

# **INTEGRATED PEST MANAGEMENT (IPM) IN AUSTRALIAN MANGOES**

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**Multan - March 2006**



# Main Objectives

- Maximise production of blemish free fruit
- Minimise pesticide use
- Reduce pesticide residues on fruit
- Minimise on and off-farm impacts



# Mango Insect Pests

- Key pest: **Mango scale**  
(*Aulacaspis tubercularis*)
- Other significant pests
  - *Plant hopper*
  - *Flower feeding caterpillars*
  - *Fruit flies*
  - *Shoot caterpillar*
  - *Tip borer*
- **Minor pests**
  - Thrips, leaf miner, mites, fruit spotting bugs, termites, mango seed weevil



# Main insect pests Vs growth stage

Post harvest



Mango scale



Flushing/flowering



Mango scale and  
Caterpillars



# Main insects Vs growth stage

Fruit  
Development



Mango scale

Pre harvest



Mango scale  
Fruit flies



# IPM Research

- **1 Minimise pesticide use**
  - **Change treatment regime from calendar spays to spray as required**

**→ Regular monitoring**



# IPM Research (con.)

- 2 Reduce disruption

**Broad Spectrum**

**Organophosphates/  
Carbamates**



**IPM compatible**

**Mineral oils, Insect Growth  
Regulators (IGRs) and  
bait sprays**



# IPM Research (con.)

## Non-IPM Pesticides

- methidathion
- carbaryl
- endosulfan
- dimethoate



## IPM Pesticides

- buprofezin
- mineral oils
- tebufenozide
- spinosad

**Low use of IPM pesticides due to COST**

# IPM Research (con.)

## 3. Introduce beneficials



# IPM Research (con.)

## 4. Canopy management

Reduce size and density



# IPM Research (con.)

## 5. New application methods (Mango scale)

Cover sprays



Root drench



Trunk injection



# IPM Research (con.)

## 5. New application methods (Fruit fly)

Cover sprays



Yeast based  
baits



# CURRENT DPI&F PROJECTS

## Mango insects

- **AUSTRALIA**
  - IPM studies
  - Mango seed weevil ecology
- **PAPUA NEW GUINEA**
  - Biology and control of red banded mango caterpillar
- **PHILIPPINES**
  - Mango seed and pulp weevil surveys
  - IPM studies

# DPI&F STAFF and FACILITIES

## -mango insect research-

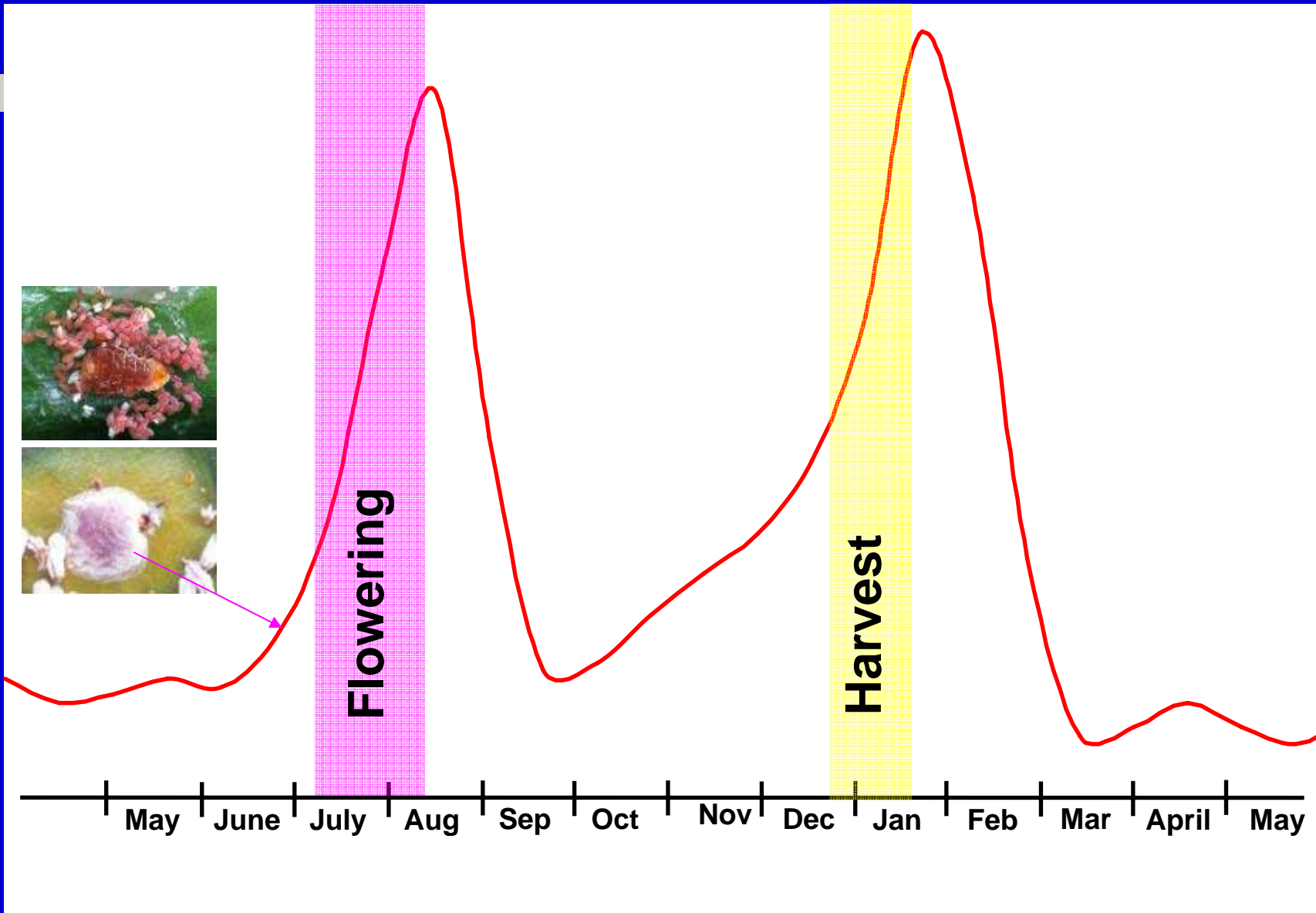
- **2 Entomologists plus 2 technical staff**
  - Expertise in pre and post harvest insect control, biology, ecology, molecular biology and taxonomy
- **Facilities**
  - Research station experimental plots, glass/shade houses, modern labs, access to quarantine facilities and private farms

# Acknowledgements

- Leonie Wittenberg, DPI&F
- Robert Bauer, DPI&F
- Stefano de Faveri, DPI&F

## Funding support from







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