



Australian Government

Department of Agriculture
and Water Resources

Systems Approach Workshop - ISPM 14 - Risk Management

Bangkok
Thailand

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स्वास्ति

Hello!

你好

xin chào

안녕하세요

Namaste

नमस्ते

Halo

Olá

chào bạn

Bula

ಶ್ಯಾಲಾ

ಸະບາຍດີ

Mālō e lelei

こんにちは

ආයුබෝවන්

မင်္ဂလာပါ

Elo

வணக்கம்

مرحبا

Selamat datang

Kamusta

IPPC standards

Developing phytosanitary measures within a systems approach requires a sound understanding of IPPC standards

Standard setting (Harmonisation)

WTO SPS Agreement is underpinned by 3 standard setting bodies *

- **IPPC (1952)** – International Standards for Phytosanitary Measures (ISPMs)- Promotes action to protect plants and plant products from the spread of pests and sets out measures to control plant pests
- **OIE (1924)**
 - ✓ terrestrial or aquatic animal codes & manuals
- **Codex Alimentarius (1963)**
 - ✓ food standards, guidelines and codes of practice
- SPS measures **shall be based on these standards** unless
 - ✓ scientific justification exists, or
 - ✓ as a consequence of the ALOP set by a country

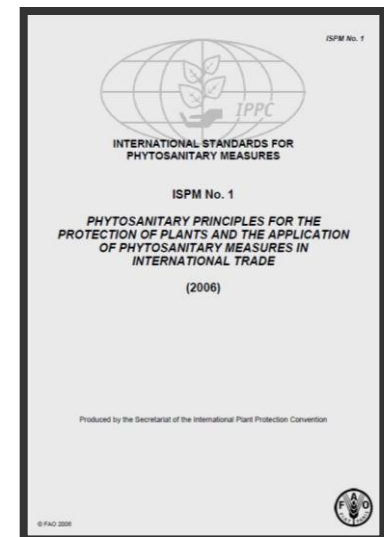


ISPM 1: Phytosanitary principles (1)

Phytosanitary principles for the protection of plants and application of phytosanitary measures in international trade



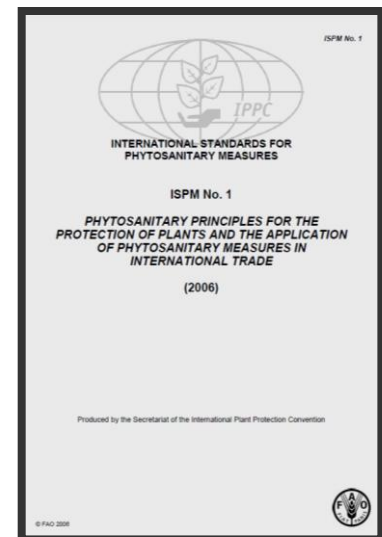
- ISPM 1 originally adopted 1993 / SPS Agreement adopted 1994- these mirror each other
- ISPM 1 provides the basic and operating phytosanitary principles that are embodied in the International Plant Protection Convention (IPPC)
- Basic principles covered by ISPM1 include:
 - ✓ Sovereignty
 - ✓ Necessity
 - ✓ Managed risk
 - ✓ Minimal impact
 - ✓ Cooperation
 - ✓ Transparency
 - ✓ Harmonisation
 - ✓ Technical justification
 - ✓ Non-discrimination
 - ✓ Equivalence of phytosanitary measures



ISPM 1: Phytosanitary principles (2)

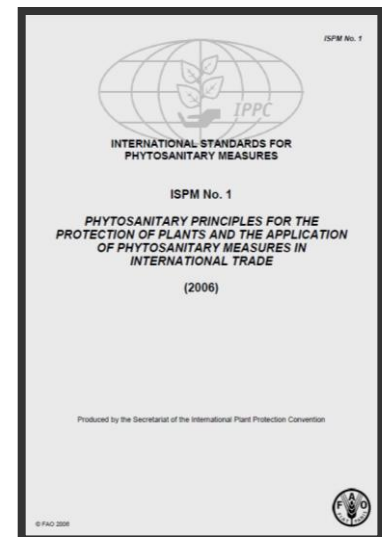
Critical issues

- **Managed risk** - recognizing that risk of the spread and introduction of pests always exists when importing plants, plant products and other regulated articles.
- **Minimal impact** - shall institute only phytosanitary measures that ... represent the least restrictive measures available, and result in the minimum impediment to the international movement of people, commodities and conveyances.
- **Non-discrimination** - apply phytosanitary measures without discrimination between contracting parties if contracting parties can demonstrate that they have the same phytosanitary status and apply identical or equivalent phytosanitary measures.



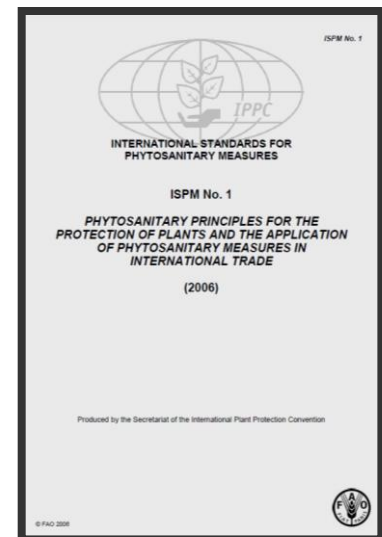
ISPM 1: Phytosanitary principles (3)

- **Sovereignty** - parties have sovereign authority, in accordance with applicable international agreements, to prescribe and adopt phytosanitary measures to protect plant health within their territories and to determine their appropriate level of protection (ALOP) for plant health.
 - ✓ ALOP : The level of protection deemed appropriate by the party (country) establishing a phytosanitary measure to protect plant life within its territory.
- **Necessity** - apply phytosanitary measures only where such measures are necessary to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests.



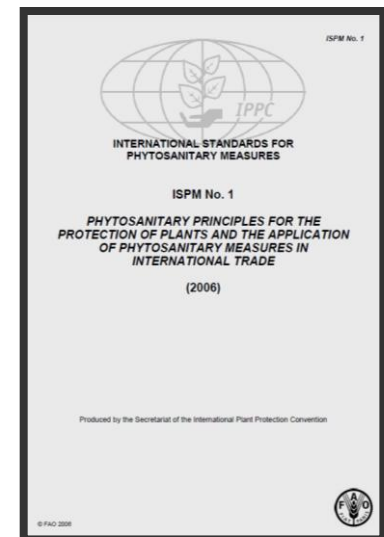
ISPM 1: Phytosanitary principles (4)

- **Technical justification-** justify phytosanitary measures “...on the basis of conclusions reached by using an appropriate pest risk analysis or, where applicable, another comparable examination and evaluation of available scientific information.”
- **Equivalence of phytosanitary measures** - parties should recognize alternative phytosanitary measures proposed by exporting contracting parties as equivalent when those measures are demonstrated to achieve the appropriate level of protection determined by the importing contracting party.



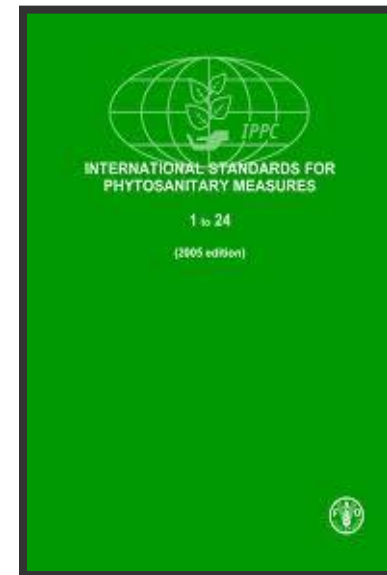
ISPM 1: Phytosanitary principles (5)

- The concept of a systems approach is a basic principle of IPPC
 - ✓ Systems approach: *'integrated independent measures for pest risk management, applied in a defined manner, may provide an alternative to single measures to meet ALOP of an importing party'*
 - ✓ A pest includes vertebrates, invertebrates, plant pathogens and weeds.
 - ✓ A pathway – refers to the way a pest of concern is able to enter to the importing country through the commodity being moved



Equivalence of phytosanitary measures and adaption to regional conditions

- Members must consider that different phytosanitary measures may be equally effective in achieving their ALOP.
- Members must consider regional conditions.



Consistency in application of ALOP

- Discrimination or disguised restrictions on trade *must not occur*
- ALOP, when set, must be applied consistently, such that it
 - ✓ cannot restrict the import of a commodity from one source, but not do so for another, with identical associated pest risks
 - ✓ cannot apply stricter phytosanitary measures against a given pest internationally than those applied against that pest domestically



Assessment of risk

- **In summary, the application of phytosanitary measures must be based on a risk assessment that :**
 - ✓ is appropriate to the circumstances (i.e. not one size fits all),
 - ✓ is based on scientific principles (technical evidence),
 - ✓ considers appropriate biological, scientific and economic (including environmental) evidence,
 - ✓ takes into account, international standards/guidelines, when possible.



Summing up: ISPM1 provisions

- **Harmonisation**
- **Appropriate Level of Protection (ALOP)**
- **Risk assessments**
- **Equivalence of phytosanitary measures and appropriate regional conditions**
- **Consistency (non-discrimination)**

Activity

Win Prizes!



Name that Acronym

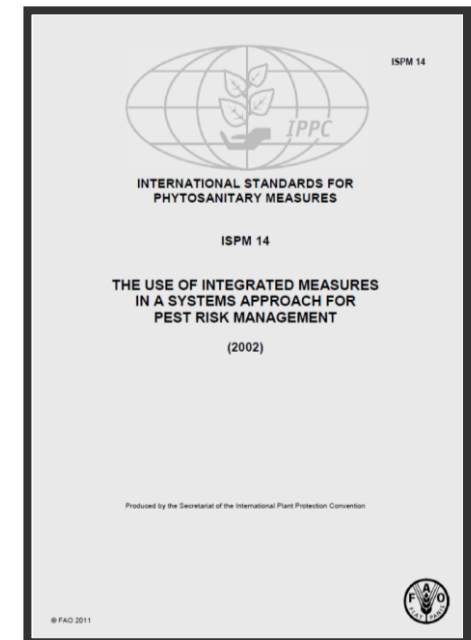
	ACRONYM	DEFINITION
1	APPPC	
2	ALOP	
3	BATS	
4	DAFF	
5	FAO	
6	IRA	
7	IPPC	
8	ISPM	
9	NPPO	
10	OIE	
11	PFA	
12	PRA	
13	PEES	
14	RPPO	
15	RSPM	
16	SPS	
17	SPC	
18	SPREP	
19	WTO	
20		

ISPM 14

Guidelines for the development and evaluation of integrated measures in a systems approach as an option for pest risk management

Systems approach: Overview of ISPM14

1. What is a systems approach
2. Characteristics of systems approach
3. Relationship with PRA and management options
4. Independent and dependent measures
5. Circumstances for use
6. Types of systems approaches
7. Efficacy of measures
8. Developing systems approaches
9. Evaluating systems approaches
10. Responsibilities (of parties involved)



What is a systems approach? [1]

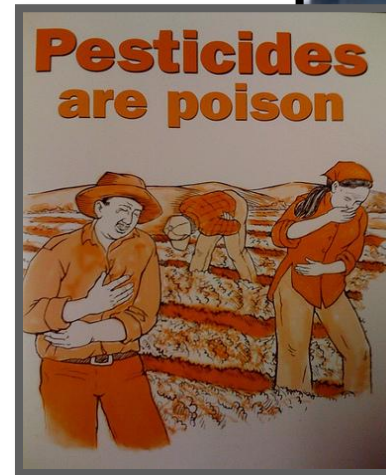
- A systems approach (SA) integrates at least two **independent** phytosanitary measures (and any number of dependent measures) that **cumulatively** reduce pest risk to an acceptable level to meet a country's ALOP.
- **Phytosanitary measure**: 'any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests' (ISPM 5).
- Examples of official procedures include legislation to prohibit entry or movement of goods, treatment, inspection, Pest Free Areas (PFAs), prohibiting use of certain varieties of plants etc.

What is a systems approach? [2]

- **In a SA** alternative phytosanitary measures may be equally effective (in this case cumulative) in achieving ALOP.
- **SA facilitates trade**: where a single (standalone) measure is unavailable or impractical to implement (e.g. costly).

Roadblocks: risk & perceptions

- There has been an overconfidence in reliance on a single treatments as the best option for market access.
- A systems approach moves away from single treatments.



What is a systems approach? [2]

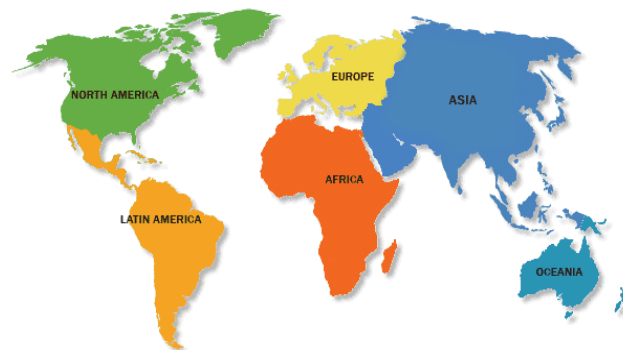
- SA is **not** a single standalone measure that kills, removes, or makes a pest unviable.
- It is a number of measures (systems components) applied at any point in the production to the delivery of the product -
 - ✓ Can be applied at the growing phase, pre-harvest, post-harvest, entry and distribution phases.
 - ✓ Aims to reduce the incidence, viability, or reproductive potential of a pest.

Conception shift



Single step treatments

- ✦ appropriate in some circumstances
- ✦ not practical to apply in others



Sustainable, technically
based market access

Multiple/integrated step treatments

- ✦ two or more independent measures used to achieve ALOP

Managing phytosanitary risk with a SA (1)

A Systems Approach :

- Requires good understanding of pests, and the production, processing and transportation systems.
- Combines two or more phytosanitary measures to manage a plant pest.
- Reduces reliance on single measures, such as disinfestation.



Managing phytosanitary risk with a SA (2)

A Systems Approach :

- A systems approach may be composed of independent and dependent measures.
- By definition, a systems approach must have at least two independent measures.
- All independent measure may be composed of several dependent measures.

Types of systems approach

- a) Simple combination of independent measures of known efficacy,
- b) Complex and precise systems such as critical control point systems,
- c) Or some intermediate between these two!

Systems Approach

Growing

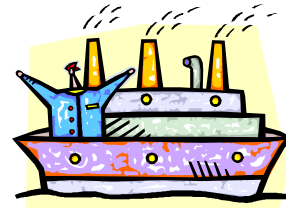
Harvest

Post harvest

Transport

Distribution

End use!



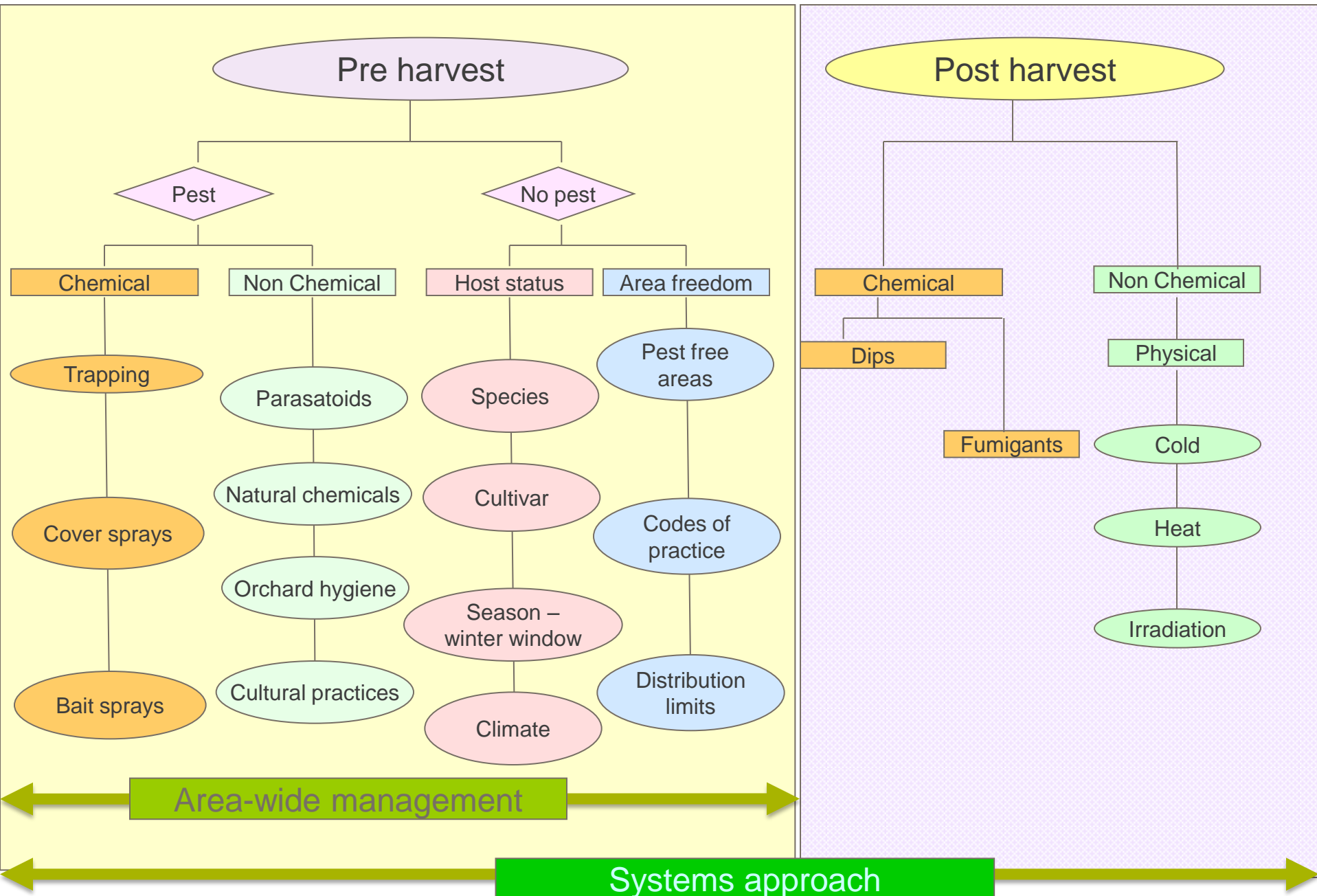
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Level of risk

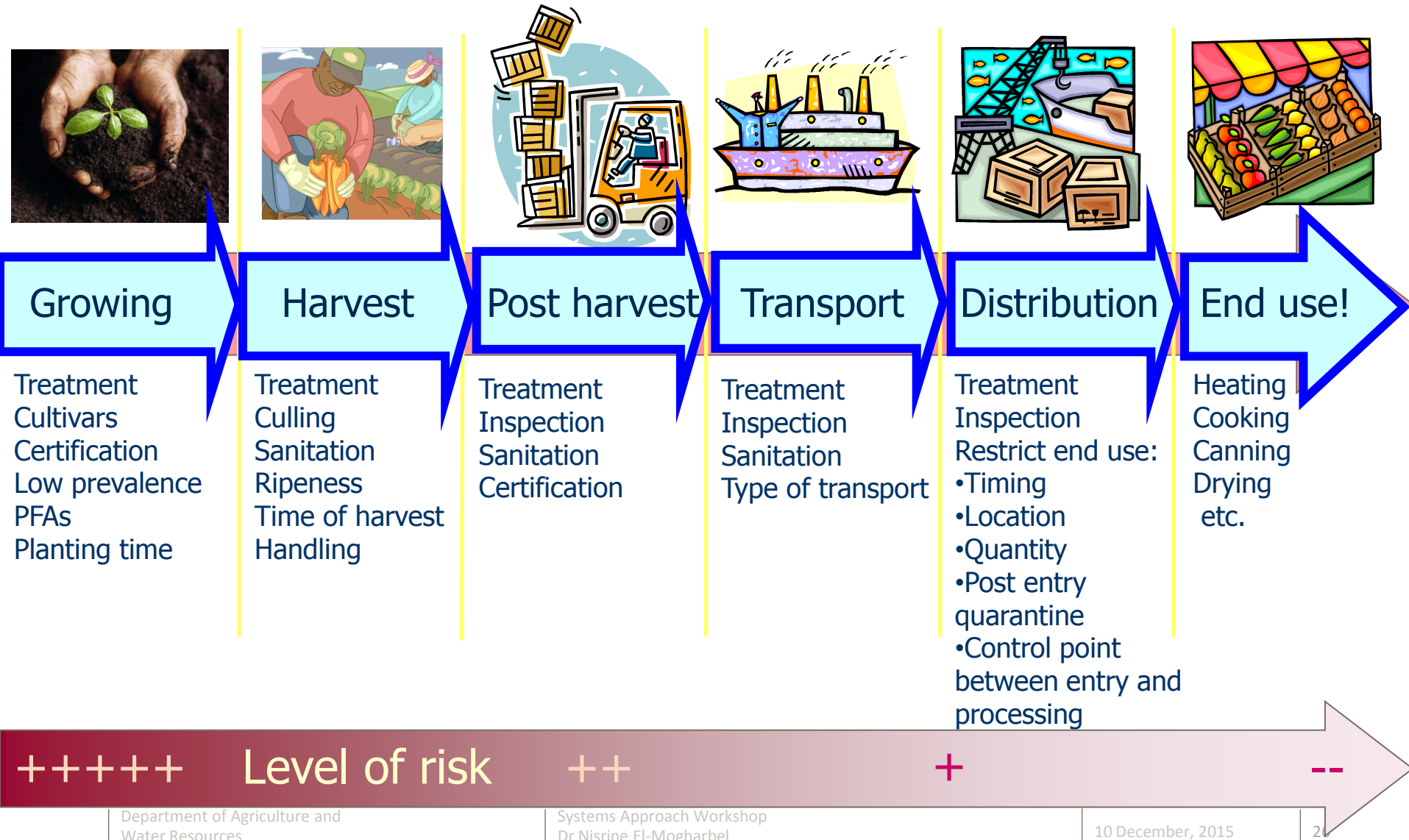
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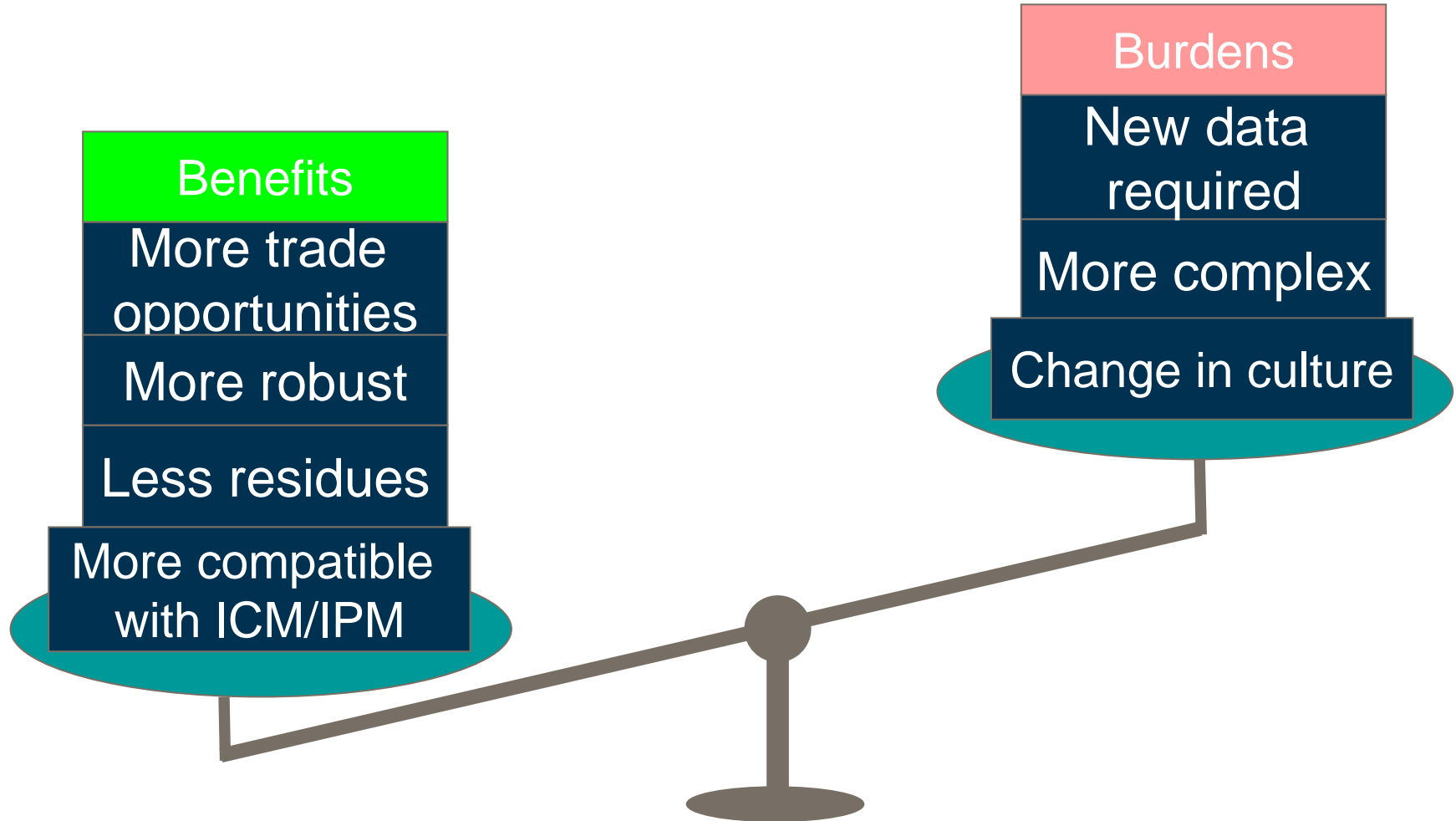
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Systems Approach



Systems Approach: Burdens and benefits



Systems approach (SA): Knowledge building blocks

1. Understanding relevant ISPMs
2. Identifying pests in the field
3. Identifying the biology of the pests
4. Identifying the pathway



Pest risk analysis (PRA)

PRA provides the technical justification that underpins the application of phytosanitary measures

Pest risk analysis (PRA)

Key stages



Pest risk analysis: ‘process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures’ (ISPM 5)

The PRA process can be split into key stages

- 1. Initiation:** Identification of PRA area, export area, pathway and pests of concern
 - 2. Pest risk assessment:** Evaluation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences
 - 3. Pest risk management:** Identification of phytosanitary measures that (alone or in combination) reduce the risk to an acceptable level
- Effective communication is an essential component of all 3 stages

Pest risk analysis (PRA)

5 key questions



Pest risk analysis: ‘process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures.’ (ISPM 5)

All PRAs ask 5 key questions

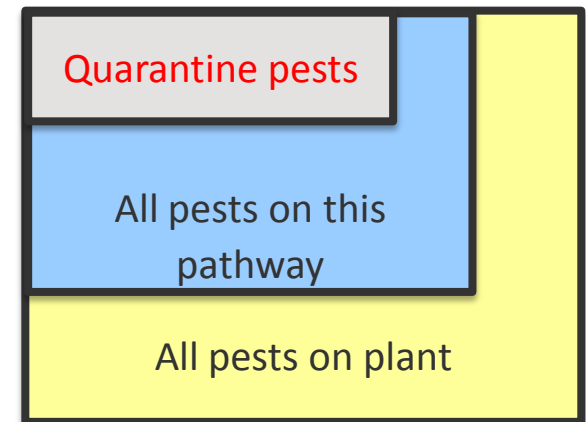
1. Is the pest associated with an entry **pathway** into the **PRA area**?
2. Is the pest absent from the PRA area, or is it present and under **official control**?
3. What is the likelihood (for the PRA area) that the pest will:
 - **enter**,
 - **establish** (for foreseeable future),
 - and **spread**?
4. What **negative** consequences may result from the pest being in the PRA area?
5. If risk exceeds **ALOP**, what **phytosanitary measures** will reduce the risk?



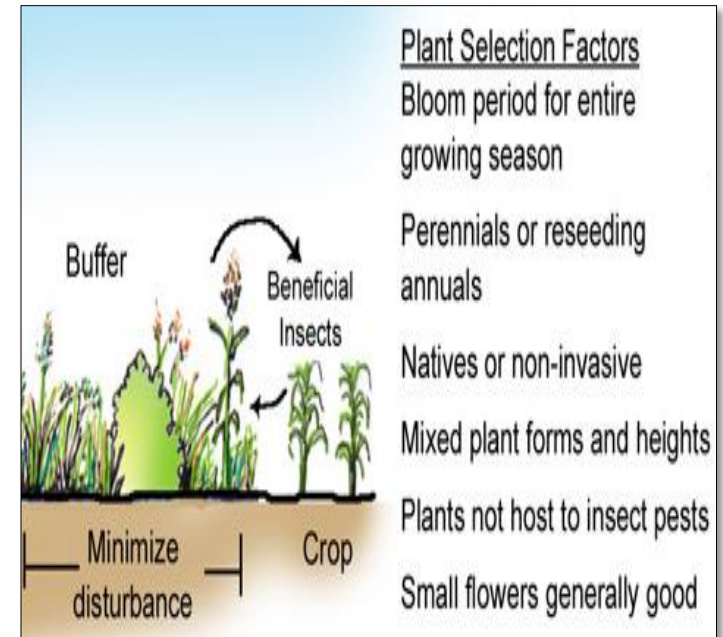
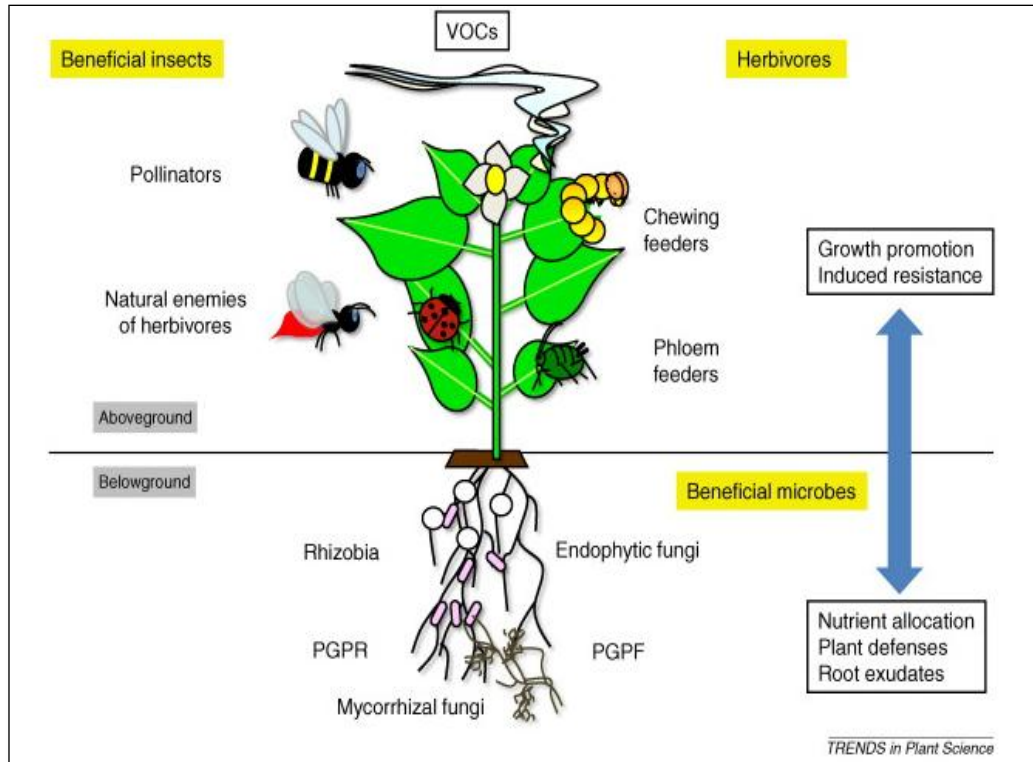
Pest or quarantine pest?

- **Pest**
 - ‘**any** species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products’ (ISPM 5)
- **Quarantine pest**
 - **must be** of potential economic importance to the PRA area,
 - **must not be** present, **or** if present, **must be** under official control in the PRA area (this is not routine production pest control).

Meaning: Not all pests are quarantine pests



Harmful pest or beneficial insect?



Sources- Pineda *et al.* 2010 *Trends in Plant Science*; <http://www.ctahr.hawaii.edu>
Accessed October 2015

PRA Stage 1 - Initiation

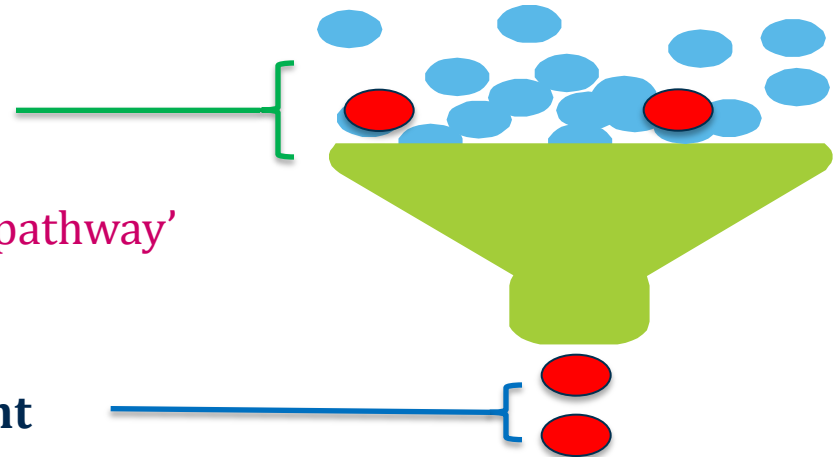
- **Key steps in initiation are to define the**
 - **PRA area** (where the pest may get into)
 - ✓ 'area in relation to which a PRA is conducted' (ISPM 5)
 - ✓ can be 'officially defined country, part of a country or all or parts of several countries' (ISPM 5)
 - **export area** (where the pest may come from)
 - **pathway** (the way the pest may get in)
 - **pest species of potential concern**



PRA Stage 2 - Pest Categorisation and Risk Analysis

Two step process

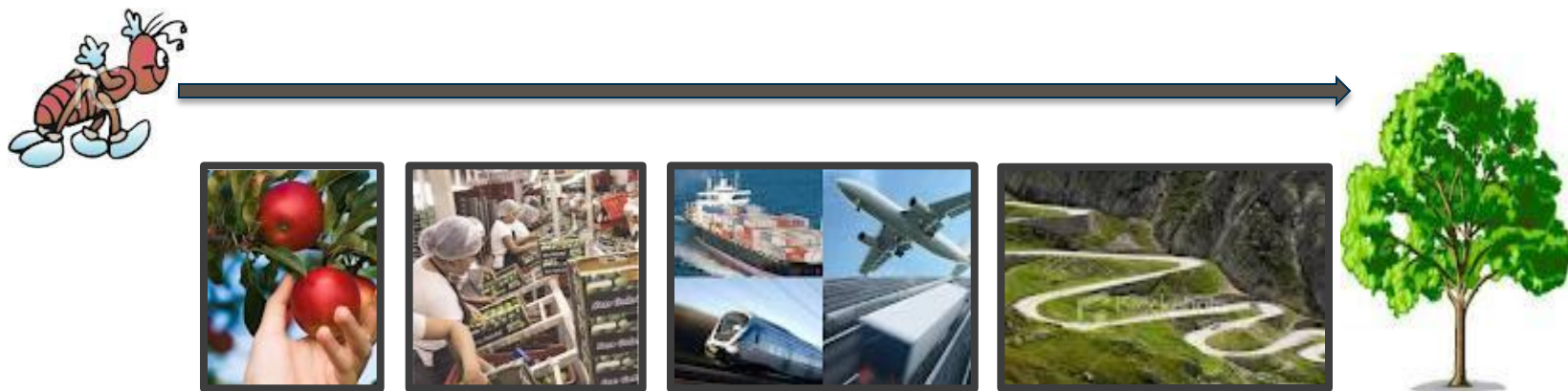
- **Step I. Pest categorisation**
 - ✓ filtering process
 - ✓ finds 'quarantine pests on a pathway'
- **Step II. Detailed risk assessment**
 - ✓ estimates the level of risk
 - ✓ finds quarantine pests with risk that exceed ALOP on that pathway



Initiation: Defining pathway

Pathway: 'any means that allows the entry or spread of a pest' (ISPM 5)

Natural and human-assisted pathways exist (trade pathways are our focus)

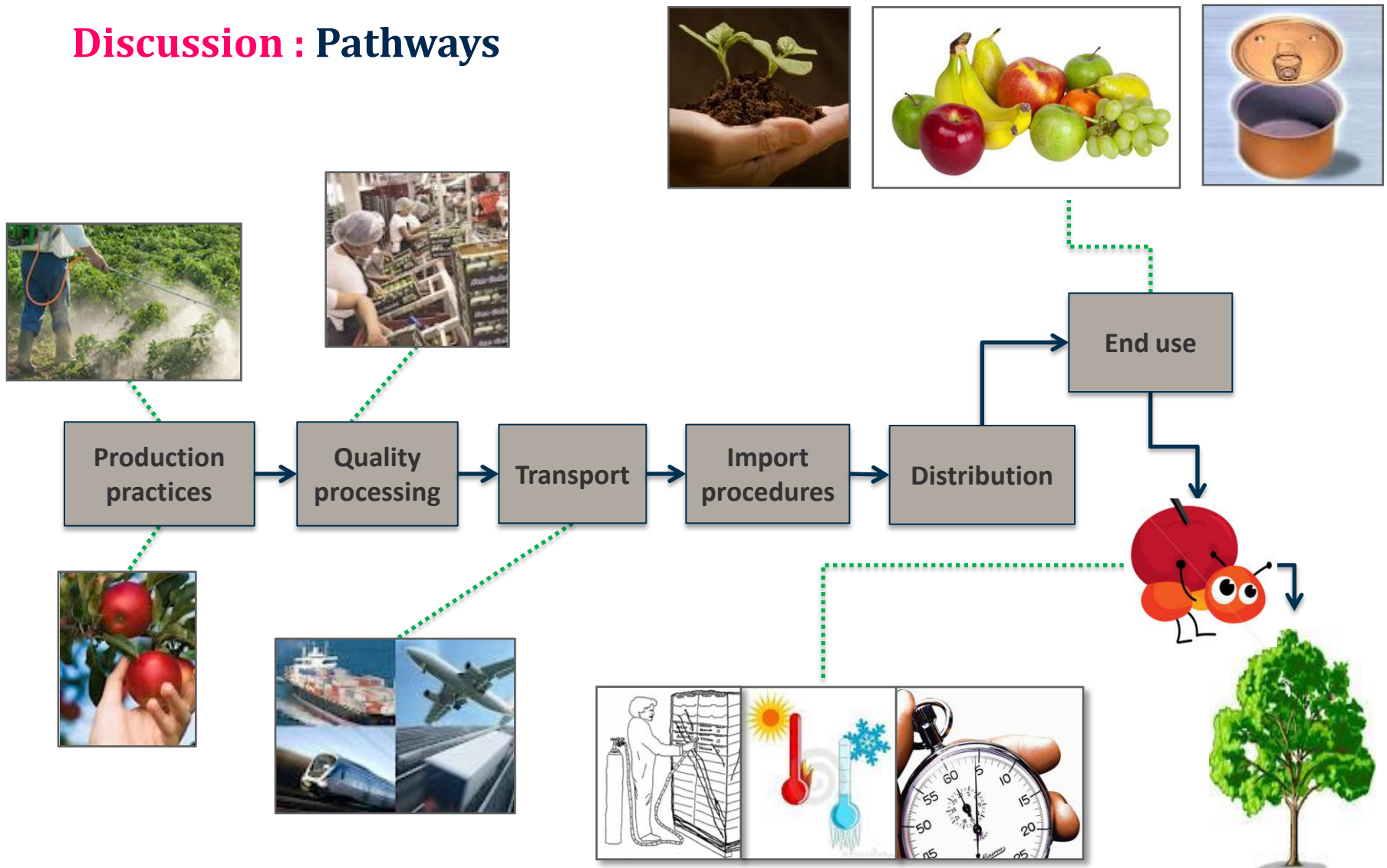


Activity: Pathways



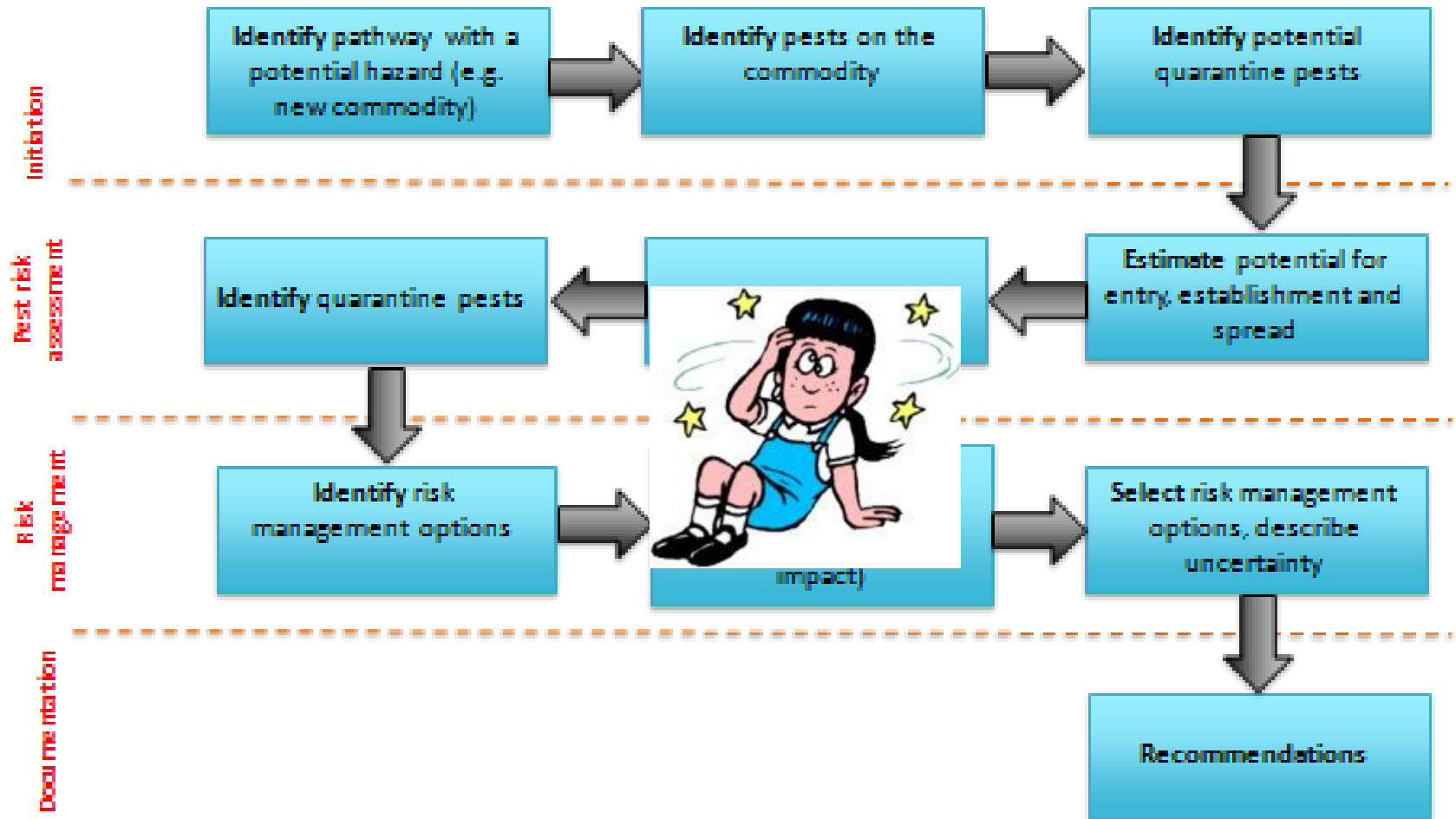
- **Split into groups**
- **Draw/map out the key (high level) steps that describe the entry pathway for a commercial plant commodity**
 - ✓ think about the various (high level) steps that may occur along the production and supply chain, including commercial:
 - ✓ production
 - ✓ export
 - ✓ import
 - ✓ distribution of commodity in the importing country to point where a pest associated with the commodity finds a host
- **Do not include any phytosanitary measures at this stage**
- **You can choose a specific commodity or be generic**

Discussion : Pathways



Lunch!

Summary of the Components of a PRA



Adapted from ISPMs 2 and 11

Mix 'n' Match

Name.....

	Terms	No.	Proper Definition from ISPM 5
1	Commodity		Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products. Note: In the IPPC, plant pest is sometimes used for the term pest [FAO, 1990; revised FAO, 1995; IPPC, 1997; revised CPM, 2012]
2	Inspection		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 [FAO, 1990; revised FAO, 1995; IPPC 1997]
3	Pathway		A type of plant, plant product, or other article being moved for trade or other purpose [FAO, 1990; revised ICPM, 2001]
4	Pest		Official visual examination of plants, plant products or other regulated articles to determine if pests are present or to determine compliance with phytosanitary regulations [FAO, 1990; revised FAO, 1995; formerly inspect]
5	Pest categorization		Evaluation and selection of options to reduce the risk of introduction and spread of a pest [FAO, 1995; revised ISPM 11:2001]
6	Pest free area		Any means that allows the entry or spread of a pest [FAO, 1990; revised FAO, 1995]
7	Pest risk assessment		The process for determining whether a pest has or has not the characteristics of a quarantine pest or those of a regulated non-quarantine pest [ISPM 11:2001]
8	Pest risk management (for quarantine pests)		An area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained [FAO, 1995]
9	Phytosanitary certificate		Evaluation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences (see Glossary Supplement 2) [FAO, 1995; revised ISPM 11:2001; ISPM 2:2007]
10	Quarantine pest		An official paper document or its official electronic equivalent, consistent with the model certificates of the IPPC, attesting that a consignment meets phytosanitary import requirements [FAO, 1990; revised CPM, 2012]

Win Prizes!

Activity



- **Risk management- Affix the cards (actions and various phytosanitary measures) to where you think is the appropriate stage for them to be to used in a production system.**
- **The various stages are around the room from growing to post-harvest and transport.**

Healthy planting material



Tissue culture pots



Banana Stems as Planting Pots

Harvesting plants at a specific stage of development



Which papaya would you harvest for export?

Field management – inspection pest monitoring



Field management (e.g. irrigation)



Treatment and packing



Ministry of Agriculture
Phytosanitary Certificate

PSO
61F

Importer
Ms Farrer

Technical name
M TARO
culenta

Number of packages
10
Quantity
10 kg

Disinfection Treatment

Treatment
Topped! PFA-Taro blight

Duration and Temperature
NA

Phytosanitary Declaration

Date

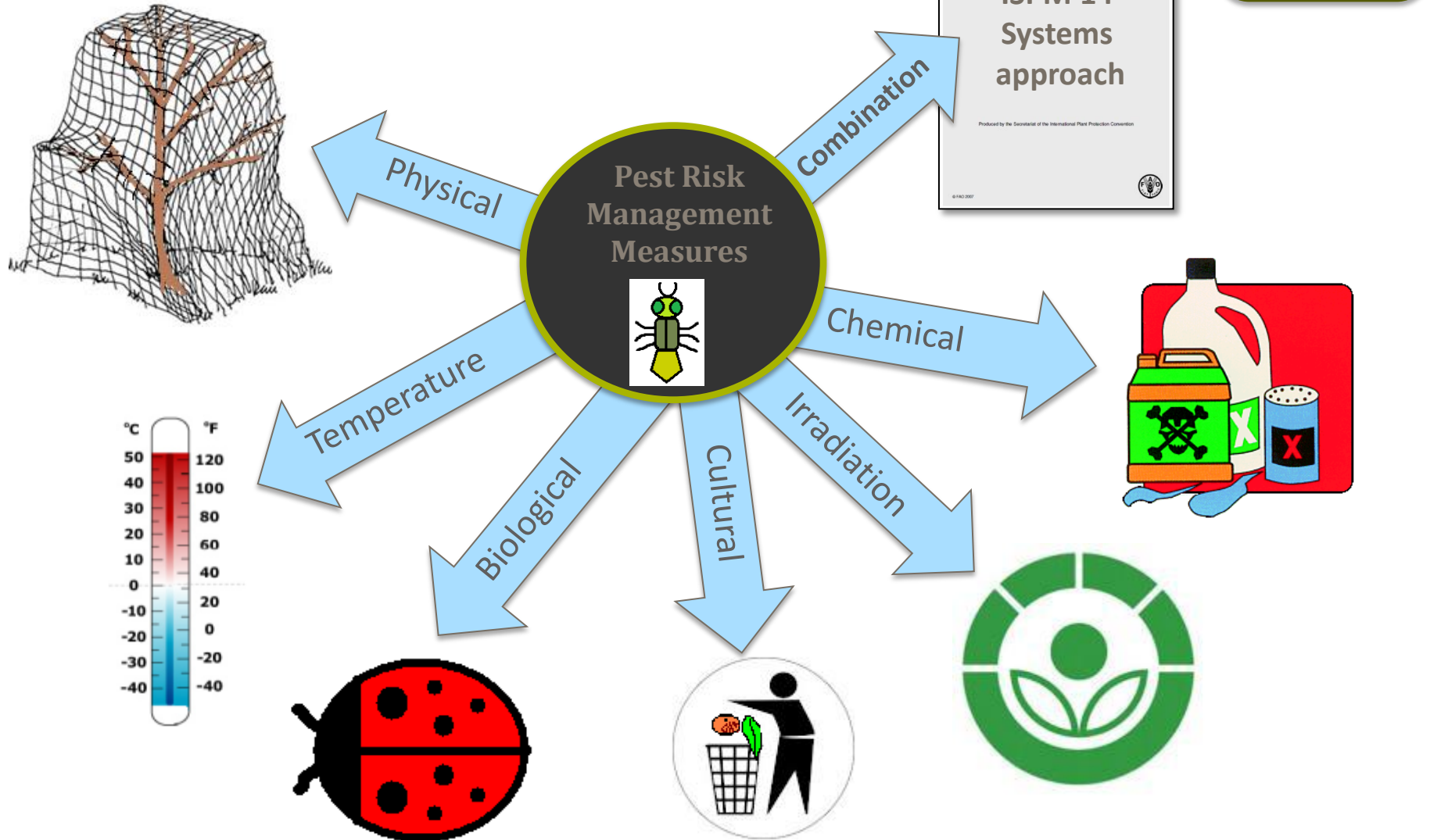
Stamp of NPPO

Authorised Officer

Place of Issue



Risk management measures are based on.....



Options for pest risk management

Building blocks of a systems approach



Application of phytosanitary measures - Recap

- **ALOP...** the decision point whether or not phytosanitary measures are needed
- **Phytosanitary measure:** ‘...any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests’ (ISPM 5):
 - ✓ **mitigation measures:** directly act on pests to reduce their prevalence or survivability (i.e. treatments, pest control)
 - ✓ **safeguard measures:** indirectly act to reduce the likelihood of pests being on/leaving the pathway to find suitable host (e.g. packaging, export season)
 - ✓ **procedure measures:** support or validate the efficacy of other measures (e.g. inspection, certification, registration)

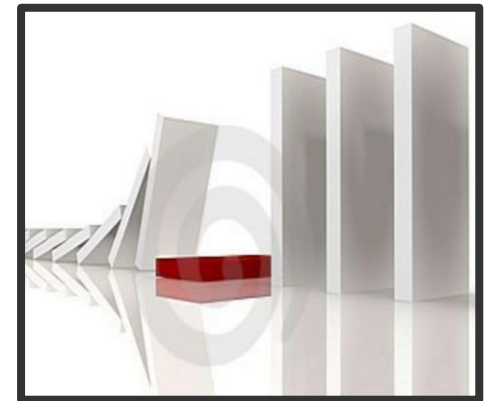
Characteristics of systems approach [1]

- Measures **cumulatively** achieve ALOP
- At least **two independent** measures (any number of dependent measures)
 - ✓ **dependent** – the whole system fails if applied as standalone measure; BUT **in SA** if one fails, only other dependent measures may fail
 - ✓ **independent** – if one fails, system doesn't fail
- Potential to apply measures **anywhere** along the entry pathway
- Facilitates a risk management system that is **scalable** to risk and least trade restrictive

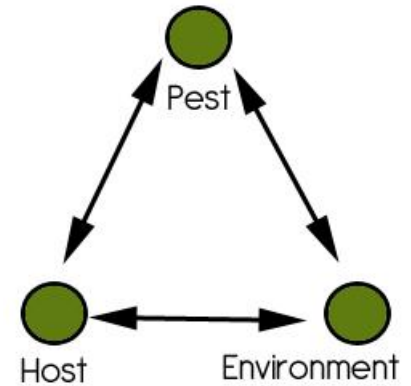
Dependent measures



Independent measures



Characteristics of systems approach [2]



In setting up a SA, you need to understand

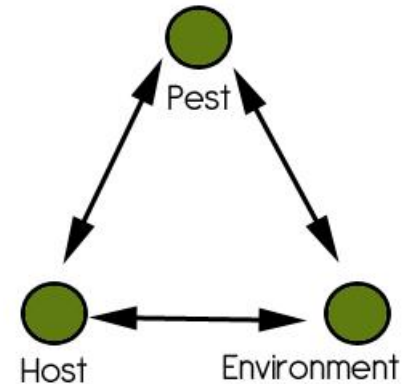
- pest biology and association with export commodity
- commercial production practices (no phytosanitary measures applied)
- residual risk that needs application of phytosanitary measures
- points where measures can be applied (e.g. potential Critical Control Points - CCPs)



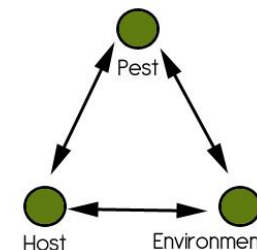
Characteristics of systems approach [3]

Measures in any SA must be

- least trade restrictive and implementable (practical)
- well defined and appropriately adopted
- linked to named pest(s)
- effective against named pest(s)
- adequately documented, monitored and validated
- with mechanism(s) for corrective actions

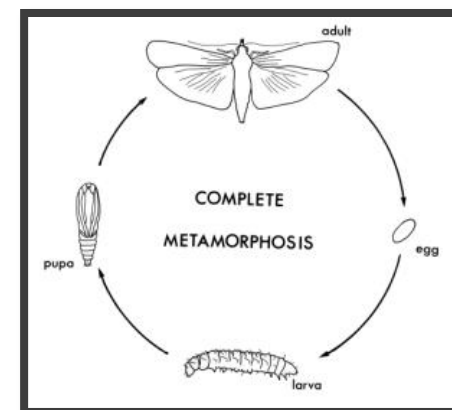
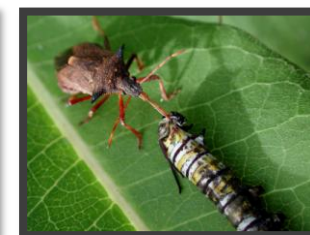
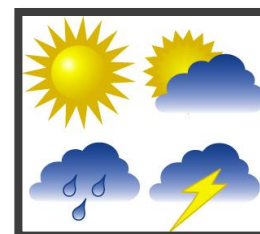


Pest prevalence in the export area



- **Factors influencing risk**

- ✓ environmental conditions
- ✓ seasonal pest changes
- ✓ natural enemies of pest (predators)
- ✓ pest life cycle (reproduction/survival strategies)



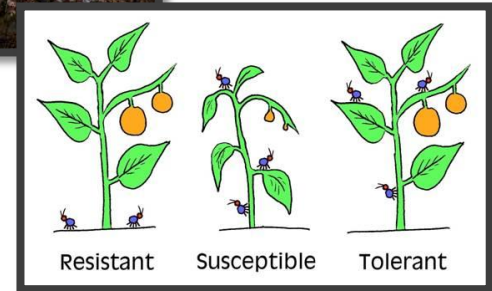
- **Other issues**

- ✓ commercial or non-commercial production
- ✓ production/pest management practices, procedures and conditions

Systems approach: Pre-planting

Aim: reduce host susceptibility and/or pest prevalence in export area

- **Healthy planting materials**
 - ✓ certified pest free
 - ✓ high health source
- **Resistant or less susceptible cultivars and most appropriate for your environment**
- **Field conditions**
 - ✓ soil nutrients
 - ✓ surrounds
 - ✓ testing (pests in the soil)
- **Pest exclusion**
 - ✓ pest free area (PFA) of production
 - ✓ places of production or production site
- **Registration of export area and training**



Systems approach: Pre-harvest

Aim: reduce pest prevalence in export area

- **Field pest/crop management**

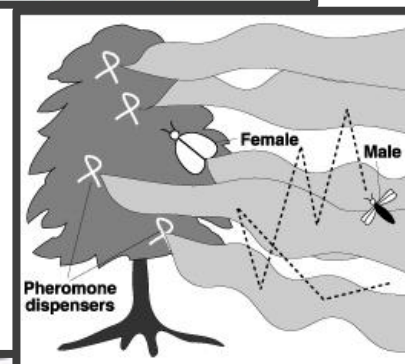
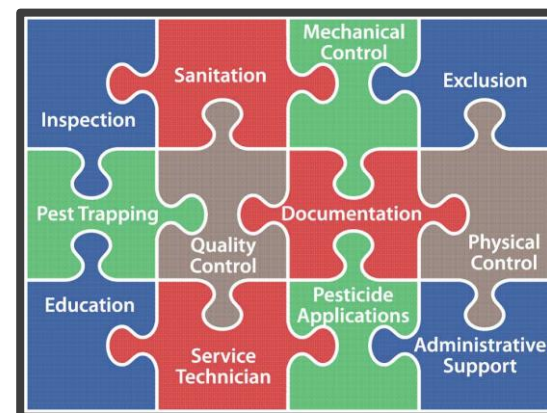
- ✓ treatments, pesticides, biological control etc.
- ✓ cultural controls (e.g. sanitation/weed control)
- ✓ pest mating disruption

- **Protected conditions**

- ✓ glasshouse production, fruit bagging/netting

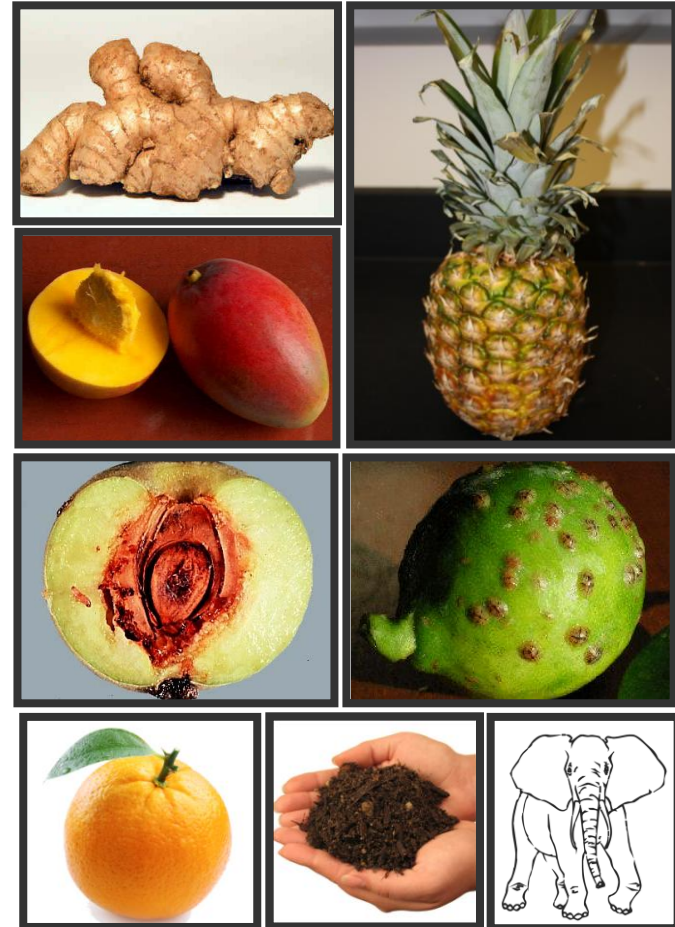
- **Area of low pest prevalence (ALPP)**

- ✓ continuous or at specific times



Commodity form and pest association

- **Commodity factors**
 - ✓ above or below ground produce
 - ✓ smooth or rough surfaces
 - ✓ other plant structures
- **Pest factors**
 - ✓ size, visibility
 - ✓ internal/external life-stages
 - ✓ damage caused
 - ✓ behaviour
- **Contaminants**
 - ✓ trash, weed seeds, soil etc.
 - ✓ pests not associated with the commodity part exported



Systems approach: Harvest

Aim: reduce pest load entering export pathway

[illegible]

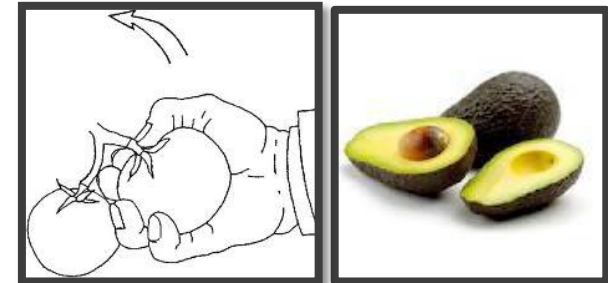
- **Harvesting conditions**

- ✓ time of year (export window)
- ✓ stage of development, ripeness, maturity
- ✓ harvest technique (e.g. picking, handling)



- **Pathway exclusion/removal**

- ✓ infested/infected product
- ✓ contaminants - 'trash'



- **Selection and/or inspection**



Systems approach: Post-harvest treatment and handling

Aim: reduce pest load entering and/or on pathway

- **Commercial quality treatments and processes**
 - ✓ controlled atmosphere, washing, brushing, waxing, dipping
- **Inspection and grading** (incl. maturity)
- **Sanitation** (incl. removal of parts of the host plant)
- **Packing processes and conditions**
- **Screening of storage and export areas**



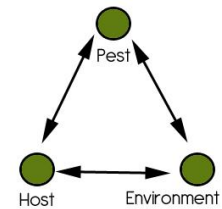
Systems approach: Transportation, import and distribution

Aim: reduce pest load on pathway

- **Supply chain/transport conditions**
 - ✓ temperature, atmosphere, humidity, packaging
 - ✓ duration
- **Disinfestation treatments**
 - ✓ fumigation
 - ✓ heat/cold
 - ✓ surface sterilisation
 - ✓ chemical dips
 - ✓ irradiation
- **Restrictions**
 - ✓ end use, distribution and points of entry
 - ✓ import window (breaking seasonal pest-host association)
- **Post-entry quarantine**

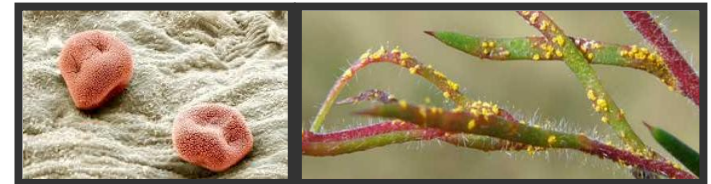


Pest mobility



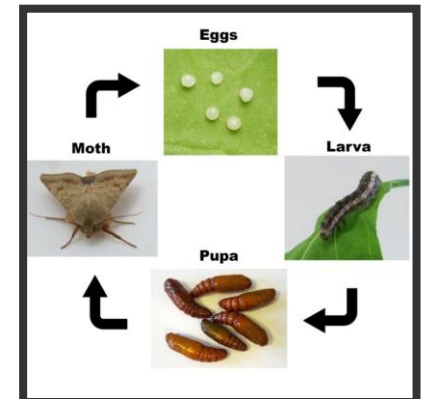
- **Factors influencing risk**

- ✓ natural or assisted dispersal
- ✓ fly, walk or crawl
- ✓ need for a vector
- ✓ mechanical transmission



- **Other issues**

- ✓ consider complete life-cycle
- ✓ explicit evidence of how a pest will find a host





ACTIVITY

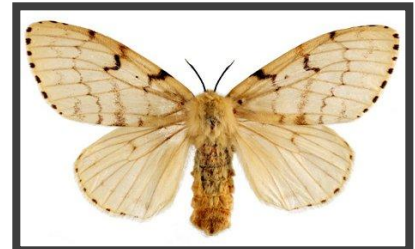


Activity: Potential characteristics of a generic insect quarantine pest




- In groups
- What key biological characteristics might you expect a hypothetical insect quarantine pest to have (e.g. high mobility)?

Discussion: Potential characteristics of a generic insect quarantine pest

- **Cryptic** (small size and/or internal life-stage)
- **Highly mobile** (natural/assisted dispersal)
- **Flexible survival and/or reproductive strategies**
- **Wide host range**
- **Tolerance to local climate conditions**



Host plants		
Highest risk	Moderate risk	Alternate hosts
Raspberries	Peaches	Snowberry
Blueberries	Grapes	Elderberry
Cherries	Pears	Poleweed
Nectarines	Apples	Dogwood
Strawberries	...	Honeysuckle
Blackberries		Bittersweet nightshade...

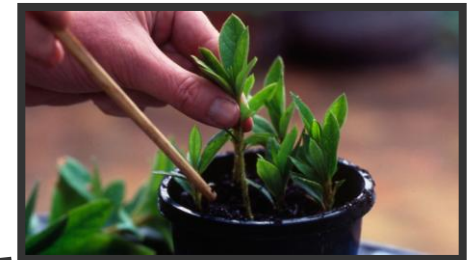




Influence of commodity end-use

- **Factors influencing risk**

- ✓ consumption, propagation or processing
- ✓ distribution in PRA area, and how often
- ✓ waste



- **Other issues**

- ✓ end use can simplify risk analysis
- ✓ may reduce the need for phytosanitary measures



Influence of commodity processing

- **Factors influencing risk**

- ✓ processing (peeling, cooking, freezing)
- ✓ pest removed or killed
- ✓ pathway from pest to host broken

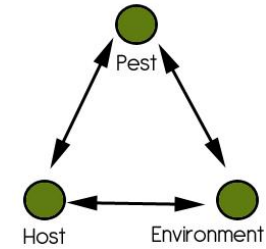
- **Other issues**

- ✓ value added to products
- ✓ possible aid to market access



Plant propagation materials

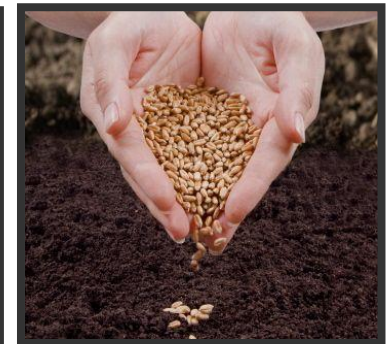
- **Factors influencing risk**
 - ✓ provides pest, host and environment
 - ✓ form imported in
 - ✓ high health sources
 - ✓ quarantine (pre- or post- import)
- **Other issues**
 - ✓ weed risk
 - ✓ higher risk relative to other plant product pathways



Plants



Seeds



Budwood



Tissue culture

Audit and verification

Aim: validate the functioning and efficacy of the system

- **Audit of export**

- ✓ production and packing processes /facilities/processes
- ✓ treatment facilities/processes
- ✓ surveillance systems
- ✓ competent authorities (NPPOs)

- **Verification**

- ✓ accreditation/registration of export production, packing and treatment facilities
- ✓ phytosanitary certification

- **Visual inspection**

- ✓ verification of pest freedom to a specified tolerance
- ✓ in-field, pre-export or on arrival



Building a systems approach

A practical approach to getting started

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 (consultation begins)
- Identifying where and when management measures occur or can be applied – the biology of the pest and practical points in the pathway
- 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
- Consultations and negotiations for finalisation
- Implement with documentation and reporting
- Audit, review and modify as needed.



Getting started [1]



- **PRA identifies the pest risk**

- ✓ pest biology and association with export pathway
- ✓ proposes what and where measures can be applied (control points)
- ✓ identifies independent, dependent and essential measures and the degree of uncertainty in their application
- ✓ assesses the efficacy of measures that are essential to the system
- ✓ ensures feasibility and trade facilitation (not restrictive)

- **Data for evaluating SA**

- ✓ existing data from SA for similar pest/commodities
- ✓ specific data on pests, SA procedures and processes

- **Efficacy of measures**

- ✓ not one size fits all
- ✓ quantitative or qualitative approaches are possible





Getting started [2]

- **Map out the pathway (without phytosanitary measures)**
 - ✓ Incl. commercial processes, procedures and practices from export area through to the pest finding a host in the PRA area
- **Identify how commercial activities influence the risk**
 - ✓ does the pathway mitigate all risk?
 - ✓ if not, determine what measures (options) are appropriate
- **Map out the pathway (with phytosanitary measures applied)**
 - ✓ define how measures reduce risk to an acceptable level
 - ✓ define how SA effectiveness can be monitored and corrected
 - ✓ document SA requirements and party responsibilities



Responsibilities of trading partners

- **Importing country should provide specific information regarding its requirements.**

This includes:

- ✓ Identifying pests of concern, phytosanitary import requirements (measures and options), level of assurance/verification required (e.g. certification)
- ✓ Points needing further clarification
- ✓ Audit the system once in place (planned evaluation and verification of the systems approach), and specify actions for non-compliance

Responsibilities of trading partners



- **Exporting country should provide sufficient information to support evaluation and acceptance of the systems approach.**

This includes:

- ✓ Information on pest/host relationship, commodity production and export pathway data sufficient to support the proposed SA (place of production, harvest, packing/handling, transport details)
- ✓ Relevant references
- ✓ Pest management measures proposed for a systems approach, and relevant efficacy data
- ✓ Monitoring their SA - maintaining appropriate records, reporting, reviewing and maintaining (corrective actions) the system
- ✓ Certifying the effectiveness of their SA (phytosanitary certification in accordance with requirements)

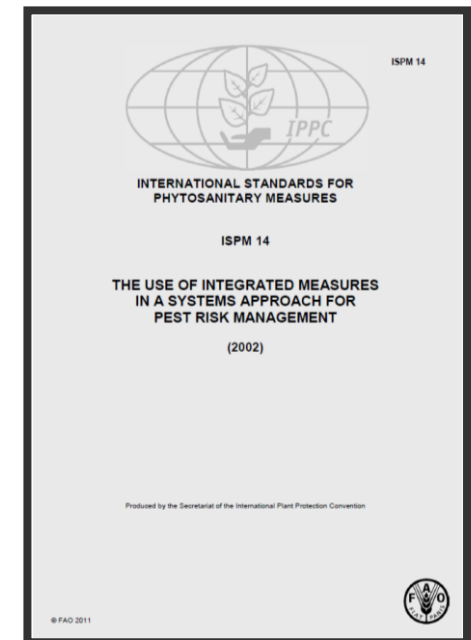
Export protocol

- Bilateral agreement between NPPOs, with stakeholder consultation
- Details usually include
 - ✓ commodity exported (e.g. species, varieties)
 - ✓ pests covered
 - ✓ area(s) of production
 - ✓ participating organisations (e.g. exporting and importing NPPOs/industries) and their responsibilities
 - ✓ operational procedures, including verification and review
 - ✓ contingency or corrective actions plans



Systems approach: ISPM14 unpacked

1. What is a systems approach
2. Characteristics of systems approach
3. Relationship with PRA and management options
4. Independent and dependent measures
5. Circumstances for use
6. Types of systems approaches
7. Efficacy of measures
8. Developing systems approaches
9. Evaluating systems approaches
10. Responsibilities (of parties involved)





Mix 'n' Match

Win Prizes!

	Terms	No.	ISPM 5
1	Commodity	4	Any specific grain or other agricultural product, animal or pathogenic agent injurious to plants or plant products. Note: In the IPPC, plant pest is sometimes used for the term pest [FAO, 1990; revised FAO, 1995; IPPC, 1997; revised CPM, 2012]
2	Inspection	10	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 [FAO, 1990; revised FAO, 1995; IPPC 1997]
3	Pathway	1	A type of plant, plant product, or other article being moved for trade or other purpose [FAO, 1990; revised ICPM, 2001]
4	Pest	2	Official visual examination of plants, plant products or other regulated articles to determine if pests are present or to determine compliance with phytosanitary regulations [FAO, 1990; revised FAO, 1995; formerly inspect]
5	Pest categorization	8	Evaluation and selection of options to reduce the risk of introduction and spread of a pest [FAO, 1995; revised ISPM 11:2001]
6	Pest free area	3	Any means that allows the entry or spread of a pest [FAO, 1990; revised FAO, 1995]
7	Pest risk assessment	5	The process for determining whether a pest has or has not the characteristics of a quarantine pest or those of a regulated non-quarantine pest [ISPM 11:2001]
8	Pest risk management (for quarantine pests)	6	An area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained [FAO, 1995]
9	Phytosanitary certificate	7	Evaluation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences (see Glossary Supplement 2) [FAO, 1995; revised ISPM 11:2001; ISPM 2:2007]
10	Quarantine pest	9	An official paper document or its official electronic equivalent, consistent with the model certificates of the IPPC, attesting that a consignment meets phytosanitary import requirements [FAO, 1990; revised CPM, 2012]

Acknowledgments

I would like to thank Dr Glynn Maynard, Dr Neil Grant, Dr Zamir Hossein, Ms Carol Quashie-Williams and Mr Sam Delamoire from the Australian Government Department of Agriculture and Water Resources for their kind assistance.

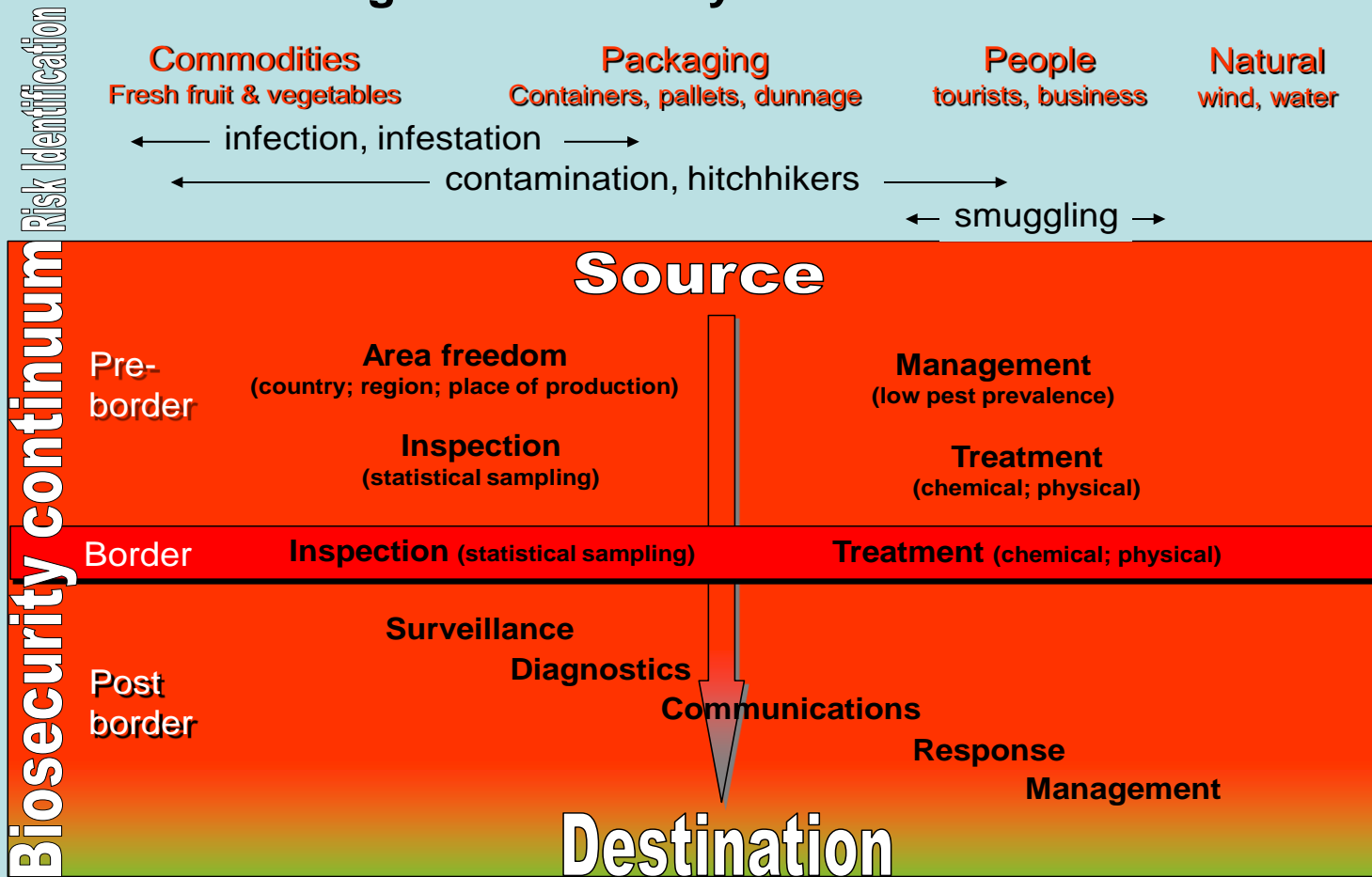
Solution to Definition match

Match the definition (Definitions as listed in ISPM 5)

Name:

PHYTOSANITARY TERMS		PHYTOSANITARY DEFINITIONS
1. Beneficial organism	4	A pest that is carried by a commodity and, in the case of plants and plant products, does not infest those plants or plant products
2. Certificate	8	An official ongoing process to verify phytosanitary situations
3. Commodity	9	Any means that allows the entry or spread of a pest
4. Contaminating pest	10	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products
5. Efficacy (of a treatment)	1	Any organism directly or indirectly advantageous to plants or plant products, including biological control agents
6. Equivalence (of phytosanitary measures)	11	An area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained
7. Inspection	14	Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests
8. Monitoring	2	An official document which attests to the phytosanitary status of any consignment affected by phytosanitary regulations
9. Pathway	3	A type of plant, plant product, or other article being moved for trade or other purpose
10. Pest	5	A defined, measurable, and reproducible effect by a prescribed treatment
11. Pest free area	15	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
12. Pest Risk Analysis	7	Official visual examination of plants, plant products or other regulated articles to determine if pests are present and/or to determine compliance with phytosanitary regulations
13. Phytosanitary action	6	The situation where, for a specified pest risk, different phytosanitary measures achieve a contracting party's appropriate level of protection
14. Phytosanitary measure	12	The process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures to be taken against it
15. Quarantine pest	13	An official operation, such as inspection, testing, surveillance or treatment, undertaken to implement phytosanitary measures

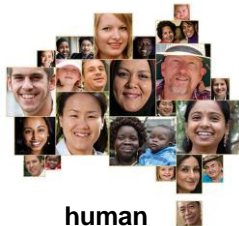
Risk Mitigation: Pathways & Intervention Points



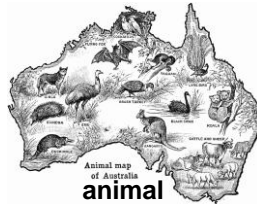
DIFFERENCES!

QUARANTINE

Border
inspection



human



animal



plant



BIOSECURITY

Pre-border, Border and
Post-border consideration
and/or inspection



environment



economy



Recap - for disease or pest to occur!

Favourable Environment



Disease/Pest Triangle

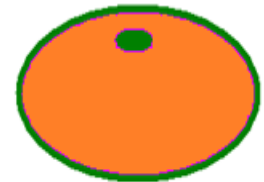
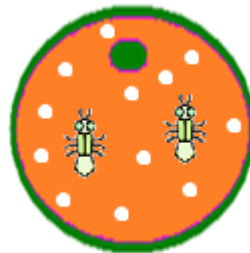
Pest



(Vector)



Virulent Pathogen



Susceptible Hosts

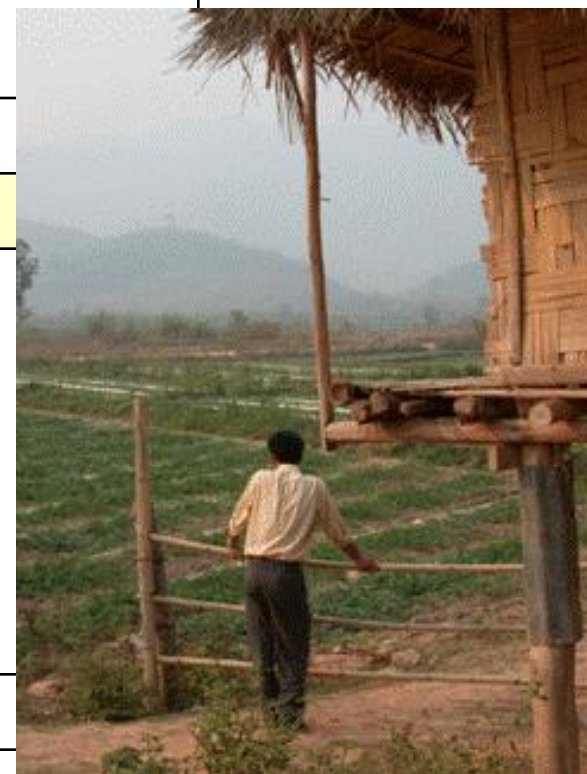
Activity: Potential elements of a systems approach (SA)



- In groups
- Draw/map out the key (high level) steps that describe the entry pathway for a commercial plant commodity.
- Indicate on this pathway the kind of measures that could be applied within a SA at the various stages of
 - pre-planting
 - pre-harvest
 - harvest
 - post-harvest treatment and handling
 - transport and distribution
- Describe the kind of factors you would need to consider to implement and maintain this SA

Systems approach to managing phytosanitary risk

Pre-planting
<ul style="list-style-type: none">• healthy planting material• resistant or less susceptible cultivars• pest-free areas, places or sites of production
<ul style="list-style-type: none">• producer registration and training
Pre-harvest
<ul style="list-style-type: none">• 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)
<ul style="list-style-type: none">• testing



Systems approach to managing phytosanitary risk

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)
- certification of packing facilities
- sampling
- testing
- method of packing
- screening of storage areas



Systems approach to managing phytosanitary risk

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 t 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)

