Asia-Pacific
Economic Cooperation

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

APEC Agricultural Technical Cooperation Working Group

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1. BACKGROUND INFORMATION

Developing APEC economies have, in recent years, been the target of a number of aid initiatives aimed at raising their capacity to describe their plant health status, for the ultimate purpose of compliance to the WTO-SPS Agreements. These include regional initiatives such as those offered under AusAID and NZAID, as well as bilateral programs between developed and developing trading economies. Activities under these programs have largely emphasized building technical capacity to describe national plant health status, including pest surveys, biological collections, pest diagnosis and pest list and database development. These, together with training in the principles and practice of pest risk analysis, have raised the capacity, and expectations, of the recipient economies with respect to their active participation in the new global trading environment. The raised awareness on the pivotal role of pest risk analysis in the requirement for science-based justifications in phytosanitary decision-making, however, is not matched with an equal understanding of the options to apply risk mitigation measures to address identified risks to overcome barriers to market access. This project seeks to explain the relevant rules and principles contained within the WTO-SPS Agreements and the ISPMs, and the opportunities for improved market access through compliance to rules and conventions. It is expected that participating developing economies will, through the planned project activities, gain an improved awareness and understanding of these opportunities, and begin to put into place the necessary mechanisms to build capacity in this area of work.

ISPM 11 identifies Pest Risk Management as Stage 3 of the whole process of Pest Risk Analysis and defines this as the process of identifying ways to react to a perceived risk, evaluating the efficacy of these actions, and identifying the most appropriate action. Principles and concepts covering scientific justification, consistency, minimal impact, equivalence, non-discrimination, etc. need to be well understood and applied in subsequent research and development necessary for appropriate risk management options to be arrived at. Using actual situations previously encountered, the project will demonstrate to participating APEC developing economies the option of applying risk management choices to these specific outstanding issues in market access as examples, and take participants through the systematic process of identifying relevant R&D requirements to generate such options in line with the said principles and concepts. Special emphasis will be given to the concept of equivalence, taking into consideration the often limited capacity of developing economies. This workshop will raise the capacity of participating economies to consider, develop and apply risk management options in response to risks identified in market access related technical studies.

With raised awareness of the opportunities for mitigating risks and good understanding of the rules and principles that govern their application, developing APEC economies can expect to enter into market access negotiations with added confidence. This will better equip the relevant plant health personnel to not only respond to PRAs presented by prospective importers, but also to deal with the reciprocal situations of developing PRAs, biosecurity planning, etc

The workshop was structured to provide an excellent opportunity for member economies to network and share experiences and views on matters relating to plant health and quarantine, particularly trade-related issues, and indirectly promote facilitation trade between member economies.

Specifically, the Workshop sought to assist APEC member economies in:

- Facilitating secure and efficient movement of goods – an APEC goal,
- Reducing non-tariff trade barriers and ensuring the transparency of APEC economies' respective non-tariff measures through better understanding of the plant health status of member economies,

- Promoting regional cooperation, information and expertise sharing,
- Promoting good regulatory practice for the preparation, adoption and application of technical regulations in the APEC region,
- Providing a collegiate approach to reducing barriers to trade,
- Supporting the three pillars of APEC's activities through well-planned national biosecurity strategies,
- Achieving free and open trade,

All of the above points contribute to the overall goal of strengthened economic and technical cooperation amongst APEC member economies.

2. PROJECT STRUCTURE

The objective of this proposal was to build the understanding and the capacity of developing economies of APEC to manage pest risks, specifically:

- To raise the awareness of developing APEC economies on the options available following pest risk assessments which lead to conclusions by prospective importing economies of the likelihood of measurable risks from importation.
- To build capacity of these economies to plan and implement R & D activities on risk management options that can adequately address the concerns that arise from pest risk assessments, based on the principles of scientific justification, consistency, minimal impact, equivalence, regionalisation, etc.
- To strengthen the capacity of developing APEC economies in include risk management in market access bids in compliance with the requirements of the WTO SPS Agreement, including concepts of quality assurance and HACCP, and
- To continue to promote networking of APEC economies to share information and expertise in phytosanitary capacity-building

3. WORKSHOP ON UNDERSTANDING AND DEVELOPING RISK MANAGEMENT OPTIONS FOR MARKET ACCESS

The Workshop was organised at the Renaissance Hotel, Melaka, Malaysia from 13-17 October 2008 and was attended by 24 participants from 13 member economies and 6 resource persons. Twenty nine observers from different institutions in Malaysia also participated in the workshop (**Annex 1**). The programme of the workshop is given as **Annex 2**.

Three resource persons from Australia were invited to deliver the lectures and to lead the discussion during the workshop.

- Dr. Graeme Evans, Technical Director for the Managing Services Contractor, NZAid – Phytosanitary Capacity Building Program, UnitQuest, The University of Queenland, Brisbane 4072 Australia
- Dr. Ian Naumann, Director, SPS Capacity Building Program, Office of the Chief Plant Protection Officer, Australian Government Department of Agriculture, Fisheries and Forestry, GPO Box 858, Canberra ACT 2601, Australia

- Dr. Zamir Hossain, Policy Officer (Bilateral Program), International Capacity Building Office of the Chief Plant Protection Officer, Australian Government Department of Agriculture, Fisheries and Forestry, GPO Box 858, Canberra ACT 2601, Australia

3.1. SUMMARY OF PRESENTATIONS

SESSION 1- OPENING CEREMONY

On the 13 October, the Workshop started with the opening ceremony which was officiated by Y.Bhg. Dato' Ibrahim bin Muhamad, Deputy Secretary General for Planning, Ministry of Agriculture and Agro-based Industry, Malaysia. The Welcome Address was given by Y.B. Mr Roseley bin Dato' Haji Khalid, Director General, Department of Agriculture, Malaysia.

SESSION 2- INTRODUCTION AND THE GLOBAL TRADING ENVIRONMENT

Paper 1: WTO, SPS Agreement and Risk Mitigation (Annex 3)
This presentation briefly discussed the history and introduction of the WTO and relevant agreements with emphasis on the SPS Agreement (SPS measures and principles). It was explained that SPS measures covered the following:

- Toxins
- Microbial contaminants
- Pesticide residues
- Heavy metals
- Pests, weeds and diseases that may be moved in agricultural commodities
- Pests and diseases that may be moved with livestock and livestock products

SPS Principles that are key to the Agreement were elaborated:

- The right to take sanitary and phytosanitary measures
- Measures must be scientifically based
- Minimal impact
- Equivalence
- Regionalisation
- Consistency
- Non-discrimination

Paper 2: The Biosecurity Continuum (Annex 4)
This presentation discussed the point that biosecurity risks spanned a continuum the different stages of market access, from the source till the destination.

The Biosecurity Continuum was defined as the spectrum of biosecurity activities in the importing economy i.e., pre-border, at the border and post-border, involving risk assessment, monitoring and surveillance and response.

Pre-border activities include conducting import risk assessments (IRAs), development of recommendations for biosecurity policy as well as providing quarantine policy advice to the NPPO. Other activities include defining the extent of Area Freedom (the whole economy, region or place of production), and available management practices for low pest prevalence (chemical and physical) situations.

At the border, activities include developing, through the NPPO/Plant Health Authority, operational procedures, e.g. inspection and treatment, and making a range of quarantine decisions under the existing Act (including import permit decisions) and delivering quarantine services.
Post-border activities cover coordinating pest and disease preparedness (surveillance, diagnostics), emergency response & management, and liaison on inter- and intra-state/province quarantine arrangements.

SESSION 3 – INTERNATIONAL STANDARDS AND PEST RISK ANALYSIS

Paper 3: International Standards Relevant to Risk Management (Annex 5)
Standards relevant to risk mitigation were presented and discussed in this presentation, covering WTO (World Trade Organization), IPPC (International Plant Protection Convention), regional and national plant protection as well as regional and global standards and risk mitigation.

The SPS (Sanitary and Phyto-Sanitary) Agreement recognizes IPPC as the standard-setting body for international phytosanitary standards (ISPMs). IPPC is governed by the Commission on Phytosanitary Measures (CPM) and its objectives are:

- Reviews global plant protection needs
- Adopts international standards (ISPMs) which are prepared by technical committees
- Establishes dispute resolution procedures
- Promotes technical assistance
- Cooperates with Regional Plant Protection Organisations and other international organisations on matters relating to the Convention

31 ISPMs have so far been produced by IPPC; some provide general advice or prescribe widely applicable frameworks. Familiarization with standards is very important for risk analysts and risk managers, but the standards themselves are mere guidelines and are usually not sufficient to devise specific operational measures for specific risks.

The main roles of NPPOs include:

- Issue phytosanitary certificates for exports when required
- Inspect and treat commodities
- Pest surveillance, control, control
- Establish and protect pest free areas
- Perform pest risk analyses
- Contact point with IPPC

Robust legislation is needed in all countries to protect domestic industries from exotic pests in traded commodities which can assist exports, e.g. having powers to:

- Maintain pest-free areas
- Mitigate pest threats that are required by importing countries to permit trade.

The roles of regional plant protection organizations (NAPPO-North America, EPPO-Europe, PPPO-Pacific and APPPC-Asia Pacific), particularly APPPC were also discussed. Several regional standards (RSPMs) have been established by APPPC, e.g. Pest Free Areas for Fruit Flies, PRA on scale insects and some are still under considerations, e.g. Specific Standards for Accreditation of Heat Treatment Facilities, Pest Risk Analysis for Weeds.

Paper 4: Plant Pest Risk Analysis (Annex 6)
The whole process of plant pest risk analysis (PRA) was discussed in detail during the presentation. Pest risk analyses (PRAs) are risk analyses with key steps that are conducted under regulation using technical and scientific experts in the relevant fields and involving consultation with stakeholders.

The purpose and principles of PRA were presented, followed by step-by-step explanations on the components of PRA (includes Initiation, Risk Assessment, Risk Management and Risk Communication). Risk Assessment was further elaborated into different steps, i.e. pest categorisation, probability of entry, probability of establishment, probability of spread, assessment of consequence and estimation of risk.

PRAs plays an important part in biosecurity protection of the different countries. It assists the NPPOs in considering the level of quarantine risk that may be associated with the importation or proposed importation of animals, plants or other goods into the member economy. If the risks are found to exceed the level of quarantine risk that is acceptable to the member economy, risk management measures are proposed to reduce them to that level. If the quarantine risks cannot be reduced to an acceptable level, trade will not be allowed.

SESSION 4 – RISK MANAGEMENT OPTION: PRINCIPLES, POSSIBLE OPTIONS TO PREVENT INFESTATIONS IN THE CROP AND OPTIONS FOR CONSIGNMENT TREATMENTS

Paper 5: Pest Free Areas, Pest Free Places of Production, Areas of Low Prevalence (Annex 7).
Definitions of pest free areas, pest free places of production and areas of low prevalence were presented. Some relevant ISPMs (ISPM 8, 10, 22, 26 & 30) were used to relate to the definition above during the presentation. Guidelines and requirements for the establishment, maintenance and verification for the above areas were also discussed. The roles played by the NPPO and producers were mentioned as well.

Paper 6: Prevention and/or Reduction of Infestation in the Crop to Increase Market Access (Annex 8)
Options for preventing or reducing infestation in the crop to increase market access were discussed in this presentation. Measures for doing so were presented and discussed, e.g. in-crop pest management and crop hygiene, growing plants in protected environment, harvesting crops only at certain age or specific time of the year, non-host status of the crops, and production in a certification scheme. Detailed breakdown of each of the measures were presented, e.g. for in-crop pest management and crop hygiene includes:

- field sanitation practices
- pest monitoring programs
- chemical control (insecticides, fungicides, etc.)
- removal of alternate hosts, and
- bagging of fruits

Paper 7: Treatment of Consignments (Annex 10)
This presentation discussed in great detail treatment of consignments as one of the options for risk mitigation. The principles behind the treatment were presented, i.e. to have minimal impacts, equivalence and regionalization, consistency and non discrimination. Different types of treatments were been discussed including chemical, physical, cold, heat, and irradiation. Several treatment options for different types of commodities, e.g. seeds (including bulbs, tubers, rhizomes, etc.) for planting, grain and cereals, fresh fruits and vegetables, etc. were also discussed.

SESSION 5 - RISK MANAGEMENT OPTIONS – AT THE BORDER AND POST ENTRY QUARANTINE.

Paper 8: Border Inspection and Sampling Procedure (Annex 11)
Inspection is visual examination to:

- confirm compliance with specific phytosanitary requirements
- verify absence "generally" from potential quarantine pests

Objectives and types of inspection and sampling were briefed in this presentation. Methods to carry out inspection and sampling were explained with relevant guidelines (ISPM No. 23 and 31 respectively). Statistical analyses that may be applied on the sampling methods in order to obtain quantitative measure of confidence were discussed. Parameters for the statistical calculation, e.g. level of detection, confidence level, efficacy of detection, sample size and tolerance level were also elucidated in the presentation slides.

Paper 9: Risk Mitigation Options: Post Entry Quarantine (Annex 12)
Post-entry quarantine (PEQ) facilities are usually used for only small consignments, e.g. germplasm (including cultures, seeds, nursery stocks, etc.), biological control agents, and research materials. For these types of consignments, risk analysis would be conducted to determine the risk category, i.e. high risk or medium and low risk.

1. **High risk**
   - high potential for introduction of quarantine pests, diseases and weeds
   - high degree of uncertainty
   - work cannot be done pre-border
2. **Medium and low risk**
   - lower potential for introduction of quarantine pests, diseases and weeds
   - more certainty concerning pest and disease status of material
   - sources from elite material grown under pathogen-tested schemes or under pest-free conditions

EPPO Standard PEQ protocol for potato was used as an example to explain the roles of PEQ in screening materials imported from other economy.

SESSION 6 - RISK MANAGEMENT – SYSTEMS APPROACH

Paper 10: System Approach (Annex 13)
In this paper, the systems approach to manage phytosanitary risk was discussed. Several criteria in implementing a systems approach are:

- to combine two or more phytosanitary measures to manage pest, disease or weed risks
- requires good understanding of pests, crop production, processing and transportation system
- provides security if there is uncertainty about some steps in the pathway analysis
- can be combined with quality assurance programs

Implementing systems approach has given some benefits over other techniques or strategy in managing phytosanitary risks, e.g:

- better and more focused risk management
- reduced reliance on single measure, e.g. disinfestations
- increased reliance on hygiene and pest management practices
- reduced costs
- some pests (pathogens) are very difficult to eliminate by only using a single treatment

Detailed explanations on how to do the systems approach were also presented and discussed.

Paper 11: Risk Mitigation: Post Border Preparedness, Planning and Surveillance (Annex 14)

As pest risk cannot be completely eliminated in pre-border and border systems, the aim of this presentation was to talk about the preparedness, planning and surveillance of the post border pest risk. A complete biosecurity system should include post-border mitigation measures, e.g. surveillance, diagnosis, communications, contingency plans for major pest threats, capacity to respond to pest incursions, etc. Each of the post-border mitigation measures was discuss in great detail. Several case studies particularly on trapping for exotic fruit flies in Australia were given in the presentation as examples.

Paper 12: Post Border Response (Annex 15)

A response should be considered whenever the entry of pest is detected in a member economy. Total eradication of the pest is the most desirable response (ISPM 9). However, if eradication is not feasible, options for containment or control should be considered. Responding to a plant pest detection are categorized into 4 (four) main phases, i.e. investigation, alert, operational and stand down. Detailed explanation of each phase was presented and discussed. A case study on the eradication of papaya fruit fly in Australia was also presented as an example.

Paper 13: Risk Mitigation – Diagnostics (Annex 16)

The importance of diagnostics in risk mitigation was discussed in this presentation together with the reasons why the diagnostic capacity is required. Requirements for an ideal diagnostic network were presented followed by giving a list of diagnostic networks worldwide. A fruit fly diagnostic network in Australia was used as an example for the case study. At the end of the presentation, a discussion was held on the proposal to develop an ASEAN Regional Diagnostic Network (ARDN) which will have functions as:

- Independent clearing house in the region
- International expertise register
- Endorsed by ASEAN through AWG on Crops and APHCN

Paper 14: Risk Mitigation - National Legislation (Annex 17)

This session discussed the origins of National Phytosanitary Legislation and powers of the legislation. Some brief introduction on IPPC was made which clearly spells out their roles. The principal role of National Plant Protection Organisation (NPPO) was listed and it was stressed that the NPPO needs to be strongly supported by National Legislation to carry out those roles. The powers assigned by the National Phytosanitary Legislation to the NPPO are based on the needs of NPPO and their ability to address IPSM guidelines. It concluded that strong National Phytosanitary Legislation is the key for effective risk management.

SESSION 7 – PRESENTATIONS AND DISCUSSIONS FROM PARTICIPATING DEVELOPING ECONOMIES

Paper 15: Cambodia - National Plant Protection in Cambodia (Annex 18)

Brief introduction on Cambodia and organisational structure of Plant Protection and Phytosanitary Inspection Authority were given. Current situation of plant quarantine in Cambodia, in terms of legal framework were listed. A number of regulations have been developed in order to enforce the implementation of the sub-decree. For import of agricultural products, Cambodia does not impose any requirements, restrictions and prohibitions, except for phytosanitary certificate. Import permits are required only for importation of plant quarantine materials. Meanwhile, no restrictions or prohibitions are imposed on exporting agricultural products except narcotic drugs. It was concluded that potential for

exporting agricultural products from Cambodia is still currently low. Revised law and regulation that comply with WTO/SPS Agreement is needed to protect the economy from pest and to promote export activities. Human resource development and technical assistance in pest surveillance, plant pest diagnostic laboratory, infrastructure and facilities for plant quarantine and treatment need to be improved as well.

Paper 16 : Chinese Taipei - Risk Management of Enoki Mushroom for Market Access in Chinese Taipei (Annex 19)

Enoki mushroom was used as an example in this presentation to demonstrate how the pest risk assessment (PRA) is typically done for export. Detailed steps of PRA were shown including cultivation procedures of the mushroom. Problems encountered were discussed in this presentation, when Canada banned the imports of the mushroom with growing media in year 2005 which caused economic losses. This problem was solved after some negotiations and communications with Canada and the import was approved in 2007. Conclusion of this presentation highlighted that phytosanitary measures should be science based, and the need for enhanced communications and proper PRA procedures.

Paper 17: Indonesia - Indonesian Experience on Market Access (Annex 20)

This presentation was to share some Indonesian experiences in exporting and problems encountered. Examples given included export of mangosteen to Australia, maize grain to New Zealand, wood packaging materials to United States, Mango and Salacca to China and Paprika to Chinese Taipei. This presentation ended by mentioning that an important tool for market access is ISPM No. 24 which provides guidelines for determination and recognition of equivalent phytosanitary measures. Equivalence is a bilateral process and equivalent phytosanitary measures should achieve a specified appropriate level of protection.

Paper 18: Lao PDR - International Market Access and Phytosanitary Practice of Lao PDR (Annex 21)

Import and export procedures of agricultural products and relevant legislation in Lao PDR were shown together with statistics of import and export value in total and by different plant products. Progress of SPS development in Lao were presented where more ISPM guidelines were being adopted and implemented. Risk management practice on export commodity was presented which includes physical inspection and fumigation. Issues concerning market access were raised including enhanced quality standards of products by EU and Japan, knowledge gap between farmer and exporter, uniformity of standards adopted by exporter and government authority, undefined responsibility in Biosafety certification of Lao products and difficulty in control of trade between border.

Paper 19: Malaysia - Market Access Experiences of Malaysia in Exporting Tropical Fruits (Annex 22)

Presentation started with trade figures of Malaysia's fruit and vegetables including current product exporting countries. Phytosanitary measures imposed by importing countries were shown with emphasis on the stringent phytosanitary requirements by developed countries. The process of how plant quarantine protocol were developed were explained, starting with identification of target pest followed by risk management options which will determine the type of quarantine treatment required. Quarantine treatments practised in Malaysia include fumigation, vapour heat treatment, hot water treatment, quick freezing, cold treatment and gamma irradiation. A few examples of countries that have approved the importation of agricultural products from Malaysia were shown together with some still under negotiation. In order to comply SPS requirements, steps taken by the Department of Agriculture (DOA) include development of quarantine treatment, development of quarantine and export centre at KLIA (airport) and accreditation program to prepare farms/premise for audits by importing economy. Issues and challenges faced from the market access include fruit quality, high exporting cost, constant supply of quality fruit and

involvement of private sector in the exporting process. Observations at the end of the presentation include current agricultural products tend to be exported to countries imposing less stringent SPS measures, market access into developed countries is time consuming and high cost in establishing quarantine facilities in order to comply with SPS requirements.

Paper 20: Myanmar - Market Access Activities in Myanmar (Annex 23)
Collection and records of pests and diseases in Myanmar were presented. The ministry is building up their specimen based pest lists which incorporates pest images to facilitate pest risk analysis. Risk management options practiced by Myanmar include chemical, physical, irradiation and other appropriate treatment. Some of the legal actions taken at national level included review of existing quarantine law and regulations and capacity building of NPPO. Negotiations are being held with trade partners on the PRA processing and providing required information. Constraints faced for the development of risk management options included limited funds, time consuming capacity building, limited resources that restricts full implementation of ISPM and lastly awareness on the importance of market access.

Paper 21: Philippines (Annex 24)
The fruit industry is an important component of Philippine agriculture. This presentation mainly focused on banana, pineapple and mango. Some statistics of yield, acreage and production of these fruit crops were shown in the presentation. The Bureau of Plant Industry (BPI) is the enforcement authority for plant quarantine laws and regulations in the member economy. A series of their experiences on exporting fruits to various countries were discussed with details on the type of fruits exported and problems encountered with each economy. A few points on lessons learned were given in the presentation. Suggestions and recommendations were made at the end of the presentation which covered pest risk analysis (PRA), market access, deployment of quarantine officers to verify the treatment practiced by exporting countries, ALOP (appropriate level of protection)-based mitigation measures and marketing strategies developed by the exporting countries to promote exported commodities.

Paper 22: Singapore (Annex 25)
Background information on the country and some brief introduction on the organisation of Agri-food and Veterinary Authority (AVA) was given. Branch and section of AVA responsible for the administration of phytosanitary regulations was presented including a list activities carried out. Elements of phytosanitary systems were explained together with relevant legislation. List of import health requirements shown included categorization of risk, pest risk assessment and control measures. Fresh fruits importation to Singapore was used as an example to show the detailed processes of the phytosanitary system.

Paper 23: Market Access Experience in Thailand (Annex 26)
Presentation started with introduction of the Plant Protection Organisation. All related organisations headed by Ministry of Agriculture were listed in the plant protection organisation chart. Risk management related policy and regulations were presented with some brief explanation. Key export markets of Thailand include Japan, Chinese Taipei, Hong Kong, Australia, China, Singapore and applications for market access to other countries were given. Case study of exporting irradiated fruits to United States was discussed. Detailed technical steps for market access submission were given together with required import conditions. Difficulties and constraints faced included lack of capacity building, efficient database, research document on some commodities and failure of quarantine treatment.

Paper 24: Viet Nam (Annex 27)
The overall situation of agricultural product exportation in Viet Nam was discussed at the beginning of the presentation. This was followed by elaboration of the situation in Viet Nam in exporting agricultural products. Crops discussed included rice, coffee, rubber, green pepper and litchi. Advantages and

difficulties encountered for product export of each crop were discussed. Solutions development and improvement of product quality were presented, including improve commodity production areas, use of new techniques and advanced production technologies, processing and storing, improving commodity sources for export, export subsidizing and lastly marketing and promoting trade.

SESSION 8 - PRESENTATIONS AND DISCUSSIONS FROM PARTICIPATING DEVELOPED ECONOMIES

Paper 25: Japan - Procedures for Lifting Import Prohibition in Japan (Annex 28)
A gantt chart of plant quarantine services in Japan with relevant departments served under the Plant Protection Law was shown at the beginning of the presentation. Summarized list of plant prohibited to be imported into Japan by the Plant Protection Law was also presented. Procedures to lift the import prohibition in Japan were then outlined. Procedures start with the request of lifting import prohibition with proposed quarantine measures by the exporting economy. Evaluation of proposed measures and data will be carried out by Japan followed by rule making and domestic procedures. Regulations agreed by both countries will then be established and enforced. Exportation of the prohibition-lifted plants will begin once Japanese plant quarantine inspector has confirmed the implementation of measures. Process of development of disinfection technology in exporting economy was discussed with vapour heat treatment of tropical fruit as example. Processes listed include determination of exporting commodity, pest and method of disinfestation. Once the test design has been determined, preparation of the test will be carried out which covers preparation of facilities and machineries, laboratory and fruits to be tested. Disinfestation test will be initiated with further tests to be done, including mortality test, machine performance test and fruit injury test. Countries that have gone through the required procedures will be able to enjoy the lifting of the import ban to Japan. List of countries that have successfully got the ban lifted were listed in the presentation.

Paper 26: People's Republic of China - Current Status of the Quarantine Access of the Imported Mango in China (Annex 29)
Survey of pest and diseases of mango in China has been done and some of the important ones were listed. The status of pests that have been captured from imported mango were reported with some images of mango seed and pulp weevil being emphasized. Pest risk management on the imported and exported mango were discussed in this session. Meanwhile, inspection and quarantine procedures implemented by China for import mango were listed together with basic requirements for inspection and quarantine procedures. Quarantine inspection and treatments carried out were shown as well. Technical difficulties encountered in pest risk analysis (PRA) were discussed at the end of the presentation. Solutions suggested included providing necessary materials for PRA by exporting countries, constant supply of mango from plantation with standardized practices and development of scientific research and control measures by the exporting countries to tackle harmful microbes with high quarantine risk.

3.2. GROUP DISCUSSIONS AND RECOMMENDATIONS

Session 8 & 9 of the Workshop provided an opportunity for all participating countries to speak about market access experiences – most directed their comments at the problems encountered in accessing new markets. Some of the presentations, and particularly that given by Japan, provided an overview of issues from the position of importing countries. Many comments were made about problems of access high-value markets in developed economies. Japan, the US and Australia, in particular, were singled out for comment. From presentations made on Thursday it is apparent that developing and newly industrialised countries have made much progress in accessing the markets in some of the more quarantine-sensitive markets. It was unfortunate that Australia had no official representative to present on its market access experiences, but from comments made by Australians present it is clear that the member economy has

opened up its markets for many kinds of fresh fruits and vegetables from a number of sources since the establishment of the WTO.

Nevertheless, many issues remained for developing APEC economies, as far as access to these high-value markets is concerned. Priority issues emerging from the Workshop included:

- Capacity building
- Donor assistance
- Equivalence
- Expanding and improving communications
- Time taken to get approval
- Investment in treatment and facilities
- Government support for plant health
- Confidence in NPPOs
- Inconsistencies in some NPPO's requirements for market access
- Legislation
- ISPM guidelines relating to pest free areas, areas of low pest prevalence and pest free places of production

A majority of these issues are a result of the lack of capacity of developing economies to fully comply with the requirements of international treaties and conventions relating to trade. Three broad topics were prepared for discussion in the breakout sessions on the final day of the Workshop, to bring out concrete recommendations for the attention of the Agricultural Technical Cooperation Working Group (ATCWG) of APEC. The discussion topics and recommendations that emerged from the Workshop breakout sessions are elaborated below:

1. *Priorities for capacity building if countries are to take advantage of the rules contained in the SPS Agreement to expand exports of agricultural commodities*
   - Training of trainers from APEC economies to ensure sustainability
   - Hands-on and local training for broader participation and benefit
   - Pooling and sharing of expertise
     a) at local level local and
     b) through regional networking
   - Build capacity in
     a) pest surveys/pest list development
     b) evaluating PRA documents, including equivalency of phytosanitary measures, etc
     c) research and development of alternative risk mitigation measures
   - Review of national legislation to be in line with international treaties and conventions

2. *Mechanisms for sharing market access experiences and research, including information contained in protocols that have been developed between trading partners*
   - Facilitate various forums, including meetings, websites, etc for information exchange
   - Enhanced involvement of industry and private sector
   - Regional harmonization in phytosanitary measures.
   - Regularize regional dialogue (such as present APEC workshop)
   - APEC economies should focus market access efforts based on prioritised commodities/crops

3. *Creating awareness among donors, industry and relevant government agencies of the need to provide adequate support for plant health science if the objective of expanding exports of agricultural commodities is to be achieved.*
    - Government play a leadership role to promote dialogues with stakeholders and broaden stakeholder awareness, including use of appropriate ICT tools in nationwide campaigns
    - Emphasize stakeholder (esp. private industry) awareness on importance of farm/production information, risk mitigation measures, consistency of product quality, etc for market access
    - Engage private industry stakeholders to lobby for national level support for phytosanitary compliance to international standards as a trade issue
    - Seek better understanding of donor priorities and mechanisms and apply a regional approach to funding support where appropriate

Recommendations

The whole project was structured to engage relevant private industry groups such as producers, grower associations, exporters and others related to agricultural trade. Workshop participants included not only government and public sector plant health officials, but also private sector players engaged in the production and export of agricultural and horticultural produce. Risk management in its full context comprise actions taken right from the farm through processing and packing to export, and the role of farmers, producers, processors and exporters are vital to the export market compliance process. The broad participation in this workshop provided a forum for better understanding of the processes involved and the roles each must play in the export production process.

Following the final-day breakout sessions, the Workshop recommends that APEC consider follow-on support for:

1. More efforts to be made to raise the awareness of public sector policy makers that plant health is a trade issue, and national support for plant health capacity building is essential to ensure sustainability of programs supported by donor funding;

2. Developing APEC economies to establish knowledge networks to regularly engage private industry in support of their National Plant Protection Organisation (NPPO) in phytosanitary compliance activities; and

3. Regional networking to share expertise and knowledge in phytosanitary matters, particularly building on and providing complementary support for existing initiatives to accelerate capacity to comply with international standards and requirements.

4. LESSON LEARNT FROM THE PROJECT

4.1. USEFUL LESSONS HAVE BEEN LEARNT FOR FUTURE ACTIVITIES

The support and co-operation of co-sponsoring APEC Economies, from concept planning to implementation, are important elements in ensuring that project objectives are fully met. Project objectives that are truly aligned with the needs of developing APEC economies assured good response and active participation.

4.2. GENDER CONSIDERATIONS

The Project Overseer is a lady and the Steering & Organising Committees consisted of a significant number of women (five), equivalent to about 47%, and 14 participants of the workshop were women (24 %).

4.3. PARTICIPATION

The participants, resource persons and consultants of this project represented NPPOs, academia, agricultural research institutions and NGOs, covering a wide spectrum of stakeholders, with relevant knowledge and experience of surveillance issues and the species of the four targeted pests.

4.4. FINANCING

While careful budget planning assured the overall smooth implementation of the project, APEC rules on disbursement presented some difficulties for participants from some member economies who were unable to pay for their expenses ahead of re-imbursement after the workshop and other project activities. Although this was overcome through advancement of funds by the Consultants after securing approval from APEC Secretariat, it nevertheless represented an unexpected intervention. It is hoped that the APEC Secretariat can, in future, consider disbursement of per diem and traveling expenses for designated eligible participants to be managed by the appointed accordingly on behalf of APEC.

5. NEXT STEPS

All participants of the workshop agreed that the project has successfully achieved its objectives by:

- Creating awareness on the options available following pest risk assessments which lead to conclusions by prospective importing economies of the likelihood of measurable risks from importation.
- Building capacity to plan and implement R & D activities on risk management options that can adequately address the concerns that arise from pest risk assessments, based on the principles of scientific justification, consistency, minimal impact, equivalence, regionalisation, etc.
- Strengthening their capacity in include risk management in market access bids in compliance with the requirements of the WTO SPS Agreement, including concepts of quality assurance and HACCP, and
- Promoting networking amongst relevant officers of the APEC economies and sharing information and expertise in phytosanitary capacity-building

Implementation of this project provided an insight into appropriate approaches to pest risk assessment and risk management for developing economies. As a whole, the project has made significant achievement and it has been very relevant for APEC economies to meet and share information on these pressing issues of pest risk management and its available options for market access. All participants have gained a lot of understanding of the issue and confident on how to develop the options step-by-step for their own economies.

The following APEC future activities have been strongly recommended by participants:

1. To raise the awareness of public sector policy makers that plant health is a trade issue, and national support for plant health capacity building is essential to ensure sustainability of programs supported by donor funding;

2. To establish knowledge networks for developing APEC economies to regularly engage private industry in support of their National Plant Protection Organisation (NPPO) in phytosanitary compliance activities; and

3. To establish regional networking to share expertise and knowledge in phytosanitary matters, particularly building on and providing complementary support for existing initiatives to accelerate capacity to comply with international standards and requirements.

4. To establish a regional portal on knowledge networks and databases of related information in support of animal and plant health as well as food safety,

ACKNOWLEDGEMENT

The Department of Agriculture, Malaysia and its Organizing Committee (OC) members would like to acknowledge the funding support provided by APEC, without which this project would not have been possible. The OC members would also like to place on record our sincere appreciation and gratitude to Dr. Lum Keng Yeang, Dr. Graeme Evans, Dr. Ian Naumann and Dr. Zamir Hossain who has worked very hard to put together the program and scientific arrangement of the successful workshop and also for their time and efforts during the pre- and post-workshop discussions.

Thanks are also due to staff of the State Department of Agriculture, Malacca for their participation and contributions during the workshop.

Annex 1. Workshop Program

APEC WORKSHOP ON UNDERSTANDING AND DEVELOPING RISK MANAGEMENT OPTIONS FOR MARKET ACCESS

RENAISSANCE HOTEL, MELAKA, MALAYSIA
13 – 17 October 2008

PROGRAMME

Day 1		
Monday, 13 October	**Session 1: Opening Ceremony**	
	Time	**Event**
	08:00 –	Registration
	08:30 –	Arrival of Invited Guest
	08. 40 –	Arrival of Director General, Department of Agriculture Malaysia
	08:45 –	Arrival of Chairman, Melaka State Rural Development and Agriculture Committee
	08:50 –	Arrival of the Hon. Chief Minister of Melaka
	09: 05 –	• Prayer Recitation by Melaka State Mufti • Welcome Remarks by Director General, Department of Agriculture, Malaysia • Opening Address by the Honourable Chief Minister of Melaka • Presentation of Mementos
	10.30 – 11:00	Morning Tea
		Media Conference Photographic Session
	Session 2: Introduction and the Global Trading Environment **Chairperson: Dr. Loke Wai Hong**	
	11:00 – 11:15	Purpose and Scope of Workshop – Dr Lum Keng Yeang
	11:15 – 11:45	WTO, SPS Agreement and Risk Mitigation – Dr Graeme Evans
	11:45 – 12:45	Q & A Facilitator – Dr. Graeme Evans
	12:45 – 13:00	Biosecurity Continuum – Dr. Ian Naumann
	13:00 – 14:00	Lunch
	Session 3: International Standards and Pest Risk Analysis **Chairperson: Dr Ian Naumann**	
	14:00 – 14:30	International Standards Relevant to Risk Management – Dr Lum Keng Yeang

	14:30 – 15:15	Plant Pest Risk Analysis – Dr Zamir Hossain
	15:15 – 16:30	***Discussion 1*** – Pest Risk Analysis Facilitator – Dr Zamir Hossain
	16:30 – 17:00	Afternoon Tea
Day 2		
Tuesday, 14 October	**Session 4: Risk Management Options – Principles, Possible Options to Prevent Infestations in the Crop and Options for Consignment Treatments** **Chairperson: Dr Graeme Evans**	
	Time	**Event**
	08:45 – 9:15	Principles of Risk Mitigation and Risk Mitigation Options: Options for Ensuring that an Area is 'Pest Free' or of Low Prevalence – Dr Ian Naumann
	09:15 – 09:45	Risk Mitigation Options: Options for Preventing or Reducing Infestation in the Crop to Increase Market Access – Dr Zamir Hossain
	09:45 – 10:15	***Discussion 2 –*** Pest Free Areas and Areas of Low Prevalence – Facilitator – Dr Ian Naumann
	10:15 – 10:45	Morning Tea
	10:45 – 11:30	Risk Mitigation Options: Options for Consignments (Treatments) – Dr Ian Naumann and Dr Zamir Hossain
	11:30 – 12:45	***Discussion 3*** – Treatment and Equivalence Facilitator – Dr Ian Naumann
	12:45 – 14:00	Lunch
	Session 5: Risk Management Options – At the Border and Post Entry Quarantine **Chairperson: Dr. Zamir Hossain**	
	14:00 – 14:30	Risk Mitigation Options: Border Inspection and Sampling Procedures – Dr Lum Keng Yeang
	14:30 – 15:00	Risk Mitigation Options: Post Entry Quarantine – Dr Graeme Evans
	15:00 – 16:00	***Discussion 4*** – Border and Post-Border Risk Mitigation Facilitator – Dr Graeme Evans
	16:00 – 16:30	Afternoon Tea

Day 3		
Wednesday, 15 October	**Session 6: Risk Management – Systems Approach** **Chairperson: Dr. Hernani Golez**	
	Time	**Event**
	08:45 – 09:20	Risk Mitigation Options: Systems Approach – Dr Ian Naumann
	09:20 – 10:00	Risk mitigation Options: Post Border Preparedness, Planning and Surveillance – Dr Ian Naumann
	10:00 – 10:30	Morning Tea
	10:30 – 11:00	Risk Mitigation – Incursion Response – Dr Ian Naumann
	11:00 – 11:30	Risk Mitigation: Diagnostics – Dr Lum Keng Yeang
	11:30 – 12:00	Risk Mitigation: National Legislation – Dr Graeme Evans
	12:00 – 13:00	***Discussion 5:*** Systems Approach, Post-border Preparedness and Response, Diagnostics, Legislation Facilitator – Dr Ian Naumann
	13:00 – 14:00	Lunch
	Session 7: Field Visit	
	14:00 – 16:30	Field Visit
	16:30 – 17:00	Afternoon Tea
Day 4		
Thursday, 16 October	**Session 8: Presentations and discussions from participating economics** **Chairperson: Yusof Othman**	
	Time	**Event**
	08:45 – 09:05 09:05 – 09:25 09:25 – 09:45 09:45 – 10:05	Presentations on Market Access Experiences from Participating Developing Economies: • Cambodia • Lao PDR • Malaysia • People's Republic of China
	10:00 – 10:30	Morning Tea
	10:30 – 10:50	Presentations on Market Access Experiences s from Participating Developing Economies (continued) • Philippines

	10:50 – 11:10 11:10 – 11:30 11:30 – 12:30	• Thailand • Viet Nam ***Discussion***
	12:30 – 14:00	Lunch
	Session 9: Presentations and discussions from developed economics and discussions Chairperson: Yusof Othman	
	14.00 – 16.00 16:00 – 16:30	Presentation from Developed Economies on their Risk Management Requirement • Japan • Peoples' Republic of China • U.S.A ***Discussion***
	16:30 – 17:00	Afternoon Tea

Day 5		
Friday, 17 October	**Session 10: Capacity Building and Research Needs Chairperson: Dr. Lum Keng Yeang**	
	Time	**Event**
	8:45 – 10:00	**Breakout Group Discussion** – • Capacity Building and Research Needs • Recommendations
	10:00 – 10:30	Morning Tea
	10:30 – 11:30	Breakout Group Presentation
	Session 11: Closing	
	11:30 – 12:30	Presentation of Certificates and Official Closing by Director-General, Department of Agriculture Malaysia

Annex 2. List of Participants

APEC WORKSHOP ON UNDERSTANDING AND DEVELOPING RISK MANAGEMENT OPTIONS FOR MARKET ACCESS

RENAISSANCE HOTEL, MELAKA, MALAYSIA
13 – 17 October 2008

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Annex 3. WTO, SPS Agreement and Risk Mitigation

Asia-Pacific Economic Cooperation

Government of Malaysia

moa INCORPORATED
KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

WTO, SPS Agreement and Risk Mitigation

Dr Graeme Evans
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Structure of Presentation

- World Trade Organization (WTO)
- Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)
- Sanitary and phytosanitary measures
- SPS Principles

World Trade Organization

- **Successor to the General Agreement on Tariffs and Trade**
- **Established in 1995**
- **150 members**
- **Rules based**
- **Dispute settlement mechanism**
- **Has provision for applying penalties to countries that do not abide by the rules**

Sanitary and Phytosanitary Measures

SPS measures cover such matters as:

- **Toxins**
- **Microbial contaminants**
- **Pesticide residues**
- **Heavy metals**
- **Pests, weeds and diseases that may be moved in agricultural commodities**
- **Pests and diseases that may be moved with livestock and livestock products**

SPS Agreement

- Allows countries to manage trade to protect human, animal and plant life (Article 2), *but*
- Countries seeking to impose barriers are required to base their SPS measures on international standards, or justify their actions
  - Requires a pest risk analysis

SPS Principles

1. The right to take sanitary and phytosanitary measures
2. Measures must be scientifically based
3. Minimal impact
4. Equivalence
5. Regionalisation
6. Consistency
7. Non-discrimination

SPS Principles

1.Right to take phytosanitary measures

- *Members* (of the WTO) *have the right to take ….phytosanitary measures necessary for the protection of ….plant life, provided that such measures are not inconsistent with this Agreement*

(Paragraph 1, Article 2, SPS Agreement)

SPS Principles

2. Measures must be scientifically based

- *Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to …protect ….plant life or health, is based on* ***scientific principles*** *and is not maintained without sufficient scientific evidence……*

(Article 2, SPS Agreement)

SPS Principles

3.Minimal impact

- *Phytosanitary measures shall be consistent with the risk involved and shall represent the **least trade restrictive measures** which result in the minimum impediment to the international movement of people, commodities and conveyances.*

(ISPM 1)

SPS Principles

4. Equivalence

- The concept of **equivalence** means that Member countries cannot discriminate between different risk management measures that achieve the same level of protection required by an importer.

(See Article 4, SPS Agreement)

SPS 'Principles

5. Regionalisation

- Pest distribution within countries is not uniform
- Some areas may be free from particular pests, others may be areas of low pest prevalence
  - WTO Members are required to recognise these facts when devising SPS measures.

(Article 6, SPS Agreement)

SPS Principles

6. Consistency

- The SPS Agreement requires members to be consistent in the application of risk management measures
  - Countries should not apply a higher level of protection to commodities that compete with domestic industries than that applying to, say, germplasm imports, or to commodities that are not produced domestically.

(Article 5, SPS Agreement)

SPS Principles

7. Non-discrimination

- Prospective importers must not discriminate between countries of the same phytosanitary status
- When targeting an endemic quarantine pest…..*measures shall be applied without discrimination between domestic and imported consignments.*

(See ISPM 1)

Structure of Presentation

- **World Trade Organization (WTO)**
- **SPS Agreement**
- **SPS Principles:**
  provide
  - **guidance in selecting risk mitigation measures**
  - **tests for measures**

World Trade Organization

- Seeks to facilitate global trade
  but accepts
- That global rules and standards are required to manage possible adverse impacts from increased trade, e.g. the cross-border movement of pests and diseases

Sanitary and Phytosanitary Measures

- **Toxins**
- **Microbial contaminants**
- **Pesticide residues**
- **Heavy metals**

CODEX ALIMENTARIUS

- **Plant pests and diseases**
- **Weeds**

IPPC

- **Animal pests**
- **Animal diseases**

OIE

World Trade Organization

- Provides “umbrella” agreement

- General Agreement on Tariffs and Trade
- Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)
- General Agreement on Trade in Services
- SPS Agreement
- ….

Annex 4. The Biosecurity Continuum

Asia-Pacific Economic Cooperation

Government of Malaysia

moa INCORPORATED
KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

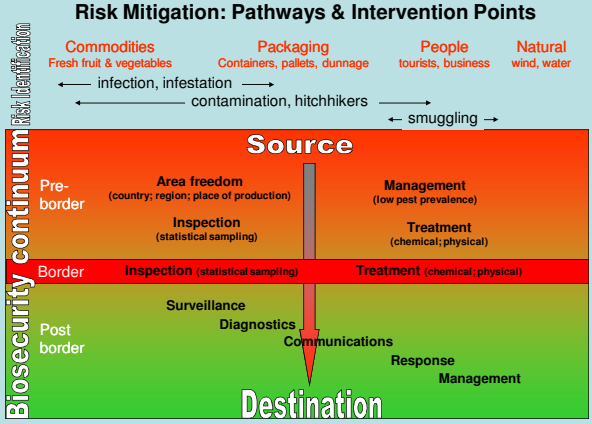
The biosecurity continuum

Dr Ian Naumann and Dr Paul Pheloung
Office of the Chief Plant Protection Officer
Canberra

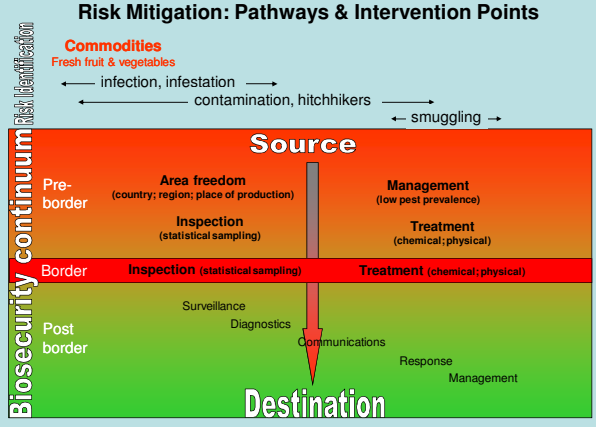
Australian Government
Department of Agriculture, Fisheries and Forestry

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

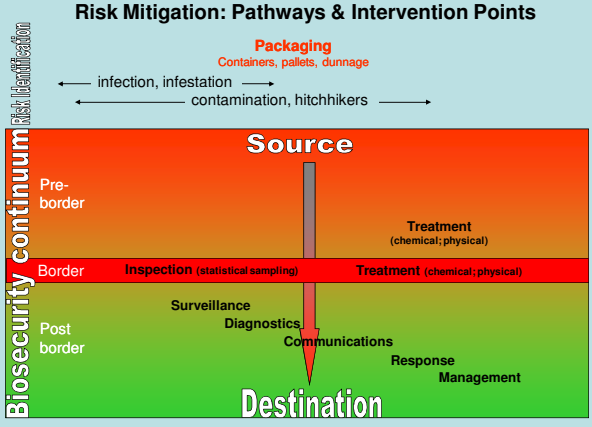
Risk Mitigation: Pathways & Intervention Points

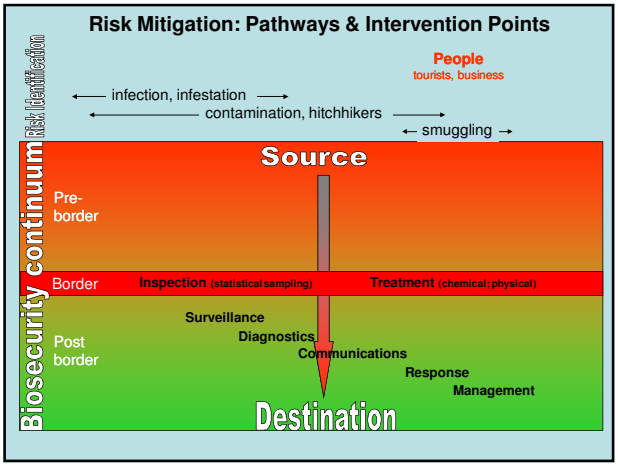


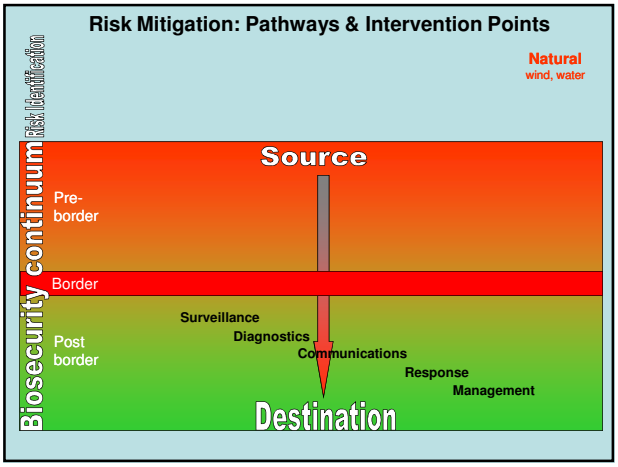
Risk Mitigation: Pathways & Intervention Points



Risk Mitigation: Pathways & Intervention Points




Risk Mitigation: Pathways & Intervention Points
Biosecurity continuum
Risk identification
People
tourists, business
infection, infestation
contamination, hitchhikers
smuggling
Source
Pre-border
Border
Inspection (statistical sampling)
Treatment (chemical; physical)
Surveillance
Diagnostics
Post border
Communications
Response
Management
Destination


Risk Mitigation: Pathways & Intervention Points
Biosecurity continuum
Risk identification
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Communications
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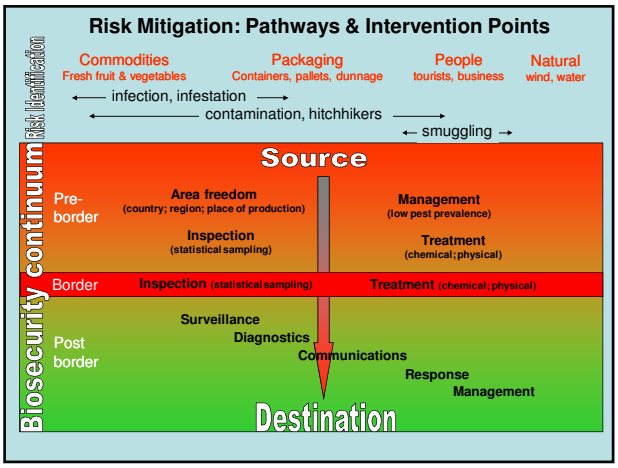
Risk Mitigation: Pathways & Intervention Points
Biosecurity continuum
Risk identification
Commodities
Fresh fruit & vegetables
Packaging
Containers, pallets, dunnage
People
tourists, business
Natural
wind, water
infection, infestation
contamination, hitchhikers
smuggling
Source
Pre-border
Area freedom
(country; region; place of production)
Inspection
(statistical sampling)
Management
(low pest prevalence)
Treatment
(chemical; physical)
Border
Inspection (statistical sampling)
Treatment (chemical; physical)
Surveillance
Diagnostics
Post border
Communications
Response
Management
Destination

Annex 5. International Standards relevant to Risk Management

Asia-Pacific Economic Cooperation

Government of Malaysia

International Standards relevant to Risk Management

Dr Lum Keng Yeang
Chief Scientist
CABI Southeast & East Asia

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- World Trade Organization (WTO)
- International Plant Protection Convention
- Regional and national plant protection organisations
- Standards and risk mitigation – global, regional

The World Trade Organization

- **Successor to the General Agreement on Tariffs and Trade**
- **Established in 1995**
- **>150 members**
- **Rules based**
- **Dispute settlement mechanism**
- **Has provision for applying penalties to countries that do not abide by the rules**

WORLD TRADE ORGANIZATION

WTO, SPS Agreement and IPPC

- WTO "agreements" include …
- SPS Agreement which states …

•**PHYTOSANITARY MEASURE :**
- regulation or procedure that prevents the introduction or spread of a pest

•**PHYTOSANITARY MEASURES**
- should be applied only to the extent necessary to protect human, animal or plant health

•**TO HARMONISE**
- members encouraged to base measures on international standards …

SPS Agreement *recognises* **INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC)** → **INTERNATIONAL STANDARDS FOR PHYTOSANITARY MEASURES (ISPMs)**

International Plant Protection Convention (IPPC)

- Implemented by Commission on Phytosanitary Measures (CPM):
  - Reviews global plant protection needs
  - Adopts international standards (ISPMs) which are prepared by technical committees
  - Establishes dispute resolution procedures
  - Promotes technical assistance
  - Cooperates with Regional Plant Protection Organisations and other international organisations on matters relating to the Convention
- Secretariat based in FAO, Rome

ISPM	Subject	Date
1	Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade	2006
2	Guidelines for pest risk analysis	1995
3	Guidelines for the export, shipment, import and release of biological control agents and other beneficial organisms	2005
4	Requirements for the establishment of Pest Free Areas	1995
5	Glossary of phytosanitary terms	2006
6	Guidelines for surveillance	1997
7	Export certification system	1997
8	Determination of pest status in an area	1998
9	Guidelines for pest eradication programmes	1998
10	Requirements for the establishment of pest free places of production and pest free production sites	1999

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ISPM	Subject	Date
11	Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms	2004
12	Guidelines for phytosanitary certificates	2001
13	Guidelines for the notification of non-compliance and emergency action	2001
14	The use of integrated measures in a systems approach for pest risk management	2002
15	Guidelines for regulating wood packaging material in international trade	2002
16	Regulated non-quarantine pests: concept and application	2002
17	Pest reporting	2002
18	Guidelines for the use of irradiation as a phytosanitary measure	2003
19	Guidelines on lists of regulated pests	2003
20	Guidelines for a phytosanitary import regulatory system	2004

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ISPM	Subject	Date
21	Pest risk analysis for regulated non quarantine pests	2004
22	Requirements for the establishment of areas of low pest prevalence	2005
23	Guidelines for inspection	2005
24	Guidelines for the determination and recognition of equivalence of phytosanitary measures	2005
25	Consignments in transit	2006
26	Establishment of pest free areas for fruit flies (*Tephritidae*)	2006
27	Diagnostic protocols for regulated pests	2006
28	Phytosanitary treatments for regulated pests	2007
29	Recognition of pest free areas and areas of low pest prevalence	2007
31	Methodologies for sampling of consignments	2008

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International Standards (ISPMs)

- Most guidelines relevant to risk mitigation
- Most provide general advice or prescribe widely applicable frameworks
- Some more specific standards, e.g.
  - ISPM 15. Measures for wood packaging material.
  - ISPM 26. Establishing pest free areas for fruit flies.
- Familiarity with standards important for risk analysts and risk managers, but usually will not be sufficient to devise specific operational measures for specific risks
- Accessible via International Phytosanitary Portal (www.ippc.org)
- Standards facilitate harmonisation, but are not obligatory

National Plant Protection Organisations (NPPOs)

Main roles include:

- Issue phytosanitary certificates for exports when required
- Inspect and treat commodities
- Pest surveillance, control, control
- Establish and protect pest free areas
- Perform pest risk analyses
- Contact point with IPPC

National Phytosanitary Legislation

- Robust legislation needed in all countries to protect domestic industries from exotic pests in traded commodities
  - may include provision to deal with incursions
- There is no requirement under the WTO / SPS Agreement for countries to meet specific legislative standards
  - But, robust legislation can assist exports, e.g.
    - powers to maintain pest-free areas
    - powers to mitigate pest threats that are required by importing countries to permit trade (such as powers to ensure that treatments consistently meet required standards)

Regional Plant Protection Organisations (RPPOs)

- "Between" IPPC and NPPOs
- E.g. NAPPO (North America), EPPO (Europe), APPPC (Asia Pacific), PPPO (Pacific)
- Not all IPPC countries belong to an RPPO
- Some IPPC countries belong to more than one RPPO (e.g. Papua New Guinea belongs to both Asia Pacific and Pacific RPPOs)
- RPPOs also establish standards

Asia Pacific Plant Protection Commision (APPPC)

- Established in 1955
- 24 members
- Based at FAO, Bangkok
- Country plant protection profiles
- Accessible via International Phytosanitary Portal (www.ippc.org)
- Standards
  - Heat disinfestation for fruit fly host commodities
  - Training for quarantine officers
  - Pest free areas for fruit flies
  - Non host status of fruit and vegetables for fruit flies
  - Emergency actions and measures
  - PRA on scale insects

Asia Pacific Plant Protection Commision (APPPC)

Proposed standards for:

- Propagative material including plant breeding material and plants for planting
- Specific standard for accreditation of heat treatment facilities
- Specific standard for export of table potatoes (for consumption)
- Specific standard for pest free production site for orchids from glasshouses, farms, fields, etc.
- Specific standard for cut flowers from glasshouses, farms/fields, etc.
- Specific standard on the non-host status Longans in relation to fruit flies
- Specific standard for potato cyst nematode – inspection, diagnostic and pest free areas
- Pest risk analysis for weeds

Asia Pacific Plant Protection Commision (APPPC): Regional Standards(RSPMs)

- Vary from *general advice*
  e.g. "Sampling regimes … inspectors need to be familiar with sampling regimes … this will involve the determination of sample size …"
- To *prompts*
  e.g. " For scale insects it is important to consider:
  - ability to transfer between potential hosts
  - reproductive capacity and mode of reproduction (e.g. sexual parthenogenesis)"

Asia Pacific Plant Protection Commision

RSPM 6. Scale insects associated with commodities for human consumption

Following risk mitigation measures may be applied:

- Source commodity from pest free area
- Source commodity from pest free place of production
- Source commodity from area of low prevalence
- In-field management for scale insects
- Post-harvest management of scale insects
- Pre-export inspection and remedial action
- On arrival inspection and remedial action
- Disinfestation

RSPM 6. Scale insects associated with commodities for human consumption

Following measures may be applied:

- Source commodity from pest free area
  - See ISPM 4
- Source commodity from pest free place of production
  - See ISPM 10
- Source commodity from area of low prevalence
  - See ISPM 22
- In-field management for scale insects
  - Production areas may be registered with the NPPO to produce export grade commodity.
- Post-harvest management of scale insects
- Pre-export inspection and remedial action
- On arrival inspection and remedial action
- Disinfestation

ASEAN

- ASEAN Sectoral working Group on Crops
  - ASEAN Plant Health Cooperation Network
- Provide forum for discussion and endorsement of ASEAN-standards
  - Some standards directly relevant to plant health (e.g. relating to potato diseases)
  - Others "tangential" (e.g. accepted definitions of a commodity)
- Goal of "harmonising" phytosanitary measures among ASEAN members
  - Challenging, e.g. differing (and commonly uncertain) plant health status, differing capacities to manage risks, potentially differing ALOPs
  - Long-standing effort to compile "regional" pest lists

Structure of Presentation

- World Trade Organization (WTO)
- International Plant Protection Convention
- Regional and national plant protection organisations
- Standards and risk mitigation – global, regional

Annex 6. Plant Pest Risk Analysis

Plant Pest Risk Analysis

Australian Government
Department of Agriculture, Fisheries and Forestry

Dr Zamir Hossain
Office of the Chief Plant Protection Officer
Canberra

Presentation Overview

- Purpose of pest risk analysis (PRA)
- Principles of pest risk analysis
- Components of pest risk analysis

Purpose of pest risk analysis (PRA)

More trade is good for economies,
BUT more movement of plant commodities = INCREASES chance of importing a pest

- To estimate the likelihood of successful invasion by plant pests
  - **Identifying risks**
  - **Quantifying risks**
    - Consequences
  - **Possible mitigation of risks?**
- To justify phytosanitary measures on traded plant products

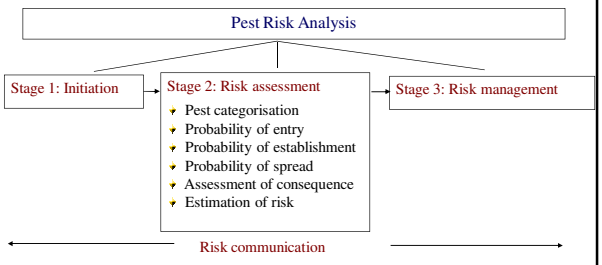
Pest Risk Analysis

Principles of pest risk analysis

- Sound science
- Structured and transparent
- Consistent and repeatable
- Guidelines:
  - *Guidelines for Pest Risk Analysis* (ISPM 2)
  - *Pest Risk Analysis for Quarantine Pests* (ISPM 11)

Components of pest risk analysis

IPPC approach to PRA



Terminology (ISPM 5)

- Pest: "any species, strain or biotype of plant, animal or pathogenic agent, injurious to plants or plant products"
- Endangered area: "an area where ecological factors favour the establishment of a pest whose presence in the area will result in economically important loss
- Quarantine pest: "a pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled"

- LEVEL OF RISK

The SPS Agreement introduces the concept of *Appropriate Level of Protection* (ALOP)

….the level of protection considered appropriate …to protect human, animal or plant health…

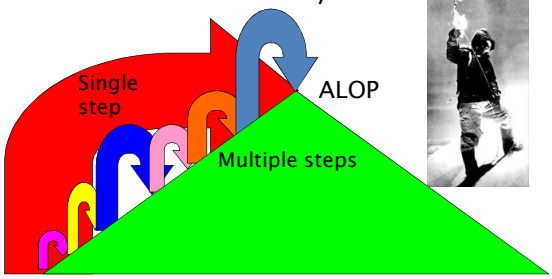
ALOP is the basis in a PRA for determining if the risk is acceptable and, if not, what mitigation measures are necessary to bring the risk to an acceptable level

ALOP is a policy setting that each member country may set as it chooses

– But, **ALOP Must be applied consistently!!**

Achieving ALOP

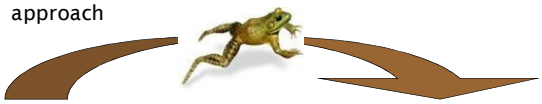
- This can be achieved either by:



Unmitigated risk

Conception shift

required to move from present to required approach



Single step treatments

- based on perceived risk
- often overstates REAL risk (eg. likelihood of infested produce entering market chain)

Multiple/integrated step treatments

- based on risk analysis actual (not assumed) unmitigated risk
- acceptable level of risk not zero
- "compounding" effect of individual mitigation

Components of pest risk analysis

IPPC approach to PRA

Pest Risk Analysis

Stage 1: Initiation

Stage 2: Risk assessment
- Pest categorisation
- Probability of entry
- Probability of establishment
- Probability of spread
- Assessment of consequence
- Estimation of risk

Stage 3: Risk management

Risk communication

Components of PRA: Stage 1. Initiation of a PRA

PRA may be initiated by:

- **Identification of a pathway that presents a potential hazard**
  - e.g. proposal to import a commodity
- **Identification of pest that may present a hazard**
  - *e.g. an outbreak of a pest in an area*
- Review of existing policies and practices
  - *e.g. new information or a treatment impacting on an earlier decision*

PRA's are most often initiated following a request for market access

Components of PRA: Stage 2. Risk assessment

Step 1. Pest categorisation

What is pest categorisation?

- **The process of determining whether a pest meets the criteria for a quarantine pest.**

Criteria for Determining Pest Status

- Identity of the pest
- Presence or absence in the PRA area
- Association with pathway
- Potential for establishment and spread in the PRA area
- Potential for consequences in the PRA area

Components of PRA: Stage 2. Risk assessment

Step 1. Pest categorisation (cont'd)...

- Extract list of potential quarantine pests for more in-depth assessment
- Include table in the PRA report

Components of PRA: Stage 2. Risk assessment

Step 2. Probability of entry

Purpose to determine the likelihood of

- A pest arriving in a country as a result of trade in a given commodity
- Distribution of the pest in a viable state to the endangered area

Factors considered in whether the pest will enter

- Orchard – *source fruit infested*
- Packing house – *pest survives packing house procedures*
- Storage and transport – *pest survives storage and transport*
- On arrival inspection – *pest not detected*
- Release from quarantine

Components of PRA: Stage 2. Risk assessment

Step 3. Probability of establishment

Probability of establishment reflects an expert opinion

- **different to the structured scenario used in deriving probability of entry**

Consider these factors

- Availability of suitable hosts, alternate hosts and vectors in PRA area
- Suitability of environment
- Cultural practices
- Reproductive strategy of pest, method pest survival
- Genetic adaptability
- Minimum population for establishment

Components of PRA: Stage 2. Risk assessment

Step 3. Probability of spread

- **What factors in the source area assist or hinder the spread of the pest?**
- **Do these or additional, potential influential factors exist in the destination area?**
  - Suitability of natural/ managed environment for natural spread by pest
  - Presence of natural barriers (e.g. oceans, mountains, desert, etc)
  - Potential for movement with commodities (e.g. fruits), packing materials (e.g. wood crates) or conveyances (e.g. containers) and machineries.
  - Intended use of the commodity (e.g. human consumption, processing, etc)
  - Potential vectors of the pest (e.g. insects)

Components of PRA: Stage 2. Risk assessment

Step 4. Assessment of Consequence

Direct consequences (direct effects)

- plant & animal health including production effects (e.g. yield losses, increased control costs, post-harvest disinfestations)
- human health
- environment

Indirect consequences (flow on effects)

- eradication, control, surveillance, compensation etc
- domestic trade
- international trade
- environment including social aspects

Components of PRA: Stage 2. Risk assessment

Step 5. Estimation of risk

Estimating the Overall Risk Posed by a Quarantine Pest

For each pest, combine the likelihood of

- entry/establishment/ spread, and
- consequence of entry/establishment/spread -

to arrive at the overall level of risk

Components of PRA: Stage 3. Risk management

Conclusion of risk assessment determined the overall level of risk posed by a quarantine pest

Is the risk within the importing country's ALOP?

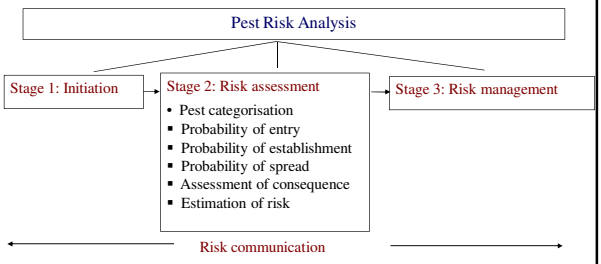
Yes: no risk management required
No: risk management required

Now, there is a wide range of possible risk management options

- what options are available to manage the risk?
- How effective are these options?
- how feasible are these options?
- what impacts do the options have?
- what is the best option?

Components of pest risk analysis

IPPC approach to PRA



Components of PRA: Risk communication

Why communicate?

- Understanding
- Support for process
- Quality technical advice for market access

Components of PRA: Risk communication

Methods of communication

- Engage and listen – meet with stakeholders, etc.
- Publish newsletter
- Website www.daff.gov.au/BiosecurityAustralia
- Encourage media coverage
- E-mail
- Website
- Public meetings
- Industry organisations
- Media
- Face-to-face meetings
- Other

Annex 7. Pest-free Areas, pest-free places of production, areas of low prevalence

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Pest-free areas, pest-free places of production, areas of low prevalence

Dr Ian Naumann
Office of the Chief Plant Protection Officer
Canberra

Australian Government
Department of Agriculture, Fisheries and Forestry

Structure of Presentation

- Pest-free areas
- Pest free places of production
- Areas of low pest prevalence
- Definitions
- Establishment, maintenance, verification
- Checklists for recognising opportunities

ISPM 8 Pest status in an area

- Present
- Absent
- Transient

ISPM 8 Pest status in an area

- Present
- **Absent** ⇨
- Transient

- ❑ No records
- ❑ Eradicated
- ❑ No longer present
- ❑ Record invalid
- ❑ Record unreliable
- ❑ Interceptions only

Pest-free area

- Entire country or part of country
- Can mean "zero" or to an agreed (very, very low) level of detections
- Systems to
  - establish
  - maintain
  - monitor and verify

Pest-free area

- Entire country or part of country
- Can mean "zero" or to an agreed (very, very low) level of detections
- Systems to
  - **establish**
  - maintain
  - monitor and verify

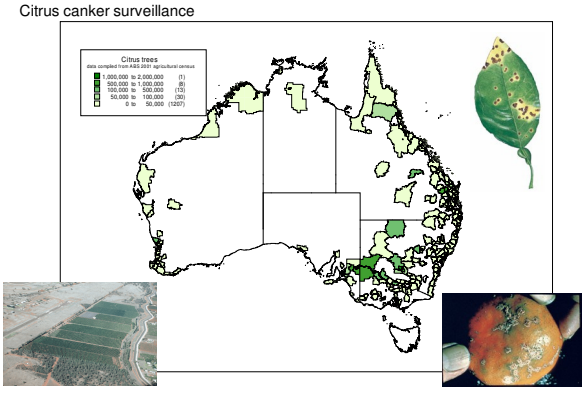
Historical information: published, unpublished, reference collections
Surveillance data: appropriate design, scope & scale; reliable diagnostics

Pest-free area

- Entire country or part of country
- Can mean "zero" or to an agreed (very, very low) level of detections
- Systems to
  - establish
  - **maintain**
  - **monitor and verify**

On-going surveillance
Quarantine measures
Commitment from NPPO

Citrus canker surveillance



Surveillance task may require substantial resources and coordination

Pest-free area

IPPC survey completed in 2006:

- 101 pest species mentioned by responding countries
  - 22 fungi
  - 14 bacteria and phytoplasmas
  - 6 viruses
  - 26 fruit flies
  - 20 other insects
  - 13 nematodes
- Slow "administrative" and "legal" procedures identified as problems for establishing and recognising pest free areas

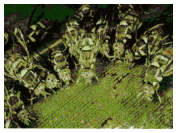
ISPM 26 Pest-free areas for fruit flies

Targeting:

- particular pest species (not all Tephritidae)

but including:

- commercial and non-commercial hosts and
- production and non-production areas



ISPM 26 Pest-free areas for fruit flies

Key features:

Establishment

- Surveillance to determine areas that might be candidates for pest-free status – multiple, successive years/seasons

Maintenance:

- Trapping
  - **Types of trap**
  - **Types of attractants (lures, protein baits)**
  - **Locations of traps (geographical, ecological)**
- Fruit sampling (where, how many)
- Controls on movement of potentially infested material (regulated quarantine, community awareness)
- Corrective action

Pest-free area

IPPC Working Group currently examining:

- Formal IPPC process for recognising and reviewing pest free areas –technical and financial constraints
- Advantages and disadvantages
- Need for additional ISPMs

ISPM 10 Pest-free place of production

- Lesser scale
- High verification costs
- Fragile

- Characteristics of pest
- Characteristics of production site
- Capabilities of producer
- Capabilities of NPPO

ISPM 10 Pest-free place of production

Ideal characteristics of pest

- Natural spread of pest or its vector = slow
- Possibilities for human-assisted spread = few
- Host range = narrow
- Probability of survival from season to season = low
- Rate of reproduction =low
- Detection = easy

ISPM 10 Pest-free place of production

Ideal characteristics of place of production

- Distance from possible sources of infestation = great
- Physical barriers to present infestation = effective
- Definition of boundaries of place of production = easy
- Buffer zone = feasible
- Alternate hosts = absent
- Linkages between different places of production = understood

ISPM 10 Pest-free place of production

Capabilities of producer

- Crop and pest management skills
- Understanding of principles
- Resources to implement practical requirements

Capabilities of NPPO

- Willingness to provide information to producers and communities
- Commitment and resources for monitoring

ISPM 22 Area of low pest prevalence

May occur naturally or be achieved as a result of crop protection measures

Established as

- Buffer zones around pest-free areas
- Part of eradication programs
- Component of systems approach

Requirements – do we have

- Means to keep prevalence low ?
- Means to prevent re-infestation ?
- Means to monitor ?
- Target prevalence, i.e. the level required?
- Clean-up plan ?

ISPM 30 Low pest prevalence for fruit flies

May be established for more than one fruit fly species

- If multiple species, prevalence levels and trapping details must be determined for each species

Prevalence required

- Depends on level of risk associated with the fruit fly species
- Agreed with importing country

Guidance on control measures

- Chemical control (e.g. baiting, cover sprays)
- Physical control (e.g. bagging, fruit stripping)
- Biological control (e.g. natural enemies, sterile insects)
- Cultural control (e.g. destruction of fallen fruit, use of non-host plants, early harvesting, removal of shade trees, removal of untreated non-commercial hosts)

ISPM 30 Low pest prevalence for fruit flies

Parameters

- Fruit flies per trap per day (FTD)
- Efficiency of traps and attractants *and* biological characteristics of pest fruit fly (e.g. number of generations per year, host range, temperature thresholds, dispersion capabilities) will determine appropriate FTD
- Fruit sampling generally not so useful in low prevalence areas

Supervision of operational procedures by NPPO

- Surveillance procedures and capability
- Trapping materials (traps, attractants)
- Diagnostic capability
- Application of control measures
- Documentation
- Implementation of corrective actions

Structure of Presentation

- Pest-free areas
- Pest free places of production
- Areas of low pest prevalence

- Definitions
- Establishment, maintenance, verification
- Checklists for recognising opportunities

Annex 8. Prevention and/or reduction of infestation in the crop to increase market access

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Prevention and/or reduction of infestation in the crop to increase market access

Australian Government
Department of Agriculture, Fisheries and Forestry

Dr Zamir Hossain
Office of the Chief Plant Protection Officer
Canberra

Options for preventing or reducing infestation *in the crop*

Presentation Overview

Measures for preventing or reducing infestation in the crop to increase market access

- in-crop pest management and crop hygiene
- grow plants in a protected environment
- Harvesting of crops at a certain age or specific time of the year
- non-host status of crops
- production in a certification scheme

Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop to increase market access

☑ **in-crop pest management and crop hygiene**

- growing plants in a protected environment
- harvesting of crops at a certain age or specific time of the year
- non-host status of crops
- production in a certification scheme

- **field sanitation practices**
- **pest monitoring programs**
- **chemical control (insecticides, fungicides etc)**
- **removal of alternate hosts**
- **bagging of fruit.**

Options for preventing or reducing infestation in the crop

- **Measures for preventing or reducing infestation in the crop:**

☑ **in-crop pest management and crop hygiene**

- growing plants in a protected environment
- harvesting crops at a certain age or specific time of the year
- non-host status
- production in a certification scheme

☑ **field sanitation practices**

- pest monitoring programs
- chemical control (insecticides, fungicides etc)
- removal of alternate hosts
- bagging of fruit.

Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop

☑ in-crop pest management and crop hygiene

☑ field sanitation practices

Example: Ya pear fruit from China to Australia

Removal of plant parts during winter and early spring which may serve as over wintering sites for pear moth on the pear trees and orchard floor. This sanitation practice also form the integral part of other quarantine pests and diseases, such as black spot (*Alternaria gaisen*). Since very low level of pests have been detected on pre-clearance inspections.

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Melaka, Malaysia, 13-17 October 2008

Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop

☑ in-crop pest management and crop hygiene

☑ field sanitation practices

☑ Pest monitoring program

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Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop

☑ in-crop pest management and crop hygiene

☑ field sanitation practices

☑ Pest monitoring program

☑ chemical control (insecticides, fungicides etc)

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Melaka, Malaysia, 13-17 October 2008

Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop

☑ in-crop pest management and crop hygiene

☑ pest monitoring program

☑ field sanitation practices

☑ chemical control (insecticides, fungicides etc)

☑ fruit bagging

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Melaka, Malaysia, 13-17 October 2008

Options for preventing or reducing infestation in the crop

Measures for preventing or reducing infestation in the crop

☑ **in-crop pest management and crop hygiene**

- ☑ pest monitoring program
- ☑ field sanitation practices
- ☑ chemical control (insecticides, fungicides etc)
- ☑ **fruit bagging**

Example: Nashi pear imports from Japan into Australia

- Fruitlets are treated with pesticides before bagging.
- Uninfested and apparently healthy fruits are bagged.
- Only bagged fruits are permitted for entry to Australia.
- Very low level of pests have been detected on fruits during pre-clearance inspections.

Options for preventing or reducing infestation in the crop

- Measures for preventing or reducing infestation in the crop:

☑ in-crop pest management and crop hygiene
☑ **Growing plants in protective environment**

- harvesting crops at a certain age or specific time of the year
- non-host status
- production in a certification scheme

Options for preventing or reducing infestation in the crop

- Measures for preventing or reducing infestation in the crop:

☑ in-crop pest management and crop hygiene
☑ **Growing plants in protective environment**

- harvesting crops at a certain age or specific time of the year
- non-host status
- production in a certification scheme

Plants can be grown under protected conditions, such as in a glasshouse or other isolated environment, to prevent infestation in the crop.

Options for preventing or reducing infestation in the crop

☑ in-crop pest management and crop hygiene
☑ Growing plants in protective environment
☑ **Harvesting crops at a certain age or specific time of the year**

Options for preventing or reducing infestation in the crop

- in-crop pest management and crop hygiene
- Growing plants in protective environment
- **Harvesting crops at a certain age or specific time of the year**

Example: Cucumbers from Australia to New Zealand

A 'winter window' access period (1 May–30 Sept) has been negotiated between New Zealand and Australia. Crops harvested during this period are at a low risk of infestation by cucumber fruit fly because the cooler temperatures do not support reproducing populations. Under this arrangement, no post-harvest treatments for cucumber fruit fly are required for 'winter window' access of cucumbers to New Zealand

Options for preventing or reducing infestation in the crop

- in-crop pest management and crop hygiene
- Growing plants in protective environment
- Harvesting crops at a certain age or specific time of the year
- **Non-host status**

Options for preventing or reducing infestation in the crop

- in-crop pest management and crop hygiene
- Growing plants in protective environment
- Harvesting crops at a certain age or specific time of the year
- **Non-host status**

Example: Interstate movement of green bananas within Australia

To manage the risk of Mediterranean fruit fly (Medfly), bananas from Western Australia are only permitted access into the eastern states (Victoria, New South Wales and Queensland) provided that the babanas are harvested while still green. Green bananas are not a host of Medfly, therefore, fruit harvested at this stage is at low risk of infestation.

Options for preventing or reducing infestation in the crop

- in-crop pest management and crop hygiene
- Growing plants in protective environment
- Harvesting crops at a certain age or specific time of the year
- Non-host status
- **Production in a certification scheme**

Options for preventing or reducing infestation in the crop

- ☑ in-crop pest management and crop hygiene
- ☑ Growing plants in protective environment
- ☑ Harvesting crops at a certain age or specific time of the year
- ☑ Non-host status
- ☑ **Production in a certification scheme**

Example: Strawberry nursery stock from USA to Australia

Tissue cultured strawberry plants produced in a certification scheme for the exclusion of virus diseases are imported into Australia from approved sources in the USA. The strawberry plants are produced from mother plants that have been indexed and certified free from tobacco ringspot virus, tobacco streak (necrotic spot) virus and tomato ringspot virus.

Thank you

Annex 9. Treatment of consignments

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Treatment of consignments

Dr Ian Naumann
Office of the Chief Plant Protection Officer
Canberra

Australian Government
Department of Agriculture, Fisheries and Forestry

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- Principles
- Chemical
- Physical
- Cold
- Heat
- Irradiation
- Commodity options

Principles guiding choice of risk mitigation options

- Minimal impact
  - Mitigation measures must be consistent with risk analysis
  - Minimum impediment to trade (effective, practical, commercially viable)
- Equivalence and regionalisation
  - Different measures can be equally effective
  - Area freedom, etc
  - Different parts of importing country may have different risk profiles
- Consistency
  - Across commodities
- Non-discrimination – similar conditions for
  - Imported and domestic product
  - Different countries

Fumigants

- Methyl bromide (MBr), sulfuryl fluoride, phosphine, …
- Gases
- Used in quarantine principally against insects, mites, nematodes, molluscs, some fungi, weeds, rodents
- Montreal Protocol and phasing out of use of methyl bromide because of ozone depletion concerns
- Quarantine and pre-shipment purposes currently exempt

Fumigants

- Mode of action
  - Effect of sub-lethal doses
  - Fast or slow
- Dosages
  - Low temperatures- higher dosages, longer exposure time
- Penetration into commodity and packaging
  - Delivery methods
- Adverse effects
  - Fumigant + fumigated material may form novel chemical residues (note MRLs) or toxins
  - Fumigant may bind to commodity or packaging (sorption) & reduce amount of fumigant available
  - Fumigant may harm quality of commodity

Fumigants

- Mode of action
  - Fast or slow
  - Effect of sub-lethal dos[illegible]s
- Dosages
  - Low tempera[illegible]dosag exposure time
- Penetration into commodit[illegible]nd
  - Delivery method
- Adverse effects
  - Fumigant + fumigated materia[illegible]y form novel chemical residues (note MRL[illegible]oxins
  - Fumigant may bind to co[illegible]ity or packaging (sorption) t& reduce a[illegible]nt of fumigant available
  - Fumigant may harm quality of commodity

Highly technical area

Training of operators and certification of treatment facilities is critical

Physical treatments

- Cold
- Heat
- Irradiation
- Controlled atmospheres
- Oils, surfactants, soaps
- Cleaning

Physical treatments:
What does the risk analyst have to think about?

- Cold
- Heat
- Irradiation
- Controlled atmospheres
- Oils, surfactants, soaps
- Cleaning

Effect on target

Effect on commodity, packaging etc

Cost-effective delivery

Physical treatments:
What does the risk analyst have to think about?

- Cold
- Heat
- Irradiation
- Controlled atmospheres
- Oils, surfactants, soaps
- Cleaning

Effect on target

entomology, phytopathology, microbiology

Effect on commodity, packaging etc

chemistry, materials and food technology

Cost-effective delivery

commerce regulation

Physical treatments:
What does the risk analyst have to think about?

- Cold
- Heat
- Irradiation
- Controlled atmospheres
- Oils, surfactants, soaps
- Cleaning

Effect on target

entomology, phytopathology, microbiology

Effect on commodity, packaging etc

chemistry, materials and food technology

Cost-effective delivery

commerce regulation

Prescription of monitoring systems

Cold treatments

- Commonly 0.5 – 3.0°C
- Longer exposure periods, e.g. 7 – 40 days
- Temperate fruit and vegetables
  - Tropical fruits often adversely affected (e.g. must be kept above 5.0°but then fruit flies not killed)

Heat treatments

- Commonly 30 – 50°C
  - 10 minutes – 24 hours
  - Commonly less than 1 hour
- Vegetables, tropical and subtropical fruits, seeds for planting
- Effective against wide variety of insects and fungi
- Various regimes
  - HAT high temperature, forced air
  - VHT vapour heat
  - HWT hot water dip
  - HWB hot water brush (short time, includes mechanical effect)

Irradiation

- ISPM 18
- Effect can be to
  - Kill
  - prevent successful development (e.g. emergence from pupa)
  - Inactivate
  - Induce sterility
- Can be delivered by
  - exposure to radioactive isotypes (cobalt-60, caesium-137)
  - machines generating electrons (up to MeV)
  - X-rays (up to 5 MeV)
- Accepted by some countries (e.g. New Zealand and USA for some commodities) but not by others (e.g. Japan, European Union)

Irradiation

Effects can be complex, e.g. "sterility" may be:

- Complete
- Restricted to one sex
- Failed egg laying
- Altered behaviour
- Not expressed until F1 generation

- Effects may be statistical

Irradiation

In prescribing irradiation treatment risk analyst should bear in mind:

- Minimum dose rates (influenced by densities, stacking, shape of packaging etc)
- Exposure times
- Effects of different temperatures, humidity, ventilation, controlled atmospheres

Pests commonly not killed

Irradiation

In prescribing irradiation
analyst should bear in

- Minim tes
- Exposure times
- Effects of different tem
  ventilation, controlled atmospheres

Pests common ot killed

Highly technical area

Training of operators and certification of treatment facilities is critical

Irradiation

In prescribing irradiation
analyst should bear in
- Minim tes
- Exposure times
- Effects of different tem
ventilation, controlled atmospheres

Highly technical area

Training of operators and certification of treatment facilities is critical

Pests commonly not killed

Monitoring and auditing = essential

Commodity options

Bulbs, corms, tubers, rhizomes (for planting)	Soil sterilisation (steam or chemical), hot water, insecticide / nematicide dip, or combination of these treatments
Cut flowers and branches (including foliage)	Pyrethroids+CO_2, phosphine, phosphine+CO_2, hot water, controlled atmosphere + combination treatment, irradiation
Fresh fruit and vegetables	Cold treatment, quick freeze, High temperature forced air, combination of treatments, Vapor heat, hot water, Irradiation, phosphine, HCN

Commodity options (continued)

Grain and cereals for human consumption	Phosphine, phosphine+CO_2, controlled atmosphere (CO_2 + N_2), Heat, irradiation
Dried foodstuff (herbs, nuts, dried fruit, coffee, cocoa)	Phosphine, irradiation, heat, Phosphine + CO_2 , sulfuryl fluoride fumigation, controlled atmosphere, CO_2 under high pressure
Nursery stock	Phosphine, soil sterilisation (steam, chemical, e.g. methyl isothiocyanate), hot water, insecticide / nematicide dip, combination of treatments

Commodity options (continued)

Seeds (for planting)	Phosphine, hot water, Combination treatment, Insecticide + fungicide dip or dusting
Wood packaging, other packaging materials including cardboard, pallets and dunnage	Heat treatment, irradiation, sulfuryl fluoride fumigation, phosphine, methyl iodide, methyl isothiocynate + sulfuryl fluoride
Wood (including sawn timber, chips)	Heat, irradiation, sulfuryl fluoride, phosphine, methyl iodide, methyl isothiocynate + sulfuryl fluoride, ethylene oxide

Commodity options (continued)

Whole logs	Heat, irradiation, sulfuryl fluoride, phosphine
Hay, straw, dried animal fodder (other than grains listed above)	Heat, irradiation, sulfuryl fluoride, phosphine, compression + phosphine
Cotton and other fibre crops and products	Heat, irradiation, sulfuryl fluoride, phosphine

Commodity options (continued)

Buildings	Heat, sulfuryl fluoride, phosphine, CO_2, insecticide spray/fog, rodenticide
Equipment (including used agricultural machinery and vehicles), shipping containers	Heat,, sulfuryl fluoride, phosphine, insecticide spray/ fog. Controlled atmosphere
Personal effects, furniture, handicraft, artefacts, animal hides, fur, skins	Sulfuryl fluoride, phosphine, insecticide spray/ fog. Controlled atmosphere, ethylene oxide

Structure of Presentation

- Principles
- Chemical
- Physical
- Cold
- Heat
- Irradiation
- Commodity options

Annex 10. Border inspection and sampling procedure

Asia-Pacific Economic Cooperation

Government of Malaysia

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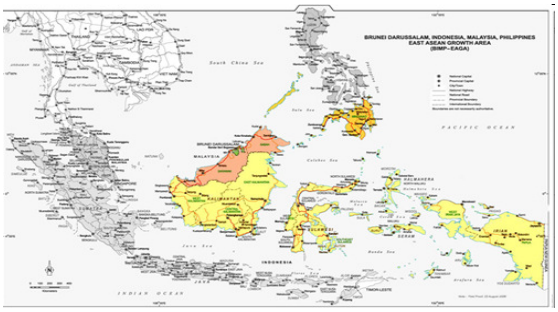
Border inspection and sampling procedure

Dr Lum Keng Yeang
Chief Scientist
CABI Southeast & East Asia

BIMP-EAGA CIQS Harmonization Project



Inspection

- ISPM No. 23 - Guidelines for Inspection
- Inspection is visual examination to
  - confirm compliance with *specific* phytosanitary requirements
  - verify absence *generally* from potential quarantine pests
- The most common measure for mitigating risk
  - for both import and export
- Inspection does not reduce risk

Inspection

- Types of inspection:
  - vessels and containers: hitchhikers (e.g. ants)
  - packaging: timber pests (e.g. borers, termites)
  - personal effects of travellers
  - units in a consignment (fruit, vegetables, grain)
- The targets of inspection may be specific quarantine pests or any pests of unknown quarantine status
  - to justify further quarantine action (e.g. treatment or re-export) the quarantine status of pests detected by inspection should be verified

Sampling

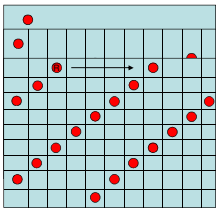
- ISPM No. 31- Methodologies for Sampling of Consignments
- Inspection generally cannot be 100%
  - sampling can be applied across consignments or within consignments
  - samples should be random and representative if statistics are to be applied
  - sampling can be deliberately targeted to higher risk pathways

Objectives of sampling

- detect
  - regulated pests
  - organisms for which a risk has not been determined
- provide assurance
  - that the number of regulated pests or infected units in a consignment are less that a specified level
  - of the general phytosanitary condition of a consignment
- optimise probability of detecting specific pests
- maximise the use of available resources
- gather information such as for monitoring a pathway
- verify compliance with phytosanitary requirements
- determine the proportion of the consignment infested

Sampling methods

- Statistical
  - simple random
  - stratified
  - systematic
  - sequential, cluster
- non Statistical
  - convenience, haphazard
  - selective or targeted



Statistical Calculations

- Where sampling is representative of the consignment, statistical analysis can be applied.
- The parameters are:
  - level of detection
  - confidence level
  - efficacy of detection
  - sample size
  - tolerance level
- A sample unit must be defined
  - eg a fruit, carton, weighed amount

Statistical Parameters

- level of detection
  - proportion of infestation the sample method will detect
  - will be derived
    - from a PRA *and/or*
    - agreement between trading partners *and/or*
    - based on operational practicalities

Statistical Parameters

- confidence level
  - probability that a consignment with infestation exceeding the *level of detection* will be detected
  - determined based on intended use of commodity and operational practicalities
  - commonly 95%

Statistical Parameters

- efficacy of detection
  - probability that an infested or infected unit will be detected
  - depends on factors such as the skill of the inspector and the visibility of the organism

Statistical Parameters

- sample size
  - number of units to be selected for inspection

Statistical Parameters

- tolerance level
  - percentage of infestation in the entire consignment or lot that is the threshold for phytosanitary action
  - usually 0

Summary

- Inspection is
  - to confirm or verify absence of pests
  - applied in various ways to any type of trade or movement
- A sampling procedure usually necessary
- Statistical analysis of sampling can provide quantitative measure of confidence

Thank you

Annex 11. Risk Mitigation Options: Post Entry Quarantine

Asia-Pacific Economic Cooperation

Government of Malaysia

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Risk Mitigation Options: Post Entry Quarantine

Dr Graeme Evans
Consultant

Post-entry quarantine

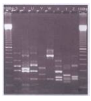
- Usually only for small consignments, e.g.
  - Germplasm (including cultures, seeds, nursery stock)
  - Biological control agents
  - Research materials
- Post-entry quarantine facilities
  - Regulated
  - Government, research institutions, private

Post-entry quarantine

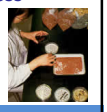
Risk analysis to determine risk category, e.g.

- High risk
  - High potential for introduction of threatening pests, diseases, weeds
  - High degree of uncertainty
  - Work cannot be done pre-border
- Medium and low risk
  - Lower potential for introduction of pests and diseases
  - More certainty concerning pest and disease status of material
  - Sourced from elite material grown under pathogen-tested schemes or under pest-free conditions

High risk material



- Seeds, grafting and budding material, tissue cultures
- Screening for fungal, bacterial, viral diseases
  - Indexing in woody or herbaceous plants
  - Diagnostics (e.g. molecular, light and electron microscopy, serology)
  - Routines to eliminate disease, e.g. shoot tip culture, nematicide treatments
  - May require several years for symptoms to be expressed
  - If these procedures cannot be performed reliably, deny entry
- Stringent conditions to eliminate risk of escape and cross-contamination within facility
  - Physical structure of facility and its components
  - Protocols, e.g. concerning waste disposal
  - Rigorous auditing program



Simplified example of post-entry quarantine protocol (EPPO Standard for potato)

- Establish candidate material *in vitro*.
- Grow in insect-proof glasshouse, screen house or growth room
- Test each unit for specified pathogens (bioassay, Elisa, PCR etc)
- Grow material in glasshouse through complete vegetative cycle, inspecting for diseases
- Grow and maintain under conditions that minimise risk of cross contamination or release of pathogen
- Destroy any infected material according to standard protocols
- Release with germplasm health certification

Lower risk material

- Shorter period of growth, e.g. 3 – 6 months
- Routine treatments and protocols
- High standard of nursery care
- Grow under conditions to maximise probability that diseases would be expressed
- Facilities vary from insect-proof glasshouses and cages, to small-scale plantings in closely managed open fields
- May prescribe buffer zones between material and agricultural production areas

Annex 12. Risk Mitigation Options: Systems Approach

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Systems approach

Dr Ian Naumann
Office of the Chief Plant Protection Officer
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Australian Government
Department of Agriculture, Fisheries and Forestry

APEC Workshop on Understanding and Developing Risk
Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- Describe systems approach
- Advantages and precautions
- How to do it

Systems approach to managing phytosanitary risk

- Combines two or more phytosanitary measures to manage pest, disease or weed risks
- Requires good understanding of pests, & production, processing and transportation system
- Provides security if there is uncertainty about some steps in the pathway
- Can be fragile because cost-benefit relationships sometimes are complex
- Particularly attractive approach if post-harvest measures are unavailable or not preferred
- Can be combined with quality assurance programs

"One-solution" approach to a healthy dog

Pre-dog period
• 1. Select dog based on colour and recommendations by my favourite celebrity.
Dog period
• 2. Take dog to vet once every three months to treat any illness.

Systems approach to a healthy dog

Pre-dog period

- 1. Select sound breed suitable for my lifestyle
- 2. Select reliable breeder

Dog period

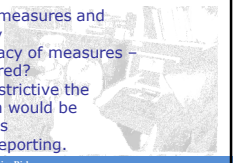
- 3. Feed healthy food (not too much pizza)
- 4. Morning walk every day
- 5. Meet other dog owners – perhaps they will notice if my dog is becoming overweight
- 6. Check coat regularly for shiny appearance and absence of fleas
- 7. Go to vet for vaccinations and treatment only when required.

Systems approach : why do it?

- Better and more focused risk management
- Reduced reliance on single measures, such as disinfestation
- Increased reliance on hygiene and pest management practices, is often a more sustainable use of resources
- Use of physical and control measures enables reduced use of chemicals that may create health and environmental concerns (e.g. reduced residues or use of methyl bromide)
- Reduced costs
- Some pests (e.g. some plant pathogens) are very difficult to eliminate using only single treatments

How is a systems approach developed?

- ISPM No. 14
- Research pest and disease situation, farmer and industry practices
- PRA to identify pest risks and describe pathway
- Identifying where and when management measures occur or can be applied – the "weak" points for the pest
- Decide which measures are essential
- Identify independent and dependent measures and options to deal with uncertainty
- Assess individual and integrated efficacy of measures – how is it all going to be monitored?
- Investigate how feasible and trade restrictive the proposed measures and system would be
- Finalise negotiations and consultations
- Implement with documentation and reporting.



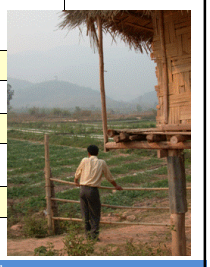
Systems approach to managing phytosanitary risk

Pre-planting

Pre-harvest

Post-harvest treatment and handling

Transportation and distribution

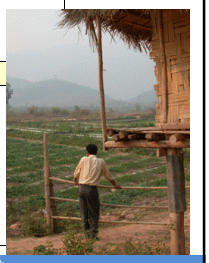


Systems approach to managing phytosanitary risk

Pre-planting

- healthy planting material
- resistant or less susceptible cultivars
- pest–free areas, places or sites of production
- producer registration and training

Pre-harvest



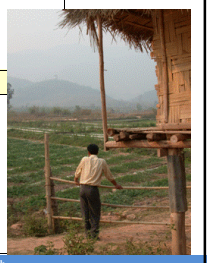
Systems approach to managing phytosanitary risk

Pre-planting

- healthy planting material
- resistant or less susceptible cultivars
- pest–free areas, places or sites of production
- producer registration and training

Pre-harvest

- field certification/management (e.g. inspection, pre-harvest treatments, pesticides and biocontrol)
- protected conditions (e.g. glasshouse and fruit bagging)
- pest mating disruption
- cultural controls (e.g. sanitation or weed control)
- low pest prevalence (continuous or at specific times)
- testing



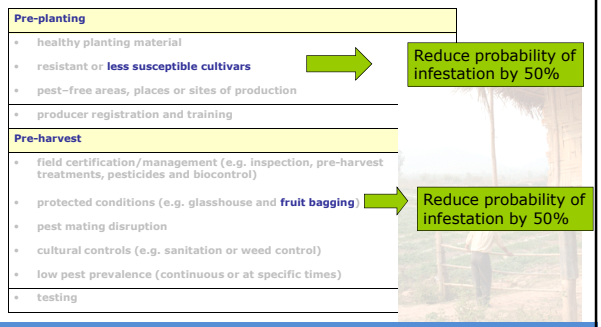
Post-harvest treatment and handling

- treatment to kill, sterilise or remove pests (e.g. fumigation, irradiation, cold storage, controlled atmosphere, washing, brushing, waxing, dipping and heat)
- inspection and grading (including selection for certain maturity stages)
- sanitation (including removal of parts of the host plant)
- certification of packing facilities
- sampling
- testing
- method of packing
- screening of storage areas

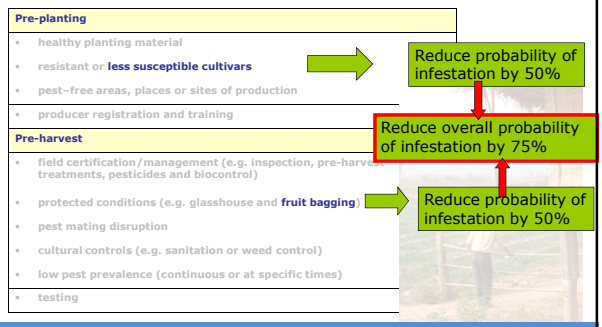
Transportation and distribution

- treatment or processing during transport
- treatment or processing on arrival
- restrictions on end use, distribution and ports of entry
- restrictions on the period of import due to differences in the seasons between origin and destination
- method of packing
- post-entry quarantine
- inspection and/or testing
- speed and type of transport
- sanitation (freedom from contamination of conveyances)

Systems approach to managing phytosanitary risk: objective measures



Systems approach to managing phytosanitary risk: objective measures



Systems approach to managing phytosanitary risk: objective measures Bayesian networks

Systems approach to managing phytosanitary risk: objective measures

Source of fruit:
high prevalence areas **or**
low prevalence areas

Treatment:
Yes or no
Treatment not 100% effective

Systems approach to managing phytosanitary risk: objective measures

Source of fruit:
high prevalence areas 90%
low prevalence areas 10%

Treat:
60% of containers from high prevalence areas
50% of containers from low prevalence areas

Systems approach to managing phytosanitary risk: objective measures

		Fruit fly present	
Zone	***Treatment***	***Yes***	***No***
High prevalence	Yes	4	96
High prevalence	No	20	80
Low prevalence	Yes	1	99
Low prevalence	No	5	95

Systems approach to managing phytosanitary risk: objective measures

Treatment	
Yes	59
No	41

Fruit fly present	
Yes	9.66
No	90.34

Systems approach to managing phytosanitary risk: objective measures

Zone	
High prevalence	90
Low prevalence	10

Treatment	
Yes	59
No	41

Fruit fly present	
Yes	9.66
No	90.34

Systems approach to managing phytosanitary risk: objective measures

Source of fruit:
high prevalence areas 90%
low prevalence areas 10%

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area

10 containers from low prevalence area

Systems approach to managing phytosanitary risk: objective measures

Treat:
60% of containers from high prevalence areas
50% of containers from low prevalence areas

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area
60% treated = 54 containers

40% not treated = 36 containers

10 containers from low prevalence area
50% treated = 5 containers

50% not treated = 5 containers

Systems approach to managing phytosanitary risk: objective measures

		Fruit fly present	
Zone	***Treatment***	***Yes***	***No***
High prevalence	Yes	4	96
Low prevalence	No	20	80
High prevalence	Yes	1	99
Low prevalence	No	5	95

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area
60% treated = 54 containers
4% of these remain infested = 2.16 containers

40% not treated = 36 containers

10 containers from low prevalence area
50% treated = 5 containers

50% not treated = 5 containers

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area
60% treated = 54 containers
4% of these remain infested = 2.16 containers

40% not treated = 36 containers

10 containers from low prevalence area
50% treated = 5 containers

50% not treated = 5 containers

90 x 0.6 x 0.04 = 2.16

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area
60% treated = 54 containers
4% of these remain infested = 2.16 containers

40% not treated = 36 containers
20% of these remain infested = 7.20 containers

10 containers from low prevalence area
50% treated = 5 containers
1% of these remain infested = 0.05 containers

50% not treated = 5 containers
5% of these remain infested = 0.25 containers

Systems approach to managing phytosanitary risk: objective measures

If there were 100 containers:

90 containers from high prevalence area
60% treated = 54 containers
4% of these remain infested = 2.16 containers

40% not treated = 36 containers
20% of these remain infested = 7.20 containers

10 containers from low prevalence area
50% treated = 5 containers
1% of these remain infested = 0.05 containers

50% not treated = 5 containers
5% of these remain infested = 0.25 containers

Total number of infested containers **9.66 containers**

Systems approach to managing phytosanitary risk: objective measures

Source of fruit:
high prevalence areas 80%
low prevalence areas 20%

Treat:
80% of containers from high prevalence areas
50% of containers from low prevalence areas

Systems approach to managing phytosanitary risk: objective measures

Zone	
High prevalence	80
Low prevalence	20

Treatment	
Yes	74
No	26

Fruit fly present	
Yes	6.36
No	93.64

Systems approach to managing phytosanitary risk: objective measures

Changing source of fruit:
Percentage from high prevalence areas **90% ⇨ 80%**

Changing treatment protocol:
Treating 60% of containers from high prevalence areas
⇩
Treating 80% of containers from high prevalence areas

Systems approach to managing phytosanitary risk: objective measures

Changing source of fruit:

Percentage from high prevalence areas 90% ⇨ 80%

Decrease likely percentage of infested containers
9.66% ⇨ 6.36%

Changing treatment protocol:

Treating 60% of containers from high prevalence areas

⇩

Treating 80% of containers from high prevalence areas

Systems approach to managing phytosanitary risk: objective measures

Changing source of fruit:

Percentage from high prevalence areas 90% ⇨ 80%

Decrease likely percentage of infested containers
9.66% ⇨ 6.36%

Changing treatment protocol:

Treating 60% of containers from high prevalence areas

⇩

Treating 80% of containers from high prevalence areas

Increase number of containers treated
59 ⇨ 74

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- Describe systems approach
- Advantages and precautions
- How to do it

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Melaka, Malaysia, 13-17 October 2008

Annex 13. Risk Mitigation Options: Post Border Preparedness, Planning and Surveillance

Asia-Pacific
Economic Cooperation

Government of Malaysia

Risk Mitigation Options: Post border preparedness, Planning and Surveillance

Australian Government

Department of Agriculture, Fisheries and Forestry

Dr Zamir Hossain

Office of the Chief Plant Protection Officer
Canberra

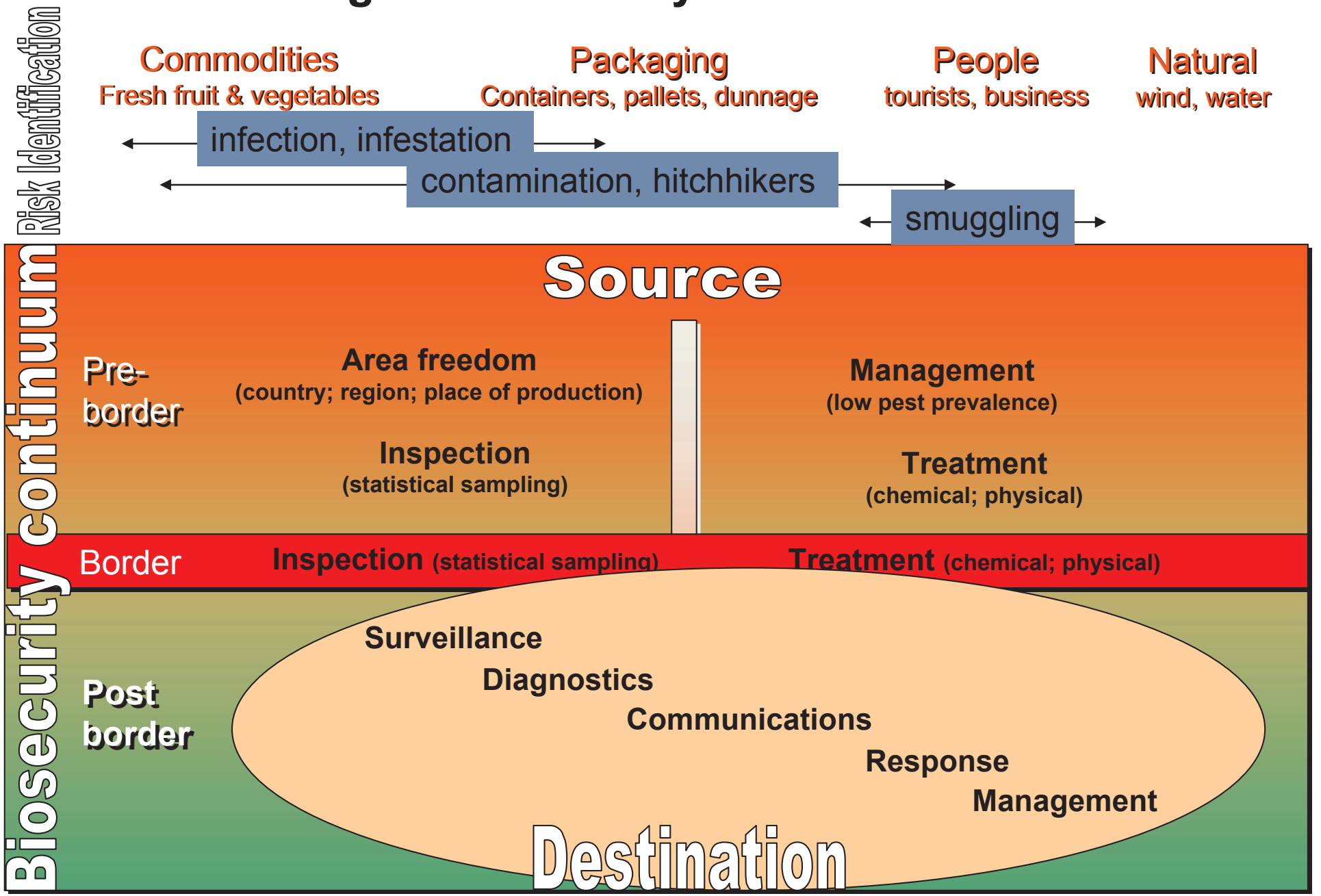
APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Melaka, Malaysia, 13-17 October 2008

Overview

- **Surveillance and detection**
- Diagnostics …..
- Communication
- Contingency plans
- Capacity to response….

Risk Mitigation: Pathways & Intervention Points



Preparedness

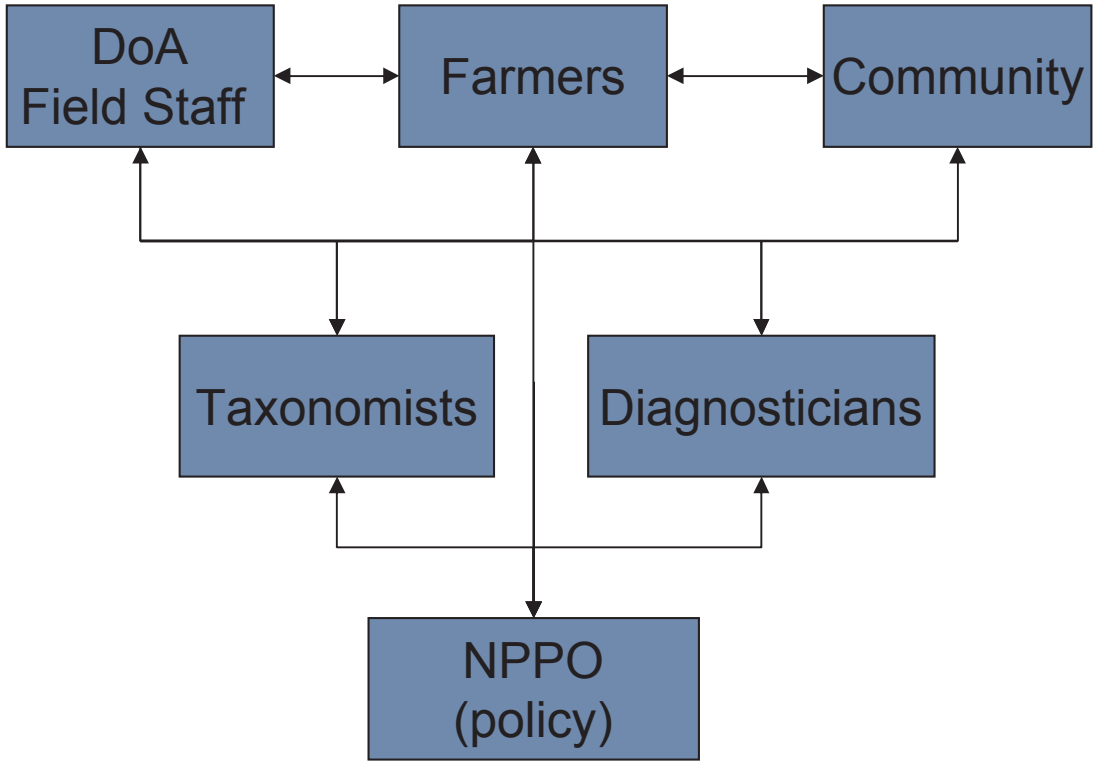
- Pre-border and border systems cannot completely eliminate the risk of pest entry
- a complete biosecurity system should include post border mitigation measures:
  - surveillance
  - diagnosis
  - communications
  - contingency plans for major pest threats
  - capacity to respond to pest incursions

Communication

Detection

Diagnosis

Response



what is surveillance?

" The ongoing systematic collection and analysis of data and the provision of information which leads to action being taken to prevent and control a (pest or) disease"...

Source: www.medterms.com

Surveillance

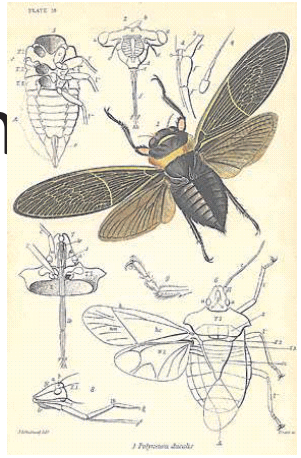
According to the international Standard
ISPM 6: Guidelines for Surveillance in the Asia Pacific

Purposes -

- supply of information for PRA
- establishment of pest free areas
- preparation of pest lists
- pest detection

Pest detection

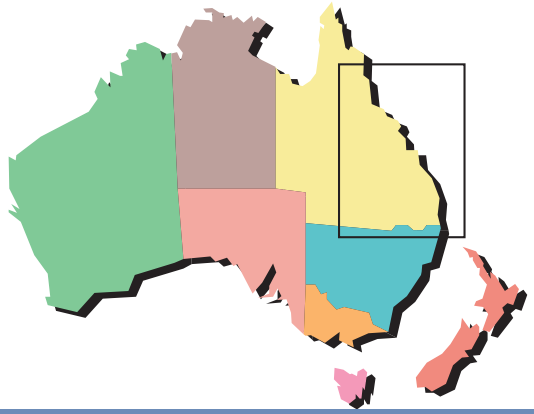
- provide early warning of the entry of a quarantine pest to maximise the chance of
  - **eradicating** the pest before it becomes well established *or*
  - **containing** the pest to a small area, if eradication is not possible
- delimit the extent of a pest that has been detected
  - including trace forward and trace back

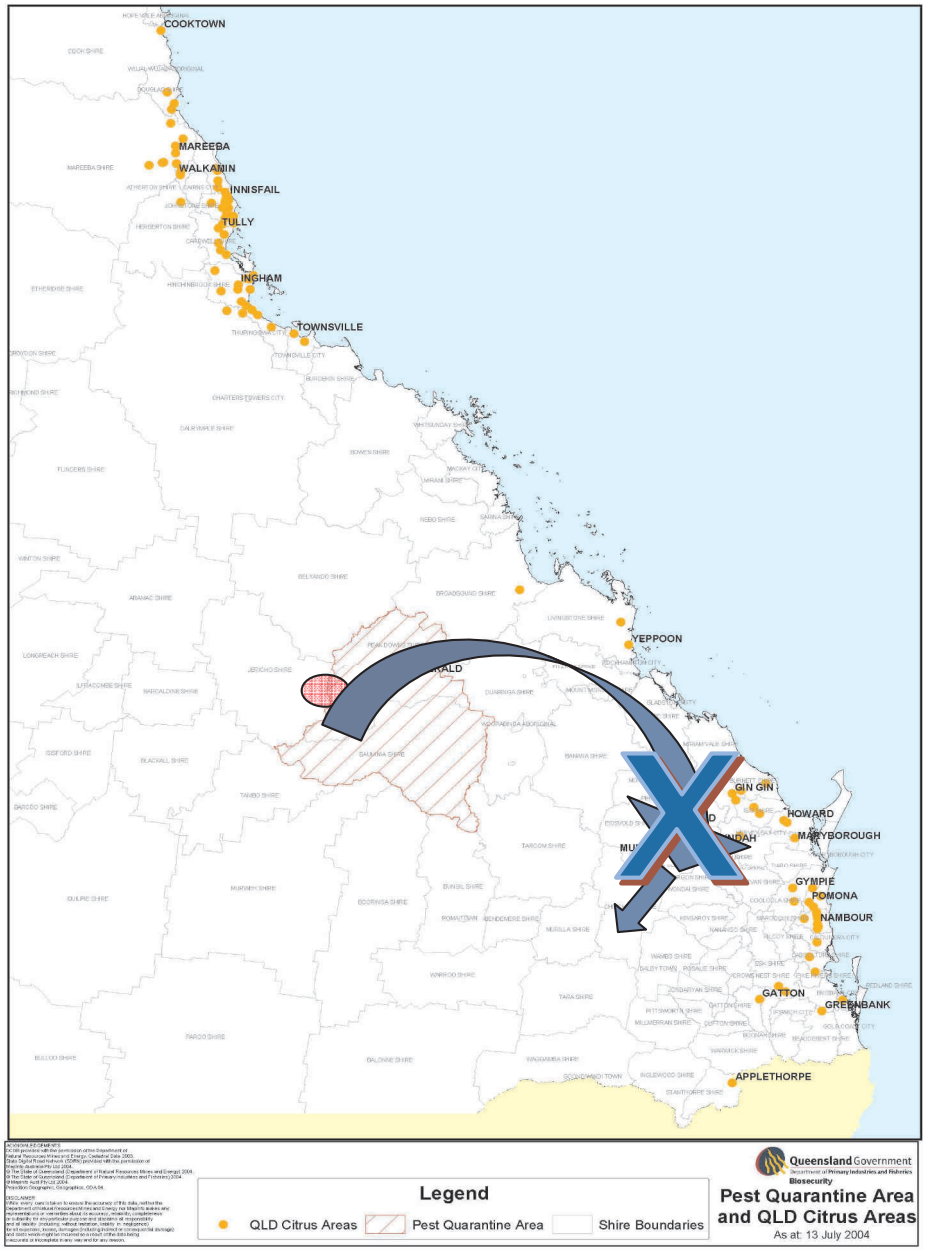


Delimiting surveillance in an incursion

Trace forward analysis from a citrus canker affected area in Emerald, Qld -

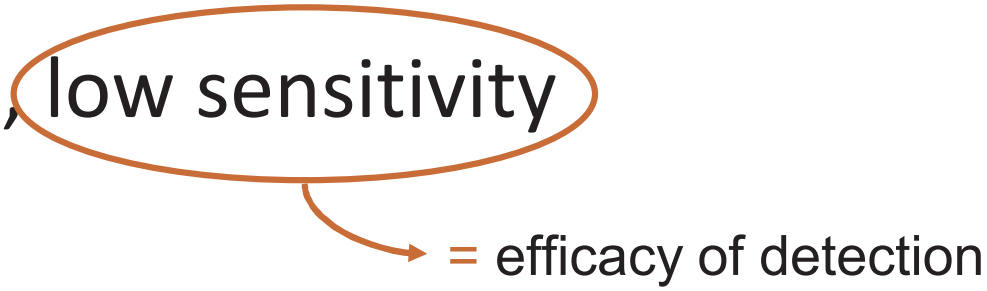
- to another production area via a nursery;
- surveillance in the second area showed that citrus canker had not been spread to that area.





General surveillance

- information gathered from many sources
  - sources can be government agencies, research institutions, literature, community
- information networks
  - communications/awareness
  - reporting systems
    - low cost, low sensitivity



Specific surveys

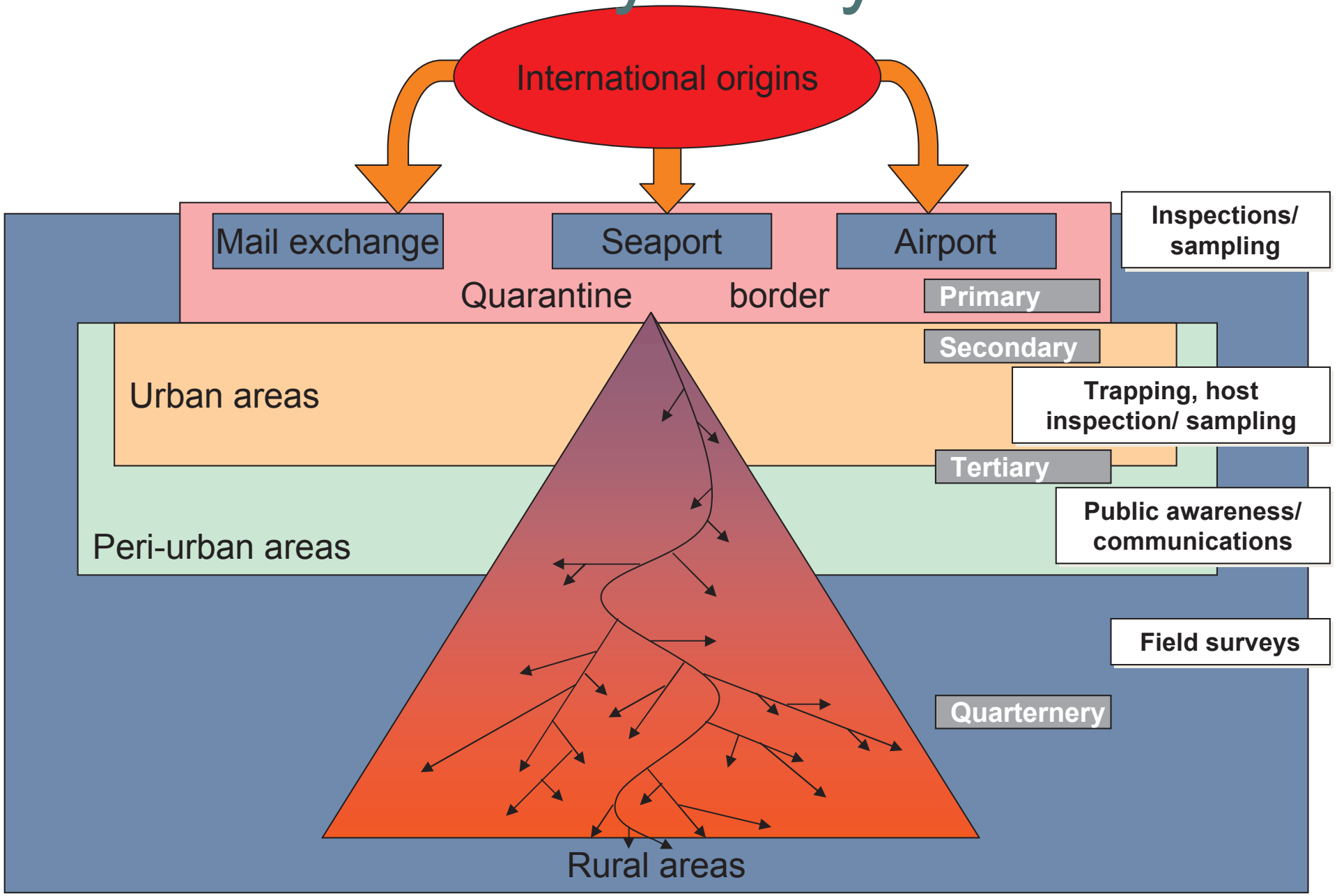
- information obtained on specific sites over a defined period of time
  - targeting one or more specific pests *and/or*
  - a host plant *and/or*
  - high risk sites (identified by pathway analysis)
- methods:
  - visual inspection, trapping, sampling for testing

- high cost, high sensitivity

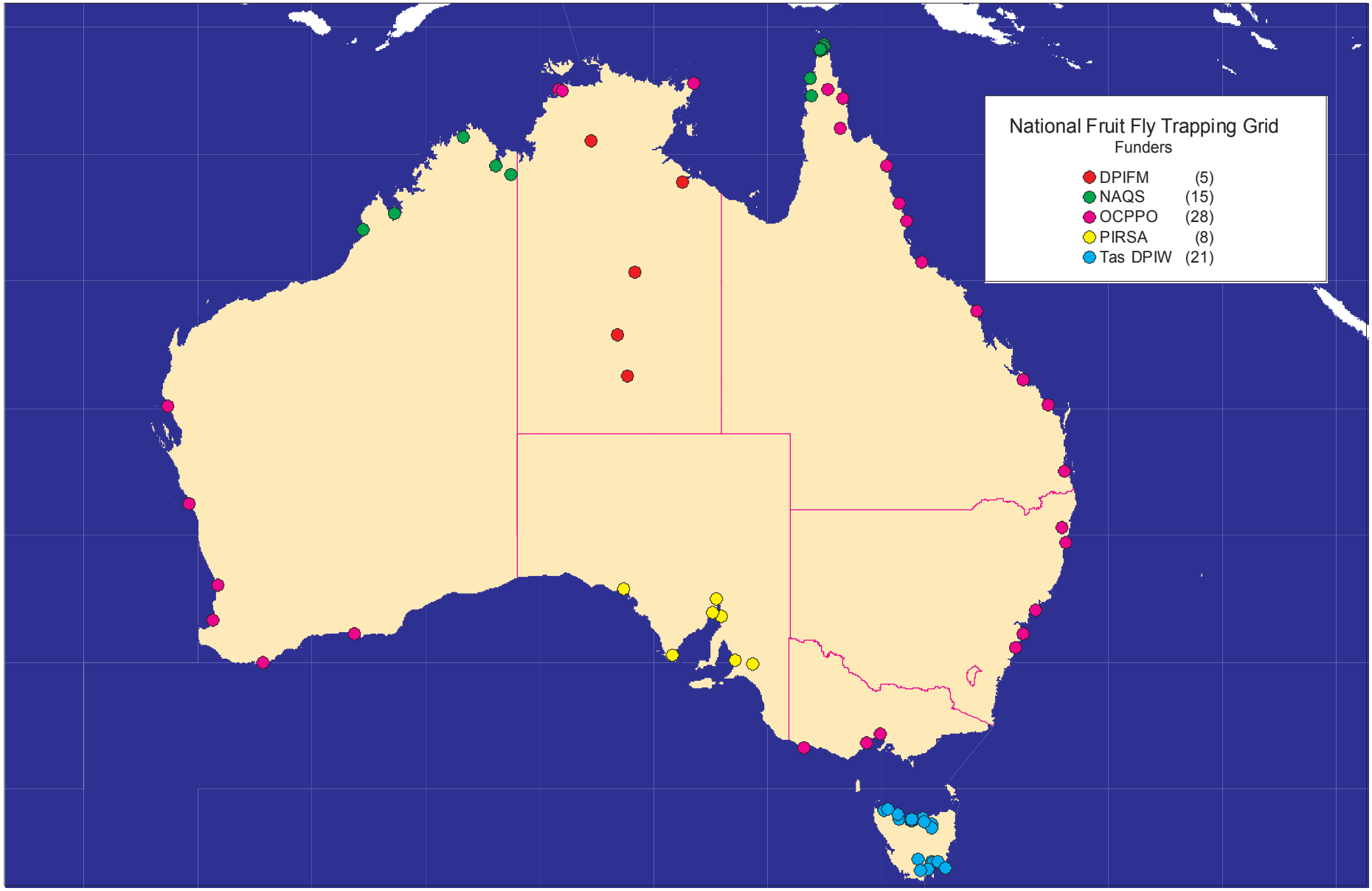
Sampling

- Principles of statistical sampling can be applied to surveillance activities
- This can provide a measured degree of confidence that pests will be detected, if present
- Pathway analysis can be used to focus surveillance where the first entry point is most likely

Pathway analysis

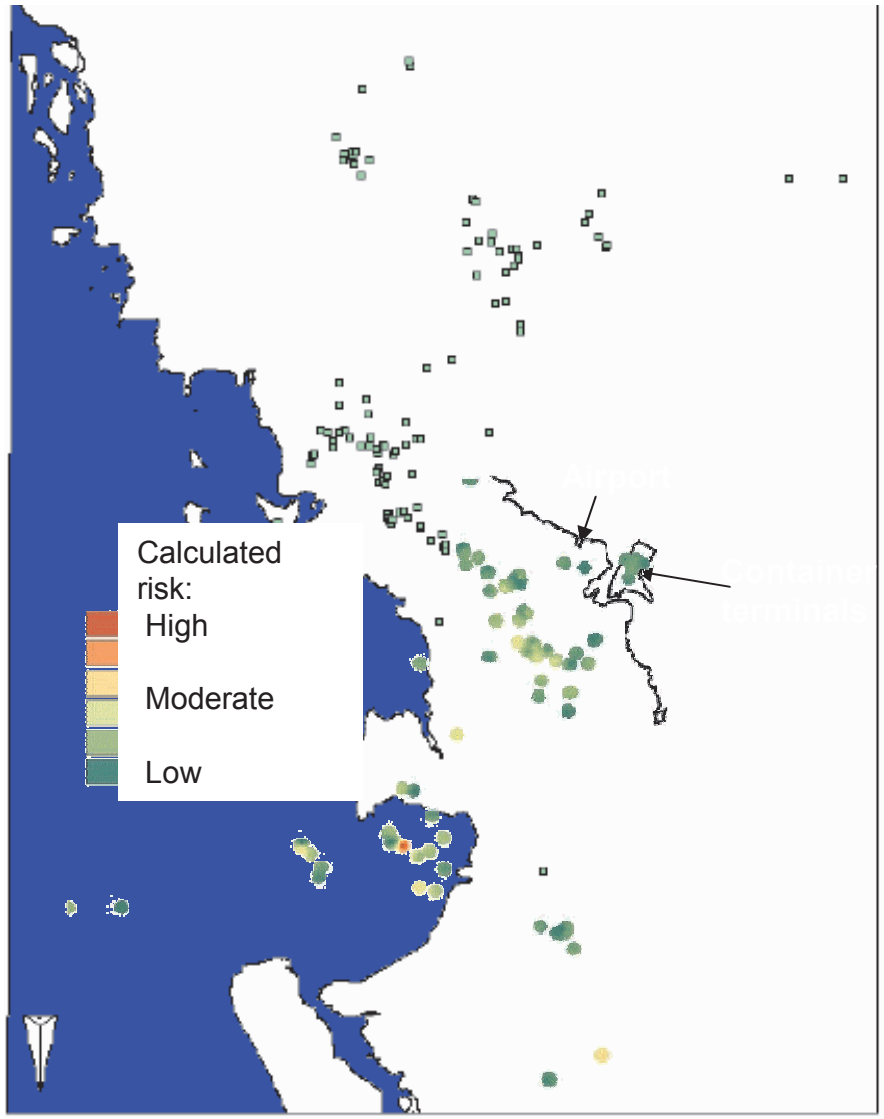


Agricultural Pest Surveillance: trapping for exotic fruit flies



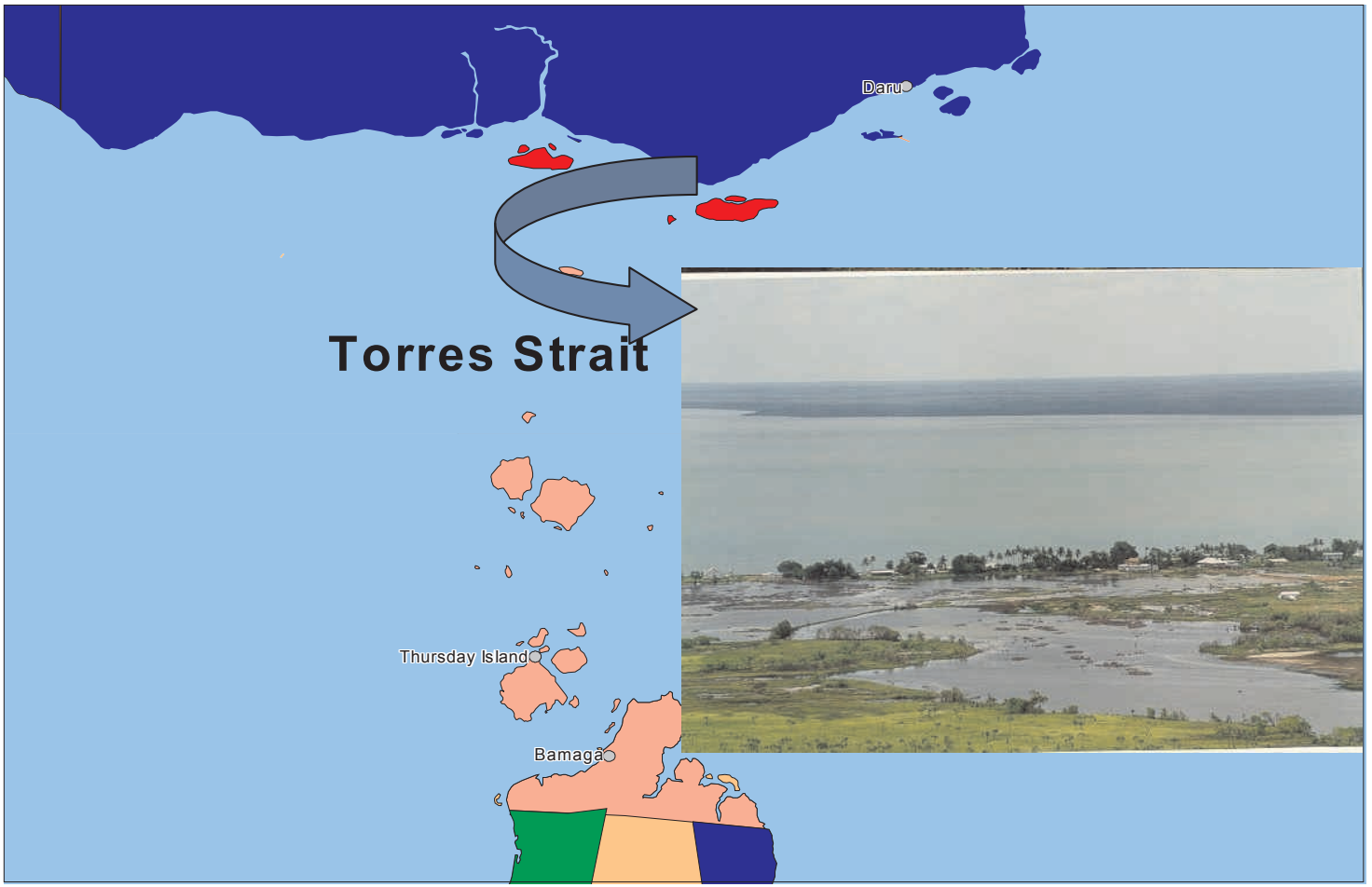
Targeted Urban (Hazard Site) Surveillance Program

Brisbane Secondary Risk Sites – Premises where imported commodities are delivered and unpacked



Factors used to determine risk:

- Cargo source
- Cargo volume
- Vegetation
- Habitat
- Cleanliness



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Contingency plans

- **Surveillance – generate awareness**
- Diagnostics .....
- Communication
- Response plan
- Proactive R & D e.g. breeding new resistance variety

Annex 14. Post border response

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Post border response

Dr Ian Naumann
Office of the Chief Plant Protection Officer
Canberra

Australian Government
Department of Agriculture, Fisheries and Forestry

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Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Post border response

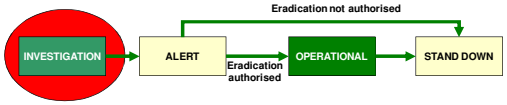
- Phases of a response
- Case study - papaya fruit fly eradication
- Principles

Responding to a plant pest detection

When the entry of pest is detected, a response should be considered

- eradication of the pest is the most desirable response (ISPM 9)
- if eradication is not feasible, containment or control should be considered

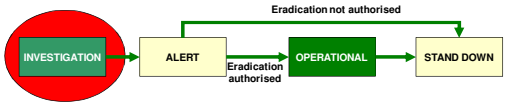
Responding to a plant pest detection



Investigation:

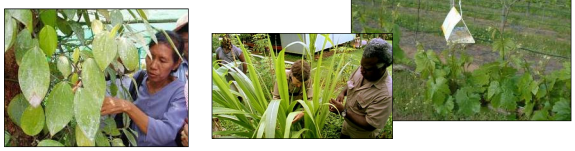
Report of a suspect pest received
Identify/diagnose pest
Notify NPPO

Responding to a plant pest detection

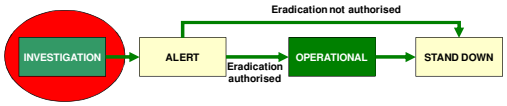


Investigation:

- Report of a suspect pest received
- Identify/diagnose pest
- Notify NPPO



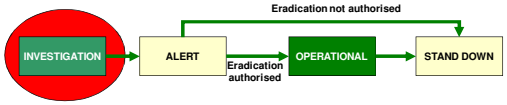
Responding to a plant pest detection



Investigation:

- Report of a suspect pest received
- Identify/diagnose pest
- Notify NPPO

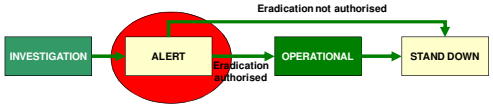
Responding to a plant pest detection



Alert:

- Pre-cautionary measures
  (quarantine to prevent spread)
- Delimiting surveys
- Identify control strategies
- Declare incursion (advise affected industry, international notification)
- Investigate eradication feasibility
- Cost/benefit analysis
- Prepare response plan
- Authorise and commence response (eradication)

Responding to a plant pest detection



Operational:

- Implement response plan
- Evaluate progress (surveillance):
  - early phase: is the pest being contained?
  - mid phase: are the numbers of the pest reducing?
  - late phase: is the pest not being found?
- Decide on achievement of eradication

Response to detection of papaya fruit fly in Australia

- First found near Cairns - grower having problems with fruit fly
- Confirmed 17 October 1995
- At that time no trapping grid was present
- Distributed over area of 8500 sq kilometres

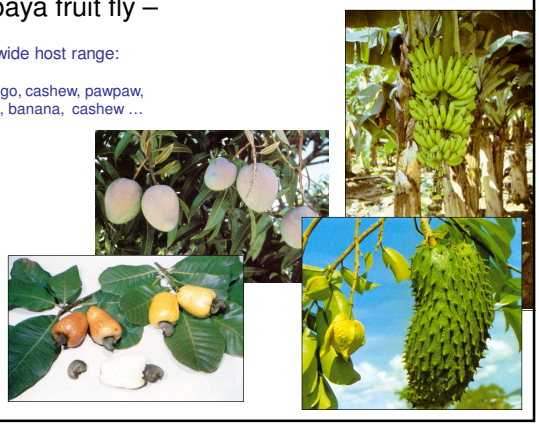
Papaya fruit fly

- Closely related to Oriental fruit fly
- Origin probably Malaysia - but has spread throughout South-East Asia
- High populations in Papua New Guinea

Papaya fruit fly –

wide host range:

Mango, cashew, pawpaw, chilli, banana, cashew …



Papaya fruit fly - quarantine action

- Commenced immediately on detection
- Quarantine control area of 70,000 sq kilometres
  - road blocks
  - 24 hour check on all movements
  - Road/air/sea
- Chemical treatment of host fruit
- Security for fruit moving through control area
- Disinfestation and host testing to re-establish trade

Eradication of papaya fruit fly

ARGUMENT AGAINST

- Rugged inaccessible country
- Very wide host range - cultivated and native
- World heritage rainforest - sensitive!
- Mix of urban and rural - production and alternative agriculture
- Over 300 host fruits including many rainforest species

ARGUMENT FOR:

- Good control techniques
  - Male lure blocking (methyl eugenol + maldison)
  - Sterile insect technique
  - Protein bait trapping
- Efficient monitoring system

Eradication of papaya fruit fly

Decision

- Cost of on-going controls if not eradicated
- Disruption of international and interstate trade
- Economic analysis (benefit-cost) indicated that eradication should be attempted

Eradication Program

- Estimated to cost $65 million
- Commenced in November 1995
- Endorsed by Ministerial Council
- Start with male annihilation and protein trapping
- To be follow by Sterile Insect Technique (SIT) when available
- 300 people employed at peak of the program

Eradication of papaya fruit fly – annihilation techniques

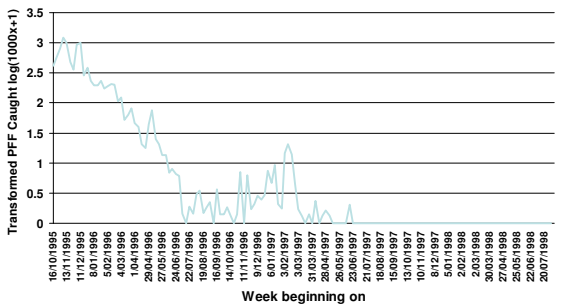
Lure blocking:
Methyl eugenol + maldison

Protein bait spraying:
Applying small spots of paste (protein autolysate + Maldison) to leaves

Eradication of papaya fruit fly - program monitoring

- 2500 traps to monitor area
- 85,208 fruit collected as backup to traps
  - 66,074 cultivated and naturalised
  - 19,134 native fruit
- GIS system to track data and allow for production of high quality maps

Monitoring data - papaya fruit fly caught in quarantine zone 1995-1998



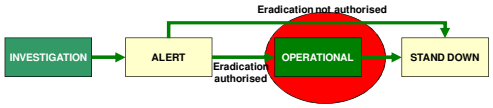
Research activities

- Host testing
  - non host or stage of ripening non-host
- Vapour heat disinfestation - mangoes
- Chemical treatments
- Block efficacy in the tropics
- Fate of maldison in rainforest
- Biology of papaya fruit fly

Program success

- First detection October 1995
- Last papaya fruit fly detected in monitoring grid in June 1997 and last in fruit collection in July 1997
- Eradication declared in June 1999 after approximately 2 years with no detections of papaya fruit fly
- Achieved after 4 years and at least 2 years earlier than predicted
- Sterile Insect Technique (SIT) not used
  - SIT facility designed but not built
- Final cost $34.5 million vs $64 million estimate
- Estimated industry cost $100 million

Responding to a plant pest detection



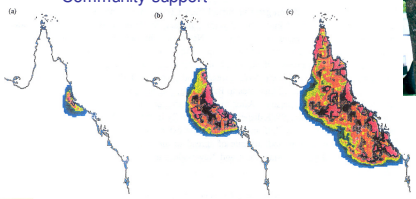
Stand down:

Eradication is not attempted or
Eradication is attempted but unsuccessful or
Eradication is successful

Declare pest freedom and revert to protocols to maintain pest free status and early detection capability

Eradication programs: principles

- Good understanding of biology of pest
- Cost-benefit analysis of eradication
- Effective annihilation strategy
- Capacity to restrict dispersal of pest
- Capacity to detect pest at low densities
- Coordination
- Community support



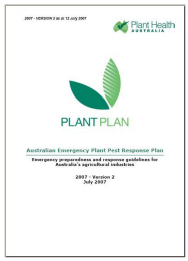
Eradication programs: principles

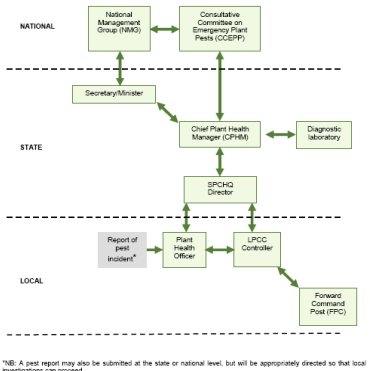
- Good understanding of biology of pest
- Cost-benefit analysis of eradication
- Effective annihilation strategy
- Capacity to restrict dispersal of pest
- Capacity to detect pest at low densities
- Coordination
- Community support

Agreed decision-making process involving
• government,
• technical experts and
• commercial interests

-and including agreement on cost sharing

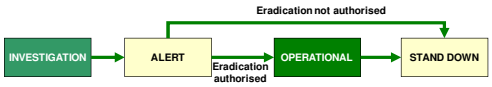
Post border response





*NB: A pest report may also be submitted at the state or national level, but will be appropriately directed so that local investigations can proceed.

Post border response



- **Phases of a response**
- **Case study - papaya fruit fly eradication**
- **Principles**

Annex 15. Risk Mitigation: Diagnostics

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Risk Mitigation: Diagnostics

Dr Lum Keng Yeang
Chief Scientist
CABI Southeast & East Asia

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- Why diagnostic capacity is required
- Diagnostic networks
- Proposal for ASEAN Diagnostic Network

Why diagnostic capacity is required

- Support production agriculture
- Enable targeted pest control at borders
- Provide reliable evidence on pest status
- Early detection of new pests and diseases
- Support for research and development
- ISPM No.27 Diagnostic protocols for quarantine pests

Ideal Diagnostic Network

- Makes use of distributed expertise
- Gives quick results
- Able to deal with large numbers of tasks
- Cost effective
- Covers both exotic and established diseases and pests
- Detects even when prevalence low
- Reliable (neither false positives nor false negatives)
- Uses range of alternate technologies
- Uses internationally agreed protocols

Network of Specialist Laboratories

Ideally based on:

- **Development of agreed protocols for handling, screening and confirming diagnoses**
- **Covers the full range of "priority" pest groups**
- **Validation of protocols for specified region**
- **Training to develop and maintain skill levels**
- **Designation of reference laboratories**
- **Accreditation and auditing**

NPDN National Plant Diagnostic Network

GPDN Great Plains Diagnostic Network

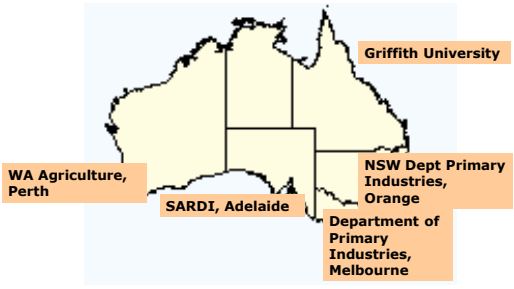
North Central Plant Diagnostic Network — Protecting Midwestern Agriculture

NORTHEAST PLANT DIAGNOSTIC NETWORK

SPDN Southern Plant Diagnostic Network

WPDN Western Plant Diagnostic Network

Network of Specialist Laboratories



Exotic Fruit Fly

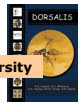
- **Detection of suspected exotic species in northern Australia**

Network of Specialist Laboratories

SUSPECTED EXOTIC FRUIT FLY

Specimens sent to Griffith Univ for morphological examination

Griffith University



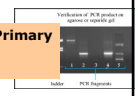
Samples also sent to CSIRO molecular diagnostics laboratory

WA Agriculture, Perth

SARDI, Adelaide

NSW Dept Primary Industries, Orange

Department of Primary Industries, Melbourne

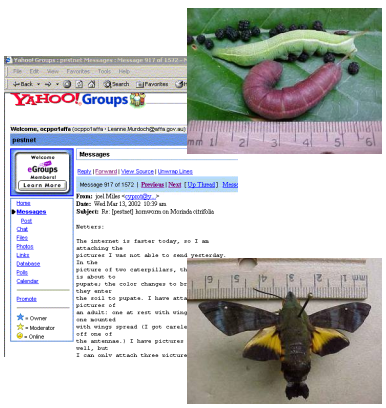


Proposal for an ASEAN Diagnostic Network

- Independent regional "clearing house"
- International expertise register
- Agreed protocols for handling samples
- Confidentiality
- Associated development of diagnostic tools and training to develop and maintain skills
- Endorsed by ASEAN Sectoral Working Group on Crops and ASEAN Plant health Cooperation Network – need for active participation by National Plant Protection Organisations
- Resources & sustainability

Structure of Presentation

- Why diagnostic capacity is required
- Diagnostic networks
- Proposal for ASEAN Diagnostic Network



Thank you

Annex 16. Risk Mitigation: National Legislation

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Risk Mitigation: National Legislation

Dr Graeme Evans
Consultant

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Structure of Presentation

- **Origins of national phytosanitary legislation**
- **Powers assigned in early legislation**
- **The IPPC**
- **Powers assigned to address IPPC guidelines**
- **The SPS Agreement – need for legislative powers to address obligations and opportunities**
- **Conclusions**

Origins of National Phytosanitary Legislation

- Introduced to contain risks of moving plants and animals from one place to another
- Risks arise from introducing –
  - Plants that establish as weeds
  - Parasitic plants
  - Plant pests – arthropods, pathogens, nematodes, molluscs etc.

Powers Assigned in Early Phytosanitary Legislation

- Typical early phytosanitary legislation provided authorities with the ability to:
- Inspect commodities in trade
- Treat, destroy or re-export commodities infested with or infected by plant pests or commodities considered to pose a risk
- Early legislation in many countries was generally limited in scope

The international Plant Protection Convention (IPPC)

- Dates from 1952
- Introduced with the objective of containing the movement of plant pests
  - **Text revised in 1979 and 1997**
  - **1997 revision made the IPPC consistent with the rules contained in the SPS Agreement**

The international Plant Protection Convention (IPPC) cont.

- The IPPC provides a framework to:
- Develop and apply harmonised phytosanitary measures through National Plant Protection Organisations
- Establish principles for phytosanitary measures (ISPM 1)
- Develop International Standards (ISPMs)
- NOTE: The IPPC does not contain guidelines on powers that might be provided in National Phytosanitary Legislation

The Role of National Plant Protection Organisations

- The principle role of NPPOs is to:

- Issue phytosanitary certificates relating to phytosanitary requirements of importing countries;
- Manage surveillance for plant pests;
- Control plant pests;
- Inspect and disinfest commodities, plant and plant parts;
- Establish and protect pest-free areas;
- Carry out pest risk analysis;
- Develop phytosanitary measures.

- In order to carry out these roles the NPPO needs to be supported by National Phytosanitary Legislation.

National Phytosanitary Legislation to address ISPM Guidelines: e.g. ISPM 6 Guidelines for Surveillance

Referring to the role of the NPPO ISPM 6 states:

- *Inspecting and testing consignments……*
- *Ordering treatment of consignments of plants ……;*
- *Protecting endangered areas, and designating, maintaining and surveying pest free areas and areas of low pest prevalence;*
- *Ensuring phytosanitary security of consignments after certification and prior to export;*
- *Regulating the movement of biological control agents within, from and into the country.*

National Phytosanitary Legislation needs to provide the NPPO with these powers

Legislative powers to contain / eradicate plant pests

Many countries seek to contain or eradicate new pest incursions – let us look at the sort of legislative powers an NPPO might require to do this.

- Power to eradicate a pest on all land and all plants and plant parts;
- Legal requirement for a person to report the presence of a suspected exotic or unknown pest;
- Authority of NPPO officers to enter and search land, premises or items to verify the presence / absence of and exotic pest, vector or other material;

Legislative powers to contain / eradicate plant pests cont.

- Authority to inspect, count, examine, mark for identification, treat, fumigate, disinfest and/or take and remove **samples of plants, plant parts, consignment or other item;**
- Power to prohibit removal from or control movement within a declared area of plant, plant products, agricultural equipment, used packages, soil or other items that might transmit an exotic pest;
- Authority to require a person to provide information / records pertinent to the control or eradication of a pest or to trace the source or cause of an outbreak;
- Ability to make orders to declare any place to be a quarantine or restricted area and to impose conditions on a declared area;

Legislative powers to contain / eradicate plant pests cont.

- Power to restrict the movement of people into or out of a declared area;
- Authority to require occupiers of declared areas to take measures, including treatment / destruction of plant, plant parts and products necessary for control or eradication of an exotic pest;
- Power to require plants, plant parts refuse, packaging, equipment etc. to be disposed of in a specified manner;

Legislative powers to contain / eradicate plant pests cont.

- Power to prohibit the planting or propagation of plants within declared areas;
- Authority to require used agricultural equipment, packages and other items to be cleansed, disinfested or otherwise treated in a specified manner;
- Power to to destroy healthy or apparently healthy plants to prevent the spread of an exotic pest;
- Ability to provide a clear position on compensation for losses incurred as a result of programs to control or eradicate an exotic pest.

Conclusions

- Neither the IPPC nor the SPS Agreement made the introduction of National Phytosanitary Legislation compulsory;
- Neither the IPPC nor the SPS Agreement provide specific instructions / guidelines on the powers that might be contained in National Phytosanitary Legislation;
- Guidelines on powers required in strong national phytosanitary legislation come from the need for NPPOs to be able to address ISPM guidelines;
- Strong National Phytosanitary Legislation is the key to effective risk management.

Annex 17. National Plant Protection in Cambodia

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Government of Malaysia

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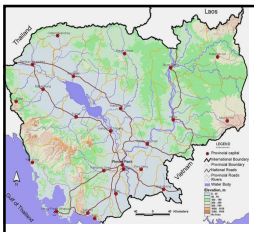
KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Kingdom of Cambodia

National Plant Protection in Cambodia
by
Mr. Heng Chhun Hy, Vice Chief Office

Plant Protection and Phytosanitary Inspection Office
Department of Agronomy and Agricultural Land Improvement/ MAFF

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008



Location : Southeastern Asia, bordering the Gulf of Thailand, between Thailand, Viet Nam and Laos.

Area : 181,035 sq km.

Population : 15,000,000

Country name : Kingdom of Cambodia

Capital: Phnom Penh

Government type :

- Multiparty democracy under a constitutional
- Monarchy established in September 1993.

Administrative divisions: 20 provinces and 4 municipalities.

Independence: November 9th, 1953 (from France)

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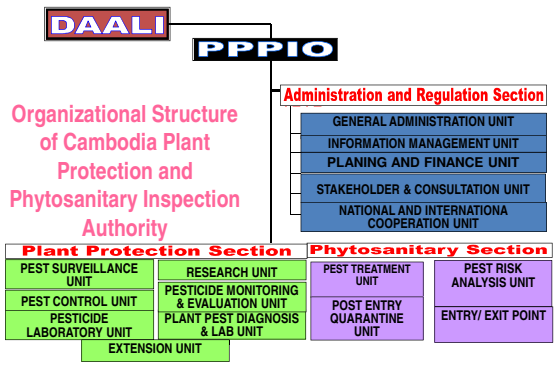
Organizational Structure of Cambodia Plant Protection and Phytosanitary Inspection Authority



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CURRENT SITUATION OF PLANT QUARANTINE IN CAMBODIA

- **Current situation of Plant Quarantine (Legal Framework)**
  - Sub-decree No.98 in 1983-1990: 8 checkpoints have been established at Viet Nam border and Phnom Penh international airport.
  - In 1990-1995: Cambodia has met with a political conflict; the Government has decided to stop all of plant quarantine checkpoint.
  - In 1995-1998: the plant quarantine sub-decree No.98 was reinforced implementation and 23 checkpoints has been established at Viet Nam, Thailand, Lao PDR border, seaport and airport
  - In 1998: the Government create new sub-decree No.45 determined only 8 international checkpoints at Viet Nam and Thailand border.

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- **Current situation of Plant Quarantine (Continues)**
  - In 2001 until present: sub-decree No.64 has been established, all checkpoints not including plant quarantine.
  - However, we are member of ASEAN countries (1999) and become a member of WTO in 2004; we have obligated to follow international agreement.
  - To comply with WTO/ SPS agreement and ASEAN Framework, the new sub-decree No. 15 on plant quarantine have been developed on enacted by Prime Minister in 2003 and sub-decree No. 64 also under revision.

- **Enforcement of Implementation**

  For enforcement of implementation of the new sub-decree we have developed many regulation or prakas such as:
  - Prakas on pest list
  - Prakas on plant quarantine materials
  - Prakas on plant quarantine officer uniform
  - Prakas on fee charge for pest treatment
  - Prakas on inspection fee

Import and Export of Agricultural Product

- **Imports:**

  Cambodia imposed no licensing requirements nor quantitative restrictions or prohibitions on imported agricultural products.

  Phytosanitary Certificate were required for the importation of agricultural products (Plant Quarantine Materials).

  The importation of some (potential pest distribution PQ materials) PQ materials such as soil, plant propagation material, biological agent for using in agricultural production…were required for Importation Permit of PQ materials.

Import and Export …….(Cont)

- **Exports:**

  Cambodia did not impose prohibitions or restrictions on exported agricultural products, except for narcotic drugs.
  - A ten per cent tax was levied on exports of pure bred cattle and swine.
  - Export restrictions on rice had been lifted in July 2001, but Cambodia would reserve its right to restrict exports of rice temporarily to prevent or relieve critical shortages of foodstuffs.

CONCLUSION

- The present status of Cambodia is still low potential for export of agricultural commodities, most of commodities such as vegetables and fruits imported from Viet Nam, Thailand, China, Australia and USA.
- To prevent our county from pest and promote export activities we need revise law or legislation to be complies with WTO/SPS agreement, human resource development and technical assistance in pest surveillance, plant pest diagnostic laboratory, and facilities for plant quarantine treatment alternatives control measure, infrastructure and facilities for plant quarantine in Cambodia.

Thank You

For Your Attention

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Annex 18. Risk Management of enoki mushroom for market access in Chinese Taipei

Asia-Pacific Economic Cooperation

Government of Malaysia

Risk Management of enoki mushroom for market access in Chinese Taipei

Yu Yen Lu

Technical specialist
Bureau of Animal and Plant Health Inspection and Quarantine

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Outline

- Organization of BAPHIQ
- Preparation of PRA information for requesting the market access
- Case report and conclusion

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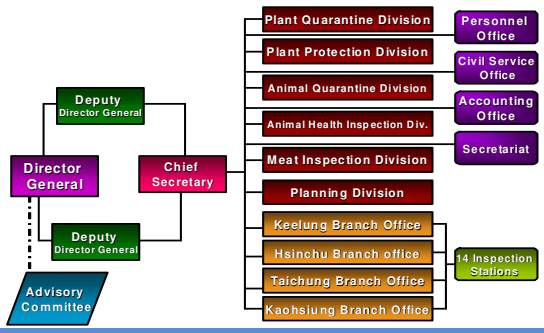
Organization of BAPHIQ



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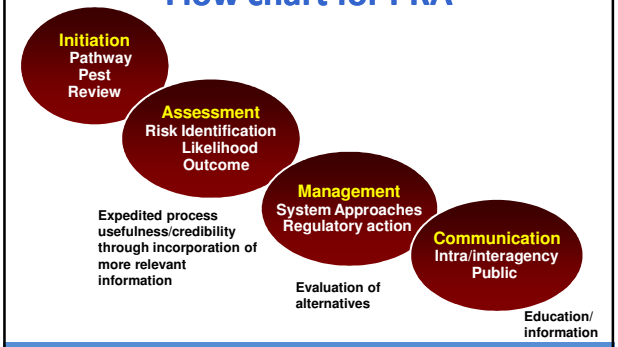
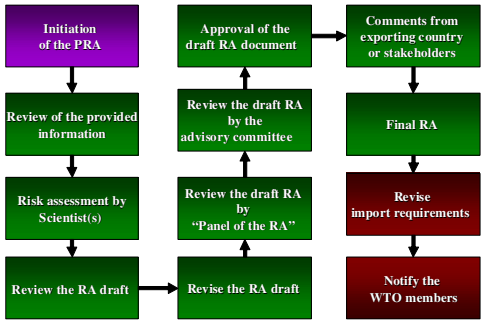
Guidelines for the pest risk assessment

- Based on :
  - SPS Agreement
  - ISPMs
  - Other countries' guidelines
  - "Qualitative" assessment

Flow chart for PRA



Risk Analysis Process for Commodities



Preparation of PRA information for requesting the market access

Preparation of information requested by the ICs for PRA

- Pest list
- Control measures for the pests
- Climatic/geographic information
- Production and management information
- Draft work plan or mitigation measures
- Responses to IC's comments

Commodities requested by the ICs to provide RA info.

- Fresh fruits
  - papaya, mango, dragon fruit, melon, pear, longan and citrus, etc.
- Ornamentals
  - lucky bamboo, orchids and *Pachira*, etc.
- Vegetable seeds

Case report-Regain the market access of Enoki mushroom

- Enoki mushroom, Enokitake, Golden needle mushroom
- *Flammulina veluripes*
- Edible fungi

Cultivation of enoki mushroom

- Artificial cultivated in plastic bottle
- Growing media
  - Sterilized mix of sawdust and rice husk
  - Soil-free
- Growth under low temp
- Vacuum packed

Problem encountered

- Canada banned imports of enoki mushroom with trace amounts of growing medium (01 Jan. 2005)

Impacts

- Shelf life greatly reduced
  - From 14 days to 7 days
- Exported quantity reduced
  - From 35.2 tones to 17.7 tones
- Cost increased
  - The stalk of mushroom must be cut off

Arguments

- CFIA's CGMP covers enoki mushroom?
- Pests concerned by CFIA are absent in Chinese Taipei
- Growing media used for mushroom production is different from that of plants
- Canada's phytosanitary measurement is not based on science

Communications

- Growing media for enoki mushroom in Chinese Taipei are pest and soil free
- No scientific evidence support that concerned pests existed in Chinese Taipei or will follow the pathway

Pest risk analysis

- Pest information of enoki mushroom to CFIA (Mar. 2006)
- CFIA visited enoki mushrooms' production facilities (Dec. 2006)
- Risk management options

Risk management options

- Growing media must be prepared at soil-free place
- The water used in growing enoki mushroom must be cleaned
- Growing media must be sterilized at 121℃, 1.2kg/cm^2 for 1-4 hours, or at 100℃, 1.2kg/cm^2 for 6-10 hours
- Facilities must be cleaned

Outcome

- CFIA agreed that the management options of cultivation and growing media of enoki mushroom is compliance of the regulation (Dec. 2006)
- Enoki mushroom produced by BAPHIQ approved facilities are allowed to export to Canada with trace growing media (Jan. 2007)

Conclusions

- Any phytosanitory measure should be based on science
- Enhance the two-way communications of ICs and ECs
- PRA protocol could be a good tool for both ICs and ECs for market access

Thank you

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Annex 19. Indonesian experience on market access

Asia-Pacific Economic Cooperation

Government of Malaysia

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INDONESIAN EXPERIENCE ON MARKET ACCESS

INDONESIAN EXPERIENCE ON MARKET ACCESS

Mangosteen fruits to Australia :

Required "import risk analysis" (IRA)

24-30 months ? Already 6 months

Reference : available import protocol of mangosteen from Thailand.

Phytosanitary status consider the same

Neccesity of long time IRA, ?

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Maize grains to NZ
- NZ phytosanitary requirement for importation of viable maize grains :
- *Zea mays* grains in this consignment : were source from a "pest free area" or "pest free place production", free from *Peronosclerospora maydis*, *P. philippinensis*, *P. sacchari*, *P. sorghi*, *Sclerophthora rayssiae* var zeae, *Stenocarpella macrosporaere*.
- NZ recognized that result of testing by NPPO and drying the grain to 14% mc.

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Wood packing materials (wpm) to USA
- Require ISPM #15 mark
- Wpm provider is not always available in all area of Indonesia
- Indonesia request US to recognize the equal measures such as PC or FC
- Noted : AQIS recognize PC or FC as an alternative of ISPM #15 marking

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Manggo to china :
- Require treatment for fruit flies as an alternative of fruit flies pest free area.
- Recognize phytosanitary treatments : vapour heat treatment (VHT), hot water treatment (HWT)
- Lack of knowledge on VHT and HWT

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Paprika to Chinese Taipei :
- Require "pest free area of fruit flies"
- Indonesia propose "fruit flies free production place" (ISPM # 10 *Requirements for the establishment of pest free places of production and pest free production sites*.
- "fruit flies free production place" assessment is still on going by PQ of Indonesia

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Salacca fruits to china
- Require production from fruit flies free areas, species *B.carambolae* and *B. papayae*.
- It is impossible to establish ffpfa
- Indonesia provide scientific evidence that salacca is non host of fruit flies. Evidence was provided base on ISPM # 4 "Guidelines for the confirmation of non-host status of fruit and vegetables to tephritid fruit flies.

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Important tool for market access is ISPM # 24 Guidelines for determination and recognition of equivalence of phytosanitary measures
- Provides guidelines for :
- *An importing country that has a phytosanitary measures in place, or is proposing a new measures*
- *An exporting country to propose some alternative measures to achieve importing country's appropriate level of protection.*
- Alternative measure is a subject of evaluation for the equivalence

INDONESIAN EXPERIENCE ON MARKET ACCESS

- Equivalence of phytosanitary measures should achieve a specified appropriate level of protection (alop).
- Equivalence may be applied to :
- A single measure
- A combination of measures,
- Integrated measures in a systems approach
- Equivalence is generally a bilateral process

Annex 20. International Market Access and Phytosanitary Practice of Lao PDR

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

International Market Access and Phytosanitary Practice of LAO PDR

Prepared by:

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Department of Production and Trade Promotion
Ministry of Industry and Commerce

Souliya Souvandouane
Plant Quarantine Division
Department of Agriculture
Ministry of Agriculture and Forestry

Jointly organized by:

Asia-Pacific Economic Cooperation

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KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Import and export procedures for agricultural products

Registered import/export company

Ministry of Agriculture and Forestry issue:

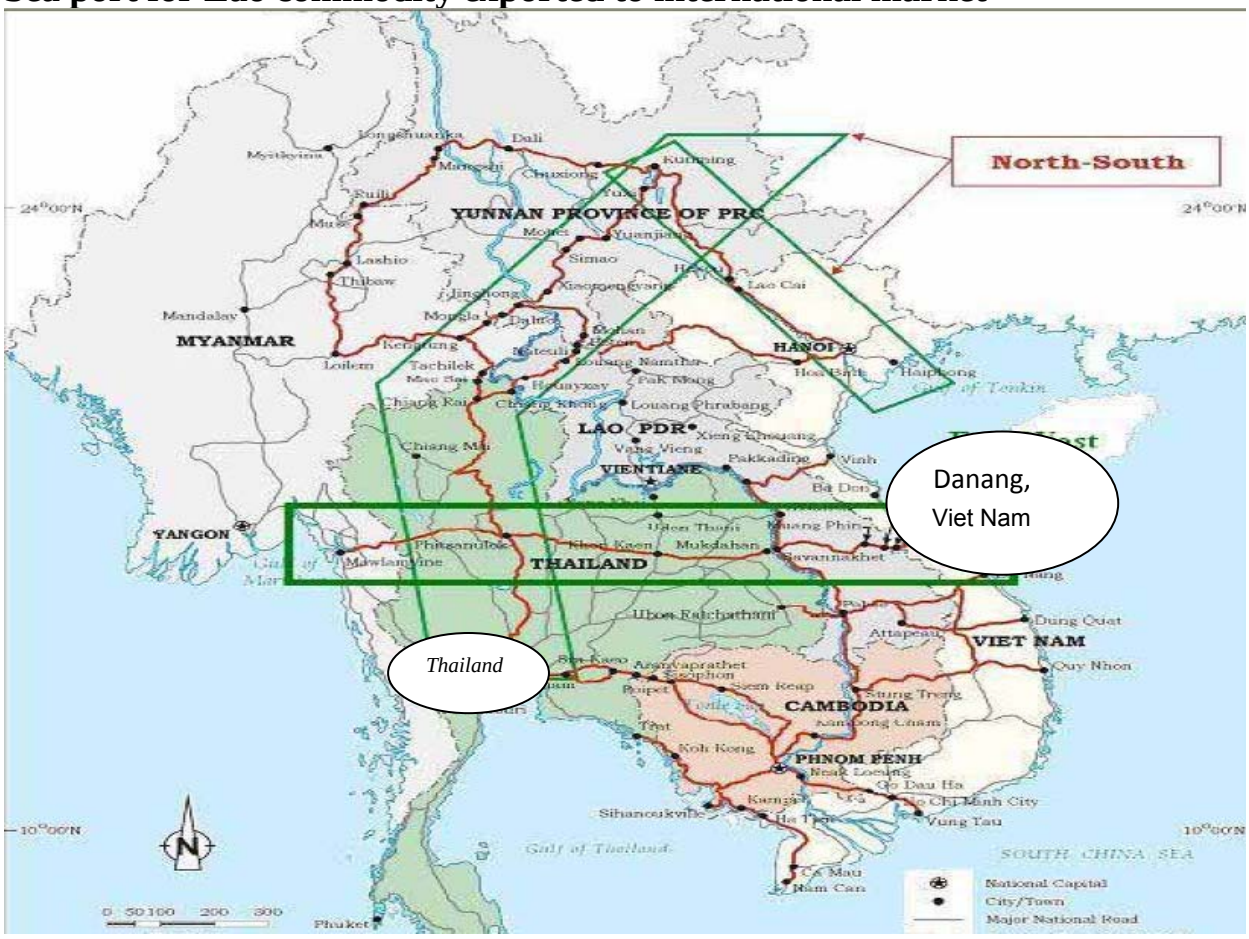
- import permit
- photosanitary for export

Ministry of Industry and Commerce
Issue: Certification of Origin

Notice: exporting/import rice is under authorization of MIC

Single window service (Custom and quarantine check) at border checkpoint

Sea port for Lao commodity exported to international market



Legislation relates to import and export agricultural commodity

1. Prime Minister Decree on Import and Export Management No.205/PMO dated 11/10/2001
2. Provision on Import and Export controlled goods authorized by Ministry of Industry and Commerce 0106/MC dated 25/1/2002
3. Notification on controlled goods need to subject import-export approval. No. 0285/MIC.FTD dated 17/3/2004
4. Provision on small enterprise of border trade 0948/MC dated 13/8/2001
5. Prime Minister Decree on Plant Quarantine in Lao's People Democratic Republic No. 66/PMO dated 21/3/1993
6. Plant Quarantine Regulation No 639/MAF. Dated 2/7/1993..etc……

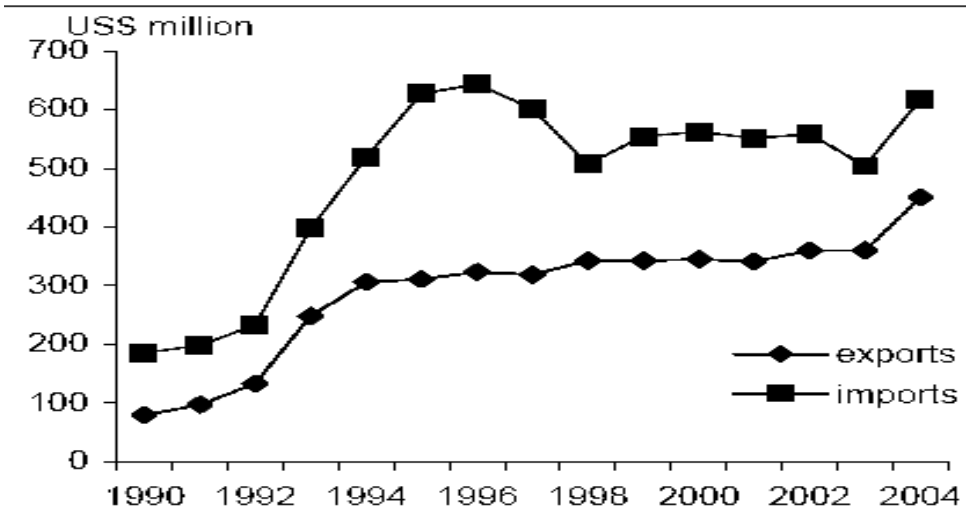
International market accession of Lao PDR

Since the implementation of the new economic mechanism in 1986, the Government has started to implement trade liberalization as a way to stabilize and improve the efficiency of its economy and has already taken a number of concrete measures:

- Eliminating inter-provincial commodity transport licensing and fees on internal movements of goods
- Removing a number of restrictions on commodity exports
- Private firms were allowed to operate.
- Streamlining licensing procedures for traders
- reduction of tariff rates and by easing of import licensing
- Licensing for individual shipments have been replaced by licensing based on annual export and import plans.

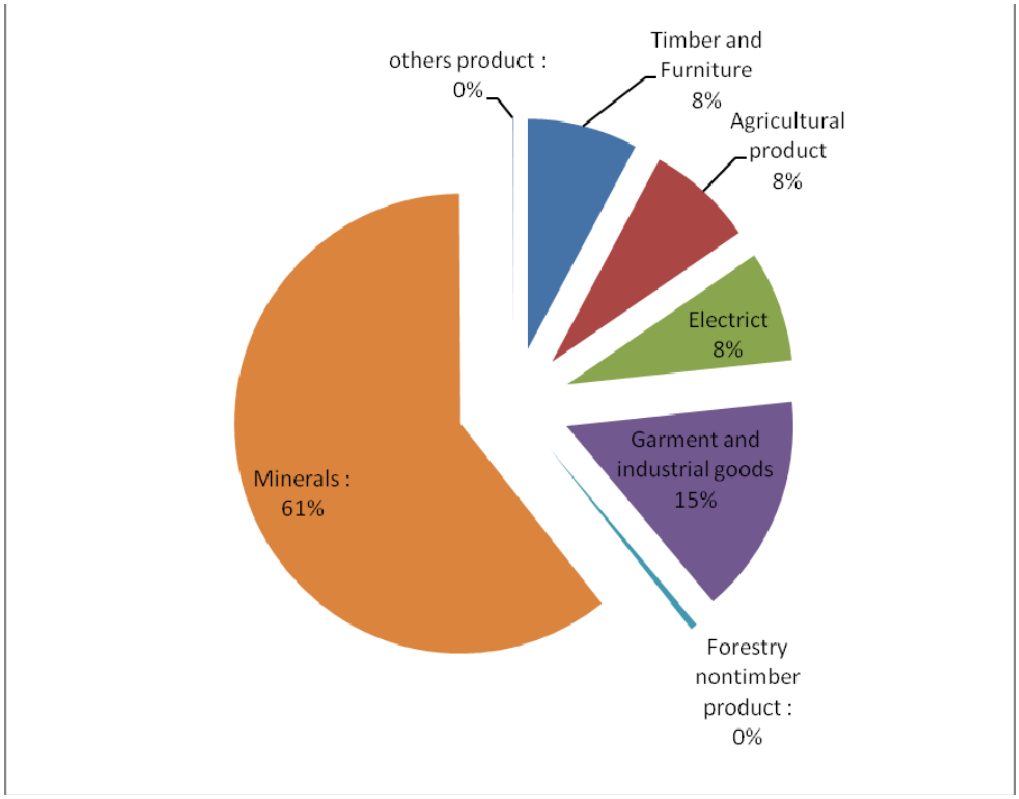
Import and export after New Economic Mechanism

- Import and export were growing at an annual rate of 27 percent during, 1990-1995
- export growth dropped in the second half of the 1990s, as a result of the Asian crisis
- During 1995-2000, exports grew at only 2 percent per year.
- In the first six months of 2004, as compared with the same period of 2003, Lao exports increased significantly by 22 percent, or from US$182 million to about US$225 million



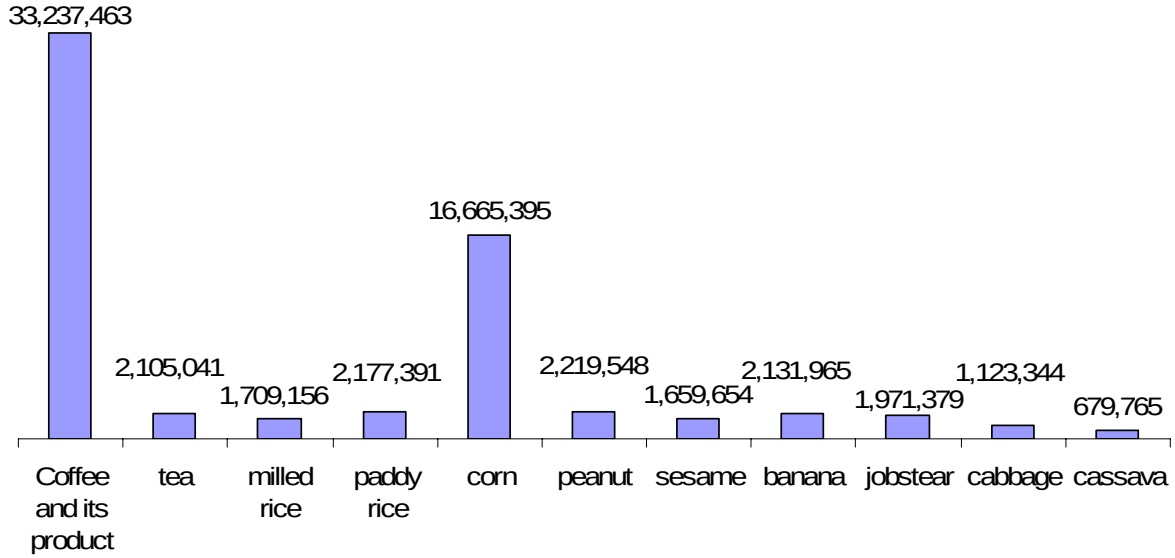
Source: World Bank

Export value by type of goods 2006-2007



Source: Import-export Division, MIC

Export value by difference type of plant products, year 2006 – 2007 (USD)



Source: Import-Export Division, MIC

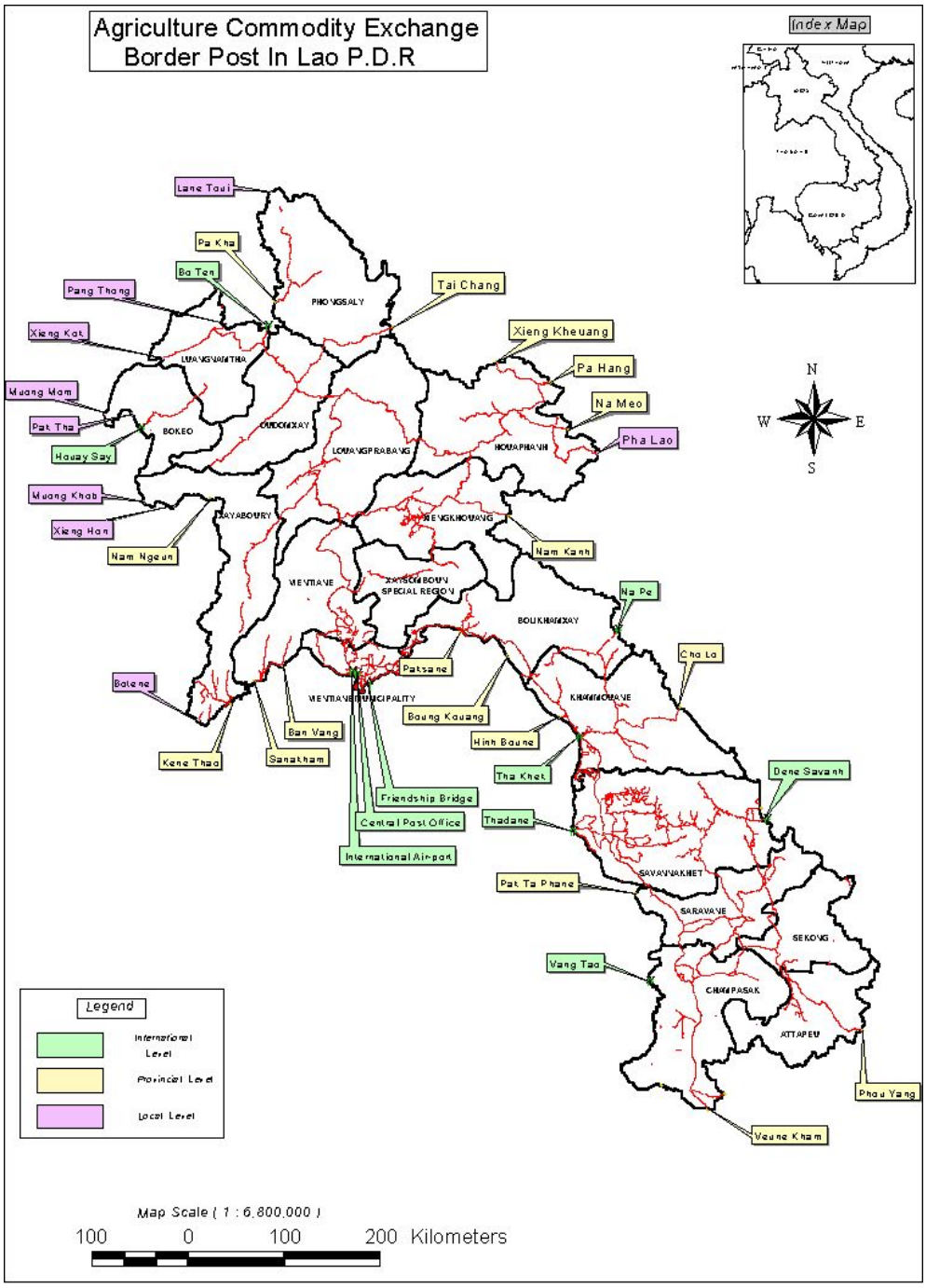
Foreign market

- Laos international trade is more closely to border trade
- 70 check points, including 15 international
- Most goods transaction has done with neighboring countries, e.g. Thailand, Viet Nam and China
- The value of trade with these three countries has accounted for about 90% of the total international trade
- Of which, 30% flows through local check points

Importing countries and export value of important agricultural products (USD)
year 2006 - 2007

Countries	coffee	corn	tea	rice	cassava	banana	peanut	soybean	jobstear
Thailand	949,141	14,503,920	1,775,488	834,610	11,296	2,512,793	2,103,951	32,431	812,928
Viet Nam	1,460,171	2,017,038	22,500	175,493	371,557	-	1,050	161,306	7,915
China	90,804	801,868	183,357	1,229,174	143,411	115,918	5,142	4,190	1,119,367
Singapore	21,010	-	-	-	-	-	-	-	-
Indonesia	2,534,512	-	-	-	-	-	-	-	-
Belgium	6,260,381	-	-	-	-	-	-	-	-
Netherlands	1,006,841	-	-	-	-	-	-	-	-
Germany	1,591,418	-	-	-	-	-	-	-	-
Spain	1,265,317	-	-	-	-	-	-	-	-
Portugal	1,037,160	-	-	-	-	-	-	-	-
Switzerland	141,480	-	-	-	-	-	-	-	-
Italy	134,100	-	-	-	-	-	-	-	-
Poland	8,400,718	-	-	-	-	-	-	-	-
Chinese Taipei	**70,770**	-	-	-	-	-	-	-	-
Japan	11,992	-	-	-	-	-	-	-	-
Dubai.U.A.E	63,270	-	-	-	-	-	-	-	-
USA	7,201,133	-	-	-	-	-	-	-	-

Source: Import-Export Division, MIC



- (green) 10 Entry/exit points – international level
- (violet) 9 Entry/exit points – Regional level
- (yellow) 17 Entry/exit points – Traditional border exchange

Source: Plant Quarantine Division, MAF

Trade policy

- Promote commercial production with the aim to substitute imports and increase exports;

- Promote an open bilateral and multilateral trading system.

Promote commercial production

a part from major plans set out by Ministry of Agriculture and forestry for 5 year to achieve poverty reduction plan and response trade policy of government :

By 2010, Lao PDR will produce agricultural commodity: coffee 37,000 ton, corn 247,500 ton, soybean 11,000 ton, peanut 19000 ton, green bean 3,000 ton, jobstear 15,500 ton, sesames 7,900 ton, tobacco 46,800 ton, sugarcane 853,000 ton, cotton 3,200 ton

Promote trade liberalization and international integration

In 1997 the Government signed an agreement to join ASEAN
Because of Lao PDR's status as a least developed country, some of its exports receive preferences from industrial countries and from the original members of ASEAN.

- **ASEAN/AFTA,** Common Effective Preferential Tariff (CEPT) scheme.1998
  Brunei, tariff O%
  Thailand, tariff 0-5% 26 item of sensitive list
  Malaysia, Tariff rate 0% of 12 item of sensitive list
  Myanmar, Tariff 0% for sensitive list (Rice, paddy)
  Brown rice and milled rice 5%
  Viet Nam
  Under CEPT, tariff 2.5%
  Under Agreement signed between Ministry of industry and commerce of Lao and Viet Nam, sensitive list tariff 0% (Quota 40 0000 ton, 2007-2008)

  China,
  ASEAN-China Free Trade Area (ACFTA)
  Tariff rates ranging from 0-5%, under the Early Harvest Program for Sensitive list of agricultural products

- **GSP-Generalized System of Preferences, 2005**
  USA, EU, Japan and R. of Korea for LDCs, tariff rate O%

Apply to WTO Access, 1997

The Government has also committed to accede to the World Trade Organization (WTO) to increase its integration into the multilateral trading system.

The objectives are to use WTO accession as a lock-in policy for further enhancing domestic reforms based on international rules as well as to ensure predictable and transparent market access

Lao, PDR is currently in the fact-finding phase of accession negotiations.

Challenges to WTO accession:

- The government must submit an initial legislative action plan listing laws that need to be passed or amended to comply with WTO rules
- **Lao, PDR needs to assure that its policy formulation and implementation comply with the rules and regulations of the WTO**
- Lao PDR's exports of agriculture and livestock products can be constrained by the SPS standards in the receiving country
- Lao PDR has to to understand what constraints SPS standards face and how to adjust to meet the requirements of the importing countries.

Progress on Sanitary and Phytosanitary development in Lao PDR

- Initial develop pest surveillance system and pest inventory of commodity crop such as mango, corn, etc... .. . . with upgrading culture collection laboratory
- Improve export certification system with supporting from NZAID program to produce National Phitosanitary Database software application.
- Up to date, Lao PDR has officially established international 15 entry/exit plant quarantine border posts with 27 plant quarantine inspectors among that 8 border posts has upgrade to issue phytosanitary certification.
- Adopt and be implementing international standard for phytosanitary measures such as
  ISPM No.6 (Guidelines for pest surveillance)
  ISPM No.7 (Guidelines for export certification system)
  ISPM No.12 (Guidelines for phytosanitary certificates)
  ISPM No. 15 (Guidelines for regulating wood packaging material in international trade)
  ISPM No.20 (Guidelines for a phytosanitary import regulatory system)
  ……etc……
- Preparing plant quarantine law in compliance with WTO/SPS requirement.
- Developing human resource including officer and technical staffs in varies subject on phytosanitary (Pest inventory, Pest diagnostic, PRA atc. . . .)

Risk management practice prior export commodity from Lao PDR

- Physical Inspection
- Fumigation (methyl bromide)
- Currently, Department of Agriculture is Developing GAP (good agricultural practice) and organic certification scheme for commodity crop
- Supply chain management has been introduced to secure commodity production (organic rice)

Phytosanitary issues concerning to market access

- Standards to enhance quality of product eg. good manufacturing practice is addressed by EU and Japan market access
- Exporter has learns import condition from importer with out participation of government authority.
- There is still gab between farmer and exporter, in most case farmer has no chance to learn what import condition for the product is.
- Currently, Bio-safety certification eg. GMO is required for market access of new commodity from Lao by which the responsible is not yet clearly defined among institution.
- Most of agricultural goods are exported through border trade which causes difficulty to authorize.

Annex 21. Market Access Experiences of Malaysia in Exporting Tropical Fruits

MARKET ACCESS EXPERIENCES OF MALAYSIA IN EXPORTING TROPICAL FRUITS

by

MOHD NOR B ARSHAD &

WONG WAN CHENG

CROP PROTECTION AND PLANT QUARANTINE DIVISION

DEPARTMENT OF AGRICULTURE

13 OCTOBER 2008

TOPICS FOR PRESENTATION

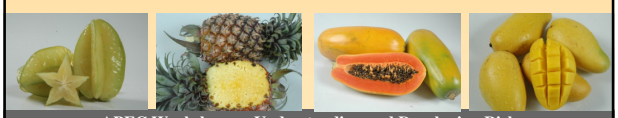
- Objective of paper
- Malaysian Fruits and Vegetable Trade Figures
- Pytosanitary measures imposed by importing
- countries
- Development of quarantine protocol
- Issues and challanges
- Conclusions

OBJECTIVES

(i) To highlight phytosanitary measures imposed by countries

(ii) To discuss steps to lifting ban on import/gain market access for fruits

(iii) Development of quarantine protocols to enhance export of fruits



PHYTOSANITARY MEASURES IMPOSED BY IMPORTING COUNTRIES

- Many developed countries impose stringent phytosanitary requirements for import of fresh fruits (e.g Australia , Japan, USA, New Zealand)
- SPS measures are imposed against quarantine pests (pests which are not present in importing country)
- Procedures for market access approval are lengthy (e.g USA: 3-4 years, Australia: 2-3 years)

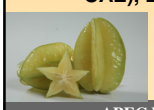
PHYTOSANITARY MEASURES IMPOSED BY IMPORTING COUNTRIES

Examples of phytosanitary measures currently imposed by importing countries

- Fruits must be produced from designated pest free areas
- Effective disinfestations treatment against quarantine pest in exporting country
- Restrictions on method of packaging and transportation
- preventive measures against recontamination
- Confirmation of disinfestations and inspection at the point of entry

PHYTOSANITARY MEASURES IMPOSED BY IMPORTING COUNTRIES

- Present export market of Malaysian fruits are to countries which do not impose stringent SPS measures
- Importing countries:
  Hong Kong, Singapore, Brunei, Chinese Taipei, Indonesia, Middle East (Saudi Arabia, Iran, UAE), EU Countries




EXPORT OF FRUITS TO COUNTRIES THAT DO NOT IMPOSE STRINGENT SPS MEASURES

A: FRUITS

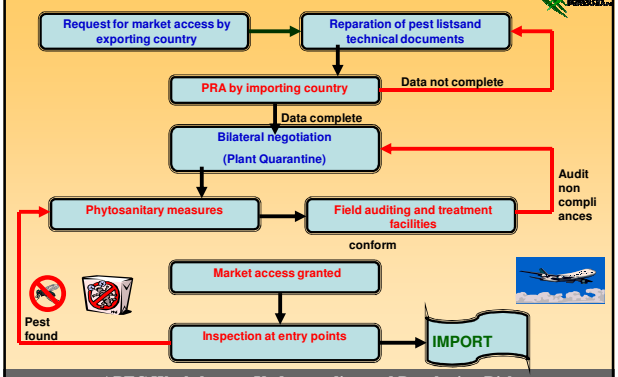
No.	Products	Export Destination
1	Papaya	Hong Kong, Singapore, Middle East
2.	Watermelon	Singapore, Hong Kong, Indonesia
3.	Banana (Variety Berangan)	Singapore, Brunei, Germany, UAE
4.	Pineapple	Singapore, United Arab Emirates
5.	Guava	Singapore, Brunei
6.	Mangoes	Singapore, Brunei, Indonesia
7.	Rambutan	Singapore, Netherlands, Brunei
8.	Durians	Singapore, Indonesia, Brunei
9.	Jackfruit	Singapore, Hong Kong, Netherlands
10.	Starfruit	Netherlands, Singapore, France
11.	Mandarin Oranges	Singapore, Indonesia

LATARBELAKANG

Nilai Eksport Buah-Buahan Negara Tahun 2005

Jenis Buah-Buhan	Kuantiti (Mton)	Nilai (RM Juta)
Tembikai	77,091	59,394,420
Betik	42,043	58,756,440
Belimbing	6,806	31,228,450
Durian	22,932	20,310,606
Pisang	31,107	15,531,007
Nanas	19,452	10,840,295
Mangga	3,665	3,967,910
Guava	2,866	3,145,420
Nangka	3,253	2,686,408
Rambutan	10,011	2,290,303
Manggis	1,330	2,216,264
Buah-Buahan Lain	62,546	14,983,777
JUMLAH	283,105	225,351,320

Market access process



DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

1) Identification of target pest (quarantine pest of importing country)

i) *Bactrocera carambolae* (Carambola fruit fly)

ii) *Bactrocera cucurbitae* (Melon fruit fly)

iii) *Bactrocera papayae* (Papaya fruit fly)



DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

2) RISK MANAGEMENT OPTION

i) Recognition of Pest Free Area (PFA);

ii) Recognition of Area of Low Pest Prevalence (ALPP);

iii) Pest Disinfestation Facility (Quarantine treatment)

iv) Implementation of field pest management system – e.g Malaysian Phytosanitary Certification Assurance Scheme (MPCA)

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

3) Quarantine Treatments:

QUARANTINE TREATMENTS	FRUIT TYPE	IMPORTING COUNTRY
Fumigation	Pineapple	Australia, Iran
Vapour Heat Treatment (VHT)	Papaya, Mango, Mangosteen	Australia, Japan
Hot Water Treatment (HWT)	Papaya	China
Quick Freezing	Durian	Australia, China
Cold Treatment	Starfruit	USA, EU
Irradiation	Papaya, Mango	USA

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

A) Quarantine Treatments: Fumigation

Pineapple fumigated with Methyl bromide at 32g/m^3 for 2 hours at 24˚C

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

B) Quarantine Treatments: Vapour Heat Treatment (VHT)

Harumanis mango treated using VHT: 46.5℃ for 20 minutes.

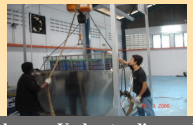
(Required by Japan)

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

C) Quarantine Treatments:

Hot Water Treatment (HWT)

Eksotika papaya treated using HWT: 46.5˚C for 10 minutes. (Required by China)



DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

D) Quarantine Treatments: Quick Freezing

Frozen whole durian, mangosteen and jackfruit: -18˚C for 14 days (Japan, Australia, China)

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

E) Quarantine Treatments: **Cold Treatment**

Starfruit to EU countries: 3.6˚C, 12 days prior to shipment using reefer container at same temperature

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

F) Quarantine Treatments: **Gamma Irradiation**

Eksotika papaya at 150 - 200 Gray

List of Malaysian Agricultural Produce Granted Market Access to China through Bilateral Negotiations

Produce	Phytosanitary measures required by China
Papaya	1) Phytosanitary certificate 2) Treated using Hot Water Dipping
Rambutan	1) Phytosanitary certificate 2) Consignment free from pest
Mangosteen	1) Phytosanitary certificate 2) Consignment free from pest
Longan	1) Phytosanitary certificate 2) Consignment free from pest
Watermelon	1) Phytosanitary certificate 2) Consignment free from pest
Coconut	1) Phytosanitary certificate 2) Consignment free from pest
Cut Flowers (Orchids, Chrysanthemums, Anthurium, Foliages)	1) Phytosanitary certificate 2) Consignment free from pest

List of Malaysian Agricultural Produce Granted Market Access to Australia through Bilateral Negotiations

Produce	Phytosanitary measures required by Australia
Durian (Frozen whole fruit/pulp)	1) Phytosanitary certificate 2) Frozen at -18℃ for 1 week before exportation
Cut Flowers (Orchids, Chrysanthemums, Anthurium, Foliages)	1) Phytosanitary certificate 2) Only from nurseries recognized by Australian Quarantine and Inspection Service (AQIS)

List of Malaysian Agricultural Produce Granted Market Access to Japan through Bilateral Negotiations

Produce	Phytosanitary measures required by China
Jackfruit	1) Phytosanitary certificate 2) Frozen at -18°C for 1 week before exportation
Durian	1) Phytosanitary certificate 2) Frozen at -18°C for 1 week before exportation
Pineapple	1) Phytosanitary certificate 2) Fumigation with Methyl Bromide at a rate of 32g/m^3 for 2 hours
Young Coconut	1) Phytosanitary certificate 2) Consignment free from pest
Cut Flowers (Orchids and Chrysanthemums)	1) Phytosanitary certificate 2) Consignment free from pest
Banana	1) Phytosanitary certificate 2) 70% matured (green skin) 3) Tax free (1000 mton/year)
Mangosteen	1) Phytosanitary certificate 2) Frozen at -18°C for 1 week before exportation

List of Malaysian Agricultural Produce Granted Market Access to USA through Bilateral Negotiations

Produce	Phytosanitary measures required by China
Orchids (Cut flowers and seedlings)	1) Phytosanitary certificate 2) Consignment free from pests

List of Malaysian Commodities Under Negotiations for Market Access

Country	Commodities Under Negotiations
China	Durian, Pineapple, Starfruit, Jackfruit
Australia	Pineapple (Josapine), Papaya, Starfruit, Mangosteen
Japan	Mango (Harumanis), Papaya, Mangosteen, Capsicum Bell Papper
USA (FTA)	Starfruit, Papaya, Jackfruit, Rambutan, Durian




DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

Steps taken by DOA to expedite Malaysia compliance to SPS:

1) Development of Quarantine Treatment:
   (Collaboration with MARDI and MINT)

   i) Vapour Heat Treatment (VHT) –
   Tested on mango (harumanis) and papaya. "Core temperature" of 46.5°C for 10 minutes with relative humidity of 80% effective to kill fruit flies. Two experimental units placed at DOA and MARDI.

   ii) Gamma Irradiation (Cobalt 60) -
   Tested on papaya. Effective alternative as a quarantine treatment

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

Steps taken by DOA to expedite Malaysia compliance to SPS:

2) Development of Quarantine and Export Center at KLIA

i) Modification on existing building of FAMA's grading center at KLIA. Expected to complete on December 2008.

ii) 2 main facilities:

a) Vapour Heat Treatment (VHT) facility: A commercial unit of VHT with 5 ton capacity for Quarantine treatment;

b) Fruits and vegetables processing center able to cater for production of minimally-processed fruits and vegetables for export (EU, Japan and US market)

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

Steps taken by DOA to expedite Malaysia compliance to SPS:

3) Accreditation program to prepare farms/premise for audits by importing country

i) DOA will provide technical expertise and conduct audits to farms/premise chosen to be inspected by the Plant Quarantine Authority of the importing country:

a) Exportation of papaya to China
AQSIQ, China had audited and approved 3 HWT facilities in Malaysia.

b) Exportation of pineapple to Australia
Early inspection done by AQIS in pineapple farms in Simpang Renggam, Johor, Further inspection required.

DEVELOPMENT OF PLANT QUARANTINE PROTOCOL

Steps taken by DOA to expedite Malaysia compliance to SPS:

3) Accreditation program to prepare farms/premise for audits by importing country

c) Exportation of mango (harumanis) to Japan
Farms inspection by Plant Quarantine Officer, from MAFF Japan in May 2007. One of the steps required for market access.

ISSUES AND CHALLENGES

a) Fruit Quality

Gred A: 400 – 600 g

Saiz

Skin quality

ISSUES AND CHALLENGES

a) Fruit Quality

Japanes Market:

ISSUES AND CHALLANGES

b) High Exporting Costs

- Production costs;
- Transport costs;
- Treatment costs;
- Grading and Packaging Costs.

Estimate costs for exporting Harumanis Manggo to Japan : RM 12 – 15 sekilogram

ISSUE AND CHALLANGES

c) CONSTANT SUPPLY OF QUALITY FRUIT

- Encourage to increase planting area;
- Improve production per hectare;
- Improve fruits quality;
- Improve grading, packaging and treatment facility

ISSUE AND CHALLENGES

d) Involvement of private sector in the exporting process

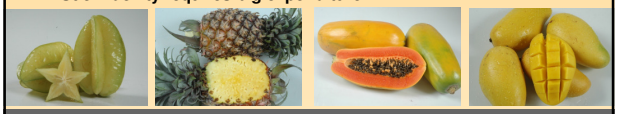
- Investment

CONCLUSION

1) Current exportation of Malaysian fresh fruits and vegetables are mainly to countries imposing less stringent SPS measures i.e Hong Kong, Singapore, Middle East and EU;

2) Market access to countries imposing strict SPS measures requires lengthy period of time before market access is granted. It is the prerogative of the importing country to impose any phytosanitary requirement;

3) In order to comply with the SPS requirement of the importing countries, quarantine treatment facilities need to be established. Such facility requires big expenditure.



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Annex 22. Market Access in Myanmar

Asia-Pacific Economic Cooperation

Government of Malaysia

moa INCORPORATED
KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Market Access Activities in Myanmar

Myo Nyunt
Myanmar

Union of Myanmar

Latitude: 9° 32' – 28° 31'
Longitude: 92°10' – 101° 11'
Land frontier:

with Thailand:	2099 km
with Laos	235 km
with China	2227 km
with Bangladesh	272 km
with India	1453 km

Sea frontier:

Rakhine coastline	713 km
Delta coastline	438 km
Taninthayi coastline	1078 km

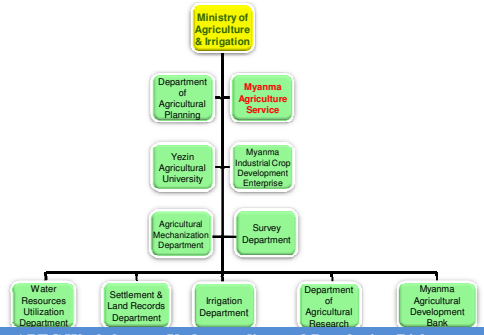
Vision Statement

To be a trusted, reliable, competent and efficient provider of plant protection services to assist the nation to safely export and import agricultural commodities, to ensure the sound management of pesticides, to help farmers to minimize the impact of pest damage by applying integrated pest management approaches, and to educate stakeholders (farmers, traders, government employees and general public) on all aspects of plant protection.

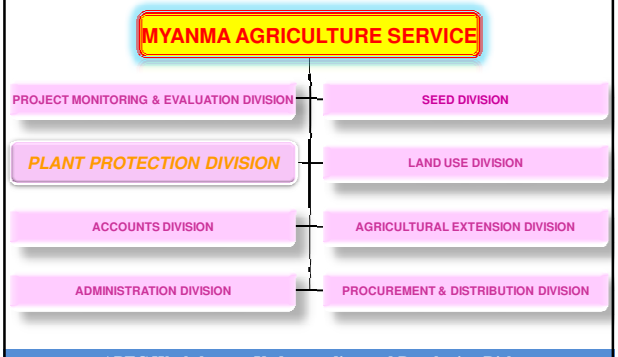
Mission

- Phytosanitary measures
- Pesticide Management and Control
- Pest Management activities
- Extension, education and field services

ORGANISATIONAL CHART OF THE MINISTRY OF AGRICULTURE & IRRIGATION



STRUCTURE OF MYANMA AGRICULTURE SERVICE



➢Records for Myanmar Entomology

Number of specimens : 373

Positive :286 specimens (54 species)
Tentative : 41 specimens (20 species)
Unknown/Unidentified : 46 specimens
(About 15 species)

About 90 species from 373 specimens

Records for Country

Numbers of specimens - 108
Record of Pathogen Association:
Positively Identified – 19 species
Tentatively Identified – 2 species
Unknown - 2 species
Total number of pathogen species - 23
No. of records by others not found - 6 species

Positively Identified Pathogens

Sr. No.	Name of Pathogen	Disease	Plant part affected	
1	*Pestalotiopsis mangiferae* (P)	Grey leaf spot	leaf	
2	*Lasiodiplodia theobromae* (P)	Stem end rot	Leaf, twig, fruit	
3	*Colletotrichum gloeosporioides* (P)	Anthracnose	Leaf, twig, fruit, inflorescens	
4	*Alternaria alternata* (P)	Leaf spot, Fruit rot	Leaf, fruit	
5	*Botryosphaerea parva* (P)	Stem end rot	Leaf, twig, fruit	
6	*Cladosporium* sp. (S)	-	Leaf, fruit	
7	*Aspergillus niger* (S)	-	Leaf, fruit	
8	*Gonatofragmium mangiferae* (P)	Zonate leaf spot	Leaf,	
9	*Curvularia* sp. (S)	-	Leaf	
10	*Cytosphaera mangiferae* (P)	Leaf spot	Leaf	
11	*Fusarium moniliforme* (P)	Malformation	Inflorescens, shoot	
12	*Oidium mangiferae* (P)	Powdery mildew	Leaf, inflorescens, young fruit	
13	*Denticularia mangiferae* (P)	Scab	Leaf, fruit	
14	*Scolecostigmina mangiferae* (P)	Stigmina leaf spot	Leaf	
15	*Phomopsis mangiferae* (P)	Stem end rot	Leaf, fruit	
16	*Capnodium mangiferae* (E)	Sooty mold	Leaf, fruit	
17	*Cephaleuros virescens* (E)	Algal leaf spot	Leaf	
18	*Diaporthe* sp (P)	Leaf spot	Leaf	
19	*Xanthomonas axonopodis* pv. *mangiferaeindicae* (P)	Bacterial leaf spot	Plant part affected leaf	

Other pest records on mango

Order	Family	Genus	species	Common name	Damage	Source
Moniliales		*Aspergillus*	*niger*	Collar rot	visible fungal growth	CPC 2005
Dothideales	Botryosphaeriaceae	*Botryosphaeria*	*ribis*	Canker apple	canker, dieback	CPC 2005
Microascales	Ceratocystidiceae	*Ceratocystis*	fimbriata	Ceratocystis blight	canker, dieback	CPC 2005
Microascales	Ceratocystidiceae	*Ceratocystis*	*paradoxa*	Black rot	root rot, dieback	CPC 2005
Polyporales	Corticiaceae	*Corticium*	*rolfsii*	Sclerotium rot	canker, dieback	CPC 2005
Polyporales	Corticiaceae	*Corticium*	*salmonicolor*	Damping off	stem canker	CPC 2005
Anamorphic	fungi	*Macrophomina*	*phaseolina*	Charcoal rot of bean	canker, dieback	CPC 2005
Anamorphic	fungi	*Nattrassia*	*magiferae*	Branch wilt of apple		CPC 2005
Anamorphic	fungi	*Pestalotiopsis*	*mangiferae*	Grey leaf spot	leaf spot	CMI Descriptions of Pathogenic Fungi and Bacteria No.676, 1980 CAB
Anamorphic	fungi	*Gonatofragmium*	*mangiferae*	Zonate Leaf spot	leaf spot	More Dematiaceous Hyphomycetes 1976.Page187.M.B. Ellis,B.Sc.,Ph D Principal Mycologist,CMI.Kew,CAB

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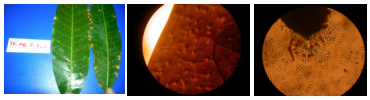
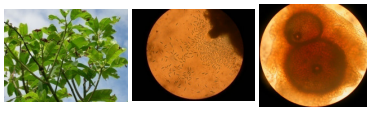
Positively Identified Diseases

Anthracnose
Colletotrichum gloeosporioides

Stem end rot
Lasiodiplodia theobromae



Stem end rot
Botryosphaeria parva



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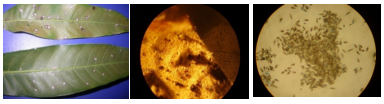
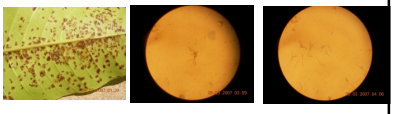
Positively Identified Diseases

Grey leaf spot
Pestalotiopsis mangiferae



Scab
Denticularia mangiferae

Stigmina leaf spot
Scolecostigmina mangiferae



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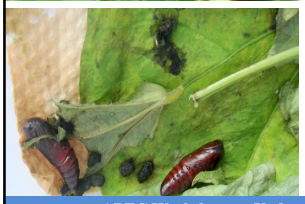

Omiodes indica

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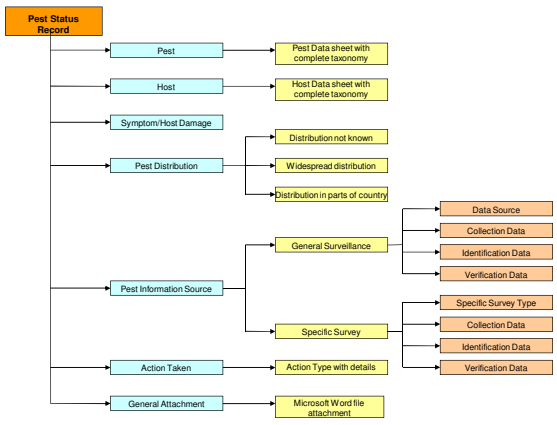
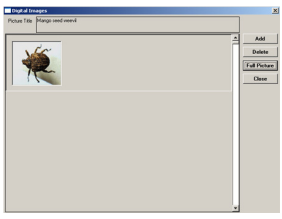
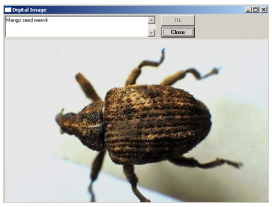
Front-End Structure for Pest Status Records



Facilities for Incorporating Pest Images





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Pest lists and collections

- Building Specimen-Based Pest Lists to Facilitate PRA

Risk Management options

Chemical

Physical

Ionising radiation

Others

Legal Actions taken at national level

Reviewing existing Quarantine Law, Regulation and redrafting in line with WTO/SPS Agreement

Legal Actions taken at national level

Developing NPPO's Capacity Building

Negotiations with Trade partners regarding PRA processing and providing required information

- *Inspecting and testing consignments…… for the purpose of preventing the introduction and spread of regulated pests;*
- *Ordering treatment of consignments of plants ……..in international traffic, to meet phytosanitary requirements;*
- *Protecting endangered areas, and designating, maintaining and surveying pest free areas and areas of low pest prevalence;*
- *Ensuring phytosanitary security of consignments after certification and prior to export;*
- *Regulating the movement of biological control agents within, from and into the country.*

Constraints for processing risk management options

*Limited funds available
*Capacity development takes time
*Full implementation of ISPMs with limited resources is very critical
***Awareness of importance to Market Access is very essential**

THANK YOU

Annex 23. Philippines Fruit Industry

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

APEC Workshop on Understanding and Developing Risk Management Options for Market Access[1]

Philippine Report[2]

[1]Renaissance Hotel, Melaka, Malaysia. October 13-17, 2008
[2]Hernani G. Golez and Laura Prado, Department of Agriculture, Diliman, Quezon City, Philippines

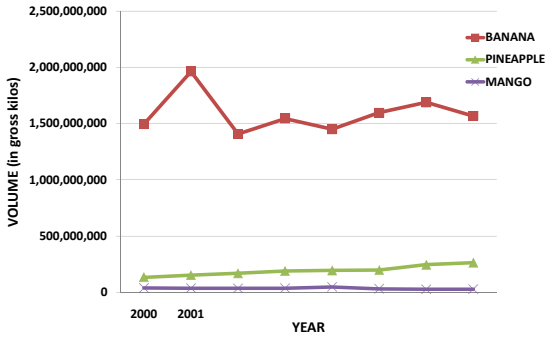
Philippine Fruit Industry

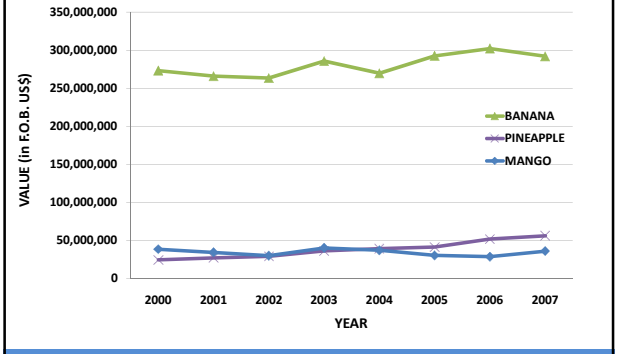
- Important component of Philippine Agriculture
  - provides income and employment
  - valuable source of food nutrients
  - ecological/environmental function
  - other uses (medicine, lumber, etc.)
- Area devoted to fruit crops is about 880,760 ha. (6.7%) of total land area for agriculture (13M ha.)
- Volume of production is about 11M mt. (16% of total volume for agricultural crops)

- Average yield of major fruit crops are: banana (40 tons/ha), mango (10 tons/ha) and pineapple (11 tons/ha).
- Value generated from fruit production is about 59 Billion pesos, this is about 21% of total volume for agricultural crops.
- The volume and value of fruit export are however, low, about 1.63M mt. worth U$463 M.

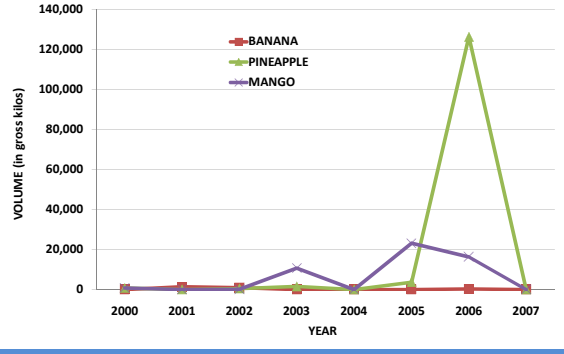
- mango export less than 10% of total production (1,023,906 mt.)

Total Volume of Exports of Bananas, Pineapples and Mangoes from APEC member-countries,2000-2007.





APEC Workshop on Understanding and Developing Risk Management Options for Market Access



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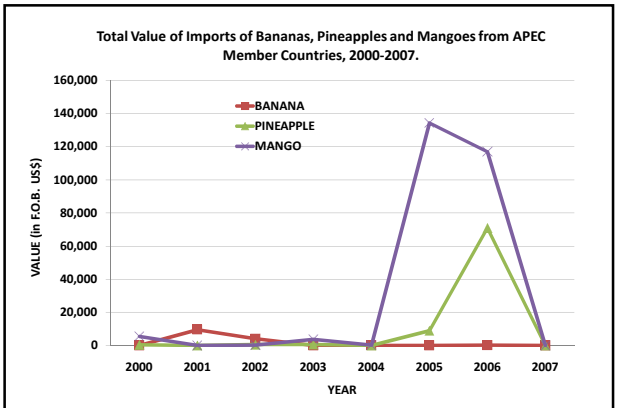

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APEC Member Countries	Date of Joining
Australia	6-7 Nov 1989
Brunei Darussalam	6-7 Nov 1989
Canada	6-7 Nov 1989
Chile	11-12 Nov 1994
China	12-14 Nov 1991
HongKong, China	12-14 Nov 1991
Indonesia	6-7 Nov 1989
Japan	6-7 Nov 1989
Republic of Korea	6-7 Nov 1989
Malaysia	6-7 Nov 1989
Mexico	17-19 Nov 1993

APEC Member Countries	Date of Joining
New Zealand	6-7 Nov 1989
Papua New Guinea	17-19 Nov 1993
Peru	14-15 Nov 1998
Philippines	6-7 Nov 1989
Russia	14-15 Nov 1998
Singapore	6-7 Nov 1989
Chinese Taipei (Chinese Taipei)	12-14 Nov 1991
Thailand	6-7 Nov 1989
United States	6-7 Nov 1989
Viet Nam	14-15 Nov 1998

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Road Map for each fruit crop was crafted to obtain the following objectives:

1. Increase fruit production
   - improving tree productivity
   - expansion of suitable areas for production
   - improvement of fruit quality

2. Increase fruit export
   - improvement of fruit quality and reduction of postharvest losses
   - expanding export share on existing markets
   - development of new markets
     - address stringent quarantine requirements of importing countries particularly with regards to quarantine pests.

Bureau of Plant Industry (BPI)

Enforcement Authority for the Plant Quarantine Laws and Regulations in the Philippines

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Plant Quarantine Service (PQS)

- Created by virtue of Presidential Decree 1433 and Plant Quarantine Law of 1978

MANDATES

- Prevent introduction of foreign pests in the country
- Prevent further spread of those pests already existing in the country
- Comply with the plant requirements of importing countries (export of plants, planting materials and other plant products)

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Export Quarantine

- The export certification procedures and phytosanitary certification system is based on the International Plant Protection Convention (IPPC), set out in ISPMs Nos. 7 and 12.
- Import requirements can also be imposed by trading partners and agreed by both parties. These are complied to ensure acceptability of commodities to the country of destination.

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Philippine's experience with regards to market access of local fruits to various countries

Japan

1. Fresh Mango and Fresh Papaya
   - Vapor heat treatment (VHT) to kill fruit fly
     - Hot water treatment to kill the most susceptible stage of fruit fly larvae
     - Confirmatory test using VHT
   - Residue certificate that mango fruits have low MRL: Chlorpyrifos, Profenofos and Cypermethrin.
     - Registration of growers involved in export
     - Regular monitoring of pesticides in the field
     - Approved pesticides for mango use only
     - Pesticide analysis of fruits prior to export
     - Implementation of GAP for mango

   - Phytosanitary certificate signed by Philippine Quarantine Officer and Japanese inspector

2. Fresh Banana
   - Only green matured Cavendish can be exported
   - Phytosanitary certificate signed by Philippine Quarantine Officers

3. Fresh Pineapple and Fresh Coconut
   - Phytosanitary certificate signed by Philippine Quarantine Officer

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Problems encountered with fruit export to Japan

1. Only VHT unit approved by Japan can be used for disinfestation of fruits.
2. Phytosanitary certificate only given after signature of Japanese inspector assigned in the country (mango and papaya). Expenses of Japanese inspector is borne by exporters.
3. Residue level on some pesticides have very low MRL, lower than the standard approved by CODEX: Chlorpyrifos (0.05 ppm), Profenofos (0.5 ppm) and Cypermethrin (0.03 ppm)
4. The need for mandatory analysis of these pesticides prior to export.

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United States of America (USA)

1. Fresh Mango (Carabao)
   - USDA Pre-clearance
     - area freedom from Mango Pulp and Seed Weevils
       - ✓ Survey using APHIS/USDA protocol
       - ✓ Certificate of area freedom from USDA
       - ✓ Quarantine Implementation
       - ✓ Regular monitoring
     - Guimaras province was approved for mango export to US.
     - Other mango growing provinces are now being surveyed for presence/absence of the weevils (BPI-USDA funded project).

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- Vapor Heat Treatment
  - Hot water treatment to kill 2 species of fruit flies
  - Confirmatory test using VHT
- Phytosanitary Certificate signed by USDA inspector assigned in the Philippines

2. Fresh Banana (Cavendish)
- Concerns are species of fruit flies that may infest banana.
- PRA team has addressed this concern by providing mitigating measures against the pests.
- USDA is now reviewing these measures and may require site visitation of the production areas, if necessary.

3. Papaya and Pineapple
- PRA is required

Problems encountered with fruit export to USA:

1. Pre-clearance requirement for area freedom from quarantine pest is tough and should follow the USDA protocol (survey, implementing quarantine and monitoring)
2. Accreditation of growers, exporters and implementation of GAP for mango
3. VHT is required for treatment of mango against fruit flies
   - Facility to be inspected and calibrated before use
4. Presence of USDA inspector to sign the Phytosanitary Certificate. Expenses is borne by exporters.
5. Market promotion of product is important.

Australia

1. Fresh Mango
   - Pre-clearance requirement
     - Area freedom from mango pulp and seed weevils
     - Scientific evidence for the absence of these pests in the area through survey with protocol approved by AQIS
       - ✓ Area freedom certification
       - ✓ Quarantine and yearly monitoring
       - ✓ Guimaras Island approved
       - ✓ Extension of area freedom to cover Davao del Sur (Mindanao) based on recent survey conducted

- Vapor heat treatment for mango export is required
- Phytosanitary certificate. Initial export with presence of AQIS Official, but succeeding exports with Philippine Quarantine Officer only.

2. Fresh Banana (Cavendish)
- Biosecurity Australia and Import Risk Analysis Team prepared and assessed the application to import Cavendish banana from the Philippines to Australia.
- The revised draft of Import Risk Analysis report proposes permitting the importation of mature green banana to Australia, subject to stringent risk management measures.

- Seven pests were identified that pose quarantine risk and exceeded Australian ALOP's and therefore, require risk management measures (Moko, Black Sigatoka, Freckles, Armored scales, Mealy bugs, Spider mites and Banana thrips).
  - Mandatory pre-clearance arrangement is required and specific risk management for Moko, Black Sigatoka and Freckles based on system approach.
  - A visit to the production areas in the Philippines is also required.
  - Negotiation is still in progress.

3. Fresh Pineapple
- Fruits decrowned
- Fumigation is required
- Phytosanitary certificate is also required

4. Fresh Papaya and Coconut
- PRA is still required

Problems encountered with fruit export to Australia:

For Mango
- Pre-clearance requirement for area freedom requiring survey, monitoring and implementation of quarantine is tough, expensive and requires 2 seasons of mango production.
- Philippines passed the requirements and is waiting for area freedom certification of Davao del Sur from Bio-Security Australia.

For Banana
- Negotiation is still on-going
- The ALOPs for the 7 pests is very low (almost negligible) and may not be complied by banana growers.

- The IRA team of Australia makes additional requirements each time a revised draft protocol is submitted. Hence, scientists working with banana in the Philippines are tired of complying with additional requirements.
- There are speculations that banana growers of Australia are lobbying for non-entry of Philippine bananas to Australia since importation will "kill" the local industry.

Korea

1. Fresh mango and papaya
   - Vapor heat treatment
     - facility inspection and calibration
   - Phytosanitary certificate
     - Approved and signed by Korean inspector sent to the country

2. Fresh banana
   - Green matured banana
   - Phytosanitary certificate

3. Fresh Pineapple and Fresh Coconut
   - Phytosanitary certificate is required

Problems encountered with fruit export to Korea:

1. Inspector assigned to the Philippines have to be supported by local exporters.

Chinese Taipei

1. Fresh Pineapple, Papaya, Banana (Cavendish) and Coconut
   - Still under negotiation
   - Requirements for pest status, survey on fruit flies were submitted for PRA process but no response yet.

Other countries requiring fresh fruits

HongKong – Phytosanitary Certificate

Malaysia - -do-

Singapore - -do-

China – VHT or EHWD for mango and Phytosanitary certificate

Middle East – Phytosanitary Certificate

Lessons learned

1. Each importing country has its own requirement for export. Some are simple, others are tough. In the bilateral trade meeting, "diplomacy" is the key word.
2. In most cases, Pest Risk Analysis (PRA) is required for the entry of commodity. Be sure that the exporting country is ready with the requirements being ask for to facilitate the process. "Communication" is the key word.
3. For importing countries that requires Pre-clearance (area freedom from a particular pest). Exporting country should have technical person to handle the survey following the approved protocol. Involvement of the national government, local government, quarantine and stakeholders is very important. They can provide support and expedite the survey.

4. Post harvest treatment such as VHT is required by most importing countries to get rid of fruit flies. Through the principle of equivalence, we may use simple yet effective method to control fruit flies such as Extended Hot Water Dip (EHWD). This was accepted by China, we hope other countries will accept such treatment too.

5. While we are doing the rigorous PRA process for the entry of commodity to an importing country. We have to prepare our growers for the eventual exportation of commodity. Hence, increase production of good quality fruits is important.

6. Many of the bilateral arrangement are done by policy makers at Department levels. There should be constant communication between them, implementors of the requirement (NPPO) and exporter in the country.

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Suggestions and Recommendations

1. Pest Risk Analysis (PRA)
   - Should be a separate unit in the agency composed of qualified members, representing various disciplines of crop protection and supported by appropriate funds.
   - Members of PRA team should be assigned to handle the various process of PRA (initiation, pest risk assessment, pest risk management and risk communication)
   - Appropriate level of protection (ALOP) "acceptable level of risk" should be well defined within scientific premise

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   - Mitigating measures should correspond to risk (high or low) associated with the pest, "not over kill."
   - Socio-economic impact should be handled by experts having this discipline. Member of PRA team may have little knowledge about the socio-economic implication should pest be introduced in the country.

2. Initiating market access
   - Assign focal person to deal or negotiate with importing country concerning the requirements of particular crop for export.
   - The exporting country should be ready with the following information needed in pest risk analysis (PRA):

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- Information about the crop
- Production area
- Cultivation methods
- Pest list
- Packing house and procedure
- Export program

- Exporters/importers should be involved in the process

3. Deployment of quarantine officers to exporting countries to verify the authenticity of the treatment (VHT, EHWD or irradiation)
   - A country may allow deployment of foreign inspector to verify and certify the treatment process. However, this maybe done only for initial exports with support coming from exporter.

- Trust should be encouraged between importing and exporting countries so that succeeding shipments may not require inspector from quarantine office of importing countries.

4. There are mitigating measures that can effectively satisfy the country's appropriate level of protection. This is included in the concept of equivalence (Article 4 of SPS Agreement). We need to pursue this equivalent treatment which is similarly effective and economically accepted by importing countries.

- VHT for fruit flies is generally accepted by importing countries.

- We developed the extended hot water dip (EHWD) to control fruit fly which is effective, simple and cheaper than VHT. It was approved by China and hopefully, it will be approved by other countries.

5. We always expect that expansion of market access for commodity always results to profitability in the business. It should be emphasized that entry of a commodity to a country through the rigorous process of pest risk analysis is one thing and marketing the commodity is another thing. In the latter, the exporting country should prepare separately its marketing strategies to include market intelligence, promotion tactics, price, consumer preference, etc. in order to be competitive with other commodities introduced in the importing country.

It is unfair to do the PRA as required by a country if the product that is to be exported is in small quantity, delivery is irregular and freight cost for shipment is exuberant. Hence, looking for new markets should emphasize profitability of trade when making negotiation.

THANK YOU

From Dr. Hernani G. Golez

- Outstanding Filipino Awardee 2007
- University of the Philippines Alumni Awardee 2008
- Trimedia Award on Outstanding Filipino for Science and Technology from the Filipino-American Community, Los Angeles 2008

Annex 24. Phytosanitary System and Export of Fruits to Singapore

Asia-Pacific Economic Cooperation

Government of Malaysia

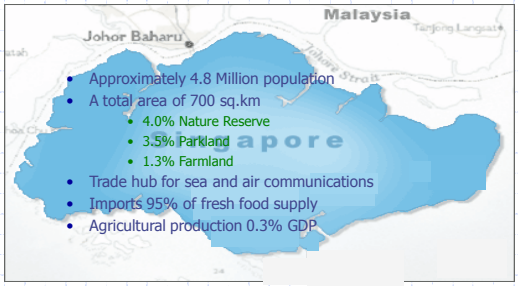
PHYTOSANITARY SYSTEM & EXPORT OF FRUITS TO SINGAPORE

Eric Casiano Tulang
Plant Health Officer
Import and Export Division
Agri-Food And Veterinary Authority of Singapore

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Agri-Food & Veterinary Authority

BACKGROUND

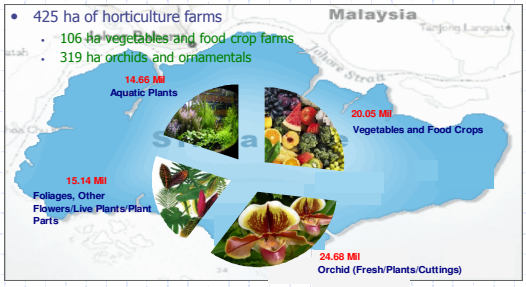


- Approximately 4.8 Million population
- A total area of 700 sq.km
  - 4.0% Nature Reserve
  - 3.5% Parkland
  - 1.3% Farmland
- Trade hub for sea and air communications
- Imports 95% of fresh food supply
- Agricultural production 0.3% GDP

Agri-Food & Veterinary Authority

SIGNIFICANCE OF BIOSECURITY

- 425 ha of horticulture farms
  - 106 ha vegetables and food crop farms
  - 319 ha orchids and ornamentals



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Agri-Food & Veterinary Authority

SIGNIFICANCE OF BIOSECURITY

- Exports SG$ 4.0 Billion worth of plants and plant products.
  - SG$ 725 Million are certified by AVA
  - 20,500 Phytosanitary Certificates

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Agri-Food & Veterinary Authority

ORGANIZATION OF AGRI-FOOD AND VETERINARY AUTHORITY (AVA)

MINISTRY OF NATIONAL DEVELOPMENT

AGRI-FOOD AND VETERINARY AUTHORITY

FOOD & VETERINARY ADMINISTRATION

IMPORT EXPORT DIVISION

PLANT REGULATORY BRANCH

PLANT HEALTH SECTION

Agri-Food & Veterinary Authority

ADMINISTRATION OF PHYTOSANITARY SYSTEM (1)

PLANT REGULATORY BRANCH – Plant Health Section

- Carries out plant health policies to regulate and approve entry of regulated products
- Conducts inspection to certify plants and plant products for phytosanitary purpose, post entry quarantine and disinfestation treatment
- Conducts pest risk assessment and approve equivalent phytosanitary measures
- Maintains import health requirements and feedback of non-compliance to country of origin
- Accreditation for exporters under the Quality Assurance Scheme for the export of plants and plant products and facilities for import of restricted commodities
- Quarantine pests surveillance, containment and eradication in the event of incursion

Agri-Food & Veterinary Authority

ELEMENTS OF PHYTOSANITARY SYSTEM

- International agreements and ISPMs
- Import health requirements and standards
- Border inspection, compliance checking, post entry quarantine and disinfestations
- Export certification system of exporting countries
- Non-compliance feedback to exporting countries
- Quarantine pest surveillance and monitoring programme
- Emergency response to pest incursion

Agri-Food & Veterinary Authority

IMPORT HEALTH REQUIREMENTS

- RISK CATEGORIES
  - SCHEDULE 1
    - Part I - Quarantine pest
    - Part II- Regulated non-quarantine pest
  - SCHEDULE 2
    - Plants, Plant products import under import permit
- PEST RISK ASSESSMENT
  - Qualitative
  - High risk, new and prohibited materials
  - New pathways
  - Commodity rather than crop based

Agri-Food & Veterinary Authority

LEGISLATION

- CONTROL OF PLANTS ACT (Chap 57A)
  - Plant Importation Rules
  - Phytosanitary Certification Rules
- ENDANGERED SPECIES ACT (Import and Export) Act 2006

Agri-Food & Veterinary Authority

IMPORT HEALTH REQUIREMENTS

- CONTROL MEASURES
  - Pre-departure certification for freedom from pest and disinfestations treatment at source
  - Import permits
  - Phytosanitary certificates
  - Risk mitigation measures
  - Import inspections
  - Post entry quarantine/disinfestation

Agri-Food & Veterinary Authority

IMPORT HEALTH REQUIREMENTS

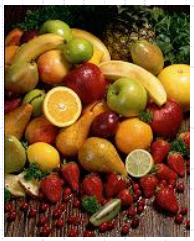
PRODUCT CATEGORIES	IP	PC	AD	INSP	PEQ
LIVING ORGANISMS	✓	✓	✓	✓	✓
HIGH RISK	✓	✓	✓	✓	✓
MEDIUM RISK	✓	✓	✓	✓	✓
LOW RISK	✓	✓		✓	

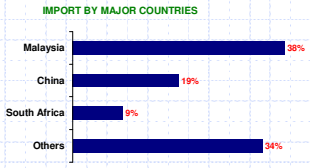
IP – Import Permit
PC – Phytosanitary Certification
AD – Additional Declaration
INSP – Import Inspection
PEQ – Post Entry Quarantine

Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

- **2007 IMPORT: 360,000 TONNES OF FRESH FRUITS WORTH SG$ 420 M**





Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

- **FRESH FRUITS**
  - **Unprocessed and raw which are intended for human consumption**



Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

LEGISLATION

- Control of Plants Act (Chapter 57A)
- Sale of Food Act
- Joint FAO/WHO Codex Alimentarius Commission

Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

IMPORT REGULATIONS

- LICENSE FOR IMPORT AND TRANSSHIPMENT OF FRESH FRUITS & VEGETABLES
  - Registered company with Accounting and Corporate Regulatory Authority
  - Registered with Singapore Customs – (CR) Central Registration Number
  - License fee
  - Application – Online Business Licensing System
  - Import declaration for every consignment of fruits & vegetables via TRADENET System
  - Cargo Clearance Permit (CCP) jointly issued by Singapore Customs and AVA
  - Phytosanitary Permit required for imports from South American Tropics

Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

IMPORT REGULATIONS

- ALL IMPORTED CONSIGNMENTS ARE SUBJECT TO INSPECTION BY AVA
  - CCP & other supporting documents such as invoice and bill of lading
  - Samples are taken for laboratory analysis
  - Penalty may be imposed on importer whose consignment failed to meet AVA's import requirements
- LABELLING OF RECEPTACLES
  - Name and address of the producer
  - Product description
  - Date of export

Agri-Food & Veterinary Authority

IMPORT OF FRESH FRUITS

IMPORT REGULATIONS

- IMPORTED FRUITS AND VEGETABLES SHALL NOT CONTAIN ANY RESIDUE OF PESTICIDES OR HARMFUL CONTAMINATIONS EXCEEDING THE PERMITTED LEVELS AS PRESCRIBED IN:
  - Sale of Food Act
  - Joint FAO/WHO Codex Alimentarius Commision

Agri-Food & Veterinary Authority

For more information, please visit: **www.ava.gov.sg**

THANK YOU

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Annex 25. Market Access Experience: Thailand

Asia-Pacific
Economic Cooperation

Government of Malaysia

moa INCORPORATED
KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Market Access Experience : Thailand

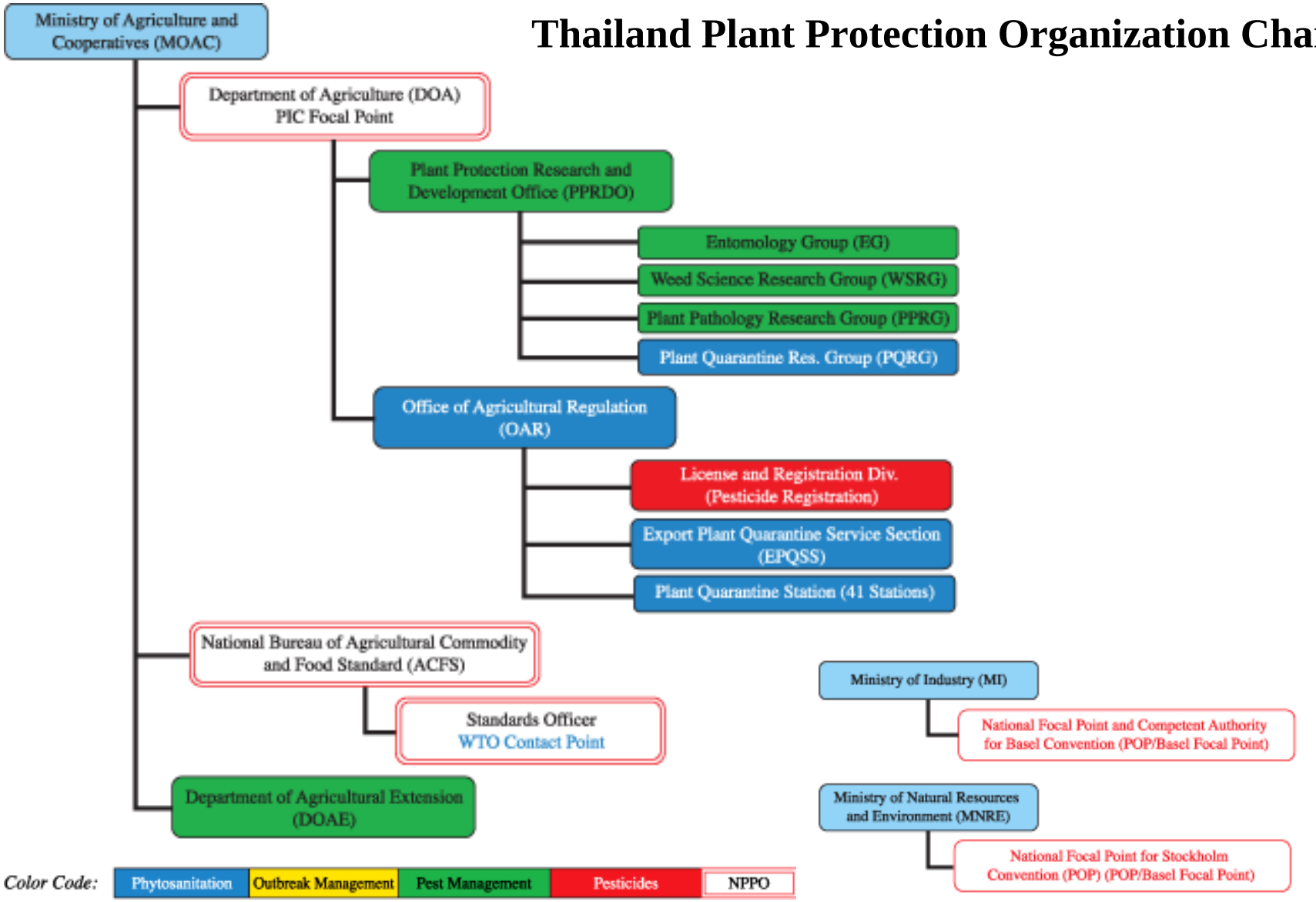
Mr.Prateep Arayakittipong
The National Bureau of Agricultural Commodity and Food Standards,
Ministry of Agriculture and Cooperatives, Thailand

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Outline :

- **Plant Protection Organization of Thailand**
- **Policy and regulations**
  (related with risk management for market access)
- **Case study : Exporting of irradiated fruits from Thailand to the United States**

Thailand Plant Protection Organization Chart



Policy and regulations for market access

Vision of the MOAC

The vision of the MOAC in a 10-year-period (2000-2009) is as follows :

" The MOAC is a major organization to develop the quality of life of farmers, support an adequate food production and safe consumption, and be a world leader of food export under the continual environmental and natural resources management."

Mission of DOA

The Department of Agriculture has the following authorities related to the exporting service of high-quality agricultural goods :

1. To study, research, test and develop various academic approaches of agriculture
2. To provide the analyzing, testing, inspecting and **certifying agricultural exporting service**, and others involved.
3. To operate its works in accordance with relevant law. **(Plant Quarantine Act B.E. 2507 (No. 5) B.E. 2550 dated 26 April B.E. 2550)**

Mission of ACFS

ACFS has the following authorities related to

1. To develop the standard and processed Agricultural Product and Product system. (including international standards according to ISPMs)

2. To inspect and certify commodity standard and standard of production in farms and processing factories, including accredit the government organizations and private sectors that certify the standard of agricultural commodity and food for export.

3. To serve as the focal point of information technology and traceability of agricultural commodity and food standard.

Regulation

Plant Quarantine Act B.E. 2507 (No. 5) B.E. 2550
dated 26 April B.E. 2550

Notification of Department of Agriculture

Re : Specifications, methods and conditions of pest risk analysis for the importation of prohibited articles

Regulation

The Roles of ACFS in standardization are enforced under the **Agricultural Standard Act B.E.2551 (2008)** since 20 August 2008 and are bounded by the commitment of World Trade Organization.

Types of Standards

- Mandatory standards
- Voluntary standards

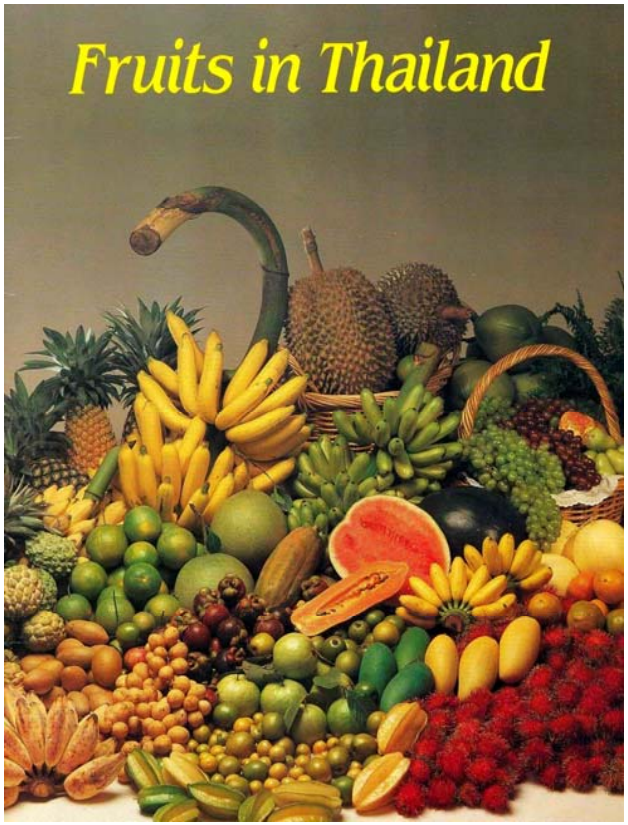
(ISPM no.6 , 15, 18 and 27)

Case study :

Exporting of irradiated fruits from Thailand to the United States

Thailand

A country of plentiful tropical fruits



Current export pest mitigation technologies

- Vapor heat treatment
- Cold treatment
- Methyl Bromide
- Irradiation

Key export markets are . . .

- Japan
- Chinese Taipei
- Hong Kong
- Australia
- China
- Singapore

Application for Market Access

Country	Commodities
USA	litchi, longan, mango, mangosteen, pineapple, rambutan
New Zealand	Litchi, longan, mango, ginger, mangosteen, young coconut, garden pea, asparagus
Australia	mango, mangosteen, durian, pineapple, pummelo

Application for Market Access

Country	Commodities
Korea	mangosteen
India	litchi, pummelo, young coconut, pineapple, tamarind, baby corn
Israel, Iran, Argentina	Cut foliage and branches : Lucky Bamboo (Draceana sp.)

Thai Fruits Currently Exported to U.S.
by using irradiation treatment



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Technical market access submission

Involves following sequential steps :

1. Preparation of technical document on PRA
2. Communications of PRA to APHIS/USDA
3. Finalization of import conditions
4. Equivalency work plans
5. Notification of WTO/SPS

For example ;

Pathway-Initiated Pest Risk Assessment for the Importation of Thai fruits into the United States from Thailand

***Garcinia mangostana* L. (mangosteen)**

***Nephelium lappaceum* L. (rambutan)**

mangosteen

Table 7: Pest Risk Potential

Pest	Consequences of Introduction	Likelihood of Introduction	Pest Risk Potential
Tephritidae			
Bactrocera carambolae Drew and Hancock	High (14)	High (16)	High (30)
Bactrocera dorsalis Hendel	High (14)	High (16)	High (30)
Bactrocera papayae Drew	High (14)	High (16)	High (30)
Coccidae			
Coccus viridis (Green)	High (13)	Medium (14)	High (27)
Diaspididae			
Pseudaonidia trilobitiformis (Green)	Medium (12)	Medium (12)	Medium (24)
Pseudococcidae			
Cataenococcus hispidus (Morrison)	High (14)	Medium (12)	Medium (26)
Dysmicoccus neobrevipes (Beardsley)	High (13)	Medium (14)	High (27)
Paracoccus interceptus Lit	High (14)	Medium (12)	Medium (26)
Planococcus lilacinus Cockerell	High (14)	Medium (12)	Medium (26)
Planococcus minor (Maskell)	High (14)	Medium (12)	Medium (26)
Pseudococcus cryptus (Hempel)	High (13)	Medium (12)	Medium (25)

Low: 11-18 points; Medium: 19-26 points; High: 27-33 points.

rambutan

Table 7: Pest Risk Potential for the Importation of *Nephelium lappaceum* L (Rambutan)

Pest	Consequences of Introduction	Likelihood of Introduction	Pest Risk Potential
Diptera			
Bactrocera dorsalis Hendel	High (14)	High (16)	High (30)
Bactrocera papayae Drew	High (14)	High (16)	High (30)
Homoptera			
Ceroplastes rubens (Morrison)	High (14)	Medium (12)	Medium (26)
Cataenococcus hispidus (Morrison)	High (14)	Medium (12)	Medium (26)
Dysmiccoccus neobrevipes (Cockerell)	High (13)	Medium (14)	High (27)
Maconellicoccus hirsutus (Green)	High (14)	Medium (14)	High (28)
Paracoccus interceptus Lit	High (14)	Medium (12)	Medium (26)
Planococcus lilacinus (Cockerell)	High (14)	Medium (12)	Medium (26)
Planococcus minor (Maskell)	High (14)	Medium (12)	Medium (26)
Lepidoptera			
Conopomorpha cramerella (Snellen)	Medium (12)	Medium (14)	Medium (26)

Low: 11-18 points; Medium: 19-26 points; High: 27-33

Import conditions

1. GAP - Farm
2. GMP - Packing house
3. Work plan
4. Pre clearance
5. Minimum absorbed dose at 400 Gy

The Signing Ceremony on Framework Equivalency Work Plan

APEC Workshop on Understanding and Developing Risk Management Options for Market Access

Framework Equivalency Work Plan

Part I: Overview:

This document outlines the fundamental requirements to allow bilateral trade of commodities treated by irradiation as a phytosanitary measure. This framework equivalency work plan (FEWP) on the use of irradiation as a phytosanitary measure is a requirement of USDA regulations, 7 CFR Parts 305 and 319, to import irradiated commodities into the United States.

This document cites the US and Thailand's regulations and policy for allowing the use of irradiation as a phytosanitary measure on commodities imported into both countries. It will also include a generalized description of the guidelines for inspection, monitoring, and other activities of both exporting countries using irradiation as a quarantine measure. Additional areas outlined will be the approach for approving irradiation facilities by the NPPO; guidance for completing compliance agreements with irradiation facilities; and guidelines for other conditions and activities.

Any limitations upon the use of irradiation or the use of irradiated products as a result of phytosanitary, human health, sanitation or other legal or administrative requirements shall be identified.

An operational work plan will be needed to detail the specific requirements of the importing country relative to the approval of treatment facilities, the application of quarantine treatments, safeguards, and documentation.

The document will identify the key components of the FEWP and will instruct countries on how to complete these sections.

Part II: Legal Authorities:

Irradiation has been demonstrated to be effective in reducing or minimizing risks associated with certain pests that accompany many fruits and vegetables. The intent of this section is to ensure that each trading partner provides a comprehensive list of all public laws, citations, and other legal policies which influence the use of irradiation as a phytosanitary measure to mitigate the pest risk posed by the importation of fruits and vegetables. In preparing this list, each country is able to more effectively develop processes and/or procedures that facilitate the trade of irradiated fruits and vegetables between nations.

(3) Finalizing and signing of the Operational Work Plan, compliance agreement and setting up of trust fund agreement within an agreed upon timeframe.

ii. Implementation Plan may include such components as the following:

- Facility approvals
- Approval of compliance agreements
- Acceptance of irradiation as a quarantine treatment
- The completion of administrative and regulatory requirements
- Development of program and inspection guidelines and recordkeeping
- Development of standards and procedures for certification and decertification
- Development and implementation of Port-of-Entry procedures

Notice of Termination: The *Addendum* to the FEWP will become part of the FEWP and shall remain in effect unless replaced by a new *Addendum*, or terminated by good cause by either party. Such notice of termination to the other party shall be in writing. Except where immediate termination is necessitated by an emergency, notice of termination for good cause shall be made at least 30 days prior to the effective date of termination.

The addendum may be produced subsequent to the signing of this FEWP.

By National Bureau of Agricultural Commodity and Food Standards	**By Plant Protection and Quarantine**
Thailand's Ministry of Agriculture and Cooperatives	United States Department of Agriculture
Mr. Somchai Charnnarongkul	Dr. Alan S. Green
Deputy Secretary General	Executive Director
January 31, 2006	January 31, 2006
Date	Date

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Difficulties and constraints

1. Deficiency of capacity building
2. Lack of efficient database systems
3. Lack of research document on some commodities
4. Failure of quarantine treatment(s)

Thank you for your attention

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Annex 26. The situation of agricultural product export in Viet Nam

Asia-Pacific Economic Cooperation

Government of Malaysia

moa INCORPORATED KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

VIET NAM GROUP'S PRESENTATION

THE SITUATION OF AGRICULTURAL PRODUCT EXPORT IN VIET NAM: ADVANTAGES, DIFFICULTIES AND SOLUTIONS

Compiled **by Msc HOANG PHU LONG**
Msc HUYNH NGOC DUNG

****

Presented by Msc HUYNH NGOC DUNG

Entering to 2008, although facing to common difficulties of global economic crisis, high rate of inflation, instablity of currency exchange rate and with increasingly inputs.

Commercial trading of agricultural products of Viet Nam in the first 6 month still gained impressive achievements.

Viet Nam has reaped 7. 65 billion USD from agricultural, forestry and aquatic product export, an increase of 24.8% compared to that of the same period last year.

Of which agricultural export turn-over made up a highest percentage and was 4.2 billion USD, increased 31%; forestry export reached more than 1.5 billion USD, increased 21%; and aquatic products gained 1.9 billion USD, increased 16% compared to that of 2007.

Major products which are strength of Vietnamese agricultural commodities are rice, coffee, rubber, green pepper, vegetables and fruits still uphold their role in export.

1.Real situation of agricultural product export of Viet Nam
1.1. Rice export

Rice is one of main export products of Viet Nam. Although annual export turn-over of rice does not account for a big amount, rice export plays a very important role in Vietnamese economy; it both allows country to take full advantages of economy and creates a remarkable amount of foreign currency for the progress of industrialisation and modernisation of VN.

According to VINA Food, up to August of 2008, rice export of Viet Nam reached 3.013,814 tonnes, was 1.789 billion USD. Only 22 days of August, rice export turn-over was 321,753 tonnes worth 238,482 million USD

Advantages

Good harvesting in both Northern and Southern, promising of 37 million tonnes of total rice production, increase one million tonnes compared to 2007.

Viet Nam has a large and stable rice export markets which are Asia (accounts for 61.58% of export turn-over), Africa (17.13%), America (more than 14.73%) and other continental (Middle East (4,2%), Europe, Australia (2.36%)

Plant quarantine has been complied stringently before exporting.

Difficulties:

Vietnamese farmers mainly produce rice base on their traditional experiences not based on new technologies, therefore, they usually suffer many losses (high input of production, use fertilizer and pesticides regularly and indiscriminately).

Consequently, these cause negative impacts to environment, rice yield and rice price is not high.

Quality of Vietnamese rice is not homogeneous standard due to purchasing and storage and processing done by rice export enterprises are standardized. Therefore, it is difficult to compete to Thailand rice quality and consequently is imposed at low price.

Vietnamese rice has not had a trade name in the world market so it has to go under the authorized of foreigner company to entry high requirement markets such as Europe.

Suffering from the disadvantages of natural conditions such as drought, typhoon, pests and salt water penetration.

1.2. Coffee export

Coffee is one of main export products of Viet Nam. Although this product does not account a big portion in total export turn-over of Viet Nam (2.6% in 2001, 2.0% in 2002 and 2.54% in 2003), coffee export still plays an important role in Vietnamese economy, like rice, it both allow to take full advantage of economy and create an amount of foreign currency for progress of industrialisation and modernisation of Viet Nam.

Recently, Viet Nam has about 500,000 ha of coffee, ranks the second place follow by Brazil in coffee export.

Vietnamese coffee has been sold in more than 70 countries and a territory with annual production is 850,000 tonnes (coffee export reached 1 million tonnes in 2007).

For the first 7month of 2008, export production reached 662,000 tonnes, but due to high price therefore export turn-over was higher than that compared to 2007).

Advantages:

Export market was expanded to many countries such as Germany 17.8%; United States 13.8%; British 12.7%; Belgium 7.3%; Spain 6.9%; Italia 5.6%, Japan 3.2% .

For long time Vietnamese coffee has been recognised as a product which has high natural quality, strong state due to coffee is planted in a certain altitude sea level.

Viet Nam is a top country in exporting Robusta coffee in the world.

Plant quarantine has been complied stringently before exporting.

Difficulties:

Nearly 50 % of coffee growing areas are old and stunned trees need to be replaced.

Low product quality due to the weakness of harvesting, storing and processing technologies…is negative impacts to its inherent quality, especially its trade name associated with product is not yet established in the world market.

In addition, selling technique is still inexperienced and exporters do not co-ordinate effectively to each others are weakness of Vietnamese coffee export.

Types of coffee export product are not suitable to consumers' predilection in the world market.

At the present, there is a high demand for Arabica coffee (account for 70 – 80% of world coffee demand) meanwhile 65% of coffee growing areas in Viet Nam is Rubusta coffee.

Suffering from several impacts from drought, pests…

1.3. Rubber:
Rubber export in the first 8 month of 2008 reached 383,000 tonnes, only was 90.5% production of the same period of 2007, but due to it is price increased up to 30.5%, therefore, export turn-over still was 1.040 billion USD.

Only in August, production exported of this product reached 75,000 tonnes with turn-over was 225 million, increased a 7.1% in product amount and a 73.1% value in comparisons to that of the same period of 2007.

Viet Nam expects to export about 780.000 tonnes of rubber, worth nearly 1.5 billion USD in 2008, increased respectively 4% and 2.3% compared to that of the same period of 2007.

At the present, Viet Nam has 495,000 ha of rubber, with growing areas is expected to be about 700,000 ha in 2010.

Beside that, Viet Nam also has hundreds of thousands of rubber joint-ventured with Lao and Cambodia.

Viet Nam exports about 80% of its rubber production to 40 countries and regions of which main importers are China, Korea, Russia, United States, Japan and Germany.

According to Industry and Trade Ministry, world demand of rubber in this year will continue increasing, leading importer is China with its demand increase 8%, follow by United States 4.1% and European Union is 2%.

Advantages
Has large and stable consumption markets (40 countries and regions) such as China, India, Russia, United States, and Germany…

Vietnamese Government has management policy which encourages and attracts collectives and personal to invest and develop rubber plantations.

Rubber tree is able to perform well development and produce high yield in many regions such as High Land, Central Coast and Northern mountainous provinces

Difficulties
Harvesting and processing technologies are still manually and backward.

Expenditure for transportation, export procedures are still mis-match.

Suffering negative impacts from the environment such as unfavourable weather conditions, pests…

1.4. Green pepper

According to the data of Custom Office, in June 2008, export of green pepper was 10,600 tonnes with value of 37.17 million USD, decreased 7.21% in amount and 10.33% of value compared to that of May 2008; but increased 58.62% and 57.51% respectively compared to that of the same period of 2007. In the first 6 month of 2008, whole country has exported 47.08 thousand tonnes of green pepper with export turn-over was 166.7 million USD, increased of 7.64% in quantity and of 28.13% in value compared to that of the same period last year. Green pepper production in 2008 is expected to be 85,000 to 87,000 tonnes and Viet Nam continues to be a leading green pepper exporter in the world.

Advantages:

Viet Nam is the biggest green pepper exporter in the world, accounts for 50% of world market share of this product.

World green pepper production reduced 15 – 20% due to growing areas is reduced because of unfavourable weather conditions and disease is spreading out in many green pepper exporters such as Brazil and India.

Plant quarantine has been complied stringently before exporting.

Difficulties:

Shortcoming of Green pepper industry of Viet Nam is quality stability and investment to intensify quality is not appropriate.

Meanwhile, association between enterprises and green pepper growers are still weak and loose.

Another problem is that when green pepper price is depreciated, growers race against each other to destroy their crop but when it goes for a good price the growers rush to expand growing areas.

Suffering from unfavourable surrounding conditions such as drought, pests and backward farming techniques

1.5. Litchi

Litchi was grown in Viet Nam **200 or 2000** years ago, from the 18th parallel to the North. Major growing areas are Hai Duong, Bac Giang, Phu Tho.

Growing area is 60,000 ha concentrated in 2 provinces Hai Duong (14,250 ha) and Bac Giang (39,000 ha), average yield is 37 quintal/ha.

Total production is 230,000 tonnes annually.In 2007, more than 10,000 tonnes of fresh litchis were exported to China (via small amount trade) through Lao Cai international border gate.

According to Management Board of Lao Cai Economic international border gate zone, from 1st June to 16th June 2008, the amount of fresh litchi exported to China was 30 to 40 tonnes per day, lower than that of the same period last year.

In addition, litchi fruit is desiccated processed into litchi juice, frozen intact fruit, sweetened canned litchi…. These products are exported to United States, Japan, Korea, New Zealand and other countries in ASEAN.

Advantages:

Litchi is grown in concentrated commodity production areas which are favourable for taking care of, harvesting, storing, processing and purchasing.

There is geographic directory qualification such as Luc Ngan Litchi, Thanh Ha Litchi

Sweet-smelling and tasty (Brix index is 18.27)

Difficulties:

Farmers produce litchi based on traditional experiences, lack of material facilities, especially facilities for processing post harvest, trade label, and packaging.

Market is not established in neighboring countries, United States and Europe.

Harvesting time is concentrated and limited; litchi is easily rotten cause losses.

On the other hand, due to small and scattered scale, consequently, commodity production is small and impede for implement modern advanced techniques in production and business.

Consumer enterprises lack of conditioned stores, mean of transportation, specialised conditioned transportation.

Vietnamese litchi is not exported, partly it does not meet the requirements on quality, design and especially is not sign agreement on quarantine and promote trading to above mentioned markets.

When harvesting, farmers have a habit of placing fruit on the ground, paths, courtyard… before selecting and packaging, cause injury to the fruit, decay contaminated, consequently, product degraded and rotten when transportation.

2. Solutions for development and increasing quality of agricultural products:

In order for Vietnamese agricultural products to stand steady on its legs and to develop in international economic integration, aims to enhancement of economic efficiency in the coming time, some following solutions should be implemented.

2.1. To improve commodity production areas

Delineate concentrated, specialised commodity production areas, create favourable conditions for investment, implementing of advanced technologies; focus on enhancing yield and product quality, on products which demanded by markets, not only sell our available products.

2.2. Application of new techniques and advanced production technologies

Training farmers on application of new techniques and advanced production technologies such as Good Agricultural Practices (GAP) for production of safe agricultural products.

Analysing components of some metals in soil, irrigation water.

Surveying incident and damage caused by some major pests. implement advanced technologies in pest forecast and management of some major pests.

Using minimally and reasonably fertilizers and pesticides.

Stop using pesticides 15 to 20 days before harvesting.

Carry out harvest technique; packaging products comply with the requirements of trading.

Supervising closely procedure of production process.

2.3. Solutions for storing and processing

Harvest products in right time of fruit ripeness; ensure time-restrict after pesticide treatment (15 to 20 days before harvesting) for good quality and safety of the products.

Encouraging farmers to use machine in harvesting to increase rate of harvesting progress and reduce losses.

Developing forms of preliminary process, store products locally to overcome far transportation situation or difficulty in storage afterward.

Upgrading available processing plants, innovate synchronous equipments to create processed products which are suitable for world demand markets.

2.4. Improving commodity sources for export.

State need to assist fund for enterprises who purchase agricultural products, build up infrastructures (road, store facilities, load stations, transportation facilities and transportation).

Help them to establish a broad purchasing network, ensuring to buy all producers' products, avoid producers to be forced to sell their product at low prices.

2.5. Solution for export subsidizing

State should subsidize a part of fund through credit account for farmers to have favourable conditions in expanding their crop growing areas and doing their crop intensification.

Credit accounts need to be applied through credit account - system of the state, economic cooperation organisations, farmer optional organisations (of which State credit account plays directive role).

Thanks to the credit account, farmers can expand their production; promote intensive cultivation, increase crop yield and production to serve export.

Supply sufficient, timely and accurate information so that producers can get the information, feel secure in investment for production, and avoid unwanted losses.

2.6. Solutions for market and promoting trade

To step up activities of high rank trade promotion for speeding up cooperation, investment and trade between Viet Nam and other countries, attract multi-nation enterprises invest into Viet Nam, create waves of investment to potential areas of production, processing export products.

Innovate organisation of trading promotion programs, focus on organization phase and supply market information, reduce small and scattered survey market programs.

Focus on trading promotion in focal markets (ASEAN, Japan, United States, EU, China, and Korea) which have large import turn-over.

Developing traditional markets, focal export markets must go together develop markets which have border with Viet Nam with advocate diversify, multilateral markets through consideration of adjusting unsuitable regulations which constrained exporting.

Having specific export policy to step up export to each region, each market.

Signing agreements on plant quarantine among the countries in APEC.

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Annex 27. Procedures for lifting import prohibition in Japan

Asia-Pacific Economic Cooperation

Government of Malaysia

KEMENTERIAN PERTANIAN DAN INDUSTRI ASAS TANI

Procedures for lifting import prohibition in Japan

Masanori YONEDA

Disinfestation Technology Section
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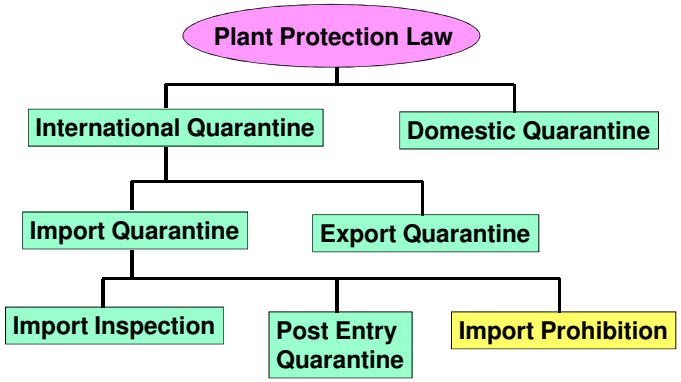
Ministry of Agriculture, Forestry and Fisheries (MAFF)

APEC Workshop on Understanding and Developing Risk Management Options for Market Access
Melaka, Malaysia, 13-17 October 2008

Plant Quarantine Services in Japan



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Import Prohibited Plants by Plant Protection Law in Japan (summary) (1)

Quarantine pests	Prohibited plants	Districts
Mediterranean fruit fly (*Ceratitis capitata*) 	Most of fresh fruits (except pineapple, coconut)	Europe, Central and South America (except Chile), Hawaii, Africa, Australia (except Tasmania), the Middle East, etc.
Bactrocera dorsalis species complex 	Fresh fruit such as tropical fruit, citrus, apple, pear, grape, peach, strawberry, tomato etc. (except pineapple, coconut, durian etc.)	Asia (except Korean Peninsula), Hawaii, Micronesia, Papua New Guinea, etc.
Queensland fruit fly (*Bactrocera tryoni*) 	Fresh fruits of citrus, avocado, apricot, etc.	Easter Island, Australia (excluding Tasmania), New Caledonia, Papua New Guinea, French Polynesia
Melon fly (*Bactrocera cucurbitae*) 	Live vines, leaves and fresh fruits of plants of the family Cucurbitaceae	Asia (except Korean Peninsula), Hawaii, Micronesia, Papua New Guinea, etc.

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Import Prohibited Plants by Plant Protection Law in Japan (summary) (2)

Quarantine pests	Prohibited plants	Districts
Codling moth (*Cydia pomonella*) 	Fresh fruit such as apple, pear, peach, cherry and walnut in shell	Europe, Russia, North and South America, Australia, New Zealand, Africa, the Middle East, China, India, etc.
Sweet potato weevil (*Cylas formicarius*) 	Live vines, leaves, tuberous roots, and other underground portions of plants of the genera *Ipomoea*, *Pharbitis*, and *Calystegia*., etc.	India, Indonesia, Viet Nam, Cambodia, Singapore, Sri Lanka, Thailand, Chinese Taipei, China, Bangladesh, East Timor, Philippines, Brunei, etc.
West Indian sweet potato weevil (*Euscepes postfasciatus*) 	Live vines, leaves, tuberous roots and other underground portions of plants of the genera *Ipomoea*, *Pharbitis*, and *Calystegia*.	China, North America (excluding Canada but including West Indies), South America, Hawaiian Islands, etc.
Potato wart (*Synchytrium endobioticum*) 	Live haulms, leaves, tubers, and other underground portions of plants of the family Solanaceae.	India, Europe (excluding Albania and Greece), Former Soviet Union, Republic of South Africa, etc.

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Import Prohibited Plants by Plant Protection Law in Japan (summary) (3)

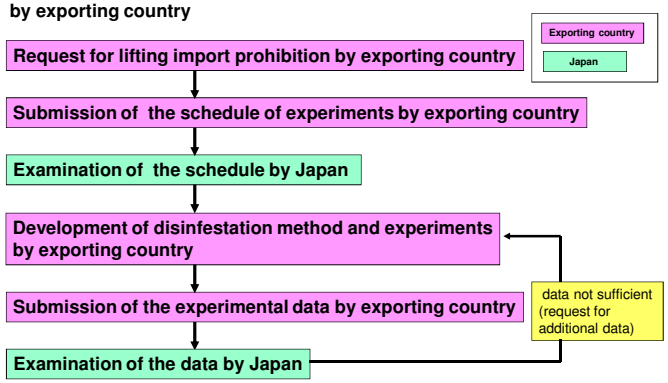
Quarantine pests	Prohibited plants	Districts
Colorado potato beetle (*Leptinotarsa decemlineata*) 	Live stems & leaves of cabbage, and plant of the genera *Cirsium* and *Verbascum* and plants of the family *Solanaceae*	Turkey, Italy, Austria, Greece, Netherlands, Switzerland,, etc.
Potato cyst nematode (*Globodera rostochiensis*) 	Live tubers and other underground portions of plants of the genus *Chenopodium*, and plants of the family Solanaceae.	Israel, India, Iceland, Ireland, Italy, Austria, Netherlands, Greece, Switzerland, Sweden, Spain, Denmark, Germany, etc.
White potato cyst nematode (*Globodera pallida*) 	Live tubers and other underground portions of plants of the family Solanaceae.	India, Cyprus, Iceland, Ireland, Italy, Austria, Netherlands, Greece, Switzerland, Sweden, Spain, Denmark, Germany, Norway, Hungary, France, etc.
Blue mold (*Peronospora tabacina*) 	Live haulms, leaves, and fresh fruits of plants of the family Solanaceae	Israel, Iraq, Iran, Syria, Turkey, Lebanon, Europe (excluding Netherlands), Former Soviet Union, Algeria, Tunisia, Morocco, United States of America, Canada, Cuba, Guatemala, Jamaica, etc.

Import Prohibited Plants by Plant Protection Law in Japan (summary) (4)

Quarantine pests	Major import-banned plant	Districts
Citrus burrowing nematode (*Radopholus citrophilus*) 	Root or underground portions of citrus, pineapple, genera *Anthrium*, etc.	U.S. including Hawaii
Hessian fly (*Mayetiola destructor*) 	Culms and leaves of plants of the genera *Hordeum*, *Triticum*, and *Secale*, etc.	Iran, Turkey, Europe, Former Soviet Union, North America (excluding West Indies), New Zealand
Fire blight 	Plants of family *Rosaceae* such as apple, pear, hawthorn, pyracantha, etc.	Europe, North America, the Middle East, New Zealand, etc.
Rice quarantine pests	Rice plants, rice straw, rice husk and rice in the husk	All countries (except Korean Peninsula and Chinese Taipei)

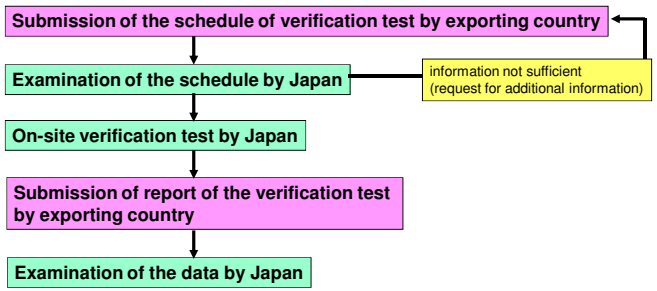
Outline of procedures on lifting import prohibition in Japan (1)

1. Request for lifting import prohibition and proposal of quarantine measures by exporting country



Outline of procedures on lifting import prohibition in Japan (2)

2. Evaluation of measures and data



Outline of procedures on lifting import prohibition in Japan (3)

3. Rule making and domestic procedures

- Drafting regulations
- Agreement of the draft regulations by both countries
- Public hearing
- Establishment and enforcement of the regulations

4. Beginning of export

- Confirmation on implementation of measures by Japanese Plant Quarantine Inspector
- Export

Outline of process on disinfestation technology development in exporting country (case of tropical fruit with vapor heat treatment)

1. Determination of target commodity and pest, method of disinfestation
2. Determination of test design
3. Preparation for tests
   - ◆Preparation of test facility, machinery and materials
   - ◆Establishment of laboratory colony of the target pests
   - ◆Preparation of test fruit

4. Disinfestation tests

- **Mortality tests**
  - Preparation of test insect
    - ◆Developmental period
    - ◆Method of preparing infested fruit
  - Basic mortality test
    - ◆Hot water dipping test
    - ◆Susceptibility test by VHT
  - Small-scale mortality test
  - Large-scale mortality test
- **Machine performance test**
  - ◆Calibration of thermo sensors
  - ◆Distribution of temperature in VHT chamber
  - ◆Method for measurement of fruit temperatures
- **Fruit injury test**
  - Preliminary injury test
  - Small-scale injury test
  - Large-scale injury test
    - ◆Weight, appearance, hardness, taste, Brix acidity etc.

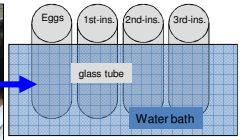
→ Treatment Standard

Mortality tests

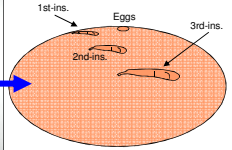
(case of tropical fruit with vapor heat treatment)

1. Preparation of test insect
   - ◆Survey for developmental period of target pest on both fresh fruit and artificial diet
   - ◆Establishment of method for preparing infested fruit with target pest

2. Basic mortality test (Determination of the most tolerant species and stage)
- ◆Hot water dipping test
- ◆Mortality test on pest infesting fruit



The most tolerant species and stage



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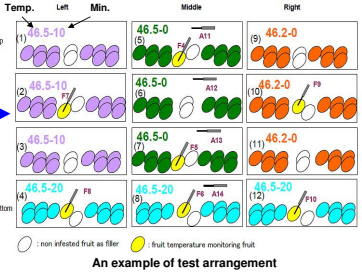
3. Small-scale mortality test
- ◆Determination of a treatment condition supporting a complete mortality



An example of test arrangement

Determination of the treatment condition (temperature and holding time) with using the most tolerant stage of the most tolerant species

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4. Large-scale mortality test
- ◆Confirmation of a complete mortality of the most tolerant stage by the treatment condition resulted from the small-scale mortality test
- ◆Complete mortality of more than 30,000 individuals (10,000 individuals ×more than 3 replications)

Establishment of the treatment standard

Fruit injury test (Large-scale test)
- ◆Confirmation of non-injury by the treatment standard

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Example of lifting import ban in Japan (Tropical fruits)

Country	Plant	Subject Pest	Treatment Method
China	Litchi	*Bactrocera dorsalis* complex	Vapor Heat Treatment＋Cold treatment
Philippines	Papaya	*Bactrocera dorsalis* complex	Vapor Heat Treatment
	Mango	*Bactrocera cucurbitae*	
Hawaii	Papaya	*Ceratitis capitata* *Bactrocera dorsalis* *Bactrocera cucurbitae*	Vapor Heat Treatment
Australia	Mango	*Ceratitis capitata* *Bactrocera tryoni*	Vapor Heat Treatment
Thailand	Mango	*Bactrocera dorsalis* complex *Bactrocera cucurbitae*	Vapor Heat Treatment
	Mangosteen	*Bactrocera dorsalis* complex	
Chinese Taipei	Mango	*Bactrocera dorsalis* *Bactrocera cucurbitae*	Vapor Heat Treatment
	Litchi	*Bactrocera dorsalis*	Vapor Heat Treatment＋Cold treatment
Colombia	Yellow Pitaya	*Ceratitis capitata*	Vapor Heat Treatment
Brazil	Mango	*Ceratitis capitata*	Hot Water Treatment
India	Mango	*Bactrocera dorsalis* complex *Bactrocera cucurbitae*	Vapor Heat Treatment
Malaysia	Mango	*Bactrocera dorsalis* complex *Bctrocera cucurbitae*	Vapor Heat Treatment

Annex 28. Current Status of the Quarantine Access of the Imported Mango in China

Asia-Pacific Economic Cooperation

Government of Malaysia

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Current Status of the Quarantine Access of the Imported Mango in China

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1. General Status of Production and Importation of Mango in China

◆Acreage: 0.12 million hectares, 4th position in 5 main tropical fruits (mango, litchi, longan, banana and pineapple)

◆Production: 0.8million tons(2005), 5th position in 5 main tropical fruits, amount to 1.09 million tons in 2010 (estimated)

◆Volume per capita: 0.45 kg(2005), 0.6kg (2010, estimated)

◆Distribution: 100 counties,4 provinces (Guangxi, Guangdong, Hainan,Yunnan)

◆Importation: from 7 countries or districts(Thailand, Viet Nam, Burma, the Philippines, Pakistan, India, and Chinese Chinese Taipei, 38 kinds of fruits of from 24 countries or districts)

Compared with the developed, the volume of mango per capita in China still has a relative large gap in the near future.

2. General Status of Pests on Mango

In the world(Crop Protection Compendium,2004)

- ◆disease
  - ◆Some 25 important fungus diseases.
  - ◆Anthracnose (*Glomerella cingulata*),most serious and widespread
  - ◆Powdery mildew (Oidium mangifera)
  - ◆some kinds of leaf spots
  - ◆various storage rots of the fruit
  - ◆Several bacterial diseases
- ◆Harmful insects
  - ◆134 insects
  - ◆Mango hoppers (Amritodus atkinsoni and Idioscopus spp.) ,most important
  - ◆mealybug (Drosicha mangiferae, Perissopneumon ferox)
  - ◆mango gall midges (Erosomyia indica, etc.)
  - ◆fruit flies(Bactrocera, Ceratitis capitata)
  - ◆fruit borers

In China (According to our survey)

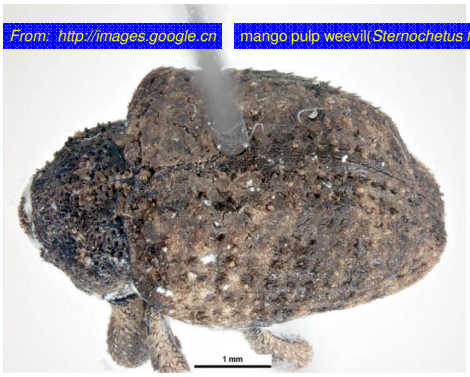
- ◆66 fungus or bacteria
- ◆more than 100 harmful insects
- ◆Serious and Widespread disease or harmful insects
  - ◆anthracnose (*Colletotrichum acutatum*)
  - ◆Powerdry mildew (*Oidium mangiferae*)
  - ◆Sooty mould (*Capnodium mangiferae*)
  - ◆Mango shoot borer (*Chlumetia gattiventris*)
  - ◆Mango branch borer(*Rhytidodera bowringii*)
  - ◆Mango midge(*Dasineura mangiferae*)

3. Status of Pests on Imported Mango Captured in China

the captured pests potential dangerous to mango [Records of AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China) in 14 months from April, 2007 to July, 2008]

- ◆474 lots
  - ◆96 lots of pests were carried via mango
  - ◆378 lots via other agricultural products
  - ◆Mango fruit borer (*Sternochetes* spp.) (Quarantine pests) was captured in 397 lots
  - ◆various fruitflies in 217 lots
  - ◆Origin: most from the South Asian countries from which China imported mango in recent year

From: http://images.google.cn mango pulp weevil(*Sternochetus frigidus*)



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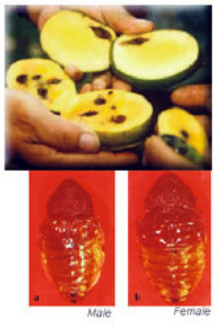

mango pulp weevil(*Sternochetus frigidus*)
From: http://www.bar.gov.ph

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mango seed weevil (*Sternochetus mangiferae*)
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mango seed weevil(*Sternochetus mangiferae*)
From: http://pikul.lib.ku.ac.th/

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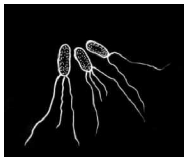


bacterial black spot (*Xanthomonas campestris pv. Mangiferae-indicae*(Patel et al.) Robbs et al.)

4. The Pest Risk Management and Market Access of China Imported and Exported Mango

4.1. The Important Legal Basis of China Imported Mango Inspection and Quarantine

◆Law of People's Republic of China on the Entry-Exit Animal and Plant Quarantine Measures.

◆Law of People's Republic of China on the Entry-Exit Commodity Inspection Measures.

◆Law of People's Republic of China on Food Sanitation.

◆Import and Export Animal and Plant Quarantine Regulations of the People's Republic of China.

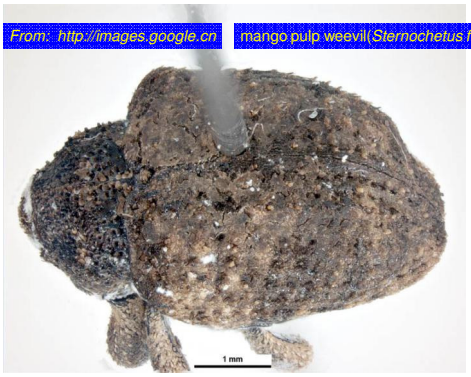
4.1. The Important Legal Basis of China Imported Mango Inspection and Quarantine (count.)

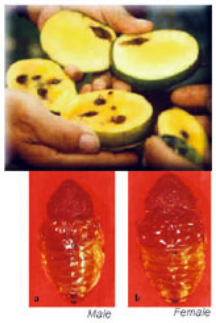
◆Management Methods of Quarantine on Imported Fruits.

◆The Implementation Regulation of Law of the People's Republic of China on the Entry and Exit Animal and Plant Quarantine.

- ◆List of Quarantine Pests from Imported Plants Issued (4 quarantine pests of mango included)
  - ◆oystershell scale (*Lepidosaphes tapleyi* Williams)
  - ◆mango fruit borer (*Sternochetus* Pierce)
  - ◆bacterial black spot (*Xanthomonas campestris* pv. *Mangiferae-indicae*(Patel *et al.*) Robbs *et al.*)
  - ◆Fruitfly (*Bactrocera* Macquart)

From: http://images.google.cn mango pulp weevil(*Sternochetus frigidus*)





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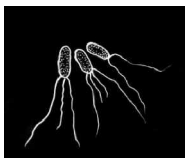

bacterial black spot (*Xanthomonas campestris* pv. *Mangiferae-indicae*(Patel et al.) Robbs et al.)

4.2. The Technical Protocols for Quarantine Pests on Mango

◆**Rules for the Quarantine of Importing and Exporting Mango(SN/T 1839-2006)**

◆**Methods for quarantine and identification of mango weevil(*Sternochetus olivieri*)(SN/T 1401-2004)**

◆**Methods for quarantine and identification of mango pulp weevil(*Sternochetus frigidus*) (SN/T 1402-2004)**

◆**Methods for quarantine and identification of mango seed weevil(*Sternochetus mangiferae*) (SN/T 1403-2004)**

◆**Methods for inspection and identification of Mediterranean fruit fly(*Ceratitis capitata*)(GB/T 18084-2000)**

◆**The Entry & Exit Plant Quarantine Manual in China(SZAPFT-ZJ-F01, described the protocol for identification of various flies)**

4.3. Signed Bilateral Agreement with Some Countries for Importation of Mango

◆Protocol of Phytosanitary Requirements for the Export of Mango from Peru to China.

◆Protocol of Phytosanitary Requirements for the Export of Mango from the Philippines to China.

◆Protocol of Phytosanitary Requirements for the Export of Mango from India to China.

◆Protocol of Phytosanitary Requirements for the Export of Mango and Durian from Thailand to China.

◆Protocol of Phytosanitary Requirements for the Export of Mango from Pakistan to China.

◆Protocol of Phytosanitary Requirements for the Export of Mango from Australia to China.

5. China's Inspection and Quarantine Access Procedures for Import Mango

◆Ⅰ. The exporting country shall submit an official application for exporting mango to China.

◆Ⅱ. AQSIQ will start the PRA(import risk analysis).

◆Ⅲ. AQSIQ will organize the relevant specialist to initiate the IRA process and discuss with the export country about on-spot inspection.

◆Ⅳ. AQSIQ provides the IRA report to exporting country, and both sides discuss the issues of the IRA and the entry quarantine requirements.

◆Ⅴ. Both sides sign the agreement of quarantine.

◆Ⅵ. After completed the related legal procedures, the import is allowed.

6. China's Basis Inspection and Quarantine Requirements on Imported Mango

◆Ⅰ. Prior to signing a business contract, apply for an Import Quarantine Permit.

◆Ⅱ. No carry quarantined pest, soil and leaf and etc which are concerned by China.

◆Ⅲ. Indicate the container number on the Phytosanitary Certificate if the cargo packed in container.

◆Ⅳ. Production place, name or code of packing house should be indicated in Chinese or English on the package.

◆Ⅴ. Accord with China's relevant sanitation and security standard.

◆Ⅵ. Mango trans-shipped via Hong Kong and Macao should be pre-inspected by inspection and quarantine agency appointed by AQSIQ.

7. Quarantine Inspection and Treatment on Imported Mango

◆Ⅰ. Check the cargo with certificate.

◆Ⅱ. Opening the package to sample to inspect. Any suspicious pest is found, samples should be tested in Lab.

◆Ⅲ. Passed inspection or effective quarantine treatment, the cargo can be released. If no non-efficient quarantine treatments, the cargo should be returned or destroyed.

◆Ⅳ. Under the following situation, the import will be cancelled temporarily

- ◆Serious plant epidemic burst out in exporting country.
- ◆Quarantine pest concerned by China is found.
- ◆Harmful residue exceeding the standard is tested.

8. Discussion and Suggestion

◆The PRA encounters with technical difficulties

◆Solutions to the technical issues on pest risk analysis mentioned above is

◆The authority and the industry of export country ought to supply necessary materials for pest risk assessment and to be cooperative on some other aspects.

◆Administration of industrial security and sanitation should be constantly enhanced from the mango plantation, processing, package and storage and transportation, therefore systematically taking the harmful substances and poisonous substances under control.

◆The export country should develop the scientific research to tackle the harmful microbe with high-risk quarantine, which the Chinese government focuses on, and then put forward and conduct the effective control measures to manage to get the permission of China.

Thank You For Your Attentions

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