia and Zimbabwe

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