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JAPAN GOV
THE GOVERNMENT OF JAPAN

MAFF

Ministry of Agriculture, Forestry and Fisheries



International
Plant Protection
Convention

JICA Training Program

Practical Plant Quarantine Techniques for Export of Agricultural Products

“Thermal Treatment for Disinfestation of Fruit Flies”

SHIGEMI, Teppei
Plant Protection Division,
Ministry of Agriculture, Forestry and Fisheries, Japan



INTERNATIONAL YEAR OF
PLANT HEALTH
2020

PROTECTING PLANTS,
PROTECTING LIFE



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Overview

Objective: To transfer Japanese knowledge and skills on temperature phytosanitary treatment against fruit flies in fresh fruits

Organizer: Japan International Cooperation Agency (JICA) , Naha Plant Protection Station (PPS) , Ministry of Agriculture, Forestry and Fisheries (MAFF)

Place: Naha city, Okinawa, Japan

Establishment: 1988

Period: 4 months (May - August)

Max. capacity: 6 participants/year



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Participants

168 participants in total
from 42 countries
for the past 32 years



Background

- *Bactrocra dorsalis* and *B. cucurbitae* used to occur in Okinawa Islands (eradicated in 1986 and 1993 respectively).
- Host fruits and vegetables in Okinawa were prohibited to move into the Japanese mainland.
- Vapor heat treatment (VHT) technique was developed in Okinawa.



B. cucurbitae



B. dorsalis



VHT machine at Naha PPS



Commercial VHT facility in Okinawa



Training program

Consists of:

- 1) How to rear fruit flies in laboratory and how to prepare infested fruits for mortality test;
- 2) Procedures of a series of thermal mortality tests and the methods of mortality data analysis;
- 3) Procedures of a series of fruit heat or chilling injury tests and the methods of fruit quality data analysis;
- 4) Plant quarantine system, agricultural commodity distribution system and fruits flies in Japan; and
- 5) Temperature treatment test planned and conducted by participants.





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Training program

Artificial rearing of fruit flies



Preparation of infested fruit



Vapor heat treatment test



Hot water treatment test



Cold treatment test



Fruit injury test



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Outcome

Establishment of quarantine treatment for export

Vietnam



Dragon fruit (VHT)

Peru



Mango (HWT)

Pakistan



Mango (VHT)

Thailand



Pomelo (VHT)

Others: **Malaysia, Colombia, Brazil, India,**



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Challenge

There are common challenges for introduction of thermal treatment technique in participating countries such as:

- Lack of human resource
- Lack of budget
- Lack of laboratory equipment
 - Vapor Heat Treatment Machine*
 - Hot Water Tank , Cold Treatment Chamber*
- Technical challenge of rearing of fruit flies





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Thank you for your attention



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Contact

SHIGEMI Teppei

MAFF, Japan

teppei_shigemi780@maff.go.jp



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