



Australian Government

Australian Centre for
International Agricultural Research

Horticulture

Development of area-wide management approaches for fruit flies in mango for Indonesia, Philippines, Australia and the Asia-Pacific region

Overview

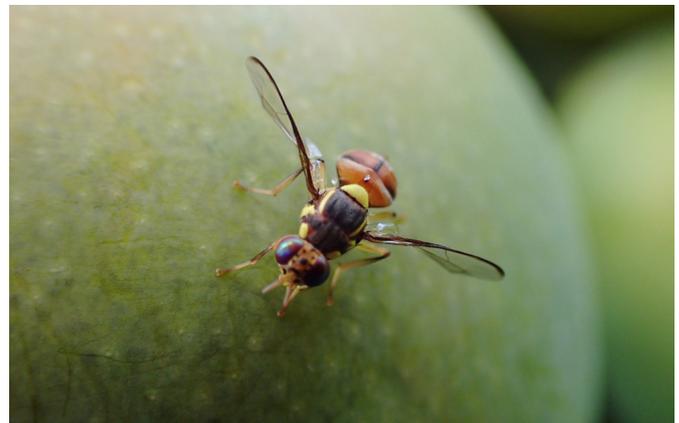
The estimated number of mango growers in Indonesia and the Philippines is 2.3 and 2.5 million, respectively. In both cases, over 70% of mango growers are resource-poor smallholders.

While the area allocated to mango production is on average less than 0.15 ha, mangoes play a significant role in supplementing on- and off-farm incomes. For example, in Indonesia the average annual gross income from mango production is around \$6,000/ha, while in the Philippines, where yields are significantly lower, the average annual gross income from mango production is \$2,800/ha.

Pests and diseases, along with poor crop management practices, constantly threaten productivity and the quality of the fruit in both countries, which can have a significant impact on smallholder incomes.

In Indonesia, efforts to develop and deploy area-wide management (AWM) of fruit flies in West Java will be supported and monitored. Additionally, a system that incorporates AWM with best management practices will be created, enabling growers to shift a significant proportion of their production from low-priced mango varieties to the highly fruit fly-susceptible but lucrative Gedong Gincu variety.

In the Philippines, a small pilot trial will test a simplified AWM-based system in a wet tropical environment where fruit fly populations are greater than those observed in Indonesia and assess hot water fungicide dips against stem end rot and anthracnose.



KEY FACTS

ACIAR Project No. HORT/2015/042

Duration: July 2018 to June 2023 (5 years)

Target areas: Indonesia, Philippines

Budget: A\$2,750,000

Project Leader

Stefano De Faveri, Department of Agriculture and Fisheries, Queensland

Key partners

- Eastern Mennonite University, USA
- Indonesian Centre for Horticulture Research and Development
- Faculty of Agriculture, University of Gadjah Mada, Indonesia
- Indonesian Centre for Agricultural Socio-economic and Policy Studies
- University of the Philippines, Los Baños
- Davao del Norte, Provincial Agriculturist Office, Philippines
- University of the Philippines Mindanao
- PCAARRD Philippines

ACIAR Research Program Manager

Irene Kernot

Objective

The project's overall aim is to reduce fruit fly infestation and improve yield and quality through AWM and improved pre- and post-harvest practices and improve mango production and trade.

The project's specific objectives are to:

- Evaluate the use of area-wide control treatments to achieve 'low pest prevalence' and improved market access (Indonesia).
- Analyse the economic and social impact of AWM.
- Evaluate small-scale area-wide control treatments in a wet tropical environment (Philippines).
- Integrate AWM, disease control and best management practice into commercial systems (Indonesia and the Philippines).
- Develop improved male lures and other technologies in support of more profitable production systems (Australia).
- Promote the exchange of experiences and the adoption of AWM of fruit flies (regionally - Asia-Pacific).

Expected scientific results

- Increased knowledge base in field of AWM.
- Increased scientific knowledge on fruit fly biology, ecology and management within an area-wide context in Indonesia, the Philippines and in Vietnam, Cambodia, Laos and Myanmar.
- Development and testing of area-wide fruit fly control strategies on a range of other commodities grown under different environmental conditions.
- Demonstration of how a combination of AWM and post-harvest strategies can increase access to export markets and improve shelf life on the domestic market.
- Application of new management systems to other premium mango varieties in the Philippines and other countries.
- Increased understanding of chemical ecology of male fruit flies and the behaviour of immature female fruit flies to volatile odours from protein baits.
- Development of more effective lures for male and female fruit flies.

Expected outcomes

- Economic benefits due to reduced fruit fly losses and improved fruit quality.
- Increased awareness among farmers of beneficial species for a range of pests, providing greater knowledge of where and when to use insecticides and the consequences of using broad spectrum compounds.
- Dissemination of new knowledge and skills to other farmers in the participating communities.
- Increased capacity to adopt best practice post-harvest handling and treatment methods.
- Increased understanding of fruit fly control strategies that are simple and inexpensive to apply.
- Health benefits due to reduced use of broad-spectrum insecticides and improved insecticide application methods in mango production.

