BRUNEI DARUSSALAM

DEPARTMENT OF AGRICULTURE & AGRIFOOD MINISTRY OF PRIMARY RESOURCES & TOURISM

PRE-BORDER BIOSECURITY MEASURES

BORDER BIOSECURITY MEASURES

POST BORDER INSPECTION

PRE –BORDER BIOSECURITY MEASURES

REGISTRATION – REGISTED UNDER BRUNEI DARUSSALAM GOVERNMENT

IMPORT REQUIREMENT - DOCUMENTATION

PRE - BORDER BIOSECURITY MEASURES

IMPORT PERMIT

IMPORTERS ARE REQUIRED TO KNOW PRIOR IMPORT REQUIREMENTS BEFORE APPLYING FOR IMPORT PERMITS

- TYPES OF COMMODITIES TO IMPORT.
- STATUS OF PLANT DISEASES – FROM EXPORT COUNTRY
- INSECT PEST ENEMIES. – FROM EXPORT COUNTRY

PRE-BORDER BIOSECURITY MEASURES

PHYTOSANITARY CERTIFICATE

- PLANT COMMODITIES TO BE IMPORTED DOES NOT HAVE INSECT PESTS OR PLANT DISEASES.
- FREE OR CLEAN FROM SOIL CONTACT.
- PLANT TREATMENT .
  - FUMIGATION METHYLBROMIDE
  - VAPOUR HEAT TREATMENT
  - HOT WATER DIPPING

PRE-BORDER BIOSECURITY MEASURES

- STORAGE & FARM FIELD AREA

CAGES, HOLDING YARDS, NURSERIES, COLD STORAGE, DRY STORAGE, STORAGES, WAREHOUSES.

- SUITABILITY OF THE PLACE LOADING CAPACITY SANITATION
- SANITATION DISEASE CONTROL MANAGEMENT AND HANDLING OF PLANT COMMODITIES.
- LIVESTOCK AND OTHERS.

BORDER BIOSECURITY MEASURES

DOCUMENTATION – ALL ORIGINAL DOCUMENT NEEDED UPON DECLARE

IMPORT REQUIREMENT - DOCUMENTATION

BORDER BIOSECURITY MEASURES

THE IMPORTER IS REQUIRED TO DECLARE UPON ARRIVING AT THE POST CONTROL FOR INSPECTION

REQUIRED DOCUMENTS

PHYSICAL INSPECTION ON IMPORTED COMMODITIES

BORDER BIOSECURITY MEASURES

REQUIRED DOCUMENT

IMPORT PERMIT ISSUED BY DEPARTMENT OF AGRICULTURE AND AGRIFOOD, BRUNEI DARUSSALAM.

ANIMAL HEALTH CERTIFICATE OR PHYTOSANITARY CERTIFICATE ISSUED BY EXPORTER COUNTRY.

CERTIFICATE OF TREATMENT / LABORATORY ANALYSIS RESULTS (IF APPLICABLE).

PURCHASE INVOICE.

CITES PERMIT FOR ENDANGERED SPECIES.

BORDER BIOSECURITY MEASURES

PHYSICAL INSPECTION ON IMPORTED COMMODITIES.

POST BORDER INSPECTION

NON COMPLIANCE

POST BORDER INSPECTION

PRESENCE OF SOIL & SUSPECTED DISEASE SYMPTOM.

POST BORDER INSPECTION

UNHEALTHY SEEDLINGS & STEM ROT SYMPTOM.

POST BORDER INSPECTION

OUR ACTION:

TO ENSURE ALL PLANTS MUST BE FREE FROM ANY PESTS AND DISEASES.

ALL PLANTS – SENT TO REGULATORY & ENFORCEMENT UNIT FOR FURTHER INVESTIGATION

RECOMMENDATION :

⇨ INFORM THE SUPPLIER OF EXPORTING COUNTRY TO COMPLY WITH IMPORT REQUIREMENTS AS SET BY DEPARTMENT OF AGRICULTURE AND AGRIFOOD, BRUNEI DARUSSALAM.

⇨ ENSURE THE SUPPLIER TO SUPPLY HEALTHY SEEDLINGS PRIOR TO EXPORT

REGIONAL ASEAN TRAINING WORKSHOP ON THE ESTABLISHMENT OF PEST FREE STATUS

04 – 08 SEP 2017

THE PRESENT STATUS OF PLANT PROTECTION, SANITARY AND PHYTOSANITARY IN CAMBODIA

By Dr. NY VUTHY, Deputy Director
Plant Protection Sanitary and Phytosanitary Department
General Directorate of Agriculture/MAFF

Contents

A.SUMMARY OF INFORMATION ABOUT CAMBODIA

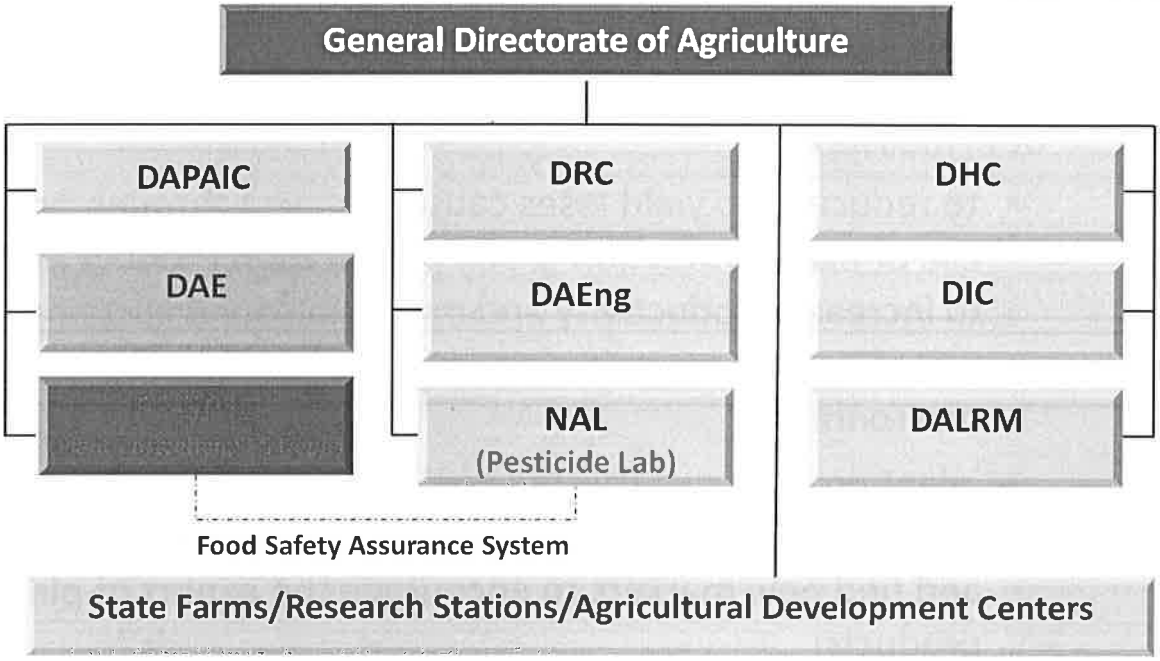
- **Region: South East Asia**
- **Climate: Wet and Dry Seasons**
- **Frontiers: Thailand, Laos, Vietnam**
- **Surface area: 181,035 Km^2**
- **Population: 15,46 million (2014)**
- **Language: Khmer**
- **Religion: Buddha**
- **Currency: Riel (1USD = 4,000 R)**
- **Capital: Phnom Penh**

B.CAMBODIA NPPO ORGANIZATIONAL CHART

- Before Nov. 2008 Plant Protection and Phytosanitary Inspection Office (PPPIO) was at the Department of Agronomy and Agricultural Land Improvement (DAALI), MAFF.
- After Nov. 2008 Plant Protection, Sanitary and Phytosanitary Department (PPSPSD) became a part of the General Directorate of Agriculture (GDA), MAFF (Sub Decree 188 dated on 14/11/08)

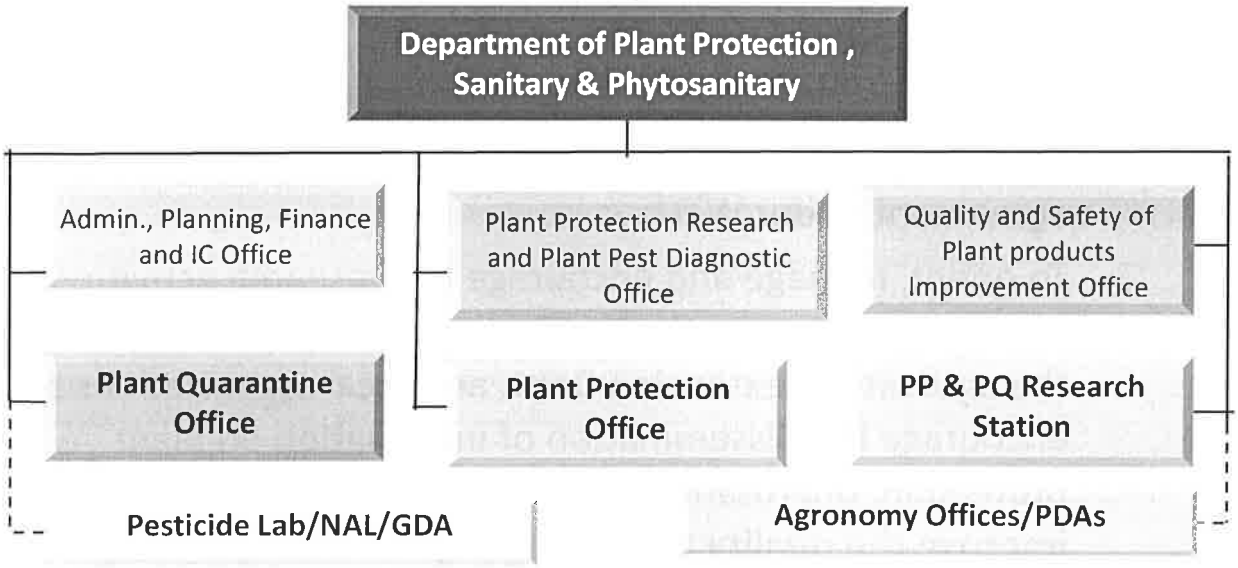
B.CAMBODIA NPPO ORGANIZATIONAL CHART

Under GDA



NPPO: The Plant Protection & SPS Dept. play a role as Cambodia NPPO (Included a Food Safety of Plant Product), under Directed of GDA's DG.

B.CAMBODIA NPPO ORGANIZATIONAL CHART



Total staff are 67 officials in Central Offices & 10-15 Officials in each PDAs

C. MANDATE OF PP-SPSD

SD 188 (14/11/08)

1. To prepare policies, plans, and projects/programs dev./measures:
   - to reduce crop yield loses caused by pest through proper use of Plant Protection & Soil Fertilization Product in order to increase productivity and maintain sound sustainable use of natural resources and biodiversity of the environment;
   - plant product quality standards to ensure the safety and quality of plant products in order to protect consumers and find new markets to encourage the export of plant products;

C. MANDATE OF PP-SPSD

SD 188 (14/11/08)

(Continue...)

2. To prepare regulations and act as the **regulatory service** in the management of: (a) **plant protection activities, (b).safety of food of plant products and ©.phytosanitary inspection**, according to the Government policy and SPS agreement under WTO;
3. To orient, manage and encourage the research activities of research institutions under its management ;cooperate with the agricultural extension Dept. and local organizations to encourage the dissemination of information on plant protection, phytosanitary and **production methods to improve the quality and safety of products** by farmers, farmer organizations, investors and private sector for increased benefits and family income thereby improving livelihood and facilitate the export of agricultural products;

C. MANDATE OF PP-SPSD

SD 188 (14/11/08)

(Continue...)

4. To provide supporting services to the seed inspectors
5. To liaison, facilitate and encourage the private sector to invest in supporting services for plant protection, phytosanitary matters and in improving the quality of agricultural products;
6. To act as technical advisor and serve in pest control interventions; assess chemical substances used for prevention, control including, repellents, growth regulators (and all other pesticide active ingredients) against pest and all biological control agents or botanical substances used for the above mentioned purpose as well as materials for soil fertility improvement; and in the assessment of quality of agricultural products;
8. To liaison, cooperate and implement national, regional and international conventions/agreements.
9. To implement other duties as ordered by the Director General and Management Team of GDA.

D.DEVELOPMENT OF REGULATIONS RELATED TO SPS MEASURES

1. Upgrading of the NPPO from Office to Department hierarchical level under GDA with more empowerment by the Government (Sub-Decree 188)
2. The Plant Protection and Quarantine law is still under developed (expected to replace the Sub Decree No.15 on Phytosanitary Inspection, dated 13/03/2003)
3. The 5 Regional Plant Quarantine Office will be open soon, just after the completion of Phytosanitary Automation have been finalized.

E. REVISION OF NATIONAL PEST LIST

1. **The Quarantine Pest List was Endorsed:** the Quarantine Pest List has been revised and endorsed by Ministerial Decision No.100, (dated 10/03/2010: 184 Plant Pest)
2. **The Pest List of Other Crops are Being Developed:** The pest list of potential crops for export are being prepared in responding to the increasing export potentials of these plant products.

F. INTERCEPTION OF PEST AND PROGRESS OF PRA

Interception of Pest:

- **No plant pest that had been intercepted** on the imported products, due to the absence of PQ inspector at border check points ;
- But the new pest that invaded the Mekong Sub- region were tapioca mealy bugs & Psyllids that caused Citrus greening. (These pest are under special eradication programs)

Progress of PRA:

- **There are no PRA's that had been conducted recently.**

  The PRA team were trained and supported by FAO particularly in conducting specific case study, pest surveillance and preparation of necessary information to support PRA process required by importing countries.

G. EMERGENCY ACTION

Existing System: The Provincial Department of Agriculture (PDA) monitors in their responsible territory and take action to manage pest in terms of pest alerts/advisories, pest control methods dissemination through trainings, extension materials and technology demonstrations & interventions whenever necessary. PDA continuously report to PPSPSD/GDA on pest infestations, new pest invasion and also request for technical assistance .

Development of a New System : To establish a plant protection unit/office under PDA for more effective plant health monitoring and management and the creation of 5 PPSPS regional branch offices under PPSPSD for quick emergency response, regional/domestic PQ activities and trade facilitation of plant products.

H. CONTIGENCY PLANS

Annual Government Budget Allocation: Pest control budget from RGC is still limited..

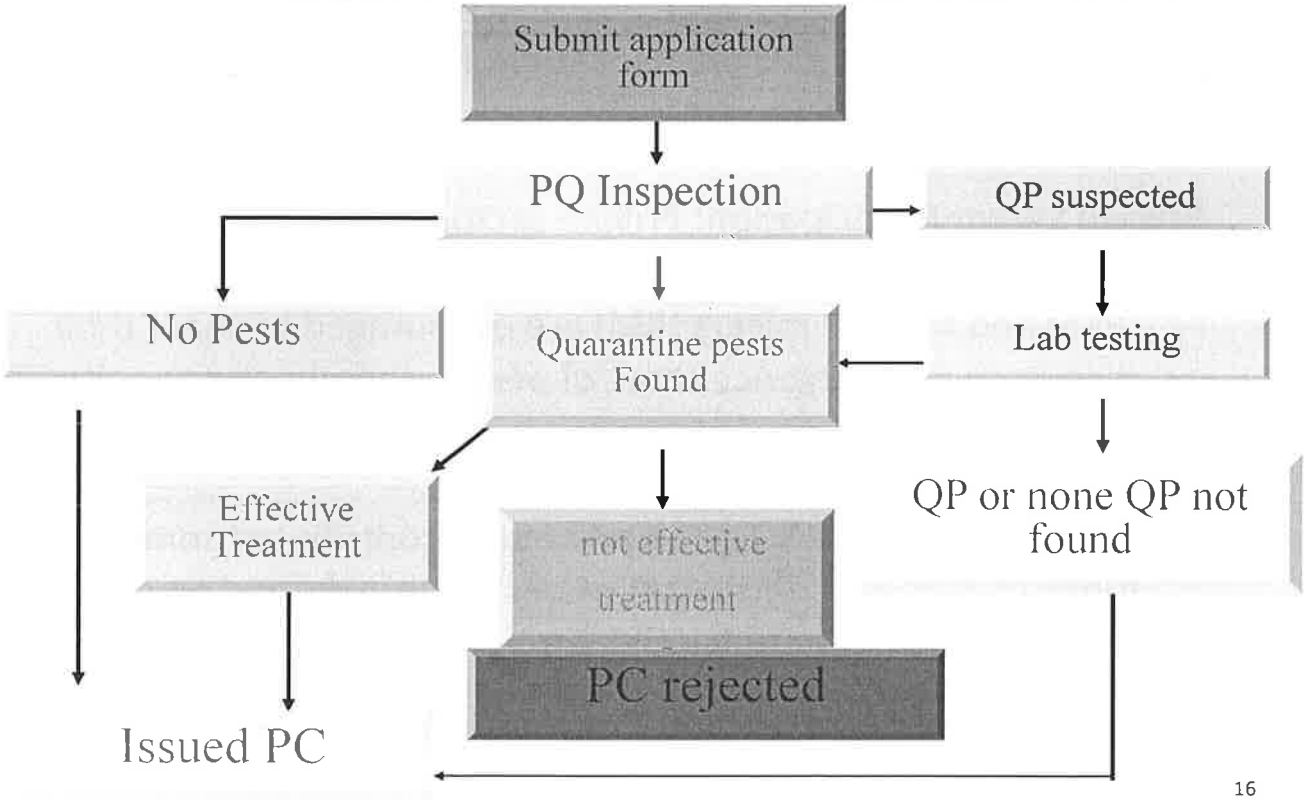
Private Sector Participation: Private sectors including Agricultural Products Owners (APO), Pest Control Services (PCS) and the rice millers (RM) are encouraged to share their resources in emergency cases of pest outbreaks and incursions of new pest.

NGOs Participation: NGO's had previously contributed some funds to manage some cases of pest outbreaks and new pest infestations.

I.ESTABLISHMENT OF NEW PEST FREE AREA

No Pest Free Area has been established: Since the full organizational structure of regional/domestic PQ are still being developed and due the geographical situation of Cambodia, the pest free and low pest prevalence areas are not yet established and maintained. However, pest free and low pest prevalence areas (natural distribution) had been recorded previously in some localities.

J. PLANT QUARANTINE CERTIFICATION PROCEDURE



K. EXPORT CONTRAINTS

1. Low productivity and poor quality of products due to limited techniques on pre and post-harvest quality maintenance together with limited drying and storage facilities.

2. Lack of market access due to inadequate marketing networks with regional and overseas markets plus weak bargaining powers.

3. Poor marketing infrastructures (absence of wholesale/export markets, poor farm to market road conditions.

K. EXPORT CONTRAINTS

(Continue...)

4. Unstable production due to single crop production per year, lack of irrigation system , and crop rotation based on demand/prices

5. Limited trade facilitation between regional and world markets

6. Limited Reliable Quality inspection and certification system such as **on** SPS, Food Safety , and GAP.

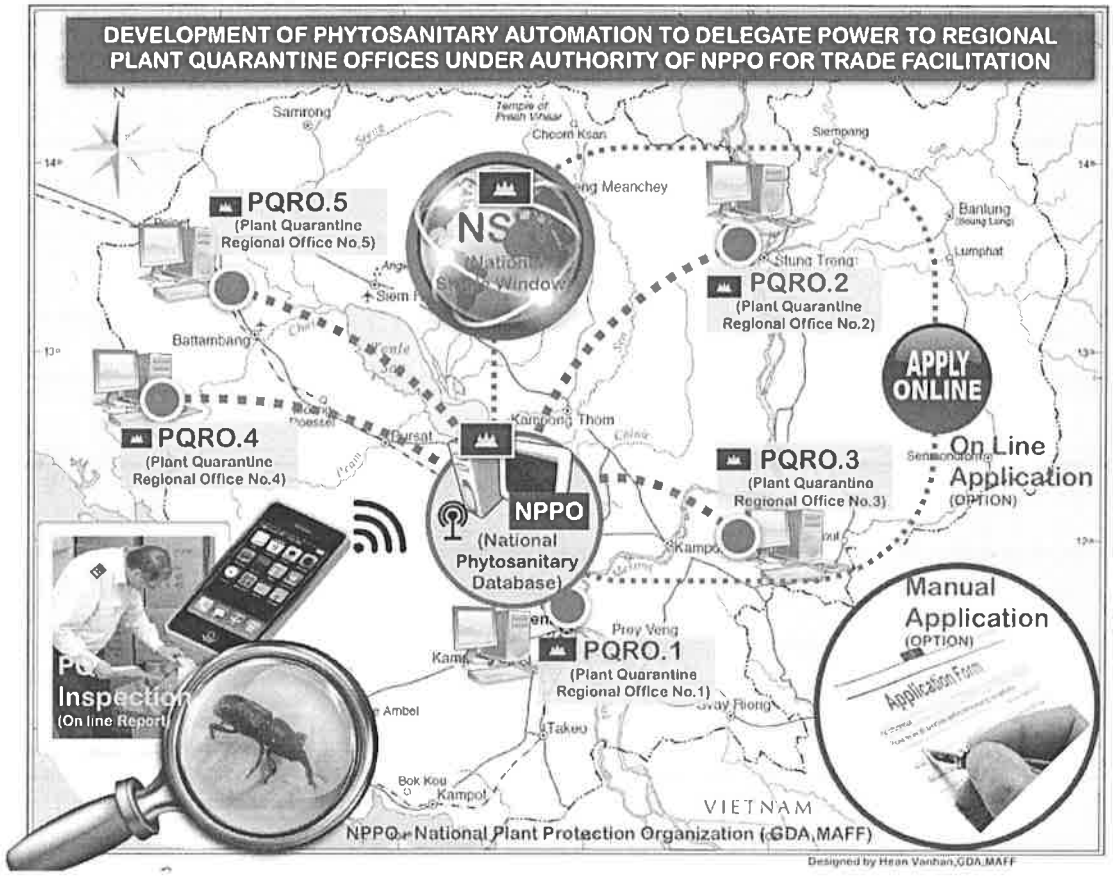
L. FUTURE ENDEAVORS

- Improved quality of Agricultural Products through the provision of technology on pre and post-harvest quality maintenance
- Promote the organization of farmer Associations/ Cooperatives in order to strengthen their bargaining power, improve productivity and increase market opportunities.
- Develop the appropriate storage facilities and provide related technologies to farmers.
- Strengthening of Reliable Quality Assurance, inspection and certification system for potential crops for export

L. FUTURE ENDEAVORS (Continue...)

- Improvement of farm to markets linkages by connecting farmers/producers with domestic and external traders/exporters, processors, and wholesalers through a contract system
- Border Trade Development by legalizing border trade, simplify procedures at border gates, improved market information and marketing extension services, development of marketing networks nation wide and on regional markets

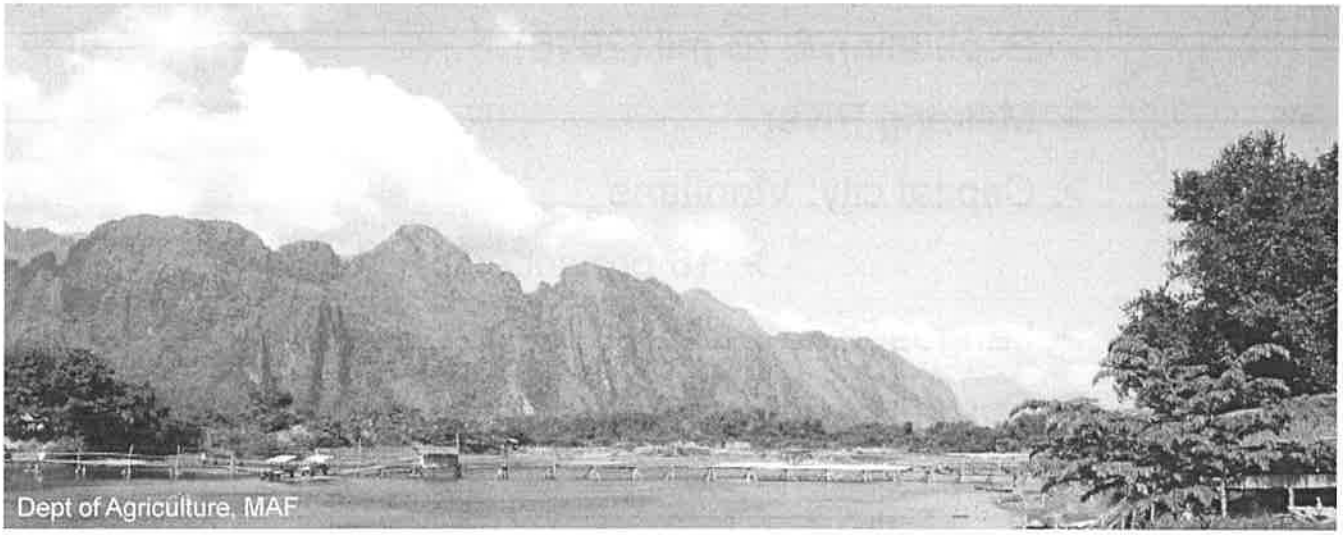
L. FUTURE ENDEAVORS (Continue...)



Thank You

For Your Attention

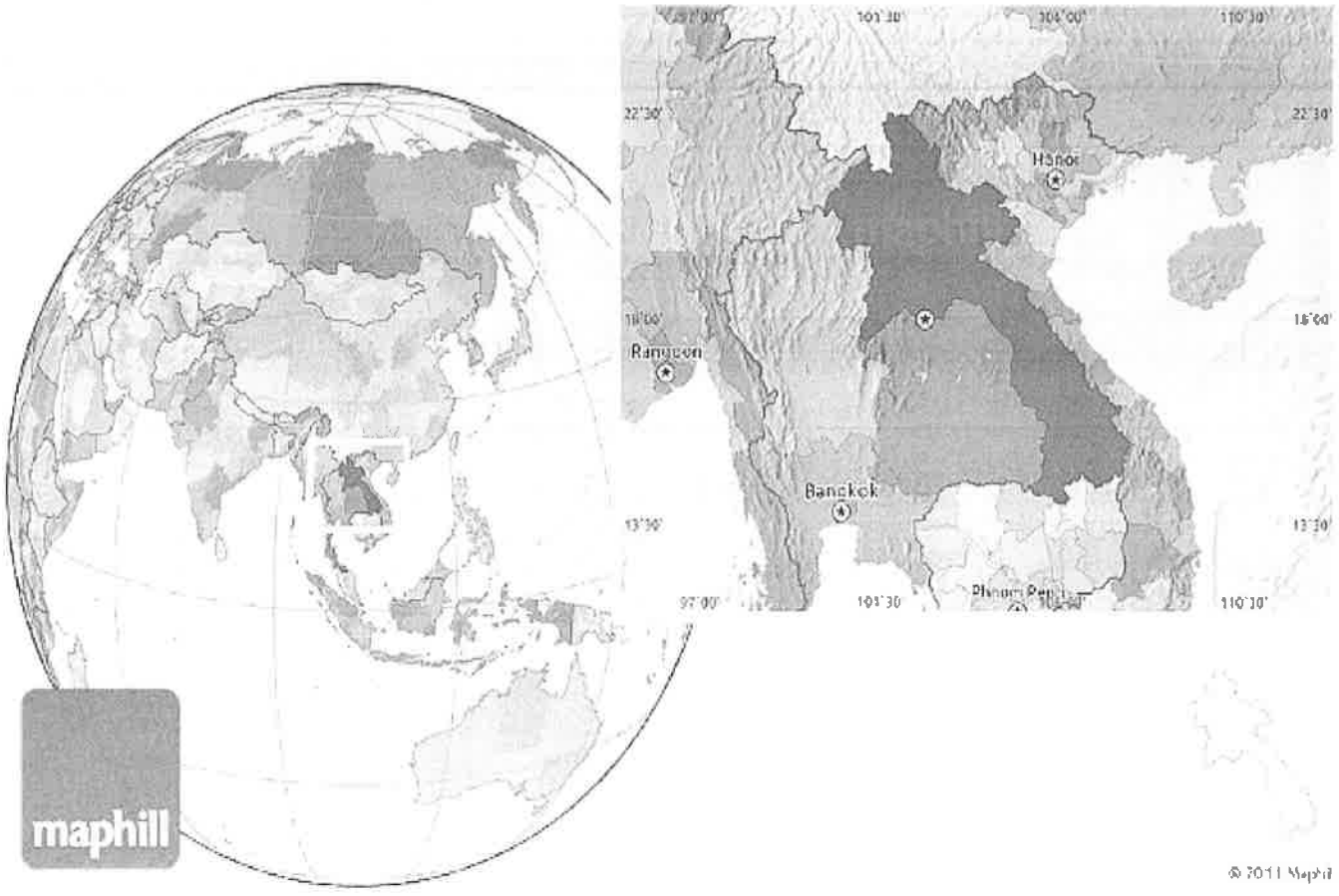
Country experience in the implementation of establishment of pest free status, Lao PDR



Contents:

I. Country profile

- South East Asia (ASEAN), Surrounded by China, Thailand, Myanmar, Vietnam and Cambodia.
- Area: 236,800 sq m
- Population:6.76 mil (2016)
- Mekong River
- Capital city: Vientiane
  - 18 provinces
- Language: Lao
- Currency: Kip (LAK)

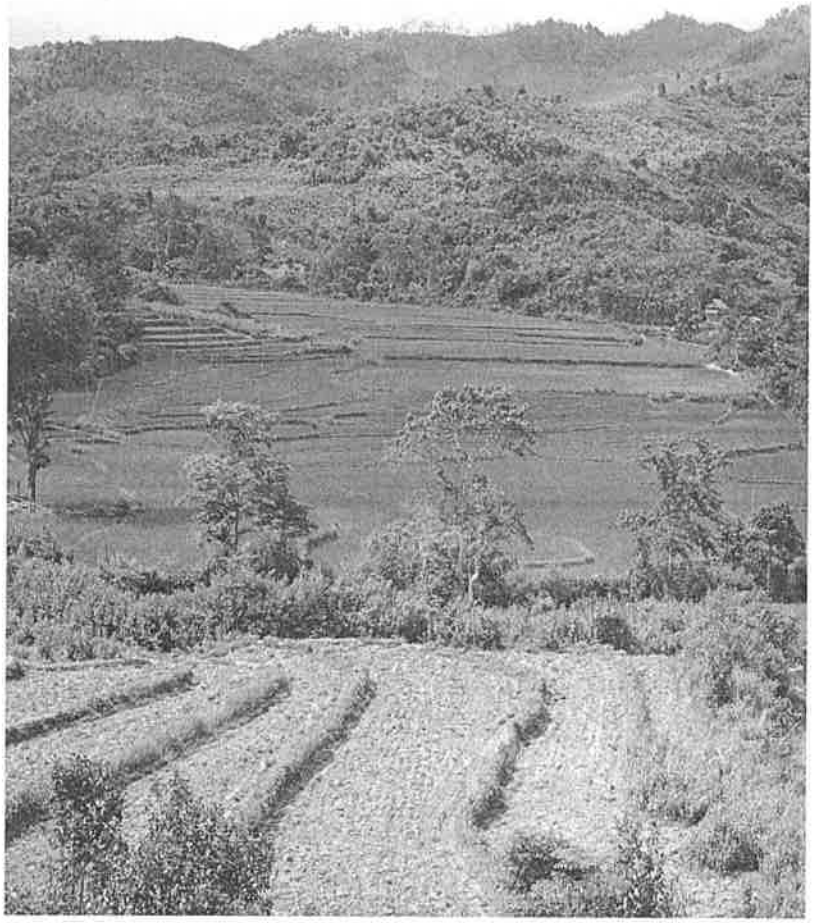


Climate and Crop production

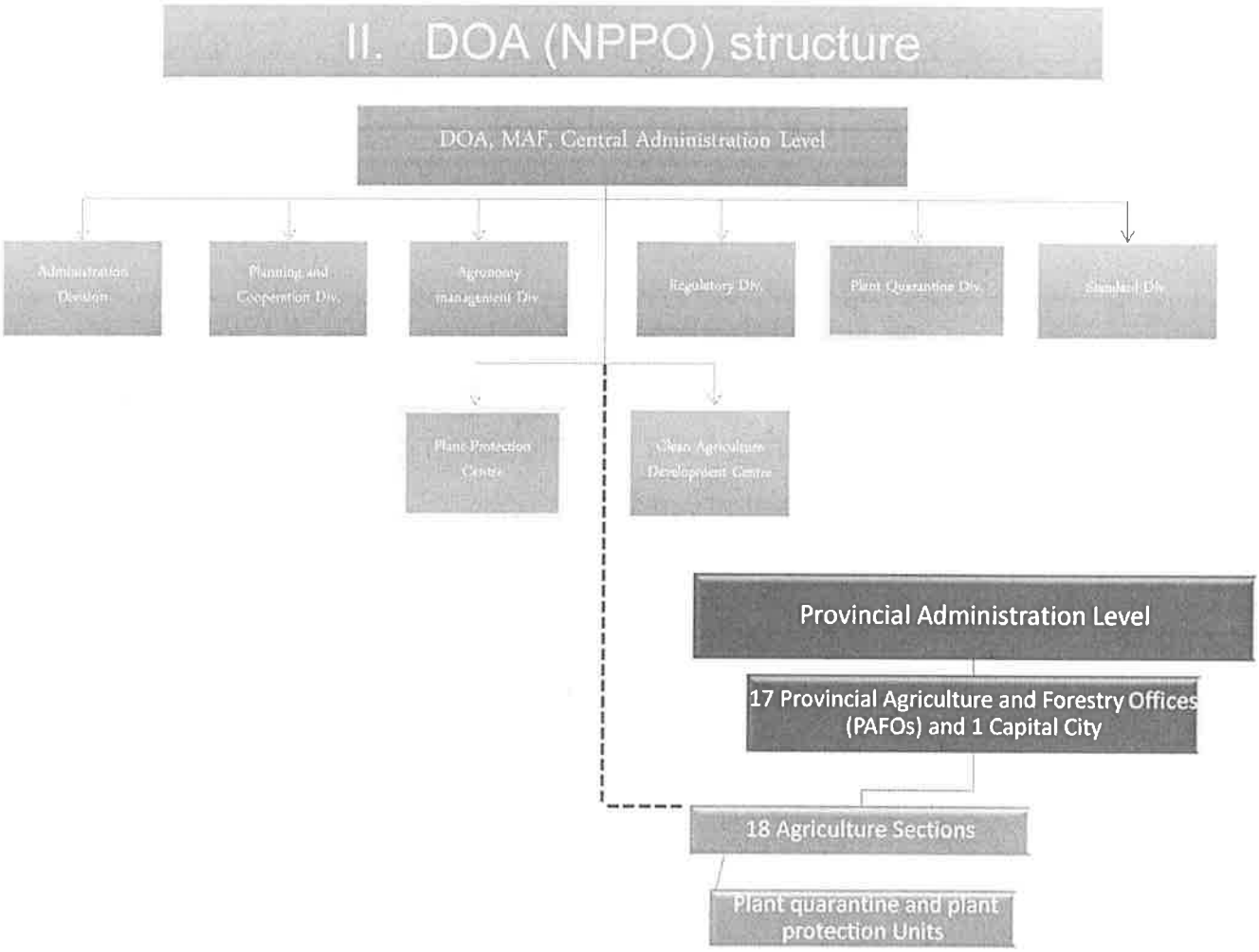
Tropical monsoon climate with wet (May-Oct) and dry season (Nov-April)

Rice grown as major crop with total of planted area 975,215 ha (2016) (Lowland, irrigated and upland rice)

Other important crash crops: banana, maize, rubber, job's tear, coffee, tea, cassava, citrus cardamom, soybean, mungbean, other beans, sugarcane, peanut, sesame, cassava, cotton, tobacco, other root crops, various vegetables, fruit trees, and etc…



II. DOA (NPPO) structure



Legislation

- 2008 Law of Plant Protection was release
- 2012 Prime Minister Decree on implementation of Plant Protection law
- 2016 Amended Law on Plant Protection and Plant Quarantine

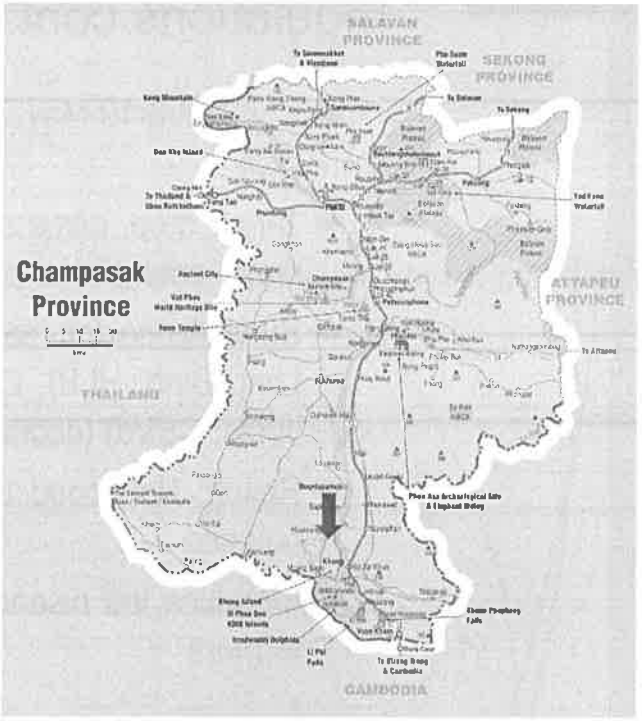
(15th November 2016) (translating and dissemination process for the whole country)

- IPPC (International Plant Protection Convention) -(Lao PDR become a IPPC membership1955) , ISPMs

III. Establishment of Pest free status and its regulations

- No establishment of pest free areas in Lao PDR yet
- But, Initial activities had been formulated for data gathering for a potential area of pest free area
- A potential area selection;

Select a potential area, Don khong Island, Champasak pro; isolate, might be better management



Don khong Island, Champasak pro. cont.

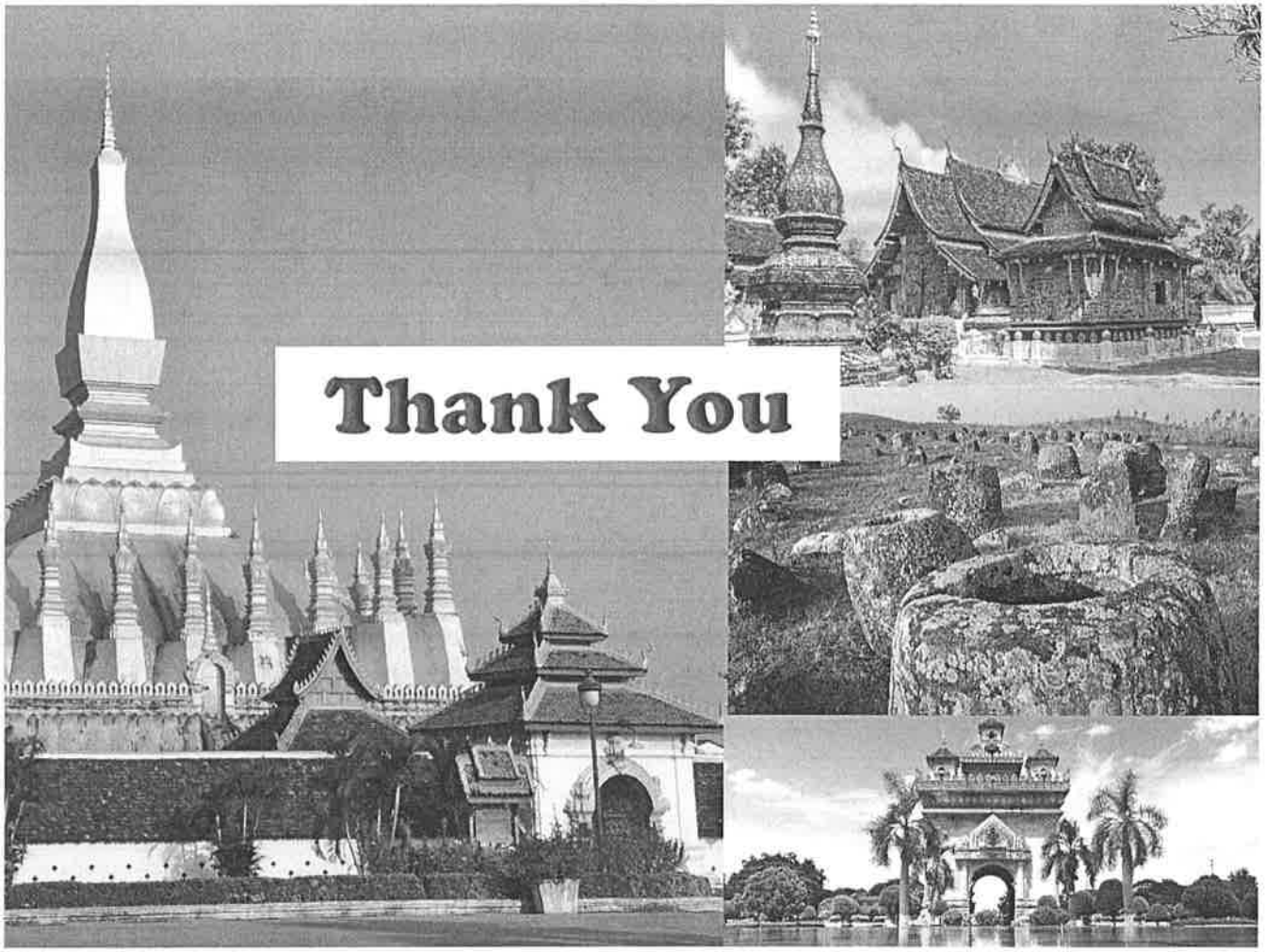
Khong Island or **Don Khong** is the largest island and the seat of administration in the Si Phan Don, 4000 island, fertile soil, located in the Mekong River, Khong District, Champasak Province
The island is 18 kilometres (11 mi) long (north-south), and 8 kilometres (5.0 mi) at its widest point. It has a population of approximately 55,000, mainly concentrated in the two villages Muang Saen (west) and Muang Khong (east); the latter is the *de facto* capital of the island as well as the regional seat of government. The former President of Laos, Khamtai Siphandon has a residence on the island.

Establishment of Pest free status and its regulations cont.

- Conduct 8-19 May 2017, meeting with provincial and district staff
- Target crop, *citrus* spp, mandarin and lime (one of priority crop), potential for promote income for the island farmers
- Surveillance for main target disease of *citrus* spp (Huang Long Binh, HLB), Citrus tristeza virus and Citrus exocortis viroid, CEVd) (economically damaging disease)
- Result: Not found the disease on the island, insects are balance
- Introduce the disease free citrus stocks for propagation for farmers

IV. Challenges

- No establishment of pest free area
- Initial activities still need more data gather and analysis for pest surveillance and planning (primarily information)
- Agriculture staff's knowledge and experience on this establishment is very limit (applying ISPMs, general info)
- Need capacity building and assistance of experts in conducting this works; regulations, implementation procedures and other necessary guidelines and comprehensive trainings, workshops and etc..
- Cost-effective study need, budget constraint.

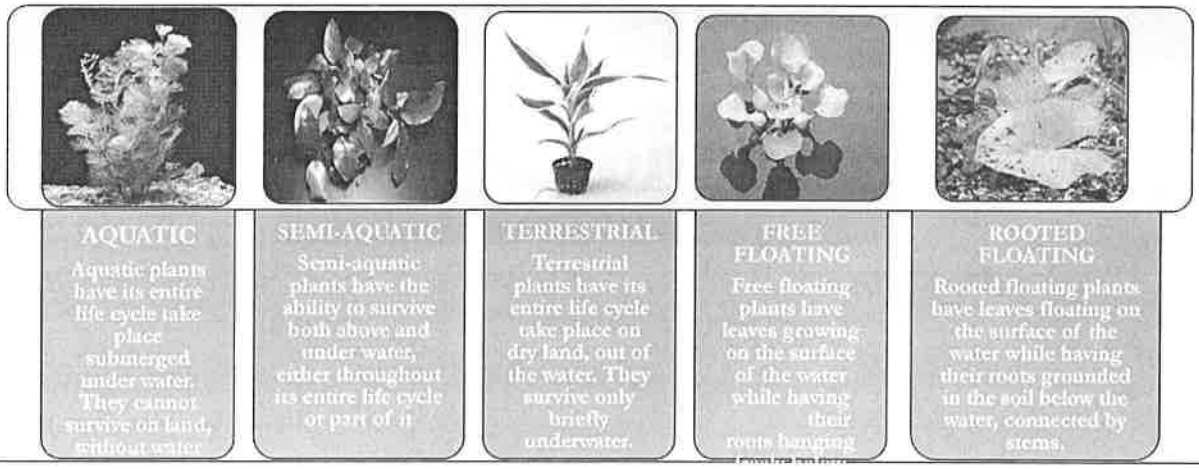

Thank You

ESTABLISHING A PEST FREE AREA FOR THE EXPORT OF AQUATIC PLANT TO EUROPEAN UNION

REGIONAL ASEAN TRAINING WORKSHOP ON THE ESTABLISHMENT OF PEST FREE STATUS
Bekasi, Indonesia, 4 – 8 september 2017

Plant Biosecurity Division,
Department Of Agriculture,
MALAYSIA

AQUATIC PLANT IS CLASSIFIED INTO 5 TYPES



AQUATIC
Aquatic plants have its entire life cycle take place submerged under water. They cannot survive on land, without water.

SEMI-AQUATIC
Semi-aquatic plants have the ability to survive both above and under water, either throughout its entire life cycle or part of it.

TERRESTRIAL
Terrestrial plants have its entire life cycle take place on dry land, out of the water. They survive only briefly underwater.

FREE FLOATING
Free floating plants have leaves growing on the surface of the water while having their roots hanging

ROOTED FLOATING
Rooted floating plants have leaves floating on the surface of the water while having their roots grounded in the soil below the water, connected by stems.

THE LIST OF REGISTERED EXPORTER

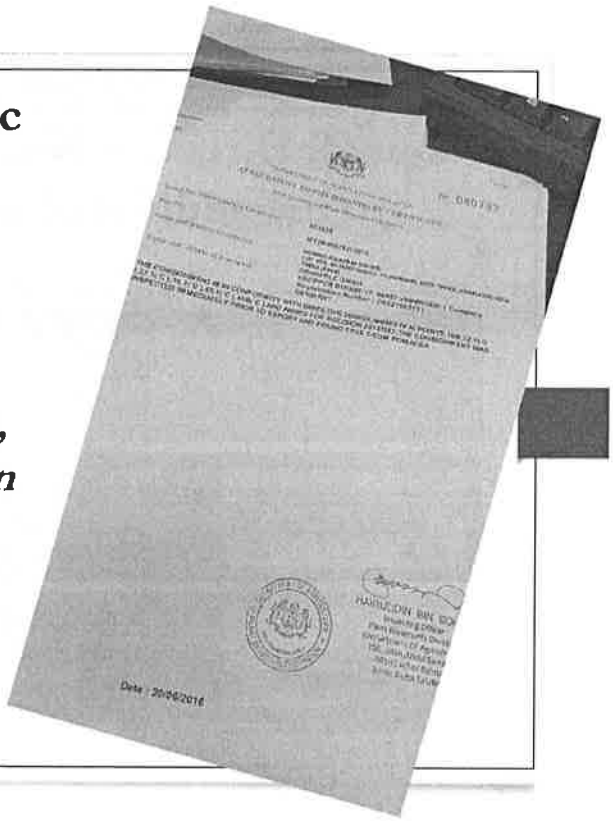
ISSUANCE OF PHYTOSANITARY CERTIFICATES TO EU

2010 -2017

NUM	COUNTRY	2010	2011	2012	2013	2014	2015	2016	2017 (till Julai)
1	Nertherland	65	45	91	171	138	271	215	124
2	Greece	7	6	5	29	4	3	4	-
3	United Kingdom	3	4	6	5	111	219	208	148
4	Hungary	-	-	-	-	-	2	-	-
5	Italy	8	8	9	8	6	13	18	8
6	Cyprus	11	10	-	5	1			
7	Denmark	20	18	17	18	31	101	86	32
8	Belgium	10	12	14	22	13	29	42	31
9	Germany	67	65	72	182	120	204	144	65
10	Spain	7	5	2	3	4	8	2	9
11	France	6	6	-	6	1	3	-	-
12	Republik Czech	-	-	-	-	6	32	22	10
12	Portugal	5	5	-	5	-	-	-	-
13	Poland	4	2	4	4	1	-	-	-
		213	186	220	458	438	885	741	427

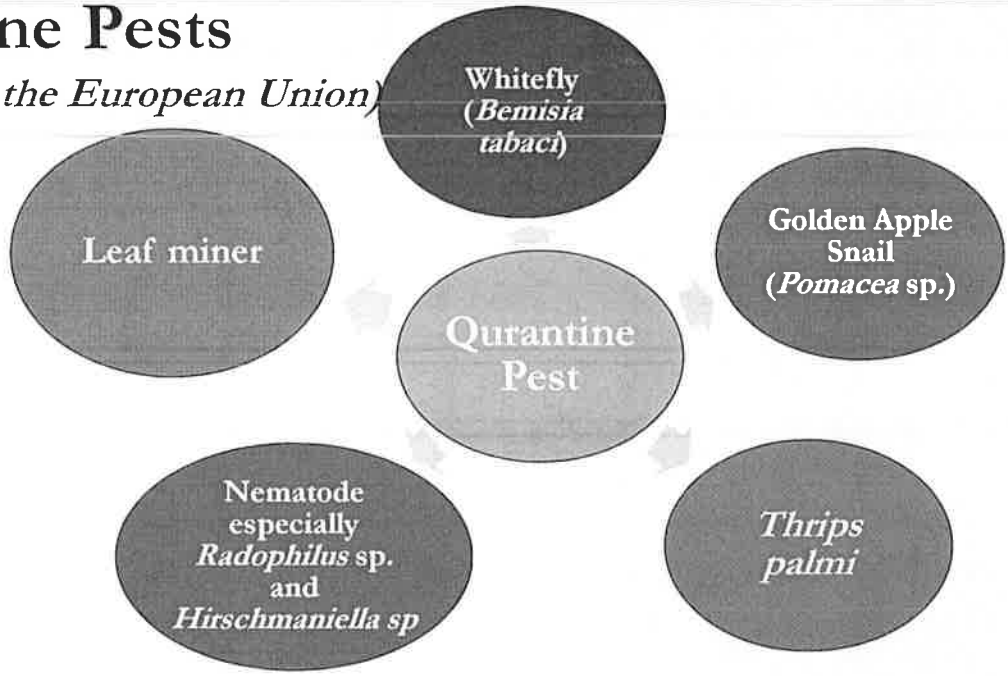
Additional Declaration for Aquatic Plant Exposures to European Union

"The Consignment is in Comformity with directive 2000/29/EC. Annex IV, A.1, point 18(b), 32.1(c),32.3 (c), 36.1(c), 45.1(c), 46(b) : (c) and Annex 1, Decision of 2012/697: The consignment was inspected immediately prior to export and found free from Pomacea

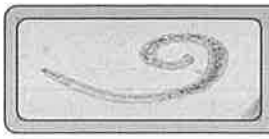


Quarantine Pests

(prohibited by the European Union)



Council Directive No. description 2000/29 / EC related to the additional declaration for Aquatic Plants.

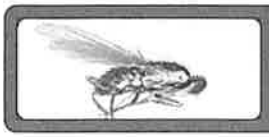


Annex IV, A.1, point 18(b)

- *Radopholus citrophilus* Huettelet al. and Radopholus similis (Cobb) Thorne and others nematode.

32.1(c),

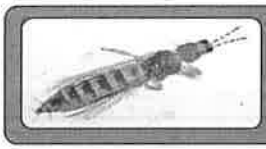
- *Liriomyza sativae* (Blanchard) and *Amauromyza maculosa* (Malloch)



32.3 (c),

- *Liriomyza huidobrensis* (Blanchard) and *Liriomyza trifolii* (Burgess)

Council Directive No. description 2000/29 / EC related to the additional declaration for Aquatic Plants.



36.1(c)

- *Thrips palmi* Karny

45.1(c), 46(b) : (c)

- *Bemisia tabaci* Genn

Annex 1, Decision of 2012/697

- Golden Apple Snail

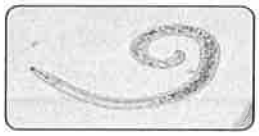
Phytosanitary Requirement

Annex IV, A.1, point 18(b)

Radopholus citrophilus Huettelet al. and Radopholus similis (Cobb) Thorne and others nematode

Representative **samples of soil and roots** from the **place of production** have been subjected, since the **beginning of the last com[illegible]te cycle of vegetation, to official nemato[illegible] and found free** for at least *Radopholus [illegible]* Huettel *et al.* and *Radopholus similis* (Cobb) Thorne and have been found, in these tests, free from those harmful organisms.

to official nematological testing and found free for at least ***Radopholus citrophilus*** Huettel ***et al.*** and ***Radopholus similis*** (Cobb) Thorne



Phytosanitary Requirement
32.1(c), *Liriomyza sativae* (Blanchard) and *Amauromyza maculosa* (Malloch)

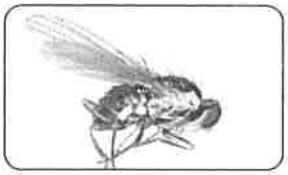
Immediately prior to export, have been subjected to an **appropriate treatment** against *Liriomyza sativae* (Blanchard) and *Amauromyza maculosa* (Malloch) and have been officially inspected and found free from *Liriomyza sativae* (Blanchard) and *Amauromyza maculosa* (Malloch). Details of the treatment shall be mentioned on the certificates referred to in Articles 7 or 8 of this Directive.

found free from *Liriomyza sativae* (Blan-chard) and *Amauromyza maculosa* (Malloch).

Phytosanitary Requirement
32.3 (c), *Liriomyza huidobrensis* (Blanchard) and *Liriomyza trifolii* (Burgess

Immediately prior to export, the plants have been officially inspected and found free from *huidobrensis* (Blanchard) and *Liriomyza trifolii* (Burgess) and have been subjected to an appropriate treatment against *Liriomyza huidobrensis* (Blanchard) and *Liriomyza trifolii* (Burgess).

found free from *Liriomyza huidobrensis* (Blanchard) and *Liriomyza trifolii* (Burgess)



Phytosanitary Requirement
36.1(c) *Thrips palmi* Karny

- Immediately prior to export, have been subjected to an appropriate treatment against *Thrips palmi* Karny and have been officially inspected and found free from *Thrips palmi* Karny. Details of the treatment shall be mentiond on the certificates referred to in Article 13. 1(ii) of this Directive..

have been officially inspected and found free from *Thrips palmi* Karny.

Phytosanitary Requirement
45.1(c), 46(b) : (c) : *Bemisia tabaci* Genn

- In cases where *Bemisia tabaci* Genn. (Non-European populations) has been found at the place of production, are held or produced in this place of production and have undergone an appropriate treatment to ensure freedom from *Bemisia tabaci* Genn. (Non-European populations) and subsequently this place of production shall have been found free from *Bemisia tabaci* Genn. (Non-European populations) as a consequence of the implementation of appropriate procedures aiming at eradicating *Bemisia tabaci* Genn. (non-European populations), in both official inspections carried out weekly during the nine weeks prior to export and in monitoring procedures throughout the said period. Details of the treatment shall be mentioned on the certificates referred to in Article 7 or 8 of this Directive.

The place of production shall have been found free from Bemicia Tabaci Genn

Phytosanitary Requirement
Annex 1, Decision of 2012/697
Golden Apple Snail

Additional Declaration that the specified plants have been found free from the specified organism immediately prior to leaving the third country concerned.

ESTABLISHMENT OF PEST FREE AREA FOR EXPORT OF THE AQUATIC PLANT TO EUROPEAN UNION (EU)

Farm

+

Premises

Biosecurity Guideline

Free from pest

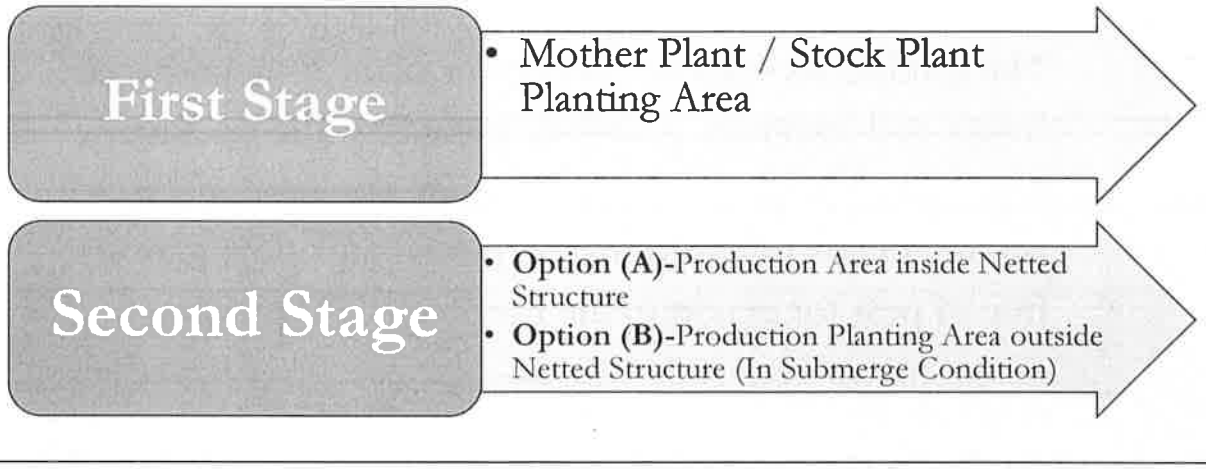
BIOSECURITY GUIDELINES FOR USE IN PRODUCTION OF AQUATIC PLANTS FOR EXPORT

The guidelines specify criteria for plant biosecurity on farms and exporter premises including the packaging and / or storage (holding area) in the production of aquatic plants to ensure that exported aquatic plants are free of pest for export to the European Union (EU).

REGISTRATION OF FARM AND EXPORTERS' PREMISES

- Once Nurseries (Farm and Premises) of the Aquatic Plants are meets the criteria of Plant Biosecurity (Biosecurity Guideline), they will registered under Department of Agriculture Malaysia and noticed by FVO (Food And Veterinary Office, European Commision)

PROCEDURE FOR AQUATIC PLANT PRODUCTION IN FARM



First Stage

First Stage

Mother Plant / Stock Plant Planting Area

Land Preparation	• Set up the Farm Plot • Soil Treatment and Preparation
Pest Management	• Pest control • **Cultural Practices** • Chemical Control • Planting material healthy and free of pest • Pest monitoring

Mother Plant / Stock Plant Planting Area

Mother Plant / Stock Plant Planting Area

Second Stage

AQUATIC (SUB MERGE)

SEMI AQUATIC

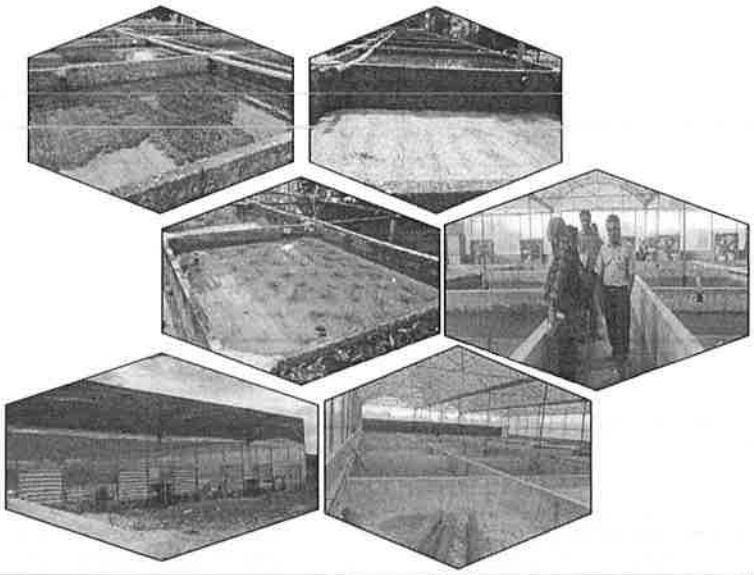
FLOATING

Planting in submerge condition

Planting inside Netted Structure

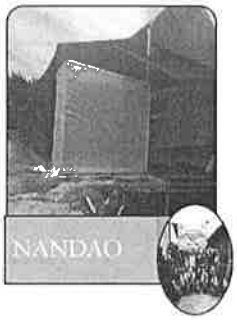
PROCEDURE FOR AQUATIC PLANT PRODUCTION IN FARM

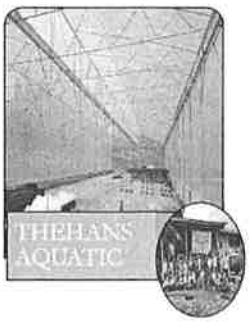
AQUATIC (Completely submerge)	SEMI AQUATIC (emerge)	FLOATING (Floating in the water)
• Planted in sand bed for 10 weeks prior to export	• Planting in the netted structure for 6 weeks and relocated to planting in the sand for 4 weeks prior to export • Planting in the netted Structure for the full 10 weeks.	• Plant in netted structure completely for 10 weeks prior to export

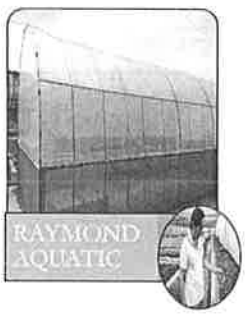


Planting in submerge condition

Planted in the netted structure







HARVESTING

- Employees are trained to select plants that are healthy and free from pests and diseases, and able to identify quarantine pests at all stages.

RECEIVING AREA

- Cleaning, culling, sorting, grading, and treatment and rinsing.
- Should be separate from the production area and separated by any partition (if necessary) to ensure that final plant product are not re-infected

PACKAGING AREA

- Fully enclosed, 'insect proof', have 'double door' structure and a one-way flow process works
- Quality Inspector that will inspect 100%
- Samples of the consignment must be sent to the laboratory for analysis and test of nematodes and pests - If the pests detected - that plants will be fully rejected.

QUALITY CONTROL

- **Exporters should provide training and expertise to responsible employees to ensure that the consignment is free from pest and diseases.**
- **100% Inspect by the QC Officer (company)**

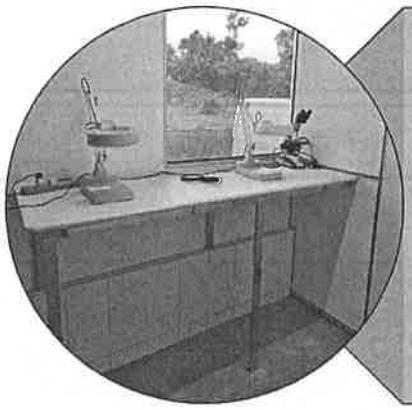
SAMPLE DELIVERY TO LABORATORY

- Sample of plants that are ready for export must be sent to a laboratory for analysis and test of nematodes and pests. *Plants must be free of any nematodes such as Rodopholus citrophilus, Radopholus similis and others nematode, as well as any level of pests such as White Fly, Thrips, and other mollusks.*

STORAGE

- **Consignment ready for export should be kept in enclosed area at temperature 15°C – 20°C. The store must be free of any pests or any opportunity for re-infection.** ***Examination table shall be made available in the storage area for inspection to be carried out.***

QUARANTINE INSPECTION



Quarantine inspection will be conducted by the Inspectors who have been appointed by the Department of Agriculture and implemented in accordance with the Standard ISPM 23 and 31

WASTE MANAGEMENT

- Waste such as cuttings of plants that have been infected with the disease / pest should be disposed of in a sealed container or disposed of properly to avoid re-infection

TRANSPORTATION

- Vehicles used to carry a consignment from the farm or packing centre to airport / port for the export shall be free of any pests, soil, weeds and any other contamination and fully enclosed. The transport temperature must also be consistent and suitable to aquatic plants to prevent damage.

WORK ACTIVITIES TO ENHANCE COMPLIANCES OF EU'S REQUIREMENT AT AQUATIC PLANT NURSERY

September – November, 2016

THEHANS SDN BHD
1 November, 2016

CHAI SENG AQUARIUM
20 SEPTEMBER, 2016

RAYMOND AQUATICS
4 Oktober, 2016

ALODEA
26 Oktober, 2016

POH SIANG CAO
27 SEPTEMBER, 2016

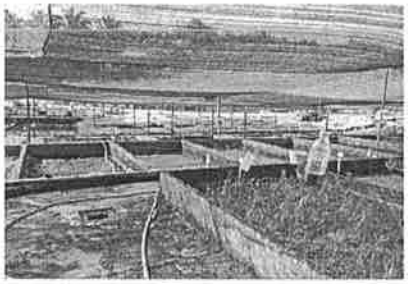
NANDAO AQUARIUM
6 September, 2016

WARMING UP BEFORE ACTIVITIES...

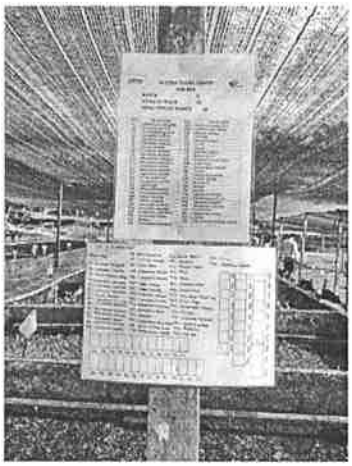
Briefing Of The Biosecurity Guidelines For Use In Production Of Aquatic Plant For Export to the Management

Farm Sanitary...

Repellent & Biopesticide Application…



Farm Plotting…

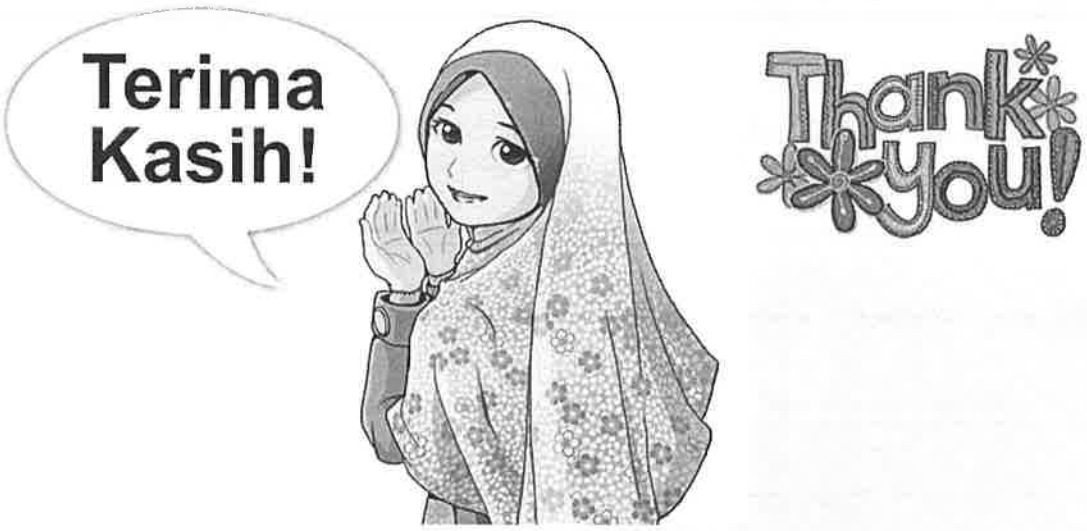


Receival and End Point information…

IPM Implementation…

Fish Culture 'Sword Red'/'Gourami Golden'/Barb Tiger to overcome the problem of nematodes and worms in aquatic plants

Talapia Culture for the purpose of providing nutrient to Aquatic Plant


Terima Kasih!
Thank you!

Country Experience in the Implementation of Establishment of Pest Free Status: Monitoring Survey of Mango Seed and Pulp Weevils, and Fruit Fly in Myanmar

Dr. Mu Mu Thein

Plant Protection Division

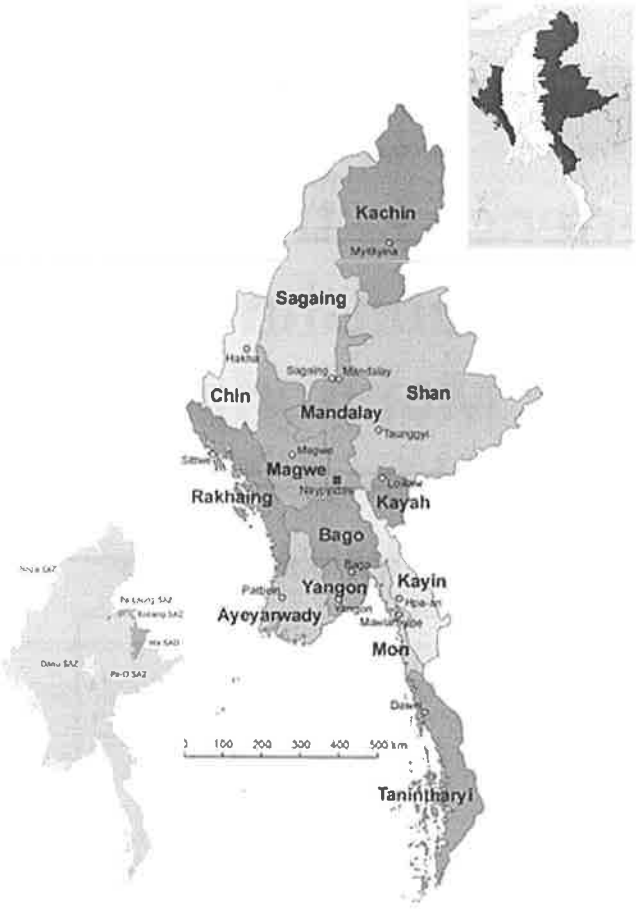
Ministry of Agriculture, Livestock and Irrigation, Yangon, Myanmar

Regional ASEAN Training Workshop on the Establishment of Pest Free Status, Bekasi, Indonesia

Borders of Myanmar

China	-	2192 km
Laos	-	224 km
Thailand	-	2096 km
Bangladesh	-	256 km
India	-	1331 km
Coastline	-	2276 km

Land – 6099 km
Sea – 2276 km



Administrative Structure

- ❖Regions (8)
- ❖States (7)
- ❖Union Territory (1)
- ❖Self administered zone (5)
- ❖Self administered division (1)

Population

- ❖About 60 million
- ❖70% rural population
- ❖Ethnically diverse nation with 135 national races
- ❖8 major ethnic groups (Burmese 68%)

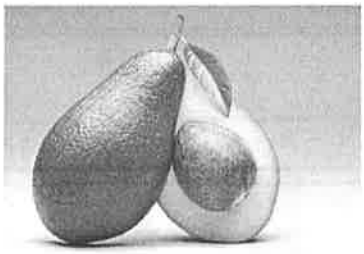
Fruits & Vegetables Production in Myanmar

Myanmar has different topography and cultivate both tropical and temperate fruits and vegetables in different area.

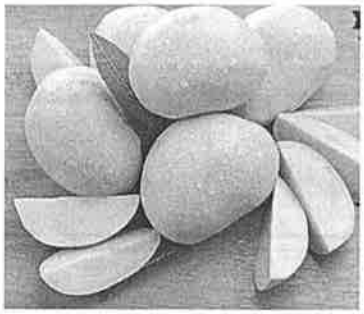
•Current Fruits for Export

Our Current Products

Fresh Fruit

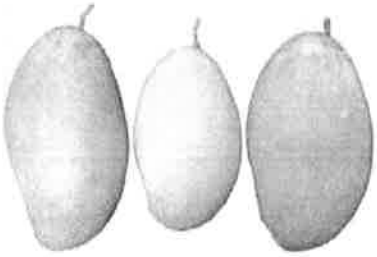


Avocado

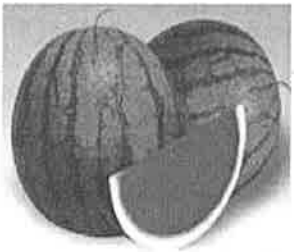


Mango Sein ta lone

Honey Melons



YinKwae



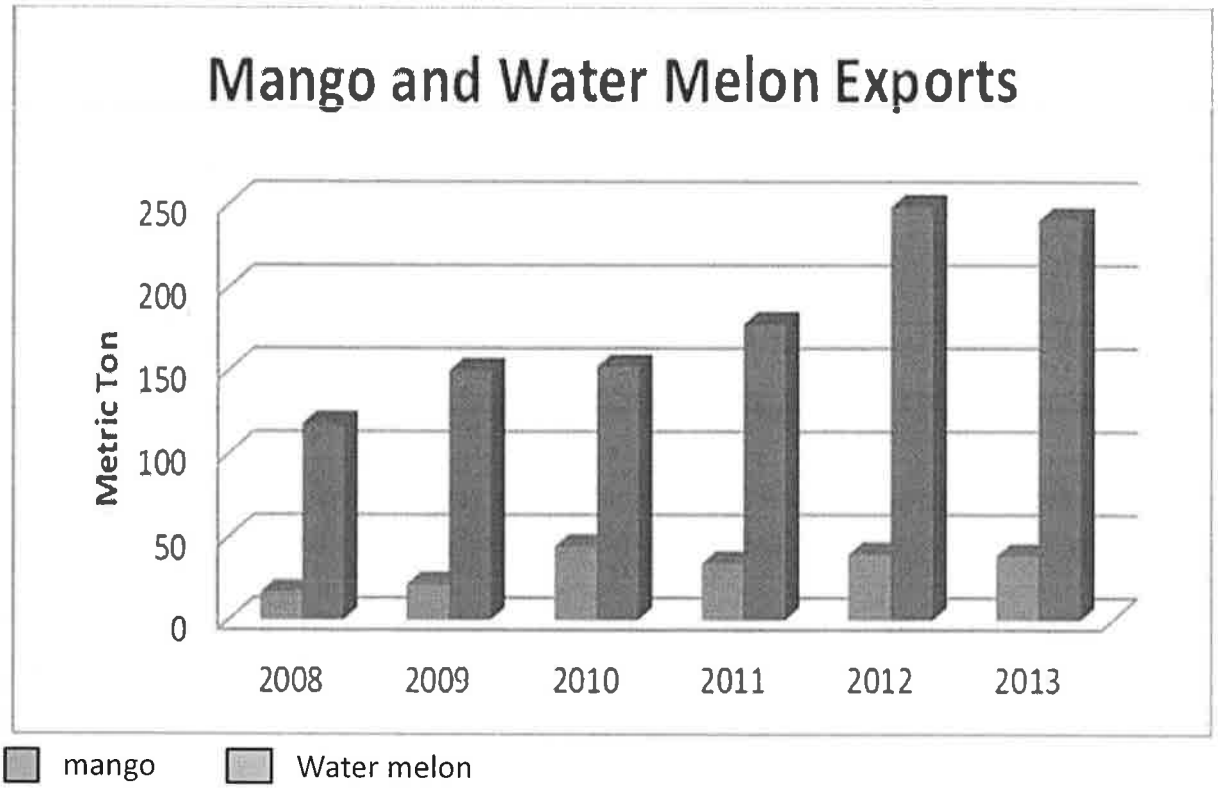
Watermelons

•Fruit Production In Myanmar(thousand tons)

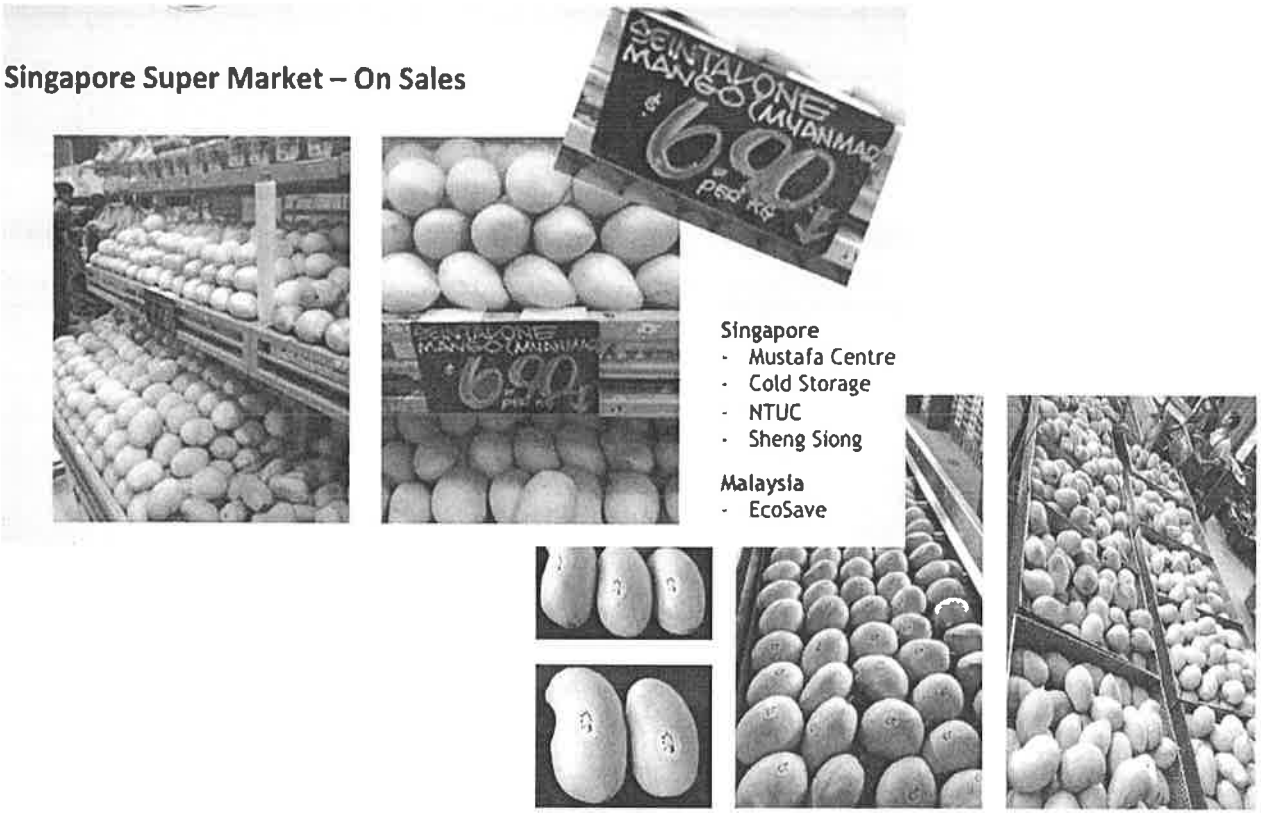
Fruit	2008	2009	2010	2011	2012	2013
Mango	180	230	260	265	319	358
Watermelon	130	200	210	260	390	400
Jujube	13	15	17	18	17	23
Pomelo	0.24	0.22	0.25	0.35	0.45	0.60
Avocado	0.12	0.15	0,25	0.25	1.2	1.5
Guava	25	25	25	25	25	30
Banana	50	51	51	115	102	84.7

Source : MFFVPEA, commodity Center, Muse

• Fresh fruit export to China cross border trade



• Export potential Mango Cultivar _ Sein Ta Lone



• Mango Seed and Pulp Weevil Survey

•According to results from Mango Pest list survey and generally surveillance, Mango seed weevil & pulp weevil and fruit fly are important pests of mangoes in the country

•They are quarantine pests for many countries such as: Japan, Korea, Australia, USA and European Union

•Strict quarantine regulations

• Monitoring Survey of Mango Seed & Pulp Weevils (2016 & 2017 Fruiting Season of mango)

Main Mango Growing Regions

- Mandalay region
- Sagaing region and
- Southern Shan State

Objectives

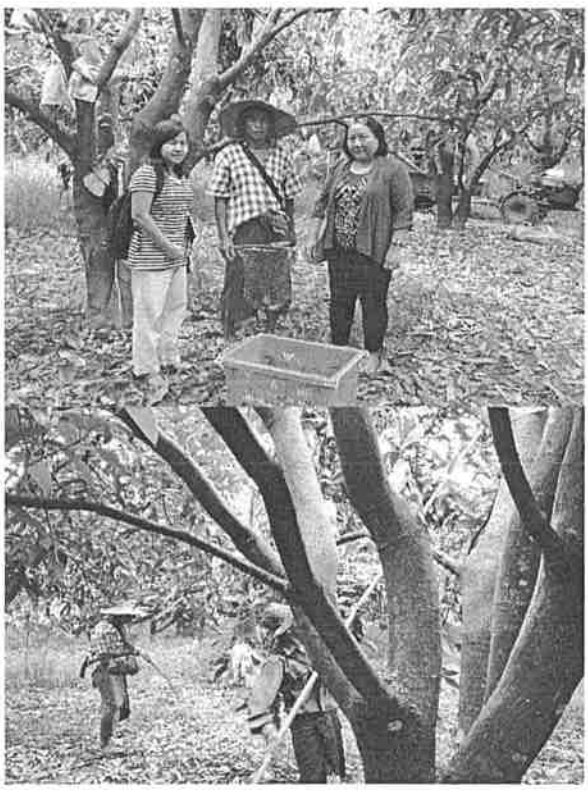
- To conduct a survey of Mango seed and pulp weevil status in Southern Shan State .
- To provide recommendations for IPM methodology.

• Selection of Orchards

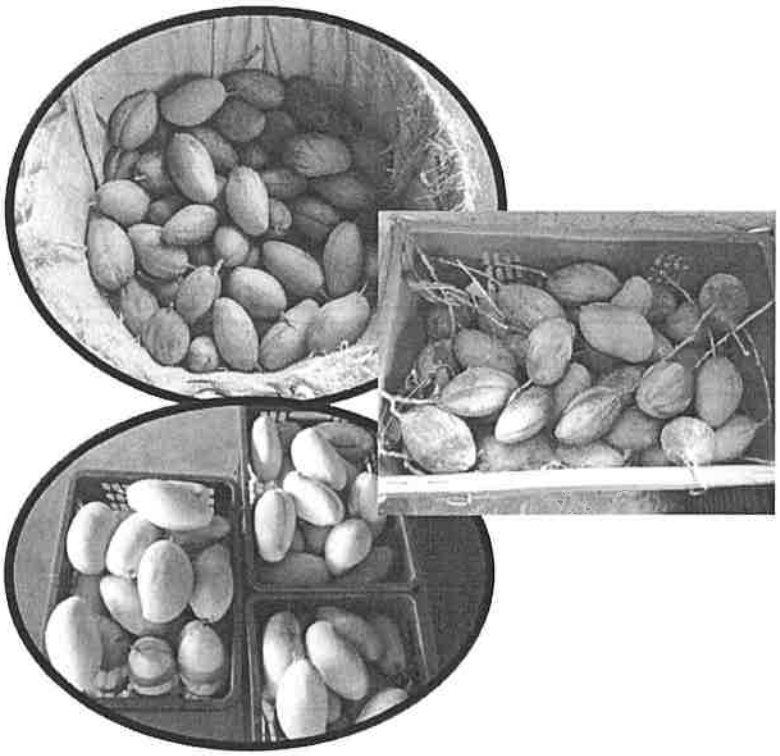
- Select representative orchards at Yatsauk Township (7 sites for Sein Ta Lone and 5 sites for Yin Kwe varieties) including yards of home and public establishments (e.g. hotels, churches, monastery, etc.), and wild trees with support of MFVP Mango Cluster Southern Shan State.

• Fruit sample size

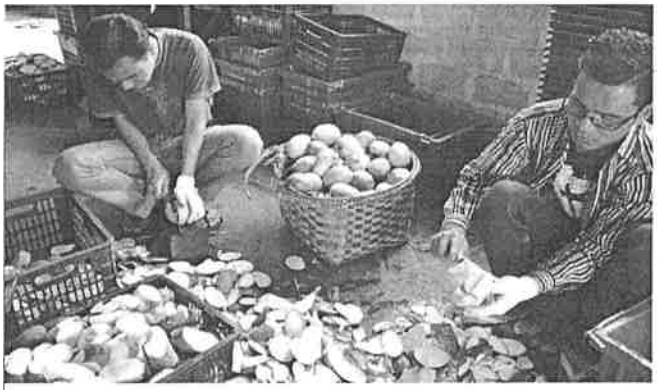
- 200 fruits as minimum number for established orchards and wild trees.
- Minimum number of 8 fruits for each selected trees by dividing each tree into 4 quadrants .
- For each quadrate, not less than 2 fruits were collected randomly.

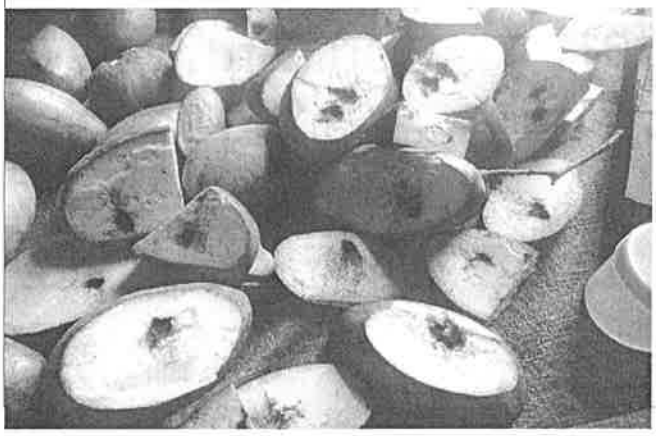


• Fruit Collection

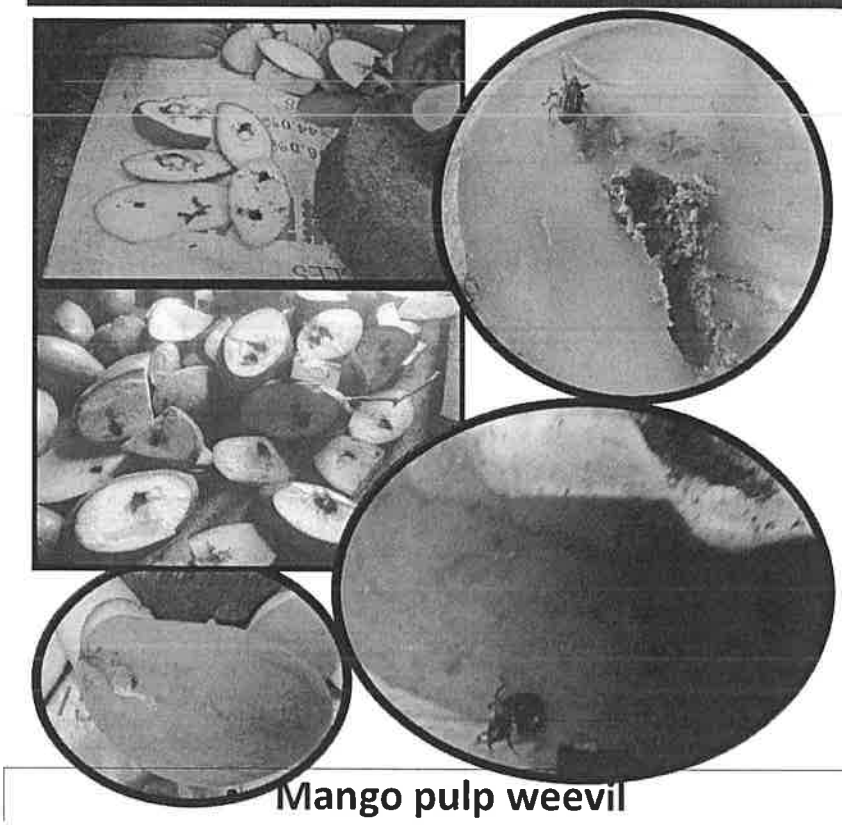


Survey Time at Fruit Maturity Stage & Checking of Mango seed and pulp weevils by dissection

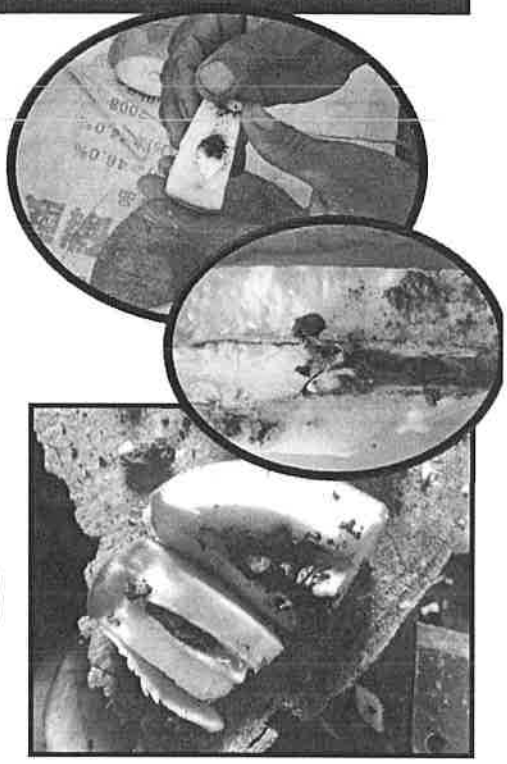




• Damage symptoms and adults of mango seed and pulp weevils



Mango pulp weevil



Mango seed weevil

• Survey Result

The surveys conducted in Yatsauk township, Southern Shan State:

- 0% was found in orchards using IPM Practices in both 2016 and 2017(GAP orchards)
- 1 % was found in orchards not well using IPM practices in 2016 and 2017 (GAP orchards).
- 50-60% was found in back yard garden, home garden where no control practices are using.

• Challenges

- Need nationwide detection survey for mango seed and pulp weevils
- Need national survey to verify pest free status
- Very limited budget from Gov.
- Need international donor supporting and technical cooperation for above work

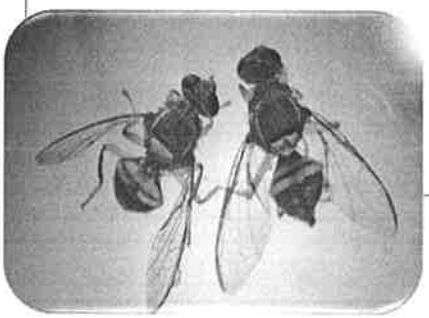
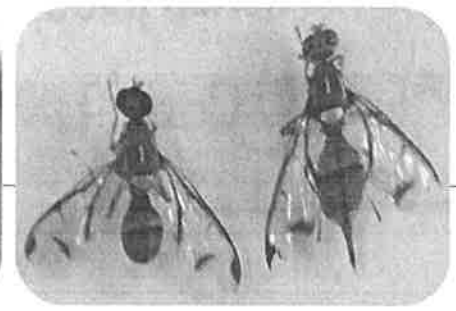
• Fruit Fly Survey

•One of the most important pests of fruits and vegetable in Myanmar
•It is found through out the country
•Strict quarantine regulation for fruit fly

• Monitoring Survey of Fruit Fly (2014-2016)

Objectives

- To develop list of fruit fly species in the country
- To investigate abundance of fruit fly species in fruits and mango orchards
- To know the host of fruit fly species


• Survey region

- Yangon region
- Bago region
- Mandalay region
- Southern Shan State


• Trapping Area Selection and Density

- Yangon region – 2 fruits and vegetable orchards and 2 mango orchard
- Bago region – 1 fruits orchards and 2 mango orchards
- Mandalay region- 2 fruits orchards and 5 mango orchards
- Southern Shan State – 7 mango orchards
- A trapping site will cover an area of about 1-1.5 ha. For each site, 3methyl eugenol and 1 cue lure and 1 protein bait traps will be set equidistantly with in the area.

• Trapping Materials

- Mehtyl Eugenol + malathion plastic trap
- Cue Lure + malathion plastic trap
- Protein bait trap

• Sample Modified Trapping Material

• Collection, counting and identification

• Host of fruit fly species

- Collection of infested fruits from orchards
- Rearing in the lab. to emerge adults
- Identification using morphological character

• Fruit Fly Survey

- **Fruit fly species list in country is being developed every year.**
- **Host list of fruit fly has been developed start from 2016.**

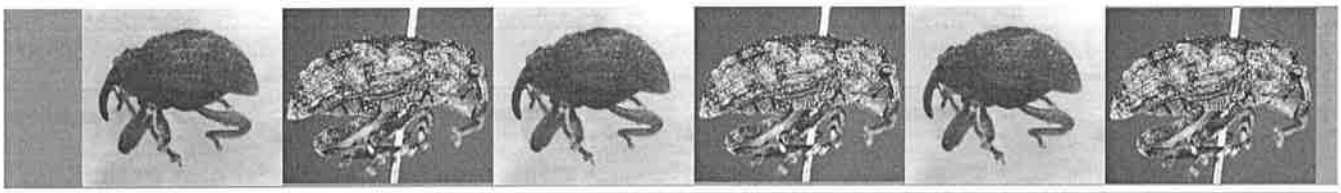
• Educational training to farmers & staffs for management of fruit fly and mango seed & pulp weevil

• Challenges

- Training for identification of fruit fly using molecular method
- Molecular facilities for identification of fruit fly *Bactrocera* species complex
- Budget for monitoring survey through out the year (very limited budget supporting form Gov.)
- International supporting and technical cooperation to establish area of low pest production or low pest production sites/orchards

THANK YOU.....

Establishment of Pest Free Area: The Philippine Experience and its Implementation



BRIEF HISTORY

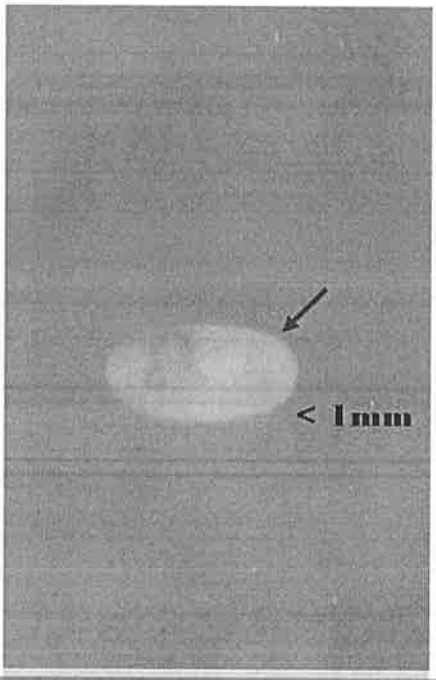
The Mango Pulp Weevil was first reported in Palawan, Philippines on May-June 1987 and collected in Barangay Marangas, Bataraza, Palawan and in Barangays Aribungus And Pangubilian, Brookes Point, Palawan. The weevils were obtained from "chinese, pico, mampalang and carabao" varieties of mango.

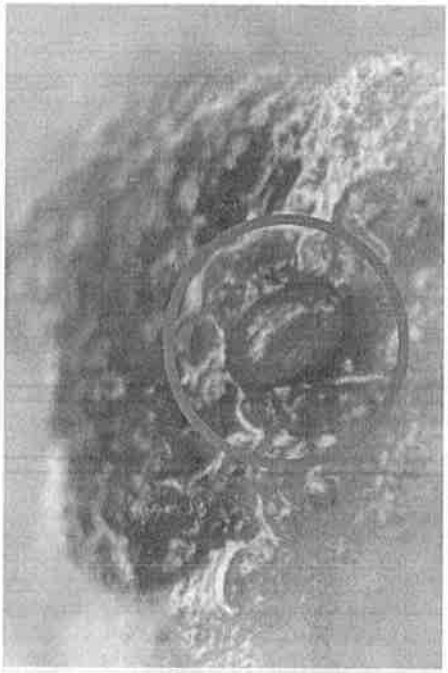
The presence of the mango pulp weevil in southern Palawan was attributed to the unhampered flow of commodities between Borneo, which is known as endemic area of mango pulp weevil.

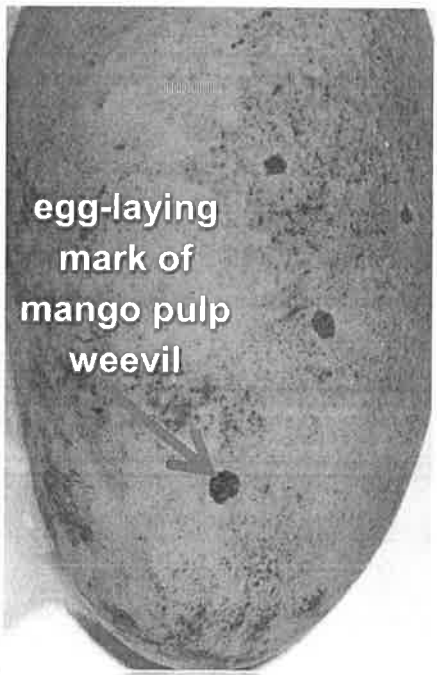
NATIONAL PLANT QUARANTINE SERVICES DIVISION
D.A.
BUREAU OF PLANT INDUSTRY

MPW: What does it look like?

Brief Biology of Mango Pulp Weevil







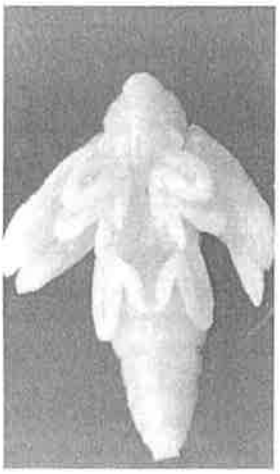
Mango pulp weevil entry into the fruit

EGGS ARE LAID IN IMMATURE FRUITS FROM WHICH LARVAE OVERLAP AND TUNNEL THROUGH THE FLESH FORMING PUPAL CHAMBERS ADJACENT TO THE SEED.

1ST INSTAR

4TH INSTAR

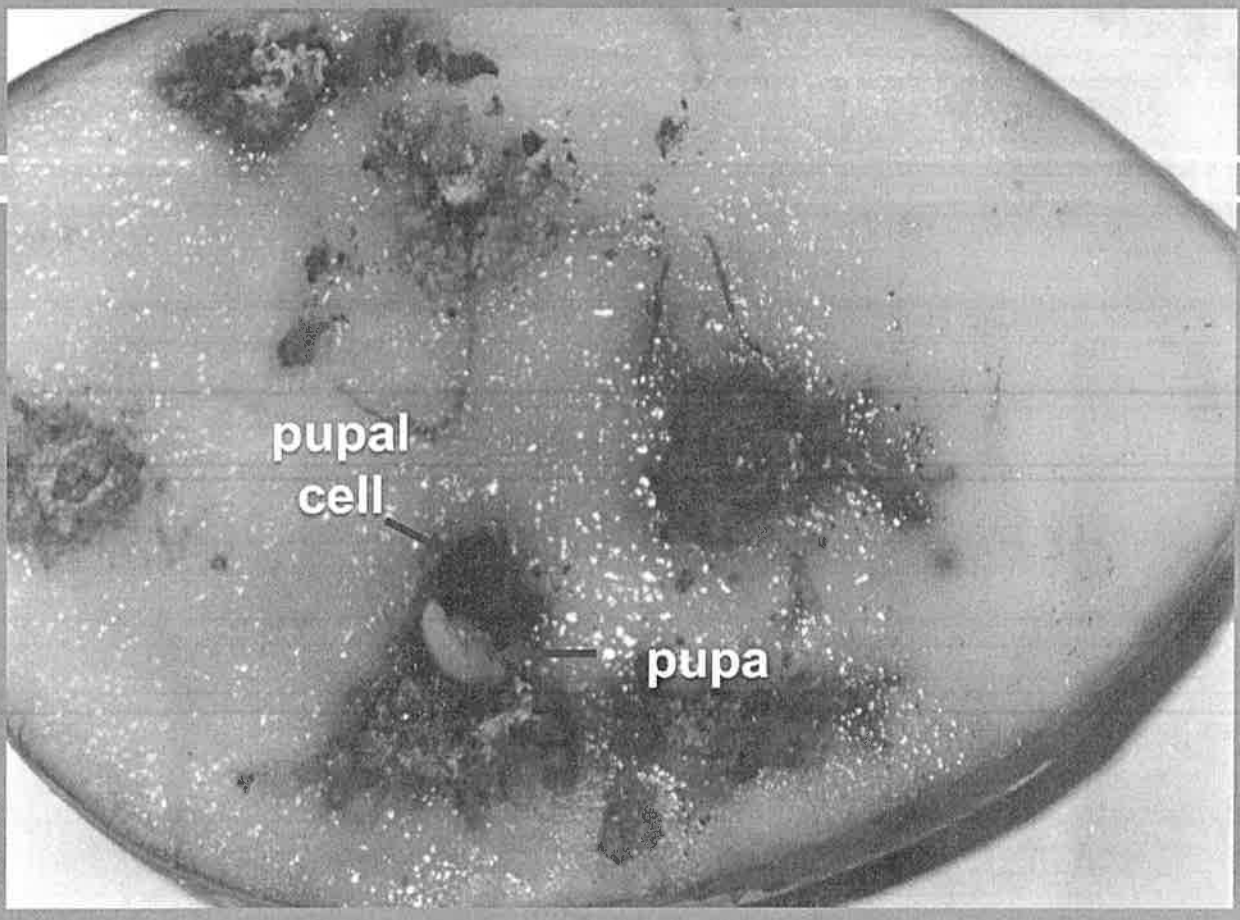
Prepupa
(12mm x 3mm)

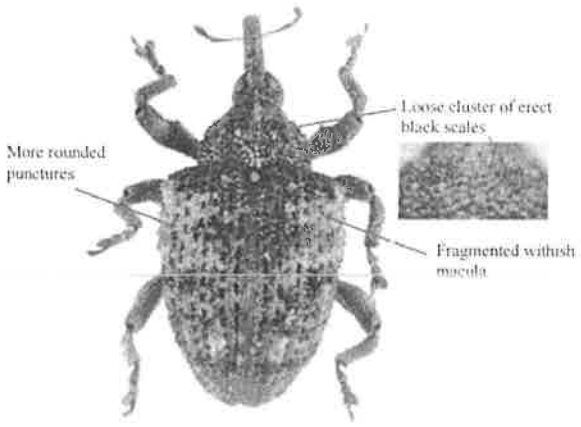


Pupa
(8mm x 4mm)

Larvae of mango pulp weevil

THE LARVA CONTINUOUS TO TUNNEL THROUGH THE FLESH AND DISCOLOR THE FRUIT.





Sternochetus frigidus habitus, dorsal view

Sternochetus frigidus habitus, lateral view
Length : 3.8-5.9 mm

Fig. 6 *Sternochetus frigidus* habitus: (i) dorsal view; (ii) lateral view. Length: 3.8–5.9 mm (Photos courtesy of LSV).

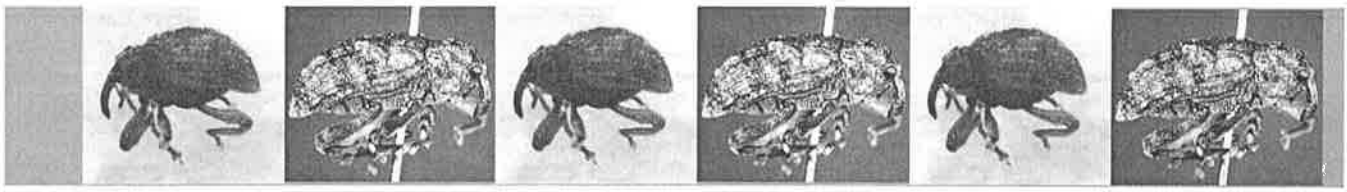
Adult mango pulp weevil

EGG TO ADULT: 32 DAYS
MPW ADULT LIFE SPAN > 400 DAYS

Nature of damage

Fruit showing no visible symptom of pulp weevil damage

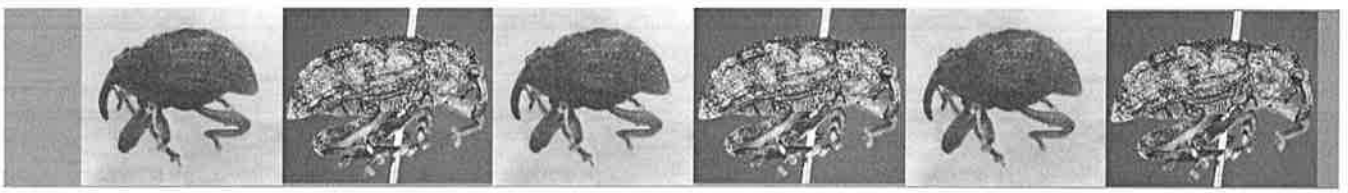
Upon dissection, larvae and other stages of development are present in the flesh for MPW



Plant Quarantine Measures to Maintain Pest-Free Areas

- Regulating actions were initiated since the declaration of Mango Pulp Weevil as quarantine pest through BPI Administrative Order No. 20, Series of 1987. The law stipulated the prohibition on the movement of fresh mango fruits, including seeds, seedlings, and any mango parts to be transported or move outside Palawan and its island municipalities to other geographical areas of the country.

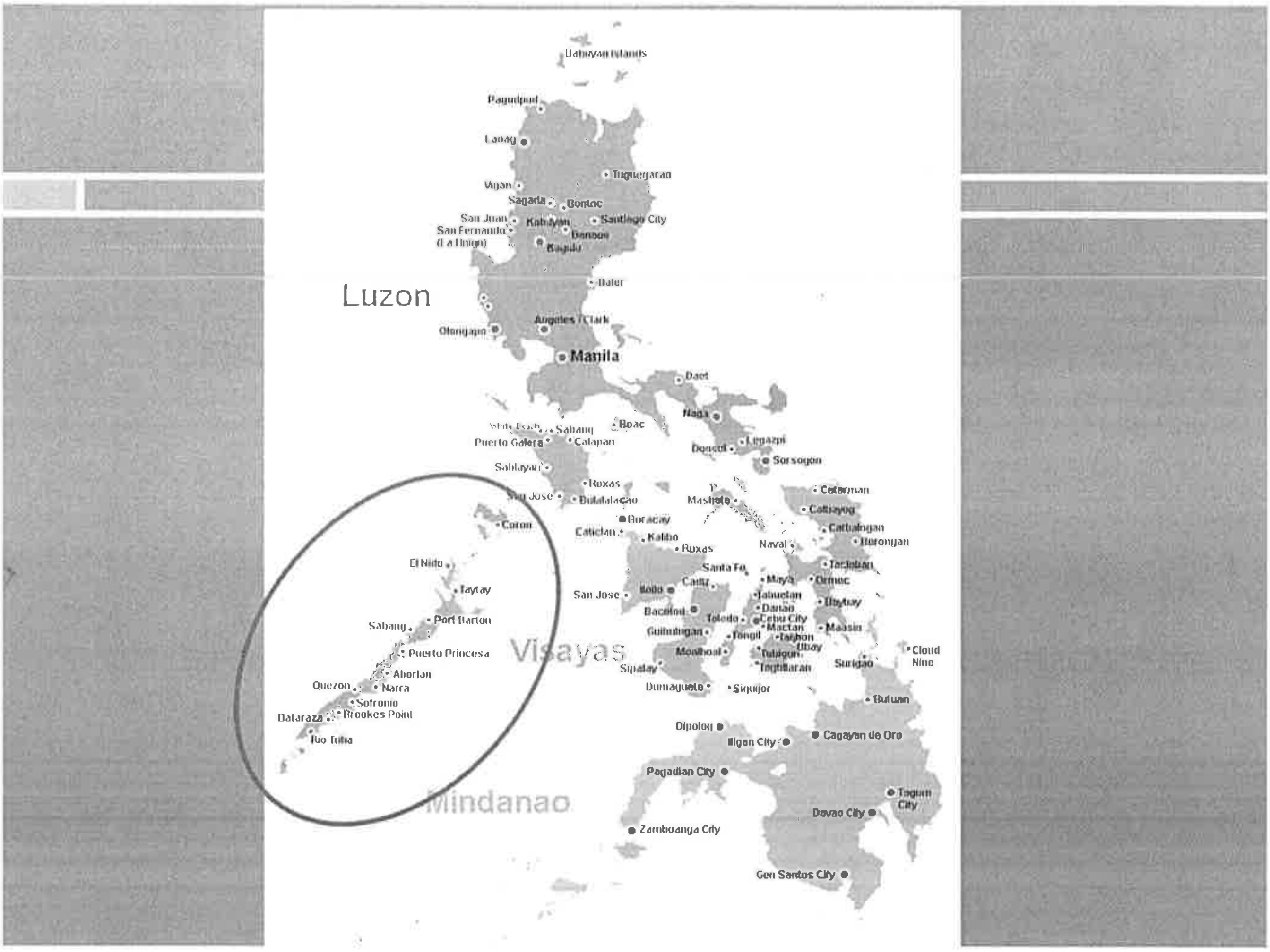
- Transport of agricultural commodities through sea and air ports nationwide, is being monitored by the BPI-National Plant Quarantine Services Division including land routes serving as pathway for mango pulp-weevils. This phytosanitary measure prevents the threat of intrusion (introduction) of the pest to establish and spread to endangered un-infested mango production provinces of the country.



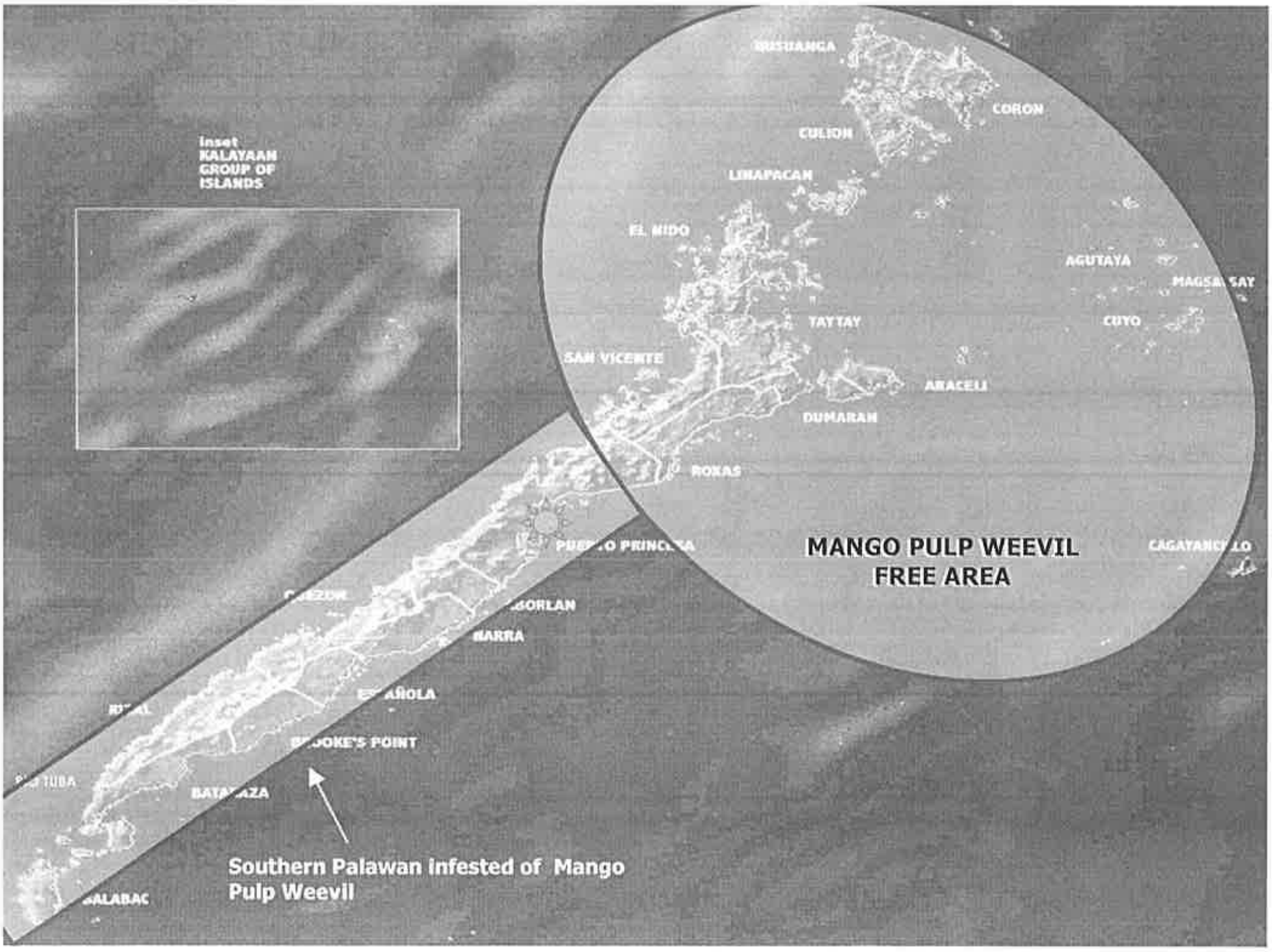
Plant Quarantine Measures to Maintain Pest-Free Areas

- The Bureau of Plant Industry-National Plant Quarantine Services Division, PQ Station # 12 (Palawan Group of Islands), continues to give services to our clientele for the past years. We were able to maintain the Northern Palawan as Mango Pulp Weevil Free Pest Area with the Establishment of MPW Buffer zone Checkpoint at Brgy. Langogan, Puerto Princesa City.

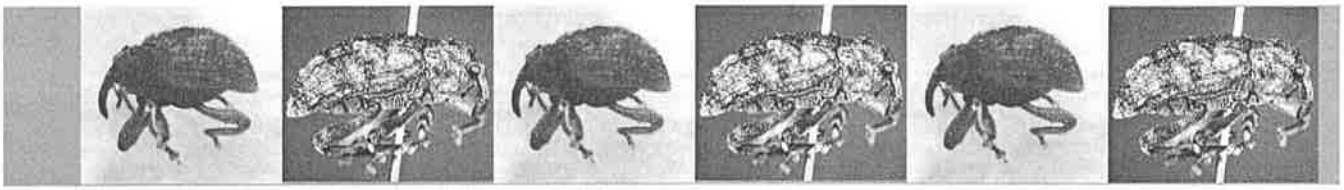
- The Puerto Princesa International Airport And Puerto Princesa Seaport are the Main Ports maintained by our Personnel. We also continue to maintain nine (9) Sub-stations in the Province of Palawan and preventing further spread of Mango Pulp Weevil in the Northern Part of the province with the strict implementation of PQ Rules and Regulations.



Luzon
Visayas
Mindanao
Manila
Puerto Princesa
Coron
El Nido
Taytay
Port Barton
Sabang
Aborlan
Narra
Quezon
Sofronio
Brookes Point
Bataraza
Rio Tuba



Inset
KALAYAAN
GROUP OF
ISLANDS
BUSUANGA
CORON
CULION
LINAPACAN
EL NIDO
AGUTAYA
TAYTAY
CUYO
SAN VICENTE
ARACELI
DUMARAN
ROXAS
MANGO PULP WEEVIL
FREE AREA
QUEZON
NARRA
BROOKE'S POINT
BATARAZA
BALABAC
Southern Palawan infested of Mango
Pulp Weevil

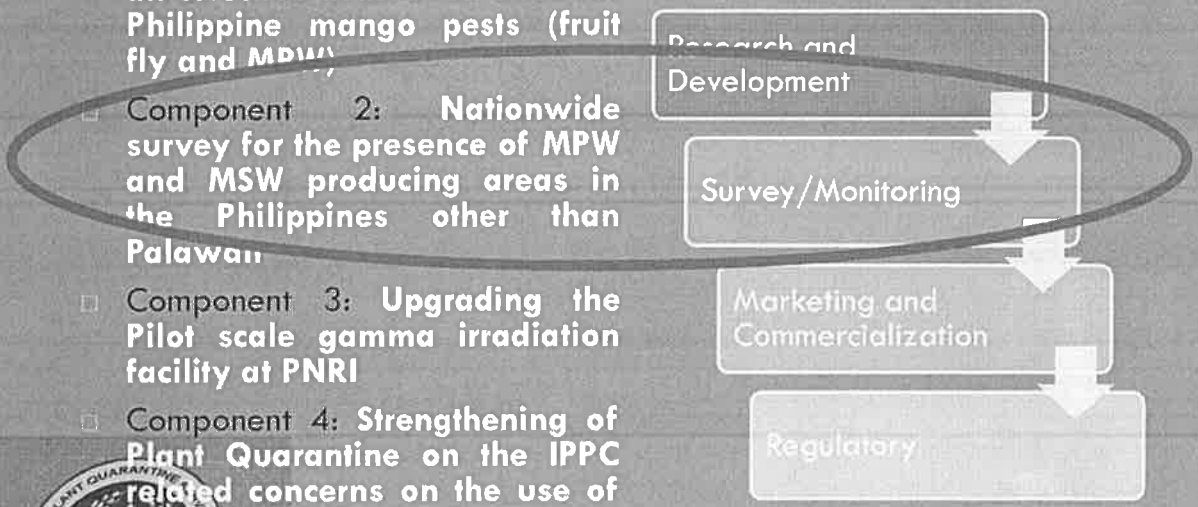


Establishing Pest-Free Areas

- The national survey on the mango pulp and seed weevils was initiated from 2006 under the BPI-USDA Program, "Enhancing the Export Competitiveness of the Philippine Super Mango", was concluded in 2009.

Enhancing the export competitiveness of fresh Philippine super mango program Components:

- Component 1: **Establishment of an effective irradiation dose for Philippine mango pests (fruit fly and MPW)**
- Component 2: **Nationwide survey for the presence of MPW and MSW producing areas in the Philippines other than Palawan**
- Component 3: **Upgrading the Pilot scale gamma irradiation facility at PNRI**
- Component 4: **Strengthening of Plant Quarantine on the IPPC related concerns on the use of irradiation technology as a phytosanitary measure**



BPI-USDA conducted a Nationwide Detection Survey for Mango Pulp and Seed Weevil funded by USDA Food for Progress.

OBJECTIVES:

- To determine the presence/absence of MPW and MSW in different mango growing provinces of the country.
- To provide greater market access for Philippine mangoes through area freedom certification.
- To increase mango export especially to countries requiring area freedom certification from the pests.
- To formulate quarantine plans and programs to secure the areas declared as free from the weevils.
- To improve socio-economic lives of mango growers through income derived from sales of mango.

Meeting with stakeholders

Training of survey enumerators

Randomization of the 5% sample trees using the grid system

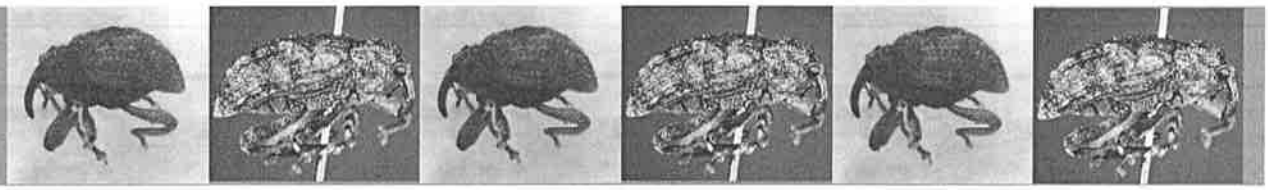
Marking of trees in the field

Fruit collection

Fruit dissection

Canopy beating

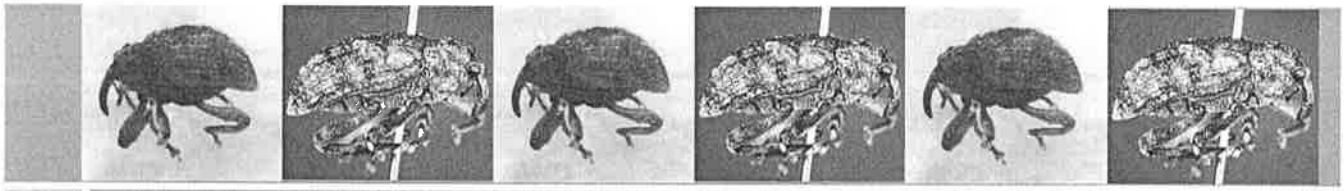
Bark examination



- The survey provided data or scientific evidences for the absence (non-occurrence) of mango pulp and seed weevil in 16 regions and 79 mango provinces except in Palawan where mango pulp weevil is present.

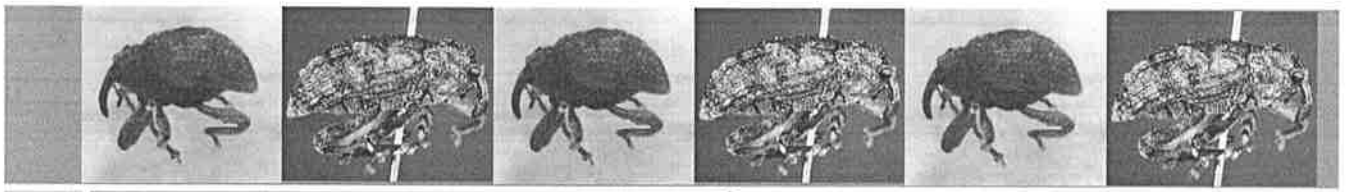
- The survey had established "pest free areas" in mango production regions/ provinces in the country providing greater market access and potential sourcing of fresh mango fruits, aside from the Guimaras Island, to supply export market share to US, Australia, and other mango importing countries requiring area freedom certification of the weevil pest.

NATIONAL PLANT QUARANTINE SERVICES DIVISION
D.A.
BUREAU OF PLANT INDUSTRY



Monitoring System to Maintain Pest-Free Areas

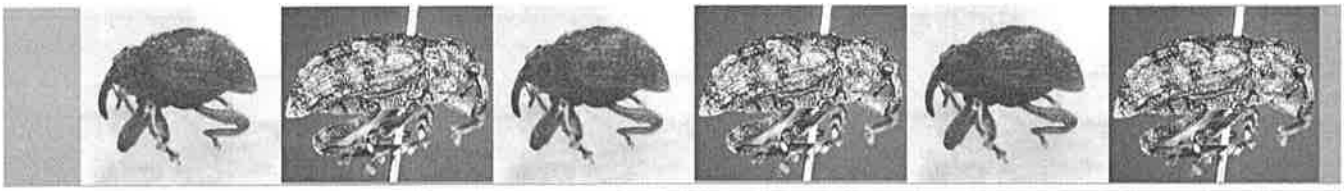
- After the conduct of nationwide detection survey, low monitoring was immediately implemented in Luzon and the Visayas regions in CY 2009 and the provinces of Mindanao were included during the mango fruiting season (January to August) of CY 2010. The survey has confirmed and verified further the validity of established "pest-free status" on mango areas in Luzon (except Palawan), Visayas, and Mindanao. Thus, a continuum program of the survey is required to provide data or information to support and substantiate the maintenance of pest freedom status to these areas.



SURVEY AREA

- The Low Monitoring Survey (LMS) is being conducted in different mango growing and production provinces of Luzon, Visayas, and Mindanao.

- A continuum program for Mango Pulp Weevil (MPW) and Mango Seed Weevil (MSW) Monitoring Survey is undertaken all year round (on and off fruiting season). All standing mango trees nationwide, of fruit bearing age, is being surveyed regardless of varieties.



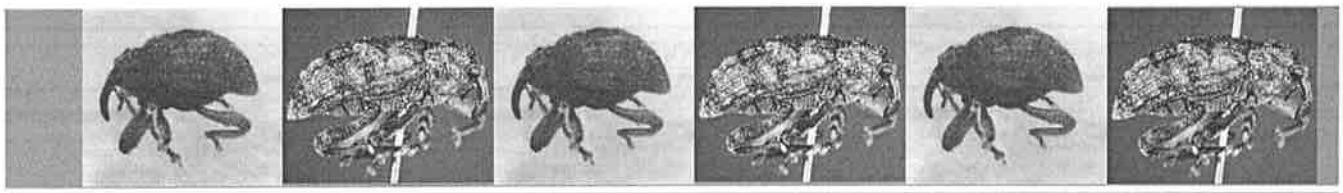
SURVEY CONDUCT

Comprehensive Mapping of Mango Trees in the Survey Area

Mapping of all mango trees (fruit bearing age) will be done in order to have an overview on the location of mango production sites where the monitoring survey will be conducted.

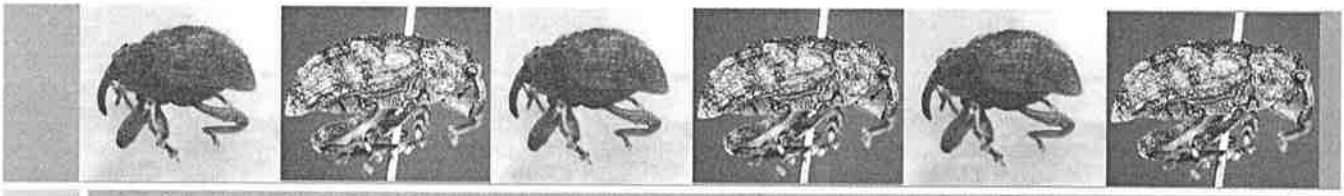
Identification of Survey Area

Criteria used for the determination or identification of survey areas (for high risk provinces or low risk provinces) was based on mango weevil's possible entry points (presence of pathway), the capability of establishment (presence of host), and spread (natural dispersal, dissemination, and transport). Proximity to weevil infested areas was also considered.



Fruit Sample Size:

- No less than ten (10) fruits will be collected and randomly selected per tree.
- Fruits at growth stage of maturity (greater than) >65 days after flowering induction (DAFI) up to harvest stage (120 DAFI) will be considered for sampling.
- If the date of flowering induction is unknown, fruits with length greater than 70 mm (stalk to apex) or greater will be collected as sample fruits.
- Fallen or windfall fruits, at required maturity and size can also be collected and included as fruit samples.

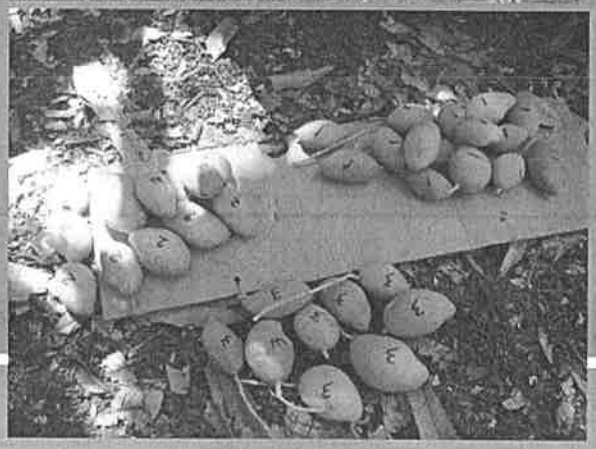


Fruit Dissection and Examination

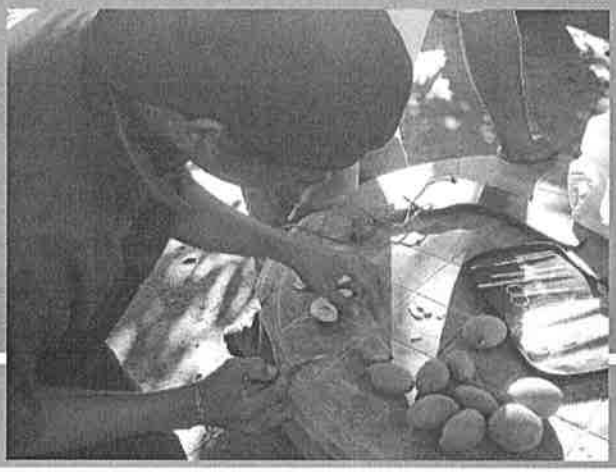
- Fruits will be visually examined on the outside peel surface for presence of any mango pest (e.g. mealybugs, scale insects, cecid fly damages,). Then the fruit will be longitudinally cut open, using sharp knife, exposing the flesh and seeds. The presence of mango pulp and seed weevil, seed borers (*Noorda albizonalis* Hampton, *Nephopterix sp.*), and fruit flies (*Bactocera spp.*) infestation will be observed. All observed insects or arthropods will be recorded on the survey form.

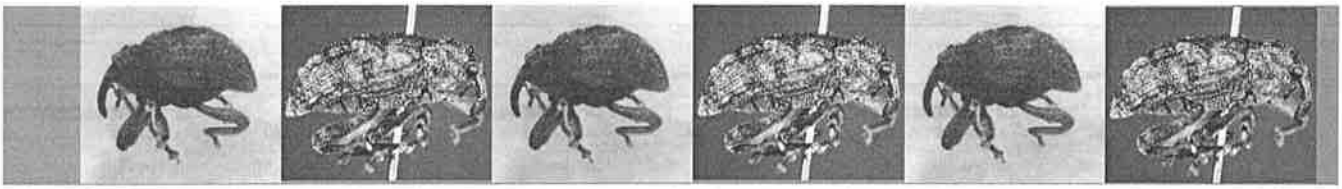
- Suspected MPW and MSW specimen collected must be preserved in vials containing 70% alcohol with proper labeling (place of collection, date of collection, name of collector) and must be sent to NPQSD, Manila for identification.

FRUIT COLLECTION



FRUIT DISSECTION





Of the surveys conducted in Luzon, Visayas and Mindanao, **not a single specimen (egg, larva, pupa and adult) of MPW** (except Palawan) **and MSW was found**, proving the absence of these pests in our country.

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BUREAU OF PLANT INDUSTRY
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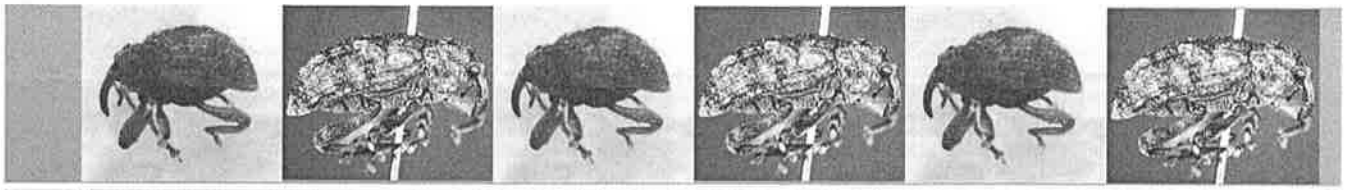


DA ADMINISTRATIVE CIRCULAR
No. 06
Series of 2014

Declaring the Whole Philippines as Area Free from Mango Seed Weevil (MSW) *Sternochetus Mangiferae* Fabr. and Area Free from Mango Pulp Weevil (MPW) *Sternochetus Frigidus* Fabr. (except for Palawan) and prohibiting importation from countries where the pests exist.

Recognition of the Philippines as a pest free area

October 1, 2014 – **USDA issued the Final Rule Declaring the Philippines as Area free from MPW (except Palawan) and MSW**

December 18, 2015 - **DAFF recognize the whole Philippines, except Palawan, as MPW and the whole Philippines as MSW free area.**

USDA APHIS

Australian Government
Department of Agriculture, Fisheries and Forestry

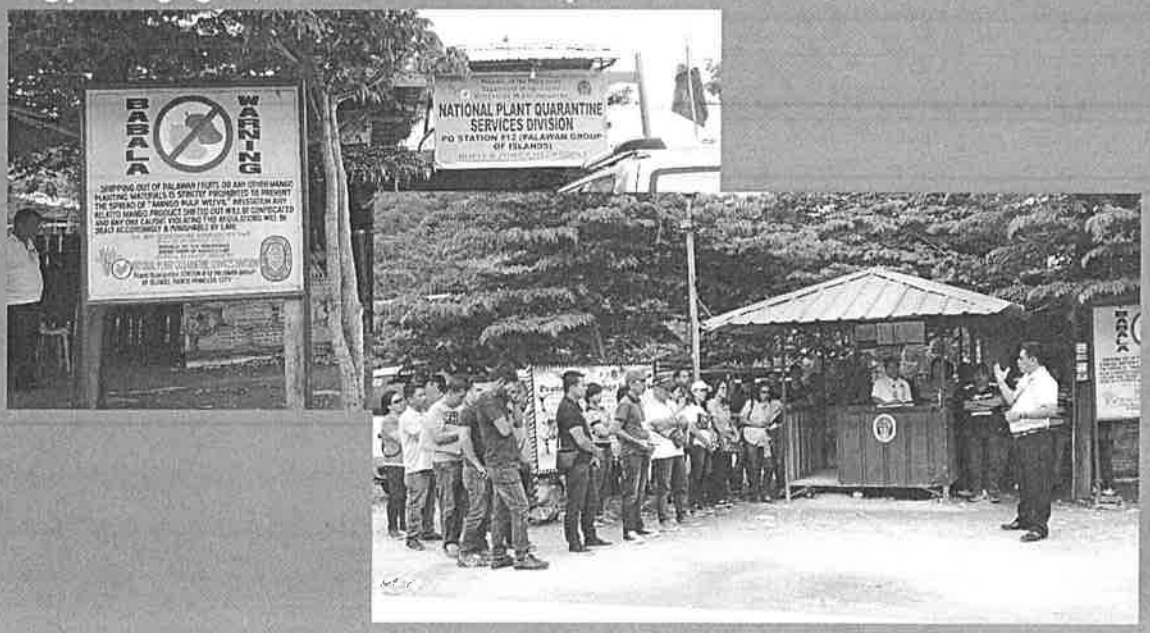
Impact and Significance of this Recognition?

With this recognition:

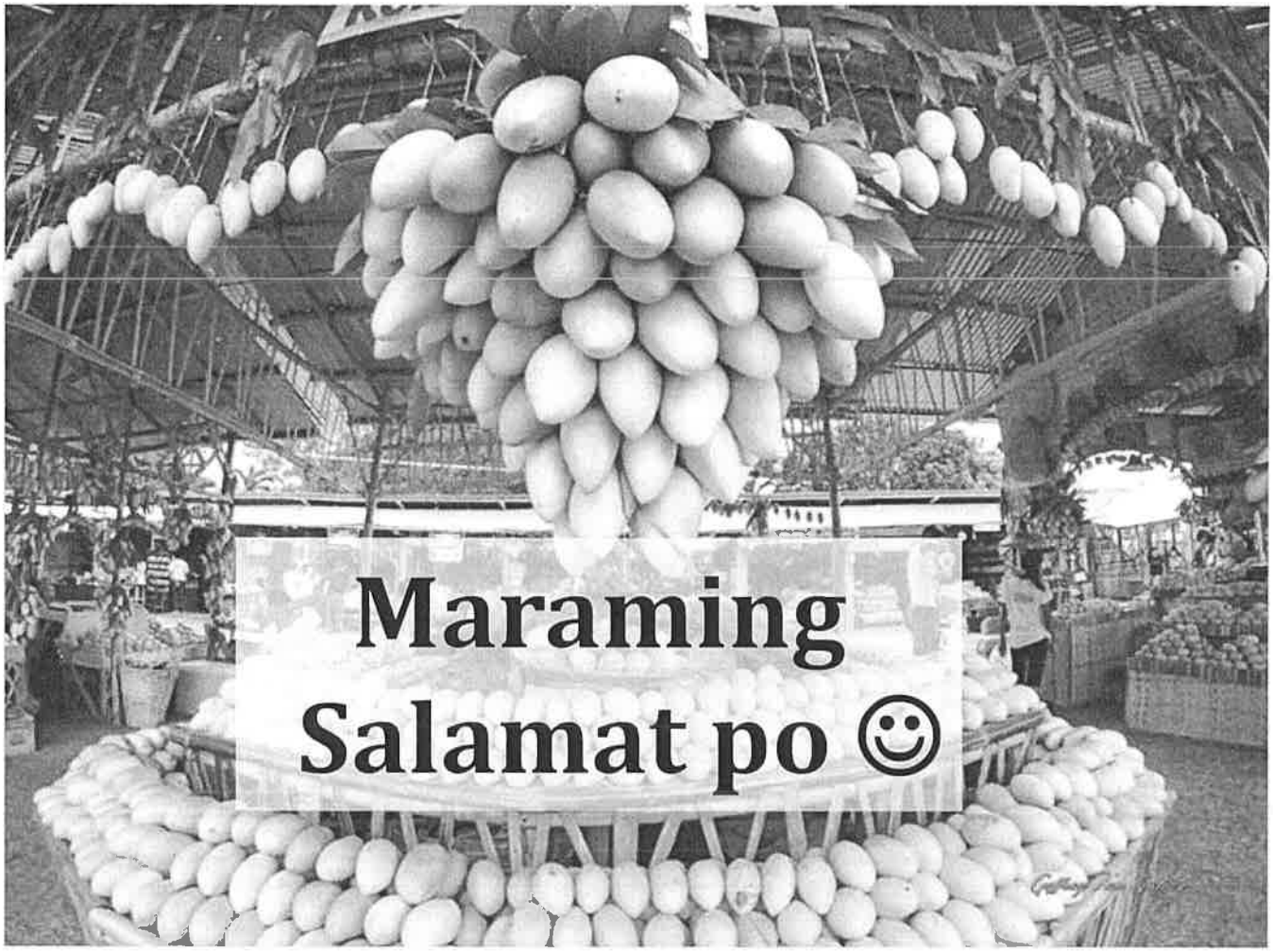
- Expansion of areas to source mangoes for export from different parts of the Philippines (except Palawan)
- Greater market access for Philippine mangoes to trading partners that would also require sourcing mangoes from PFA
- Export mangoes whole year round

Continuous Program to Strengthen Phytosanitary Measures for MPW and MSW

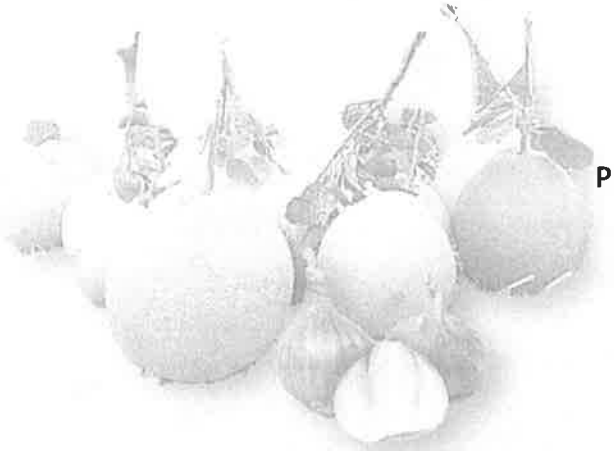
Establishment of MPW Buffer zone Checkpoint at Brgy. Langogan, Puerto Princesa City



Deputation Training for Plant Quarantine Inspectors in Palawan


Maraming
Salamat po ☺

PEST FREE AREA IN THAILAND FOR EXPORT OF AGRICULTURAL PRODUCTS



Ms. WASANA RIDTHAISONG
Agricultural Research Officer, Professional Level
Plant Protection Research and Development Office

Mr. NOPPARAT BUAHOM
Agricultural Research Officer, Practitioner Level
Office of Agricultural Regulation

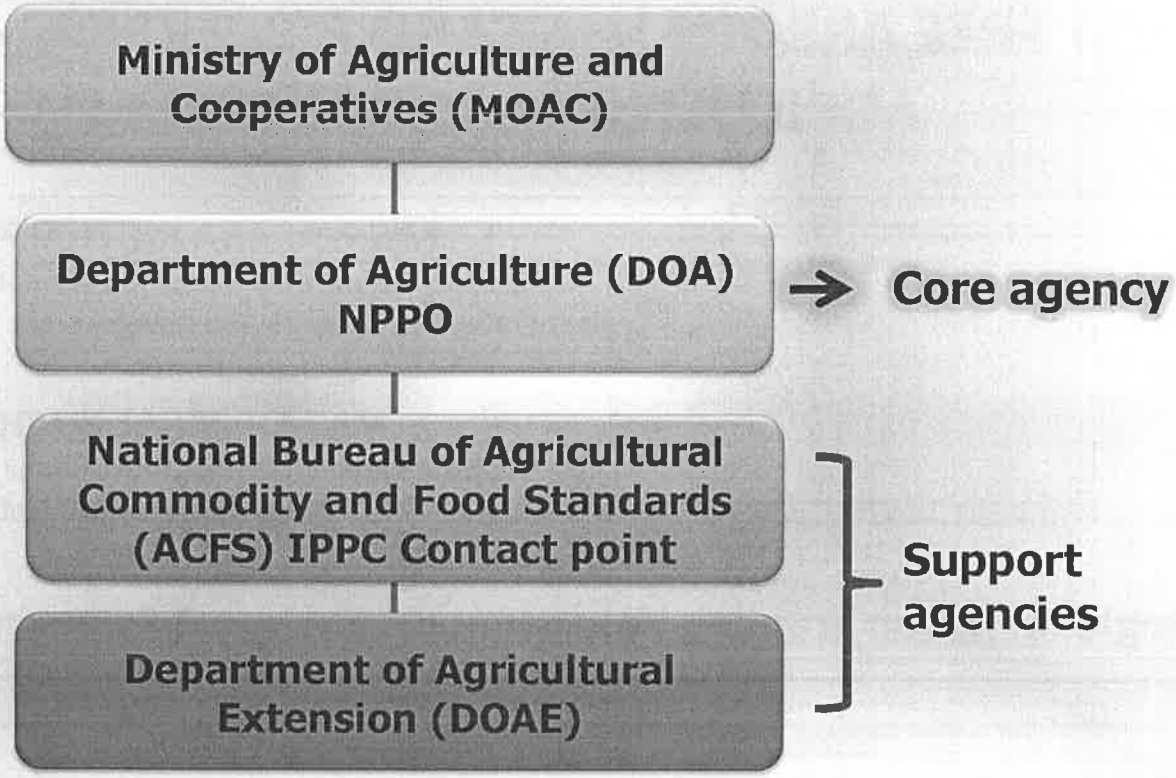
Regional Asean Training Workshop on The establishment of Pest Free Status

Bekasi, Indonesia 4-8 September 2017

Department of Agriculture, Bangkok, THAILAND
กระทรวงเกษตรและสหกรณ์
Ministry of Agriculture and Cooperatives

Organizations and responsibilities

Organization of NPPO Thailand



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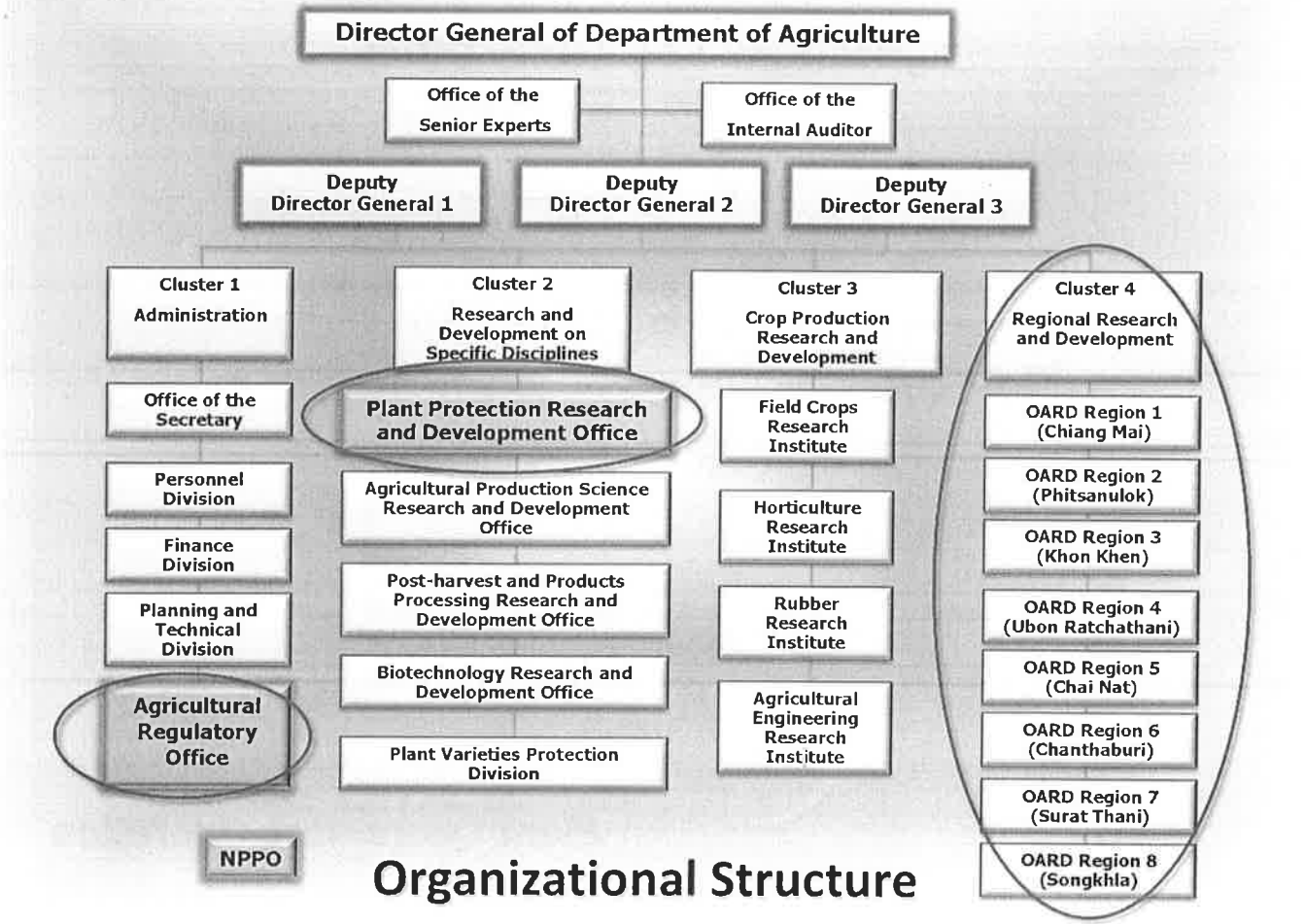
Department of Agriculture

Department of Agriculture (DOA)

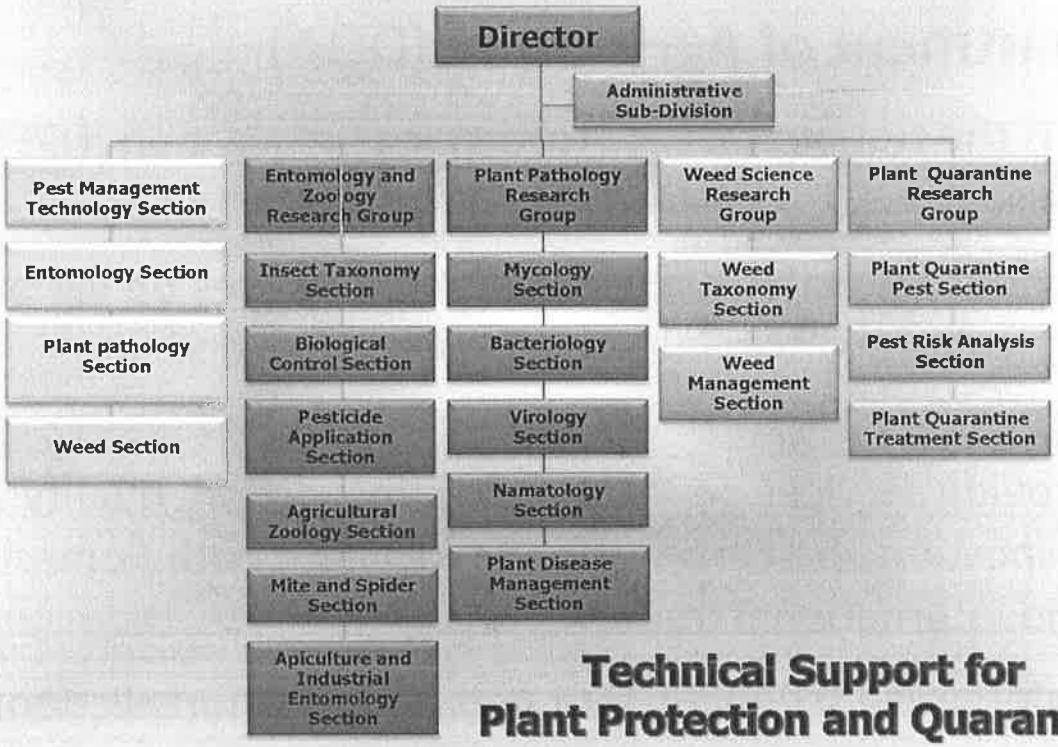
DOA is the National Plant Protection Organization (NPPO) of Thailand

- conduct research and development studies on various agricultural disciplines concerning crops and farm mechanizations
- provide services on the analysis, inspection, quality inspection and certification to facilitate both domestic and international trade;
- enforce the six Regulatory Acts under its jurisdiction.



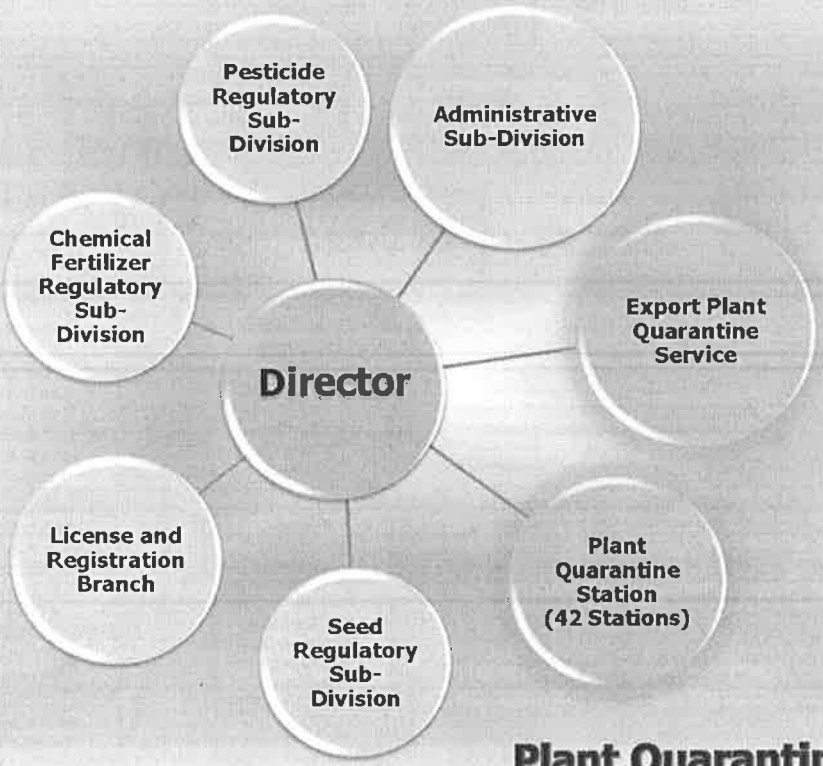
Organizational Structure

Plant Protection Research and Development Office



Technical Support for Plant Protection and Quarantine

Agricultural Regulatory Office



Plant Quarantine Operation

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PEST FREE AREA IN THAILAND FOR EXPORT OF AGRICULTURAL PRODUCTS

- Shallot (*Allium ascalonicum* L.)

- Pummelo (*Citrus maxima* Merr.)

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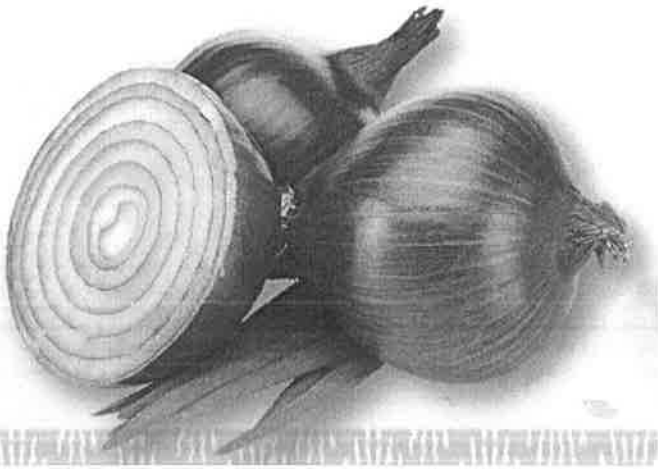
Using the Agricultural Standard: maximun quality production, hygiene and safe practices

Pest free area of shallot at Srisaket Province, Thailand for export to Indonesia



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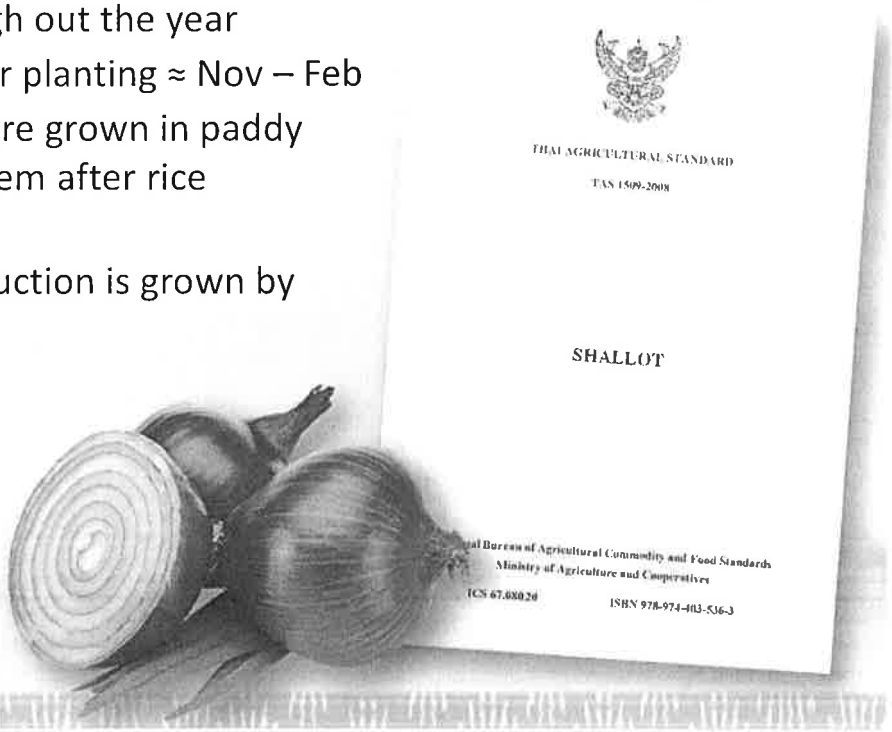
Production area in Thailand

Production and cultivation

- Can be grown through out the year
- Appropriate times for planting ≈ Nov – Feb
- Normally shallots were grown in paddy field in cropping system after rice harvesting
- Most of shallot production is grown by bulbs



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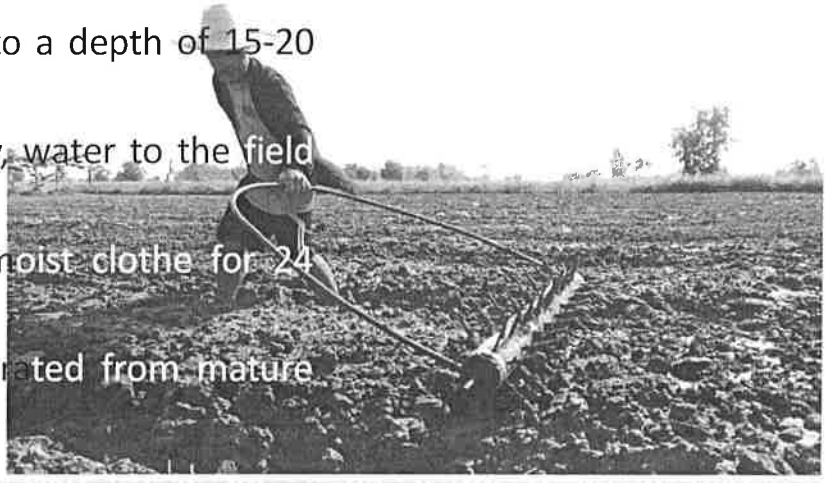
Habitat:

- Prefers loamy soil with pH 5.0-6.5 and adequate moisture

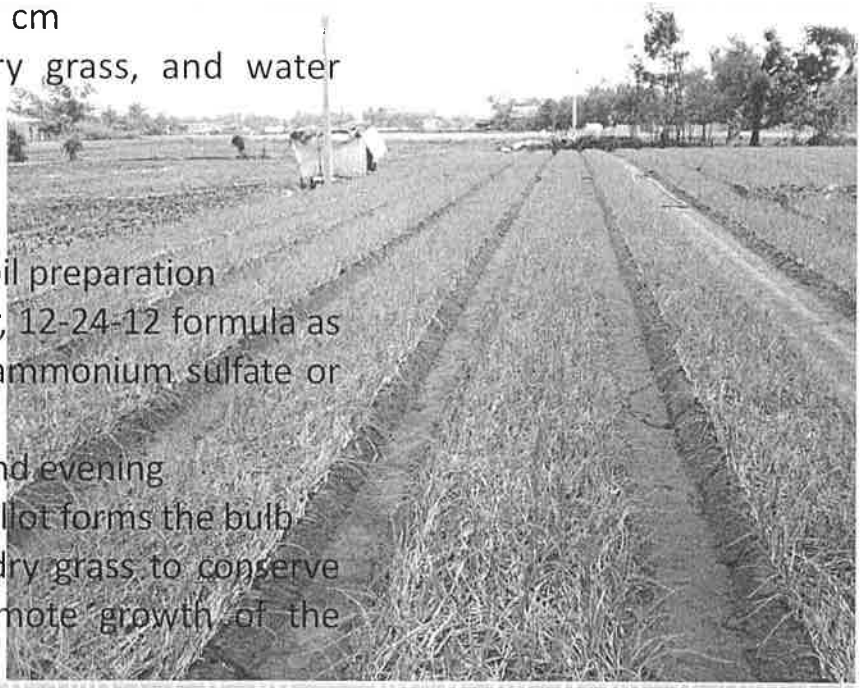
Cultivation:

- Land preparation; plow to a depth of 15-20 cm, let it dry for 5-7 days
- Add manure and harrow, water to the field before planting
- Cover the cloves with moist clothe for 24 hours
- Use clove which is separated from mature bulb



Cultivation (cont.):

- Place the clove to a depth of half its length at the spacing is 15×15 cm
- Cover with hay or dry grass, and water supply adequately



Maintenace:

- Apply manure before soil preparation
- Apply chemical fertilizer, 12-24-12 formula as basal application, and ammonium sulfate or urea after suckering
- Water in the morning and evening
- Reduce water when shallot forms the bulb
- Mulching with hay or dry grass to conserve soil moisture and promote growth of the shallot

Department of Agriculture, Bangk

Harvesting:

- In the normal growing season: 70-110 days after planting
- In the rainy season: 45 days after planting
- Harvesting by digging with a hoe and pull off the whole plant from the ground

Post-harvest handling:

- Bulbs are dried for 4-5 days on the ground, the stored in the shade to dry further
- Cleaning and grading shallot bulbs in the packinghouse
- Exported shallot to Indonesia shall be devitalized by cutting root and leaves, free from soil particles and/ or compost.

Store the shallot bulbs in the shade to dry after harvesting

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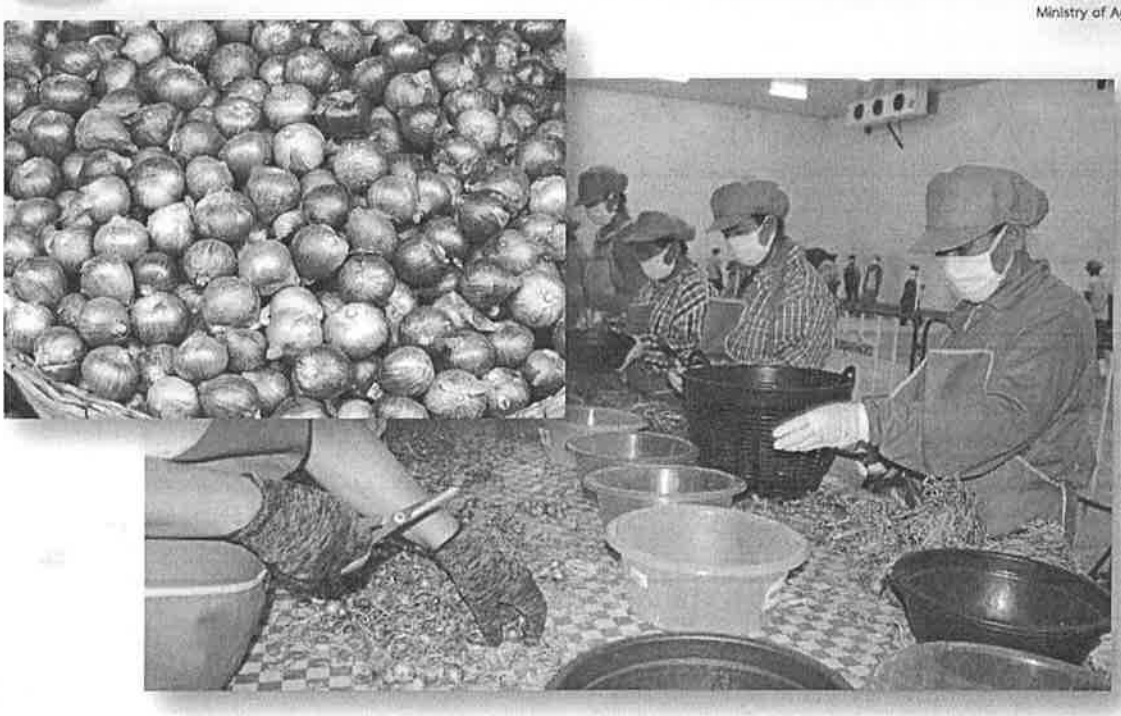
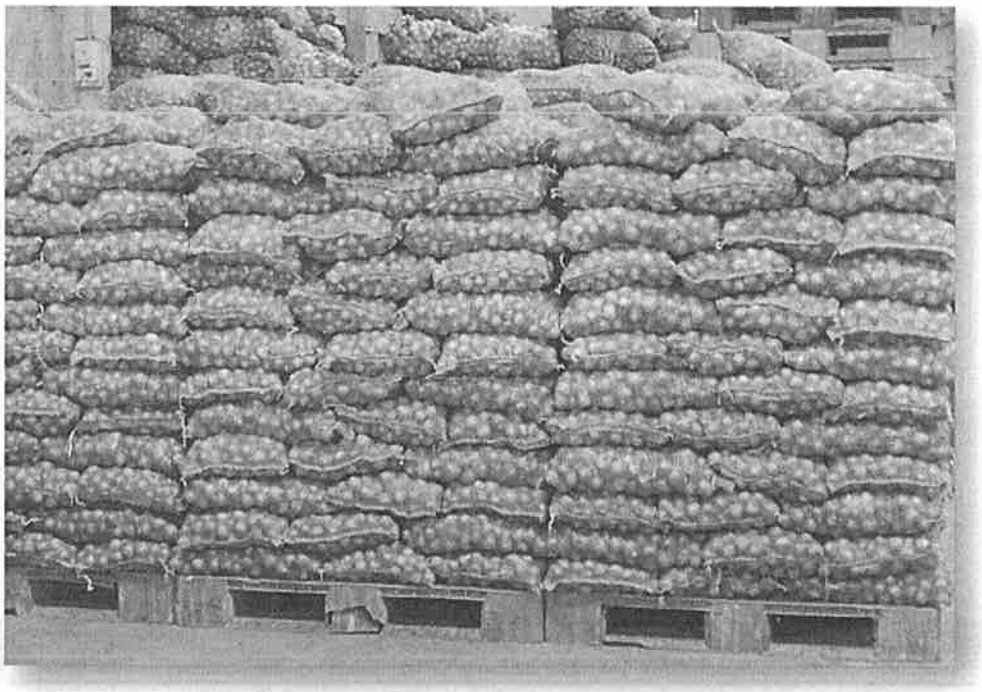


Cutting roots and leaves of shallot in the packinghouse



Shallot packing in the mesh bags

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Export procedure for shallot

Production area — GAP certification

↓

Packing facilities — GHP certification & Health certification for commodity subject to Indonesian food safety decree
- Receiving
- Grading
- Cleaning
- Labeling

↓

Container loading

↓

Plant Quarantine Station — Phytosanitary inspection
- Devitalization can be inspected at various places
- Quarantine pest inspection at plant quarantine station

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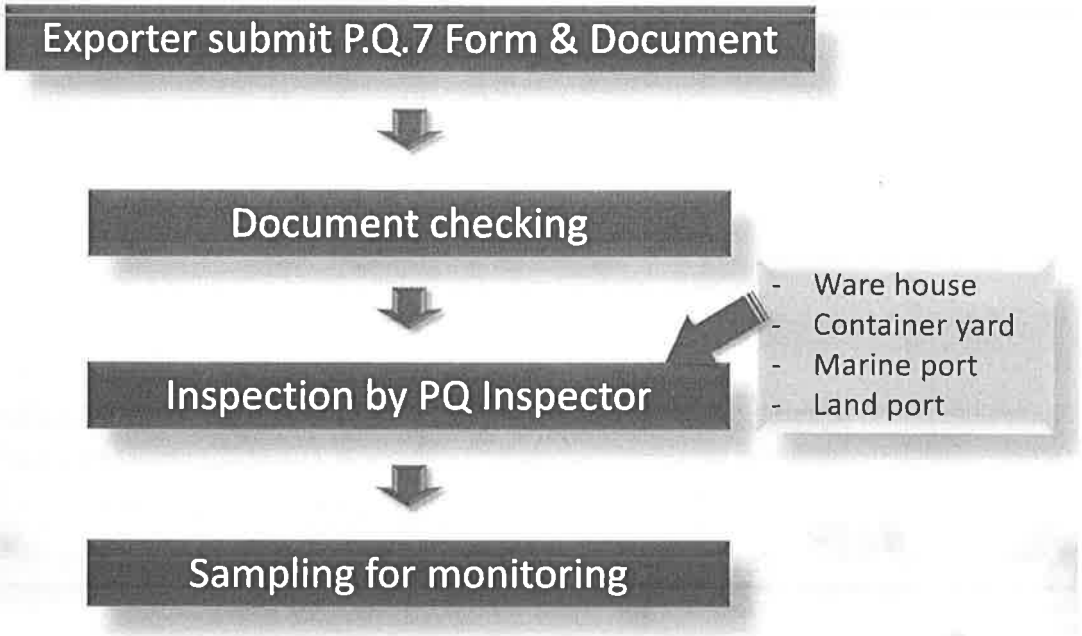
Phytosanitary Inspection and Certification for Shallot Export to Indonesia

Phytosanitary Inspection and Certification



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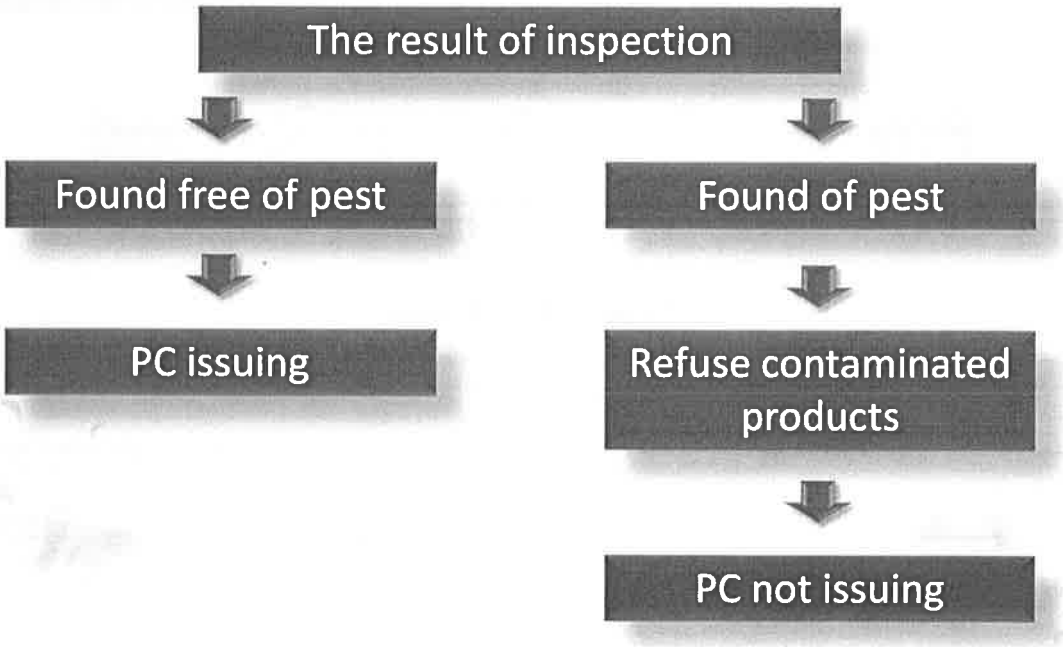
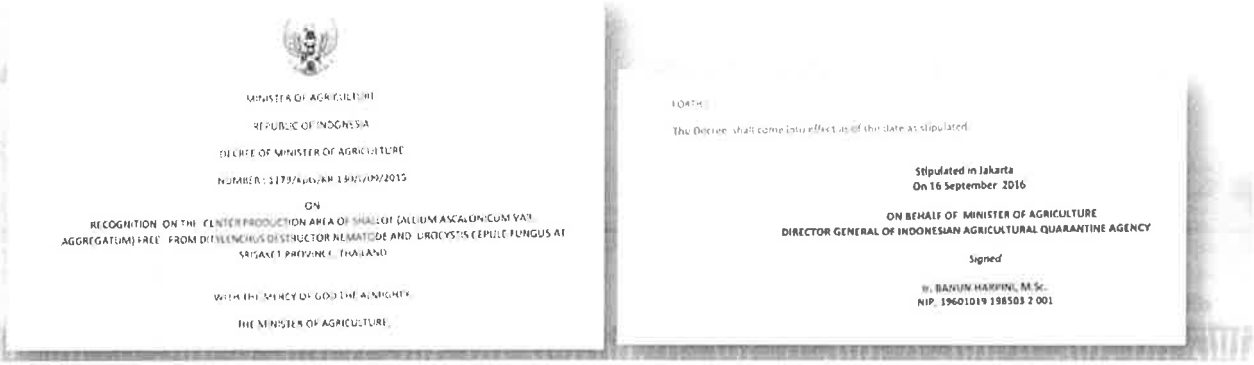
Phytosanitary Inspection and Certification



Implementation of recognition for pest free area of shallot in Srisaket province, Thailand

- The NPPO of Indonesia had agreed to recognize **Srisaket province, Thailand as Pest Free Area of shallot from *Ditylenchus destructor* (nematode) and *Urocystis cepulae* (fungi)**
- The Decree of the Ministry of Agriculture No. 1179/Kpts/KR.130/L/09/2015 dated 16 September 2015



MINISTER OF AGRICULTURE
REPUBLIC OF INDONESIA
DECREE OF MINISTER OF AGRICULTURE
NUMBER : 1179/Kpts/KR.130/L/09/2015
ON
RECOGNITION ON THE CENTER PRODUCTION AREA OF SHALLOT (ALLIUM ASCALONICUM VAR. AGGREGATUM) FREE FROM DITYLENCHUS DESTRUCTOR NEMATODE AND UROCYSTIS CEPULE FUNGUS AT SRISAKET PROVINCE, THAILAND
WITH THE MERCY OF GOD THE ALMIGHTY
THE MINISTER OF AGRICULTURE,

FOURTH
The Decree shall come into effect as of the date as stipulated

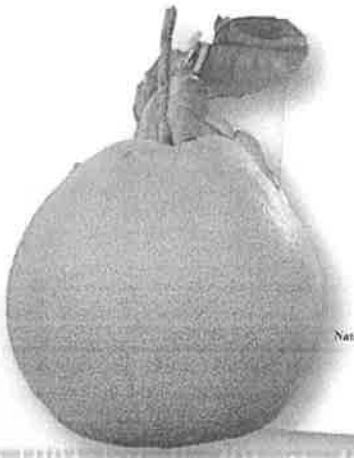
Stipulated in Jakarta
On 16 September 2016
ON BEHALF OF MINISTER OF AGRICULTURE
DIRECTOR GENERAL OF INDONESIAN AGRICULTURAL QUARANTINE AGENCY
Signed
Ir. BANUN HARPINI, M.Sc.
NIP. 19601019 198503 2 001

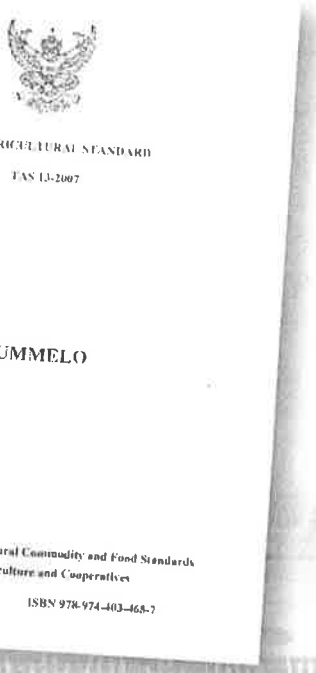
Department of Agriculture, Bangkok, THAILAND
กระทรวงเกษตรและสหกรณ์
Ministry of Agriculture and Cooperatives

Pest free area of Pummelo for Export to Europe

Pummelo (*Citrus maxima* Merr.)

- EU requirements against *Xanthomonas campestris* (all strains pathogenic to *Citrus*)
- Reducing the risk of introduction of this pest into the EU territory





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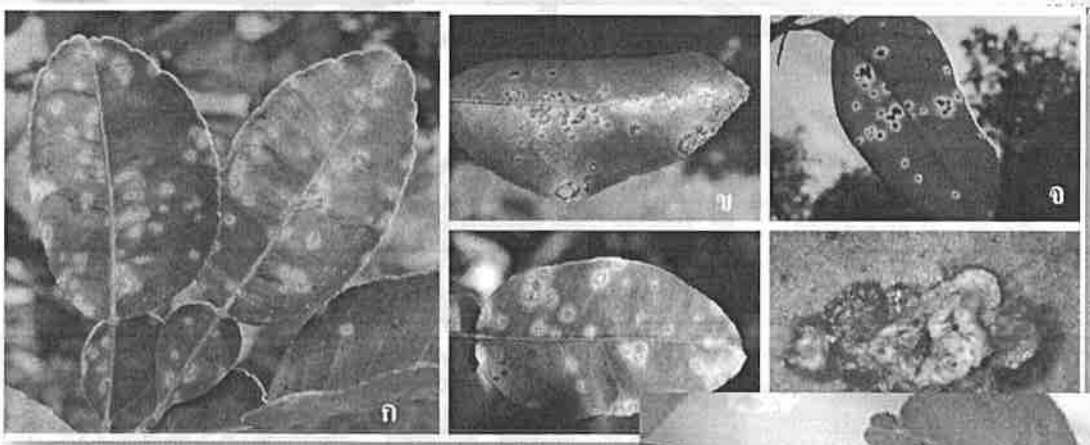
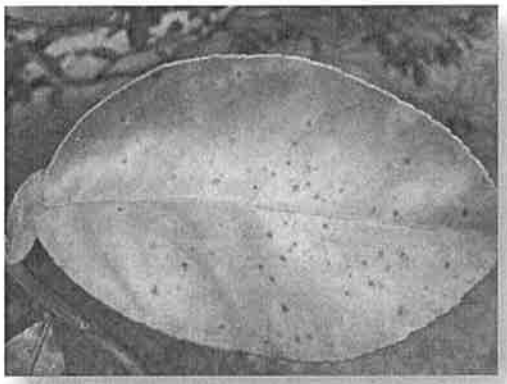
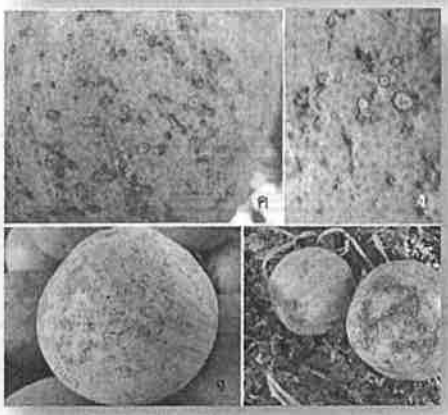


***Xanthomonas axonopodis* pv. *citri* (Hasse 1915) Vauterin *et al.* 1995**
(synonym: *Xanthomonas campestris*)





***Phyllosticta citricarpa* (McAlpine)**

Teleomorph stage:
***Guignardia citricarpa* Kiely**

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Ministry of Agriculture and Cooperatives

Requirements for pest free area of production site for export of pummelo to EU

- Good Agricultural Practice: GAP
- Good Manufacturing Practice: GMP
- Certify that place of production of pummelo are free from *Xanthomonas campestris* and *Guignardia citricarpa* for export to country
- Treatments are washing with solutions of chlorine (2 minutes at 200 ppm sodium hypochlorite, pH 6.0-7.5) or sodium orthophenylphenate (SOPP) (45 seconds to 1 minute, depending 2918 on detergent concentration, SOPP at 1.86-2.0%)
- Packing in the registered packinghouse
- Pummelo in the consignment has been inspected and treated under control of DOA Thailand according to EU 2000/29/EC annex 4A1 articles 16.2 c1, 16.3 A, 16.4 A, 16.5 C

Pest free area of production site from *Xanthomonas campestris* and *Guignardia citricarpa* in Chaing Rai Province, Thailand

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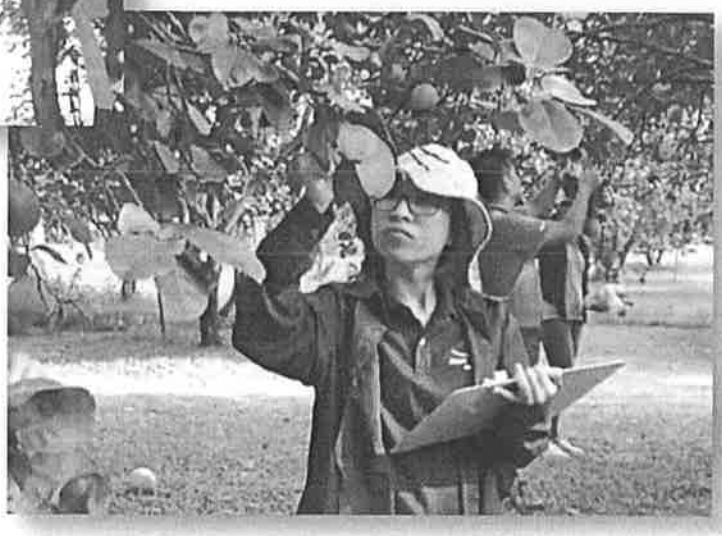
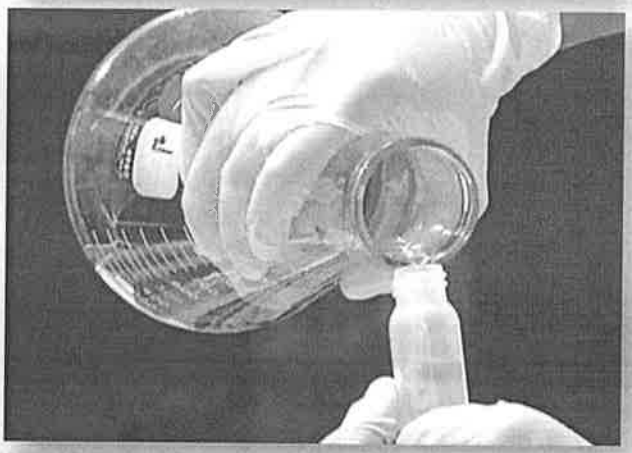
Pummelo orchard inspected and found to be free of the pest concerned in EU.



Department of Agriculture



Pest detection

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Recommended treatments are washing with solutions of chlorine (2 minutes at 200 ppm sodium hypochlorite, pH 6.0-7.5)

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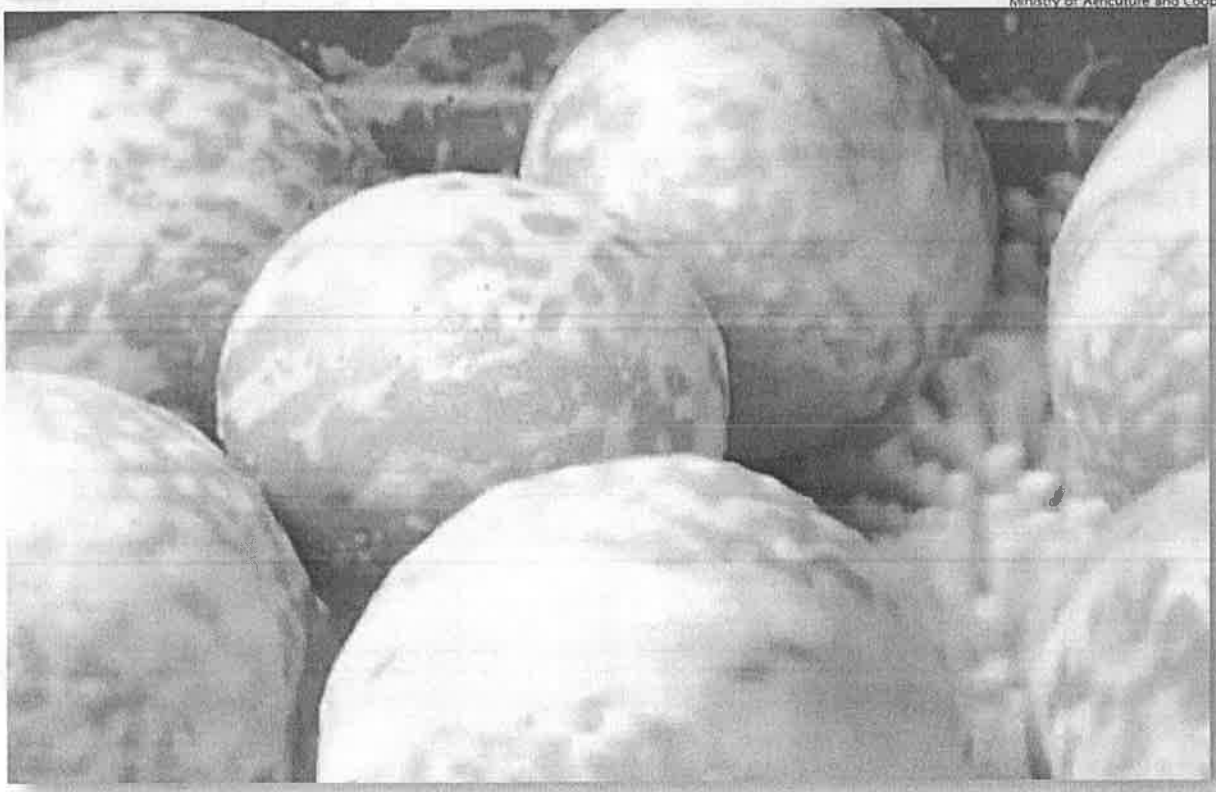

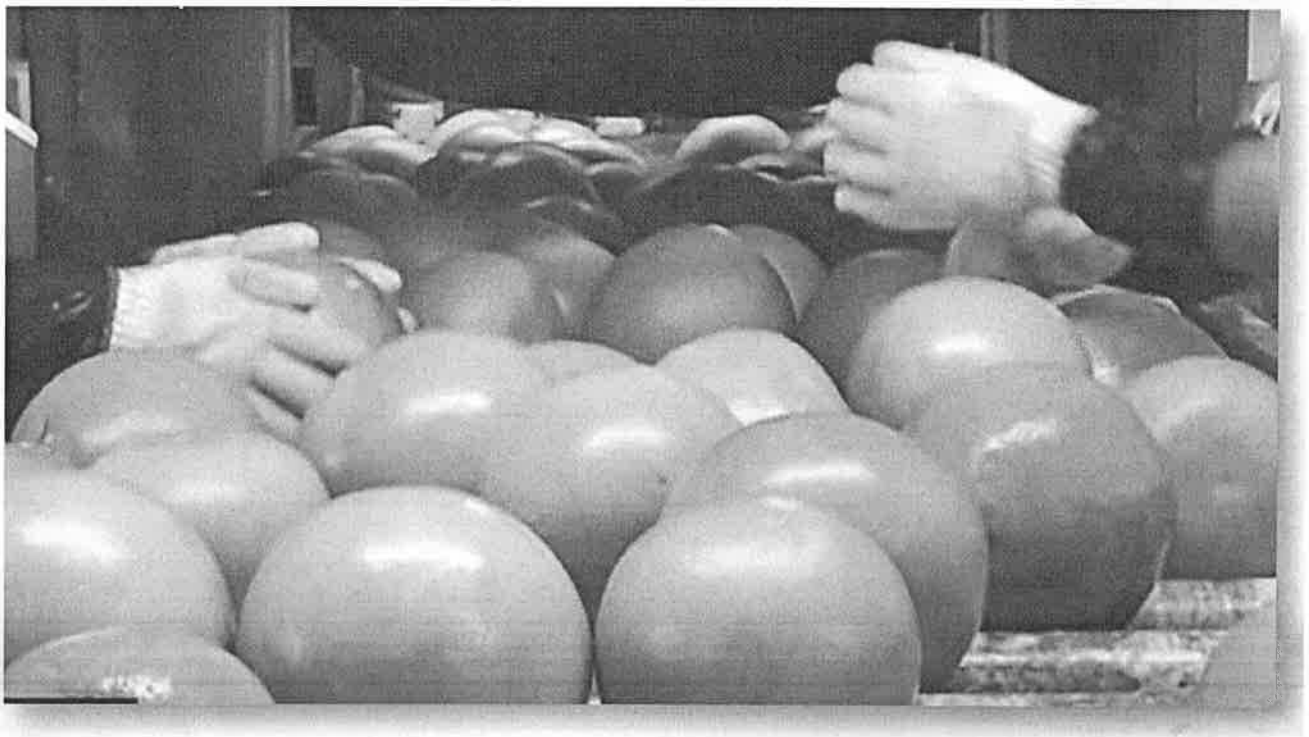

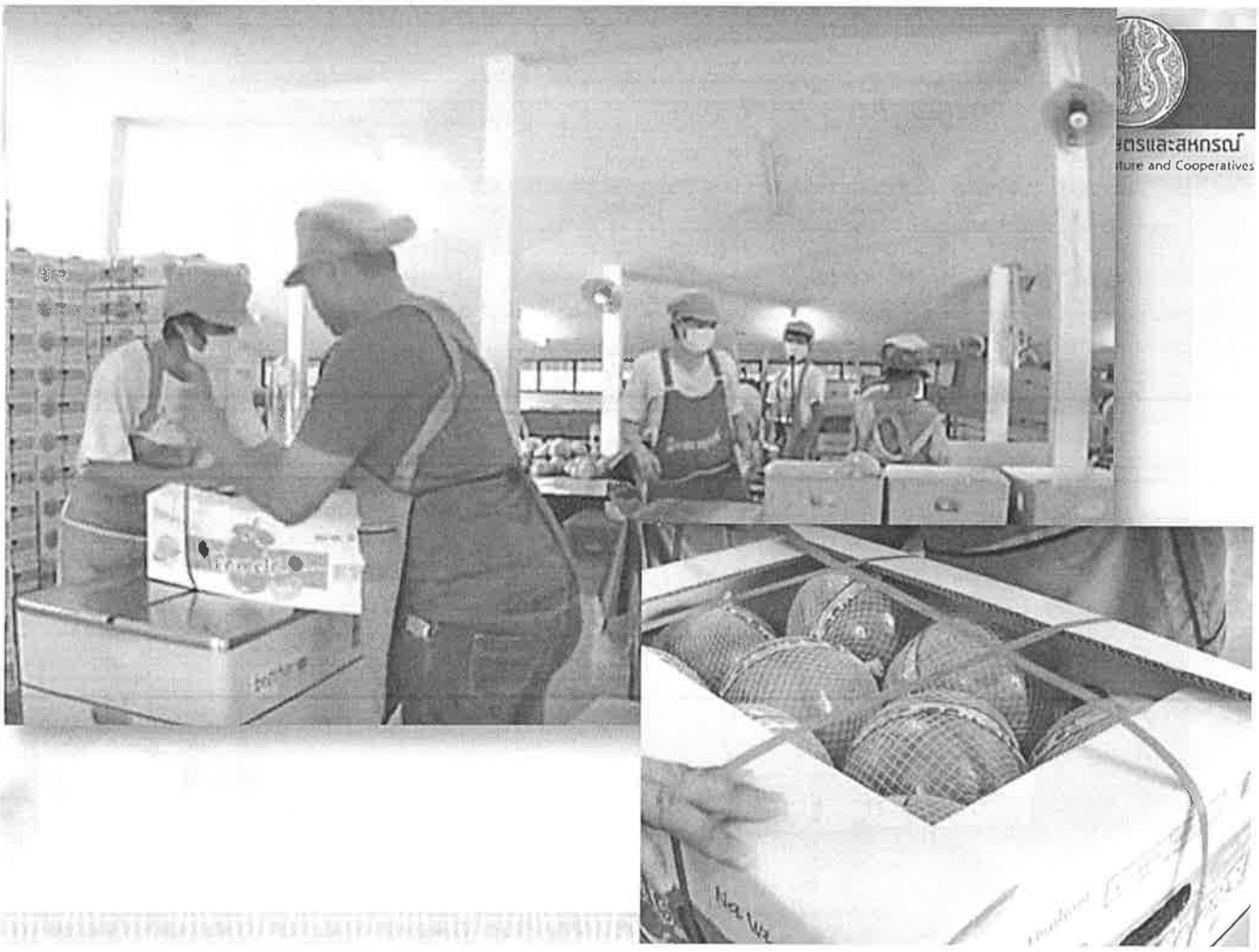

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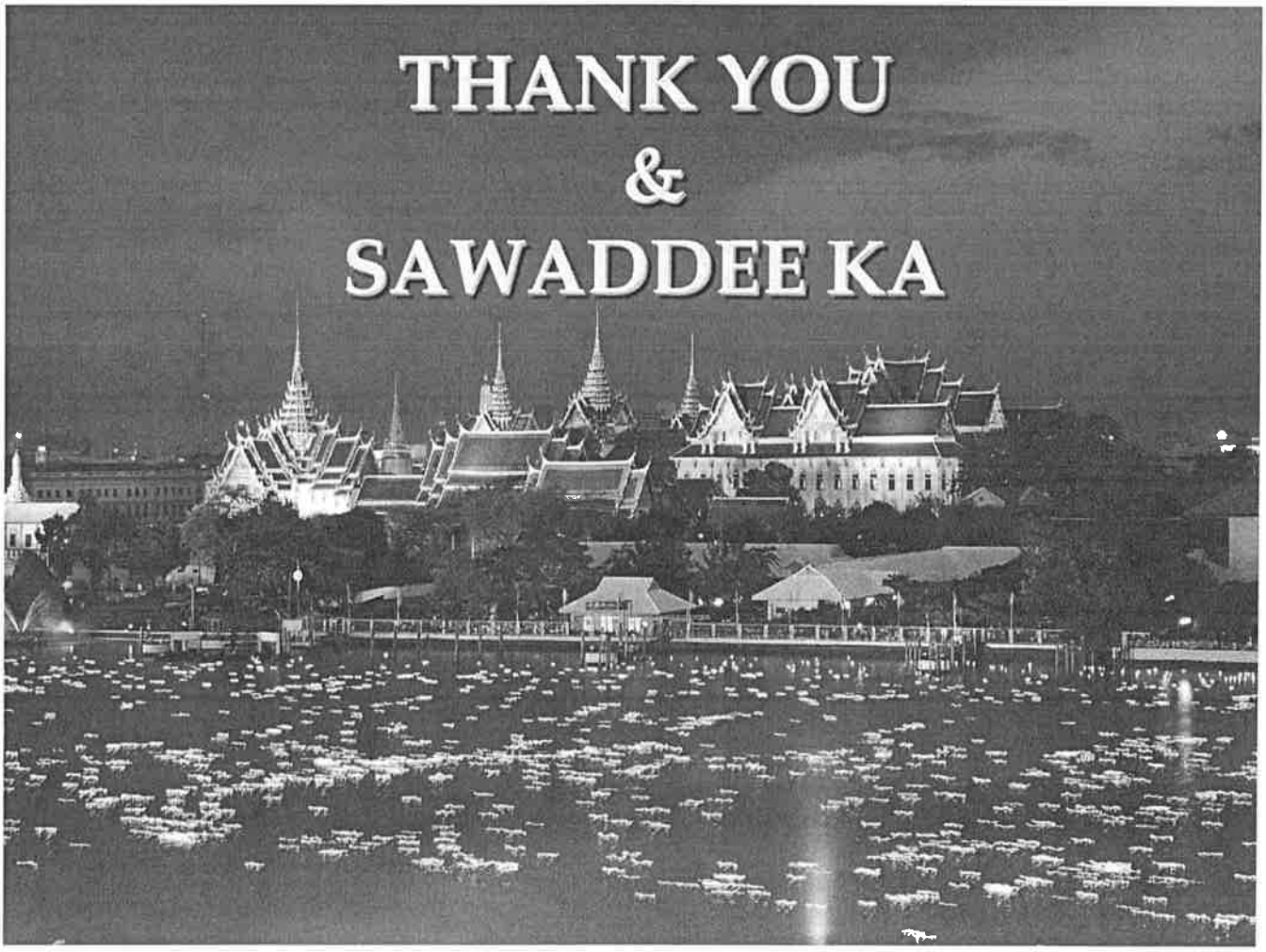
THANK YOU
&
SAWADDEE KA