

## *Beyond Compliance*

# Risk Management to meet import requirements and facilitate market access

Megan Quinlan (Imperial College London)

Merle Palacpac (NPPO Philippines)

Charuwat Taekul (NPPO Thailand)



## An STDF funded project (2011-2014, US\$600,000)

With in-kind contributions from Imperial College London, CABI SEA and Queensland University of Technology and from the NPPOs of Thailand, Philippines, Malaysia and Vietnam; regional participation from Indonesia, New Zealand and Singapore

# Enhance **competency** and **confidence** in the SE Asian sub-region to apply a Systems Approach to plant health



*Provide new decision support tools and apply them to case studies of trade opportunities selected by partner countries*

# Today's session

1. Market access and import requirements
2. Systems Approach to risk management (ISPM 14)
3. How to evaluate combined measures to meet import requirements
4. Tools from *Beyond Compliance* to support application of ISPM 14:
  - Philippines NPPO
  - Thailand NPPO

# 1. Market Access and Import Requirements



- Decisions about import requirements are made by the importing country's designated **National Plant Protection Organisation (NPPO)**
- Decisions are on a specific **commodity/ country of origin** basis
  - pest status of a country or area may be different from another location
- Usually **a bilateral** agreement between importer and exporter country NPPOs
  - may be regional (e.g. EU)

# Import requirements are based on risk

- Decision to allow trade is based on estimated risk, in terms of possible introduction of pests not already in the importing country
- This is considered using the framework of a **pest risk analysis**

# Pest Risk Analysis

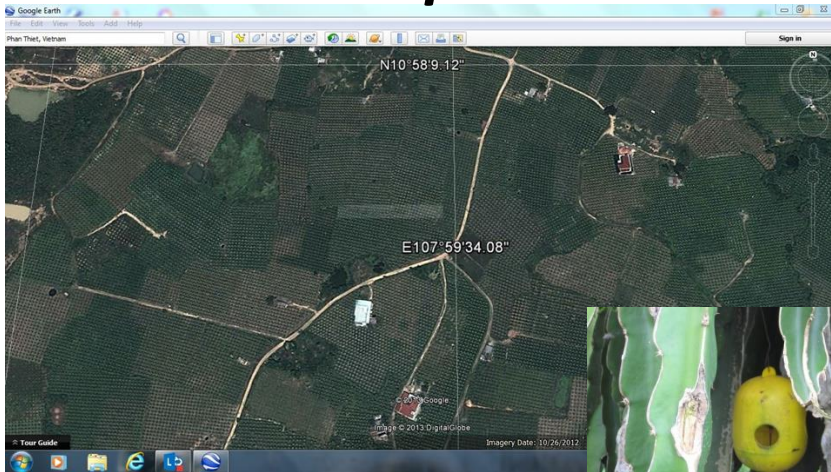
- Categorisation of the organism as a pest
- Pest Risk Assessment
  - Probability of entry, establishment and spread
  - Consequences of introduction
- **Pest Risk Management**
  - Options for management in proportion to the estimated risk
  - Consideration of feasibility, socioeconomic and environmental issues
- Pest Risk Communication





## 2. Systems Approach to risk management (ISPM no. 14)

# ISPM14 (2002): *The use of integrated measures in a systems approach for pest risk management*



Describes an approach using **at least two independent measures** to provide risk management proportionate to the risk estimated in the PRA

# Elements of Systems Approach (ISPM 14 section 8)



# Why use Systems Approach?

## **Risk of failure of single treatments**

## **Complexity of pest profile post PRA of a commodity**

NPPOs undertaking PRAs identify more regulated pests

One treatment cannot deal with a range of regulated pests  
(Insect+disease)

## **Reduction in use of chemical treatments**

Reduction in shelf life of commodities (especially MeBr)

Residue concerns particularly “organic” products

Not all countries are Montreal Protocol signatories

Cannot use MeBr

## **Main risk can be managed offshore**

## **Resource requirements**

Most components can be integrated into IPM or GAP

Many countries do not have treatment facilities or staff and must rely on offshore procedures and what is available locally

### 3. How to evaluate combined measures for meeting import requirements



- Consider **feasibility** of options
- Estimate **efficacy** (impact on risk) of measures and synergy or duplicative impact
- Consider if measure affects **multiple pests**
- **Select combination** of measures for system and appropriate verification
- **Determine equivalence** with existing requirements

# Introduce control points in the system



Original definition: A step in a system where specific procedures can be applied to **achieve a defined effect** and can be **measured, monitored, controlled** and **corrected** [ISPM 14, 2002]

# Why use a control point?

- An opportunity for the NPPPO to learn **what is actually happening** (vs predicted to happen), in terms of pest population or infestation, before the point of issuing a phytosanitary certificate







## 4. Tools from Beyond Compliance to support application of ISPM 14

# Tools to support Systems Approach

## *Key opportunities:*

- *Provide framework for **available information***
- *Address uncertainty arising in the assessment*
- *Support **estimates of efficacy of measures** with limited data and a range of opinion*
- *Allow more flexibility in management schemes*

# Planned progression of tools

PRA from importing NPPO or dossier

Production chain and stakeholder discussions

Evaluation of measures in the DSS framework

Bayesian Network with control points (CP-BN)

Sensitivity Analysis amongst measures

## Production chain for Dragon fruit with possible measures and monitoring actions against insects pest

The diagram lists ALL POSSIBLE MEASURES. The green bubbles show one possible situation



# Production chains

# Production chains

Separate columns:

Objective of the measure

Measures

Time/place/stage in chain

Verification measures

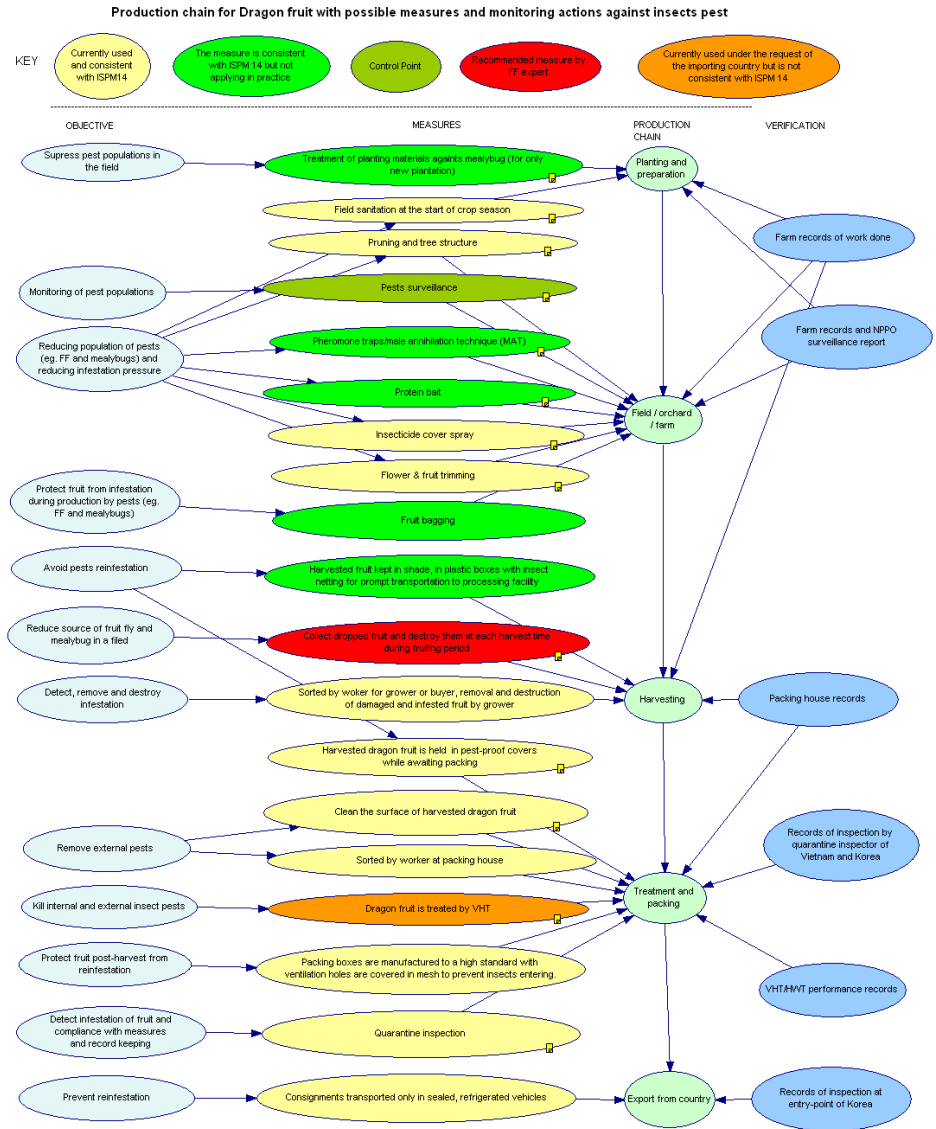
Colour coding:

Official or commercial measures

Currently applied or potential

In line with least restrictive, or to be discussed for removal

For risk reduction or verification



# NPPO and other government partners work on Excel™ based Decision Support System



# Decision Support System (DSS) with graphic representation of expert input

Table D1. Max measure efficacy CPTs		Table D2. Implementation Standard CPTs	
Graphic	CPT	Graphic	CPT
	P(High) = 0.07 P(Low) = 0.94		P(High) = 0.67 P(Low) = 0.33
	P(High) = 0.5 P(Low) = 0.5		P(High) = 0.79 P(Low) = 0.21
	P(High) = 0.94 P(Low) = 0.06		P(High) = 0.79 P(Low) = 0.21
	P(High) = 0.94 P(Low) = 0.06		P(High) = 0.79 P(Low) = 0.21
	P(High) = 0.07 P(Low) = 0.94		P(High) = 0.66 P(Low) = 0.34
	P(High) = 0.97 P(Low) = 0.03		P(High) = 0.67 P(Low) = 0.33
	P(High) = 0.94 P(Low) = 0.06		P(High) = 0.65 P(Low) = 0.36
	P(High) = 0.81 P(Low) = 0.19		P(High) = 0.67 P(Low) = 0.33
	P(High) = 0.07 P(Low) = 0.94		
	P(High) = 0.5 P(Low) = 0.5		
	P(High) = 1 P(Low) = 0		
	P(High) = 1 P(Low) = 0		
	P(High) = 1 P(Low) = 0		
	P(High) = 0.94 P(Low) = 0.06		

Efficacy

Implementation

Rating

Uncertainty

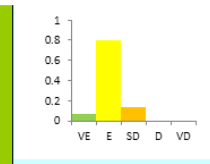
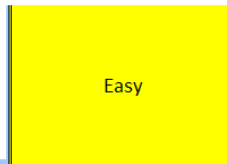
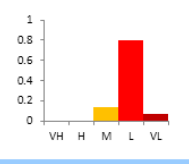
Distribution

Rating

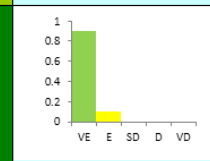
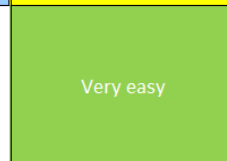
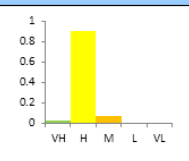
Uncertainty

Distribution

4.8 Insecticide cover spray



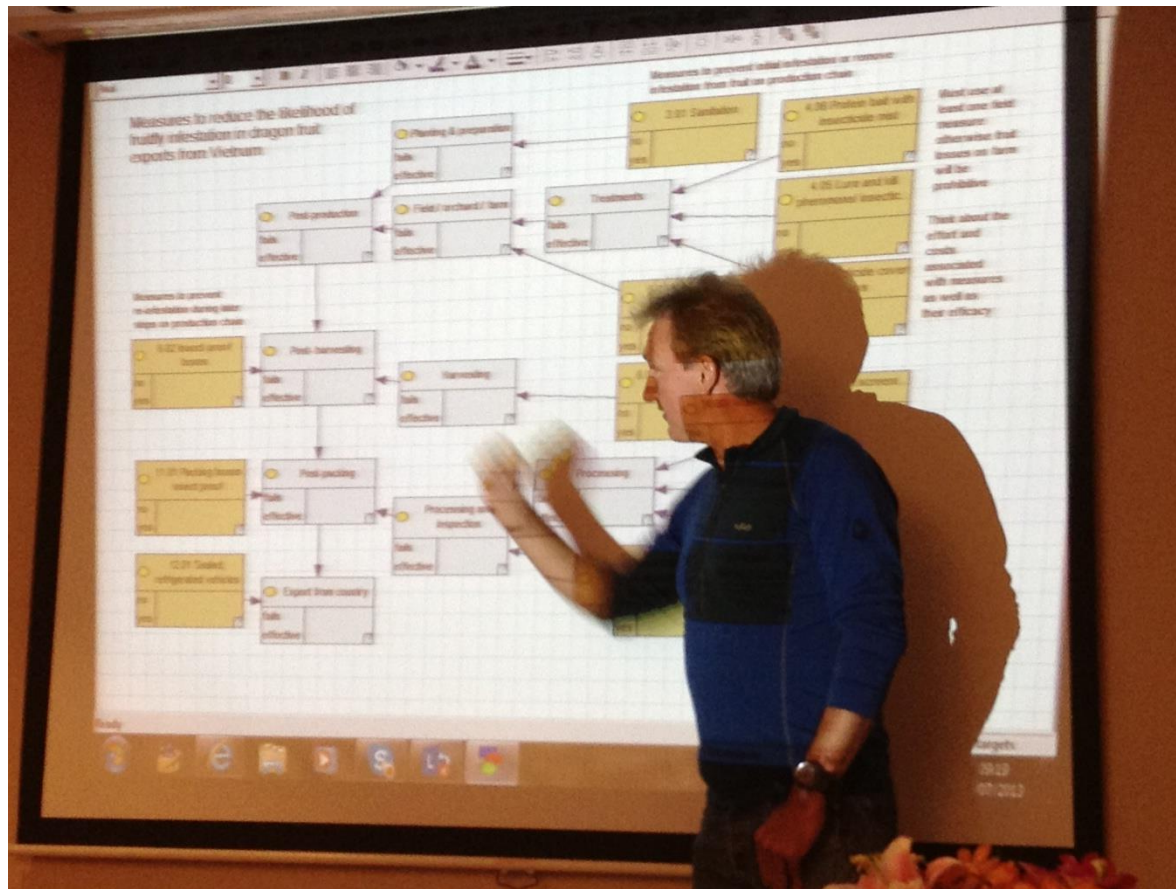
5.2 Fruit bagging



# Taking answers to ISPM 11 into a relationship framework

The final tool is a structured approach to summarise the **role and relationship of each measure** (e.g. reducing pest prevalence, preventing infestation, verify another measure's performance, etc), estimates of efficacy and **weigh priorities**. This can help people understand the value and necessity of different phytosanitary measures and clarify the relative importance of each of them in a systems approach.





Facilitators support proper structuring of Control Point-Bayesian Network (CP-BN)

# Reality?

Tools have now been used for:

- New market access
- Maintaining markets
- Negotiating equivalence agreements
  - e.g. removal of a treatment or proposal for alternative measure
- Challenging the number of measures required and their scientific justification

Among 4 countries, ~ 20 domestic stakeholder meetings directly arising from the project



- Cooperation with other projects (PRATIQUE, AusAID-BC, IAEA/FAO) and other national initiatives (NZ, Australia)
- Establishment of a new industry group in Vietnam to capture benefits of enhanced markets

## *Reality?*

- Wide adoption of production chain mapping
- Improvements to DSS for capturing distributions of efficacy estimates, which can then feed into a CP-BN
- Increased use of Bayesian Networks for plant health
  - but new applications will still benefit from facilitation

# Thank you for supporting *Beyond Compliance*



