SEMINAR AGROSAINS DAN TEKNOLOGI JABATAN PERTANIAN 2019

"APPPC REGIONAL TRAINING WORKSHOP ON MANAGEMENT OF FRUIT FLY FOR MANGOES"

OLEH:
NOOROHAIDA MOHD YUNUS
BAHAGIAN BIOSEKURITI TUMBUHAN
JABATAN PERTANIAN KUALA LUMPUR

INTRODUCTION

- **Venue:** Avani Bangkok Riverside Hotel Bangkok, Thailand.
- **Course Duration**: 19 – 23 March 2018
- **Number of Participant**: 19 participants from APPPC member countries - Bangladesh, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand, and Viet Nam.
- **Organizer:** Asia and Pacific Plant Protection Commission (APPPC)
- **Cooperation with**: Government of Thailand (Dep. Of Agriculture Extension) –DOAE
- **Funder**: Food and Agriculture Organization of United Nation (FAO)

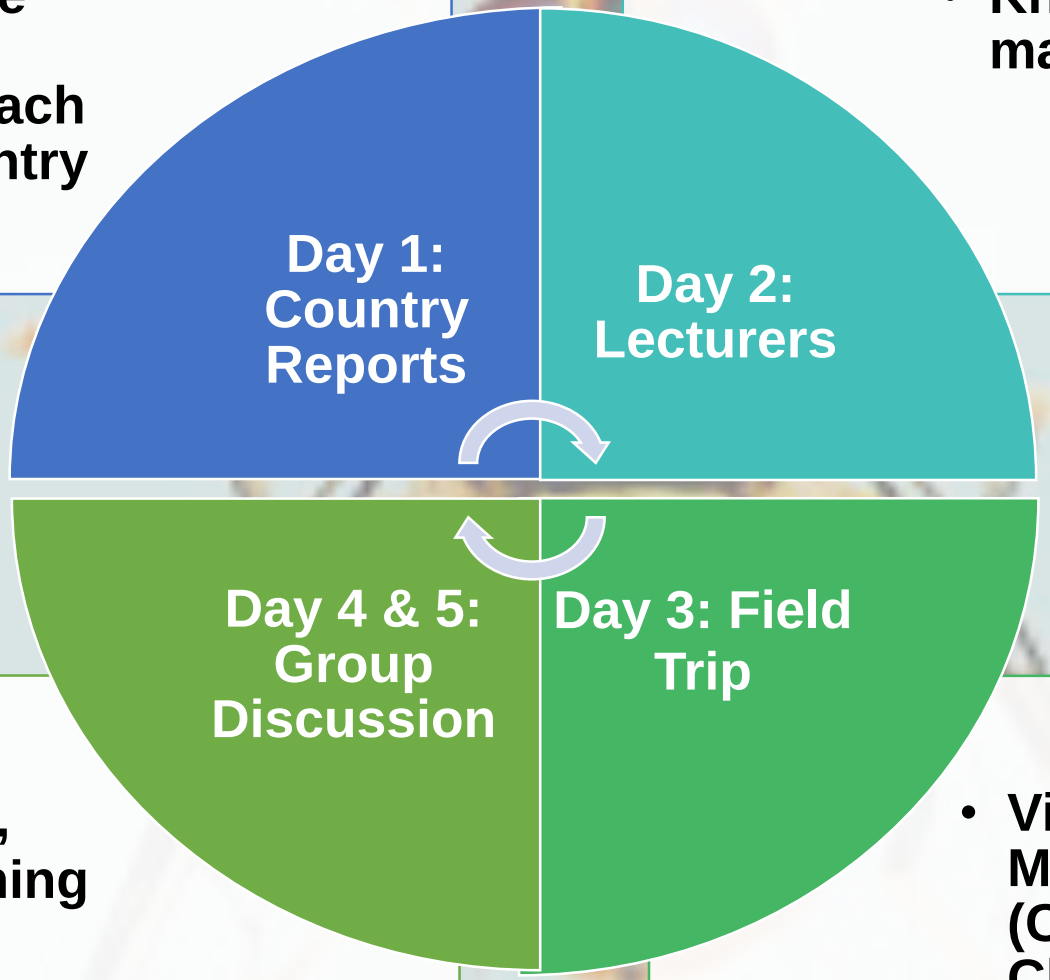
OBJECTIVE

To train participants from participating countries on area-wide IPM (AW-IPM) of fruit fly for mango with knowledge, area-wide management concept, fruit flies suppression technique, farmer participation and IPM FFS.

METHOD

- Sharing on update status of fruit fly management in each participating country

- Knowledge of fruit fly management



- Group presentation, summary of the training course and closing

- Visit Community Pest Management Centre (CPMC) in Chanthaburi province

COUNTRY REPORT

Country Report: Myanmar "Update Status of Fruit Fly Surveillance and Management"

Mu Mu Thein (Ph.D)
Plant Protection Division

APPPC Regional Workshop on Management of Fruit Fly for Mangoes, 19-23 March 2018, Bangkok, Thailand

MANAGING FRUIT FLIES STATUS IN MANGO ORCHARDS IN INDONESIA: Indonesian Experience

Anik Kustaryati

Asia Pacific Plant Protection Commission (APPPC)
Regional Training Workshop on Management of Fruit Fly for Mangoes
19 – 23 March 2018, Bangkok, Thailand

DIRECTORATE OF HORTICULTURE PROTECTION
DIRECTORATE GENERAL OF HORTICULTURE
MINISTRY OF AGRICULTURE

Welcome to Country Report Presentation

Bangladesh

Presented By

Monir Hosen
Additional Deputy Director
Plant Quarantine Station, ICD
Department of Agricultural Extension
Ministry of Agriculture
E-mail:
monirhosendae81@gmail.com

DEPARTMENT OF AGRICULTURE MALAYSIA

COUNTRY REPORT: FRUIT FLY IN MALAYSIA

NOOROHAIDA MOHD YUNUS
PLANT BIOSECURITY DIVISON
DEPARTMENT OF AGRICULTURE MALAYSIA, MINISTRY OF AGRICULTURE AND AGRO-BASED INDUSTRY
KUALA LUMPUR, MALAYSIA

Update status of fruit fly surveillance and management including national strategy and implementation action plan in the Republic of Korea

2018. 3. 19.

Animal and Plant Quarantine Agency(APQA)

COUNTRY REPORT OF CAMBODIA

APPPC Regional Training Workshop on management of fruit fly for mangoes
19-23 March 2018, Bangkok, Thailand

By Hean Sereivuth
Department of Plant Protection Sanitary and Phytosanitary
GENERAL DIRECTORATE OF AGRICULTURE, MAFF, CAMBODIA

GDA

MANAGEMENT OF FRUIT FLY FOR MANGOES IN THE PHILIPPINES

E. D. GORDOLAN/J. P. MARCIANO
Bureau of Plant Industry, Philippines

APPPC Regional Training Workshop on management of fruit fly for mangoes
19-23 March 2018
Bangkok, Thailand

Updated Status of Fruit Fly Surveillance and Management Including National Strategy and Implementation Plan in Nepal

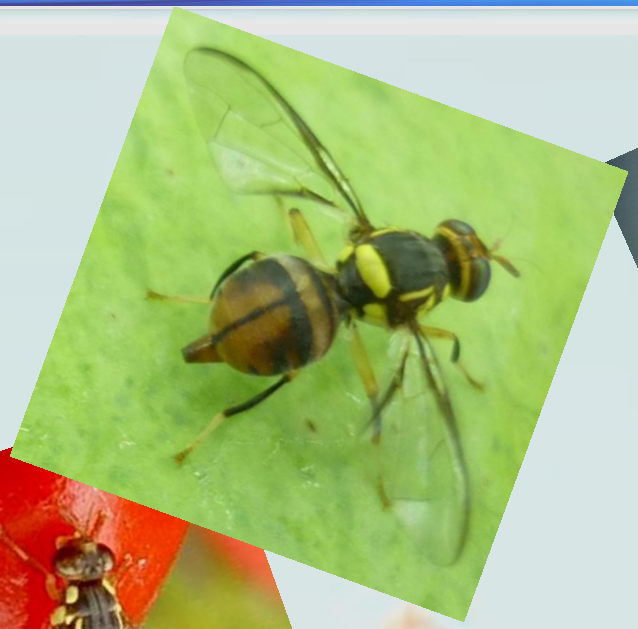
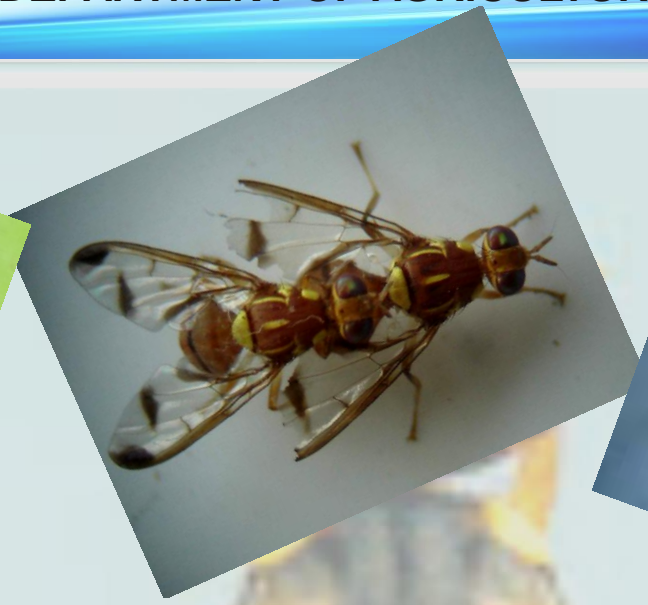
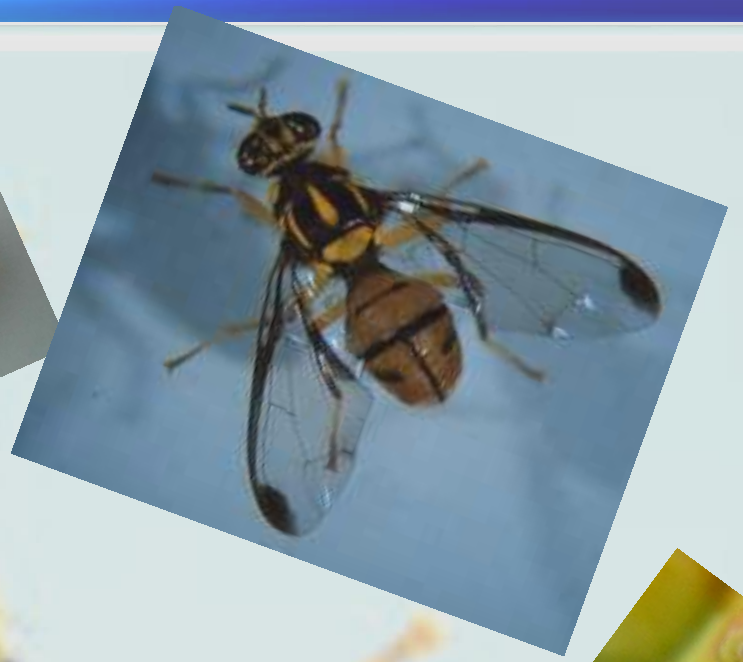
Prepared By:

Dr. Dilli Ram Sharma, Director General of Department of Agriculture, Nepal
Member Expert for IC (IPPC), Asia region
&
Surendra Prasad Pokharel, Senior Plant Protection Officer
Department of Agriculture, Nepal

Venue: Bangkok, Thailand
19-23 March, 2018

SURVEILLANCE AND MANAGEMENT OF MANGO FRUIT FLY IN PAKISTAN

By
Mr. Azam Khan Director (Technical)
DPP. Pakistan


INTRODUCTION OF PEST: FRUIT FLY







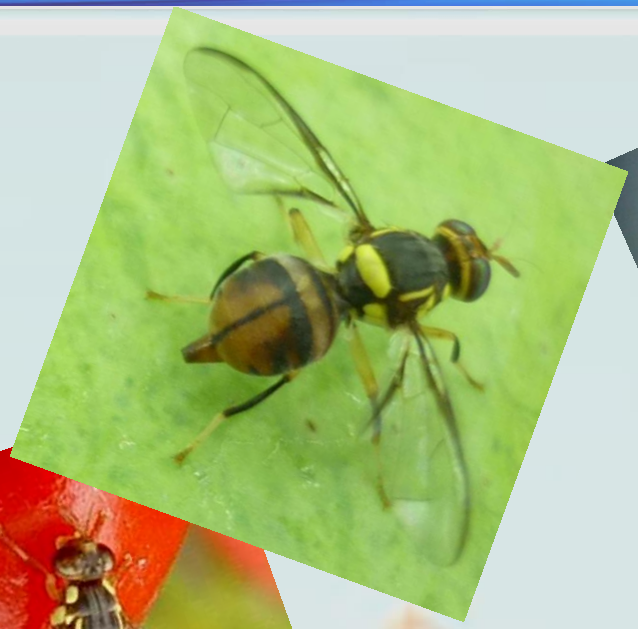
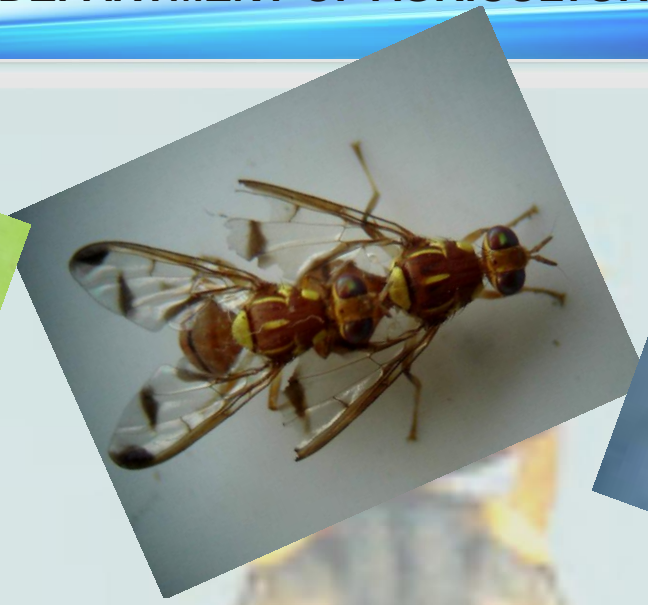
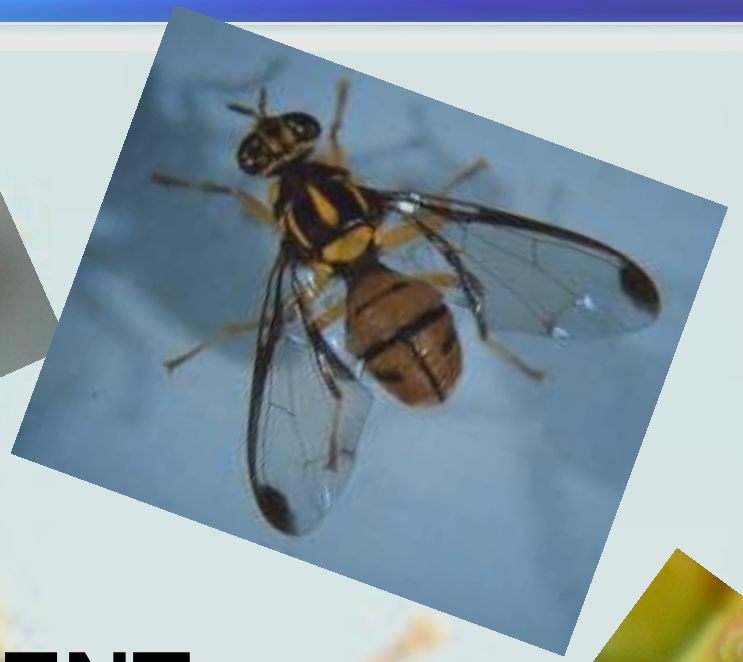
- Fruit fly of Tehpriditide family is a serious pest that can cause fruit damage and threaten the international trades.
- Bactrocera is the most economically important fruit fly and 50 species are polyphagous. It is native to the tropical Asia and host plant species are more than 270. Now, fruit fly had found in South America, Africa and Oceania from Tropical Asia.
- The most economically important fruit flies are: *Bactrocera dorsalis, B. correcta, latifrons, B. carambolae, B. umbrosa, B. cucurbitae, B. tau* etc. Their general survival rate from egg to adult is 33% and life cycle complete in 20- 29 days. Their distribution ranges from Asia – South/North America.
- They damage soft fruits such as mango, guava, cucurbits, capsicum, chilly etc. Pre-harvest control measures need to apply IPM practices and post-harvest control includes sanitizing, pruning, monitoring, bagging and protein bait sprayings are the principal practices.

ECONOMICALLY EFFECT

- A number of species may be involved in reducing the quantity or quality of fruit and/ or vegetable production will incurred high cost to control the losses and damage of the fruit- yield losses between 90 to 100%
- They are a quarantine problems which result in either loss of actual or denial of potential markets, or added cost of appropriate disinfestation procedures to farmers
- Losses are related to direct destruction of fruit and vegetables by the immature or larval forms of the flies will include all the management cost as follow:

    1. Costs of materials and labor for preventive treatments
    2. Costs of monitoring the possible presence of flies even fly-free regions
    3. Costs of quarantine and fruit shipment fumigation

The present of very destructive species in some regions may also inhibit the economic development of potential fruit and vegetable crops


MANAGEMENT OF FRUIT FLY

AREA-WIDE PEST MANAGEMENT

PRINCIPLE OF AREA-WIDE INSECT PEST MANAGEMENT

- “An area-wide insect control programme (AW-IPM) is a long-term planned campaign against a pest insect population in a relatively large pre-defined area with the objective of reducing the insect population to a non-economic status” (*Lindquist 2000*).

- Term “area” in “area-wide” refers to the area where the target insect population survives.

AREA-WIDE INTEGRATED PEST MANAGEMENT (AW-IPM)

STRATEGIC OF AW-IPM

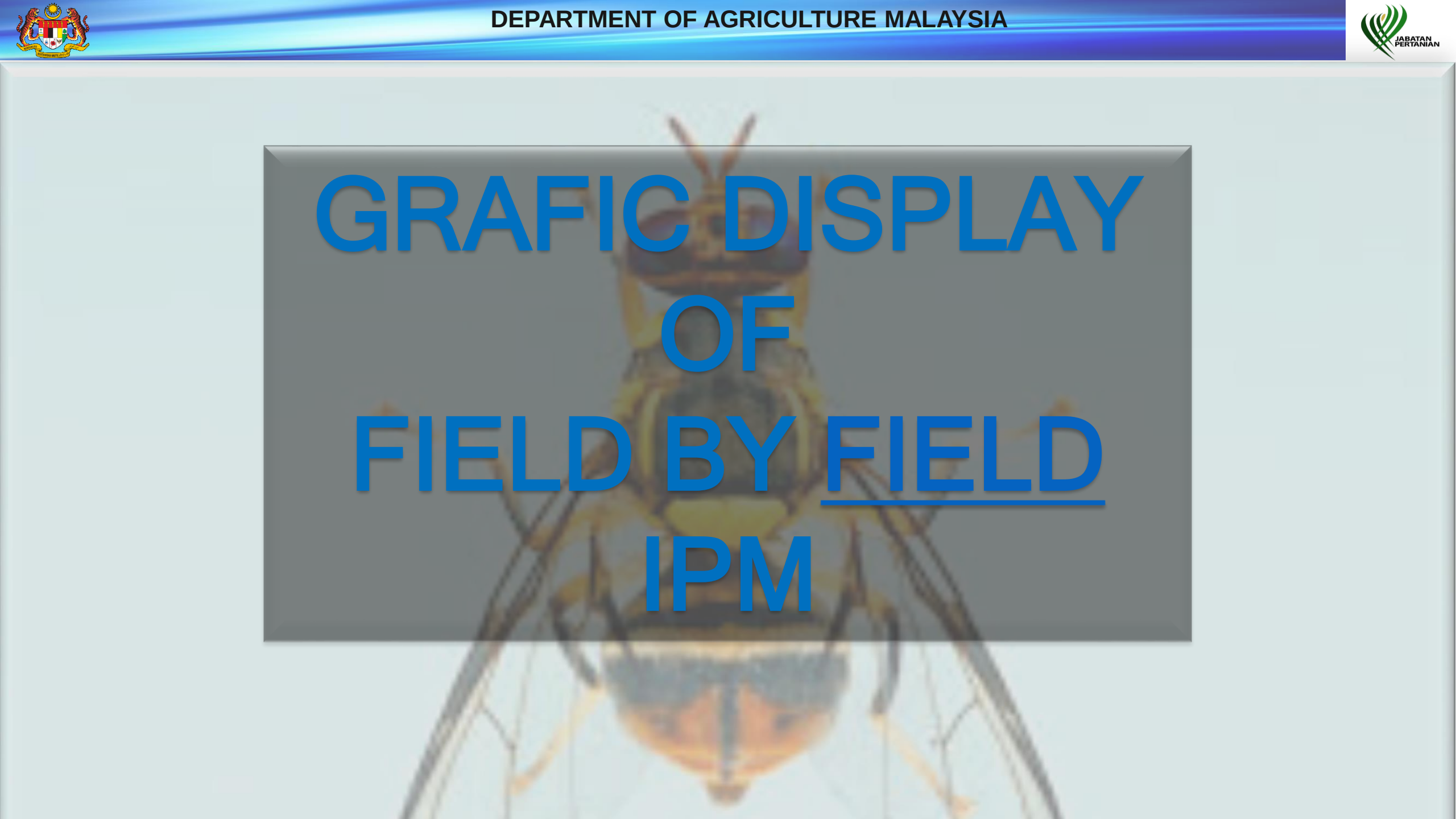
- Containment: avoiding the spreads of introduction pest
- Prevention: Avoid establishment of invasive exotic pests
- Suppression: Reduction of insecticides use and crop losses, and development of low pest prevalence areas
- Eradication: Development of areas free of major disease vectors or facilitation of international trade

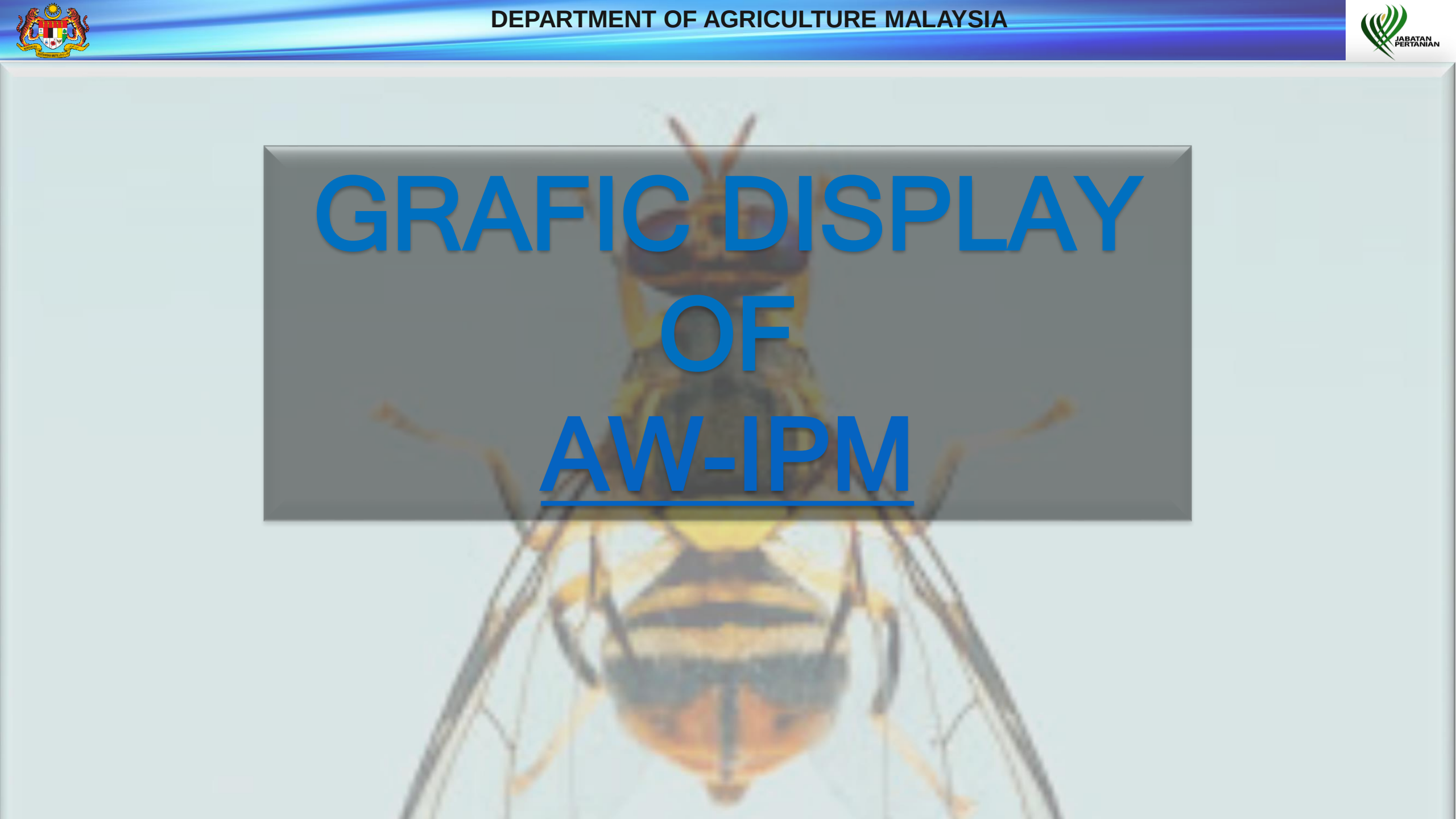
CHARACTERISTICS OF AW-IPM

- Overall population control
- Detailed planning & coordination operations
- Large defensible area
- Involves many producers
- Long term action
- Offensive or preventive
- Employ high technologies

AW-IPM is carried out through farmers' participation. In Thailand, farmers' participation in AW-IPM intervened through Community Pest Management Centre (CPMC). Main activities of CPMC are to identify important pest, using IPM methods, exchange knowledge, rearing parasitoid, and pest monitoring. Examples of AW-IPM in Thailand are management of cassava mealy bug, coconut pest and fruit fly.

GRAFIC DISPLAY OF FIELD BY FIELD IPM





GRAFIC DISPLAY OF AW-IPM

AREA-WIDE FRUIT FLIES SUPPRESSION USING INTEGRATED PEST MANAGEMENT

ACTIVITY COMPONENTS	
FIND OUT AREA OF INTEREST	• LOCATION • CROP
STAFF TRAINING	• TRAIN THE TRAINER • TRAINING FOR FIELD OPERATION TRAINER
MOTIVATE STAKEHOLDER	• BRIEFING • SUCCESS STORY OF AW-IPM
CHARACTERIZE AREAS OF INTEREST	• MAPPING (GPS/GIS) • BUFFER ZONE & CORE AREA
STAKEHOLDER TRAINING	• FARMER FIELD SCHOOL (FFS) • COMMUNITY PEST MANAGEMENT CENTRE (CPMC)
SURVEILLANCE	• DETECTION OF FRUIT FLY POPULATIONS AND SPECIES
SUPPRESSION	• INTEGRATED TECHNOLOGIES THAT APPROPIATE FOR AREA, PEST POPULATION AND TIME
PUBLIC RELATION	• POSTER, LEAFLET, CAMPAIGN, EXHIBITION
MONITORING & EVALUATION	• FRUIT FLIES POPULATION • ECONOMIC ASSESSMENT

FRUIT FLIES SUPPRESSION TECHNOLOGIES

Bait

Natural Enemies

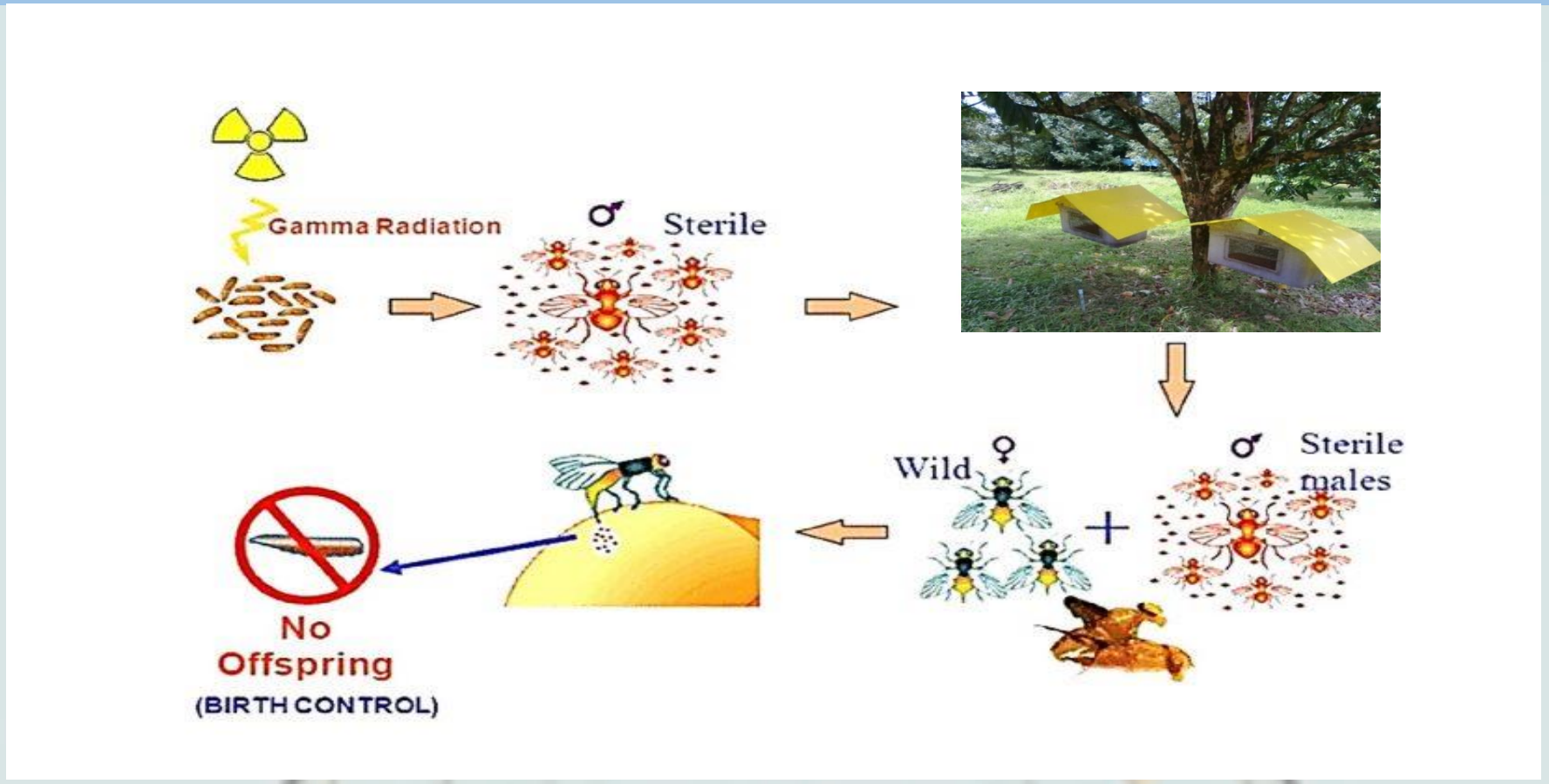
SIT

Attractant

Cultural Practice

STERILE INSECT TECHNIQUE

The sterile insect technique is an environmentally-friendly insect pest control method involving the mass-rearing and sterilization, using radiation, of a target pest, followed by the systematic area-wide release of the sterile males by air over defined areas, where they mate with wild females resulting in no offspring and a declining pest population.



Sterile fruit fly mass rearing process

- Adult maintenance
- Egg collection
- Egg management
- Artificial diet preparing and egg seeding
- Larvae holding
- Larvae collection
- Pupae production
- Pupae packing
- Irradiate pupae for adult sterilization

Quality control of mass rearing process and production

Adult males and females are reared in big cage which placed in environmental controlled room.

8-10 days after pupated, mature pupae are separated from sawdust.

Quality Control Following Guide Line Of International Atomic Energy Agency (IAEA)

Management of irradiated pupae in the field

FIELD TRIP

TROKNONG SUB-DISTRICT AGRICULTURAL TECHNOLOGY TRANSFER CENTRE

The participants visited Troknong sub-district Agricultural Technology Transfer Centre to learn about the activities of Sterile Insect technology (SIT) in AW-IPM.

SAMED NGAM VILLAGE COMMUNITY PEST MANAGEMENT CENTRE (CPMC)

Area-wide Integrated Fruit Flies Management has been implemented since 2015. The activities conducted here are fruit fly surveillance, male annihilation, orchards sanitation, fruit bagging, farmers training, and public relation campaign of fruit fly control

GROUP DISCUSSION

GROUP 1

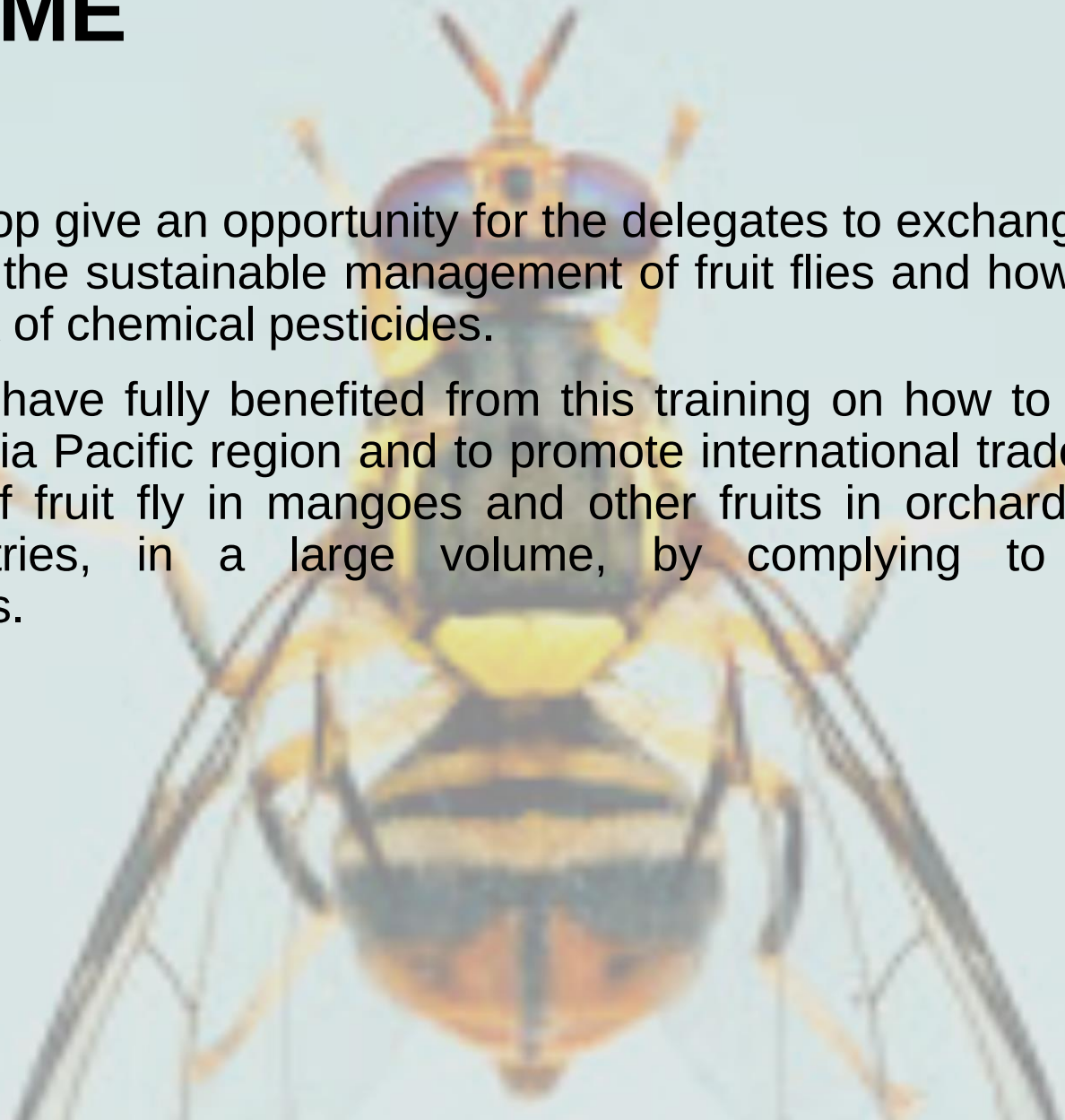
GROUP 2

FAO
Edouard Saouma Award 2014 – 2015

AW-IPM
Cassava Mealybug

OUTCOME

- This workshop give an opportunity for the delegates to exchange experiences and discuss the sustainable management of fruit flies and how to reduce the potential risk of chemical pesticides.
- Participants have fully benefited from this training on how to controlling the fruit fly in Asia Pacific region and to promote international trades by reducing infestation of fruit fly in mangoes and other fruits in orchards, exported to other countries, in a large volume, by complying to phytosanitary requirements.




Food and Agriculture Organization
of the United Nations
APPPC Regional Training
Workshop on Management of
Fruit Fly for Mangoes

THANK YOU