



INTERNATIONAL SYMPOSIUM PEST FREE AREAS (PFA) & SURVEILLANCE

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**Establishment and Maintenance of
Areas of Low Pest Prevalence (ALPP)
including the concept and
application of Systems Approach**

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Definition: Area of Low Pest Prevalence

- An **area**, whether all of a country, part of a country, or all or parts of several countries, as identified by the competent authorities, **in which a specific pest is present at low levels and which is subject to effective surveillance or control measures** [IPPC, 1997; revised CPM, 2015]



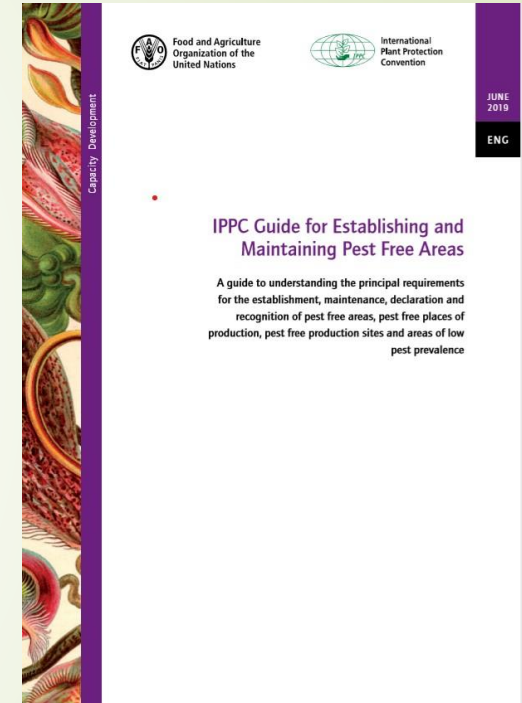
Definition: Systems Approach

- **The integration of different pest risk management measures, at least two of which act independently, and which cumulatively achieve the appropriate level of phytosanitary protection [ISPM Pub. No. 14, 2002]**

GUIDELINES AND PROCEDURES MANUALS

IPPC Guide for Establishing and Maintaining Pest Free Areas

- A guide to understanding the principal requirements for the establishment, maintenance, declaration and recognition of pest free areas, pest free places of production, pest free production sites and areas of low pest prevalence





An ALPP can be used

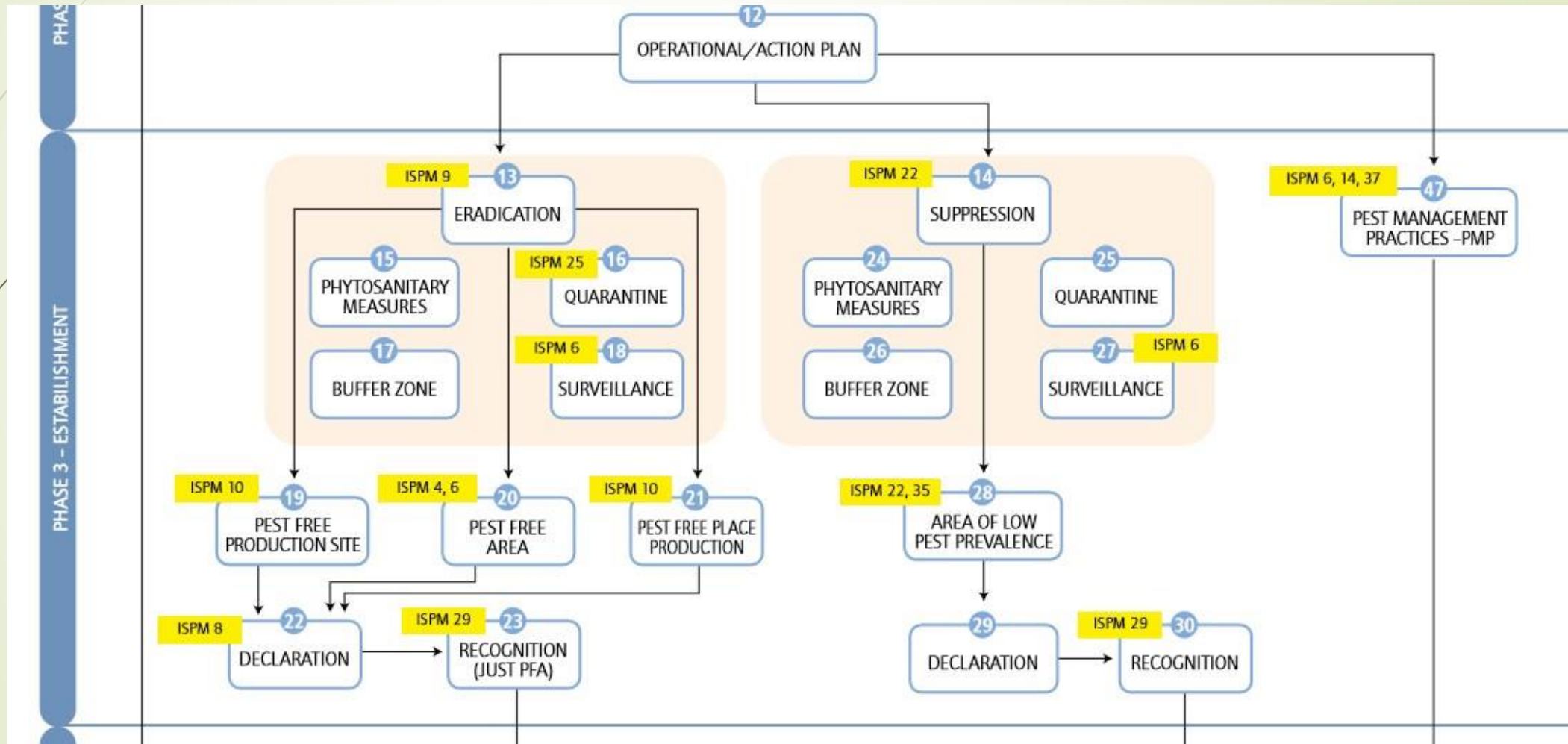
- ▶ As a buffer zone to an PFA
- ▶ As part of a process of population suppression aimed at eradication and establishment of a PFA
- ▶ Or in combination with Systems Approach



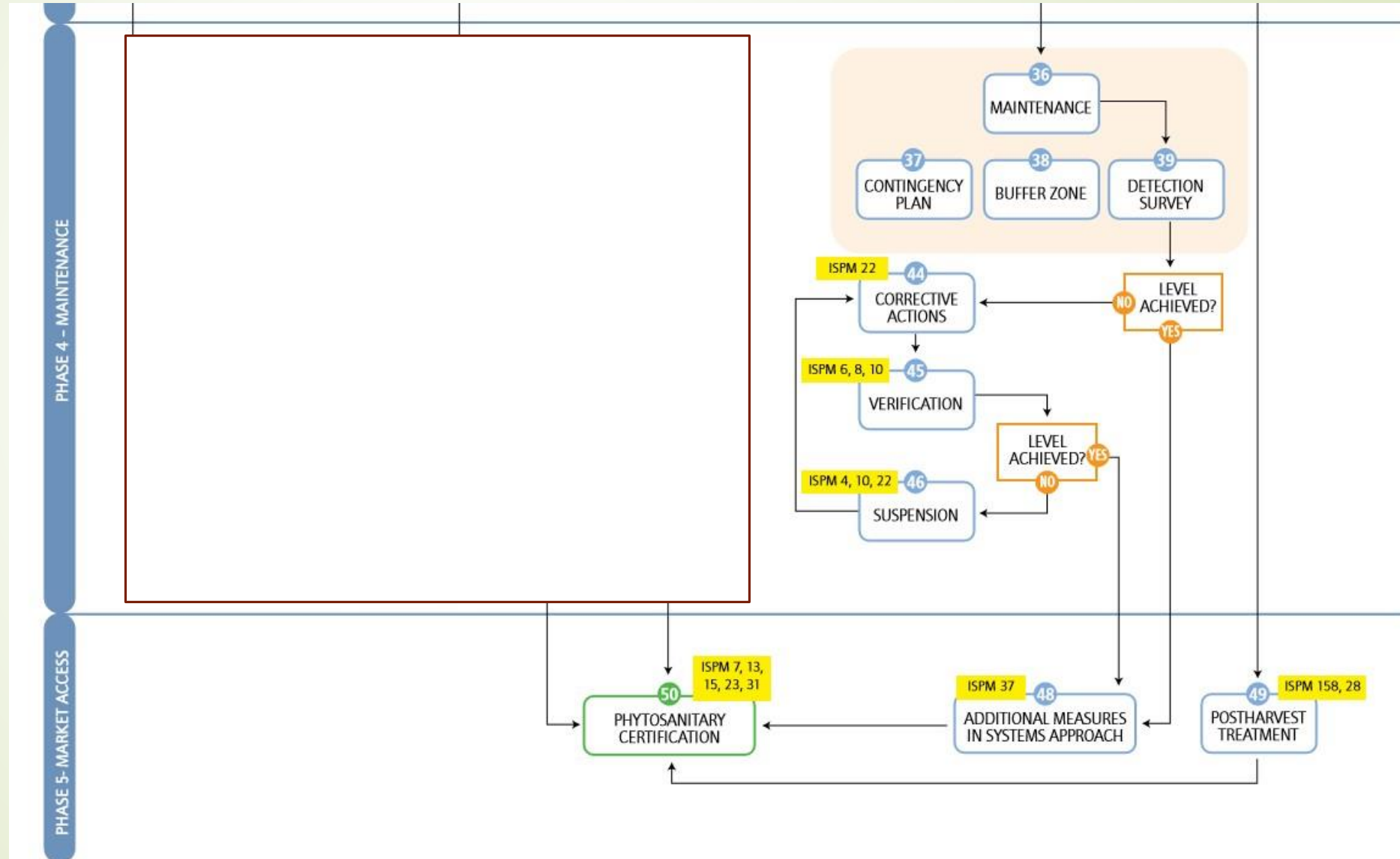
Initiation and Programme Planning ALPP

- Since these are similar as for PFA.....


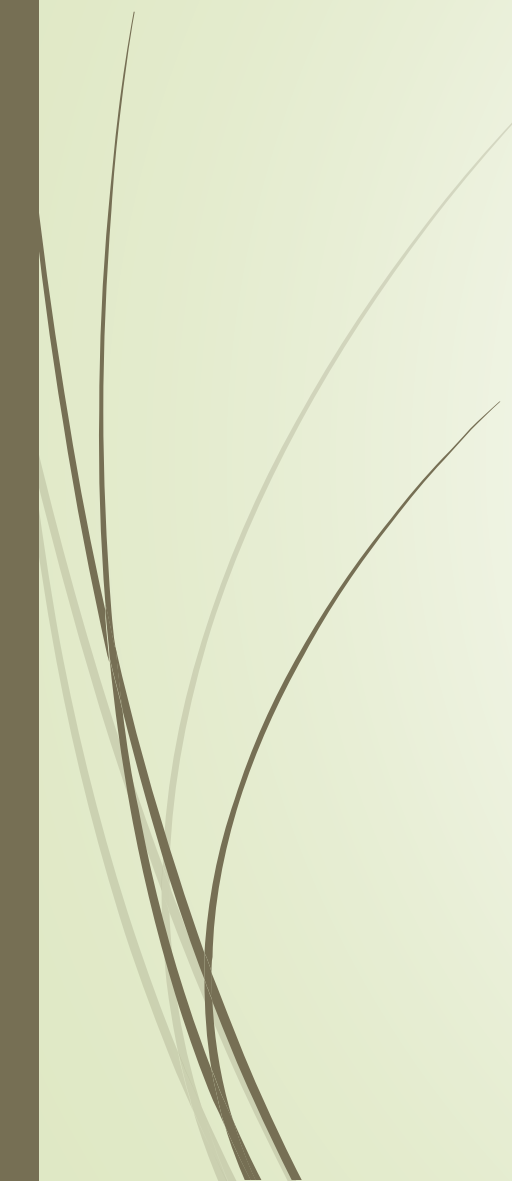
Decision tree establishment



Decision tree maintenance and market access

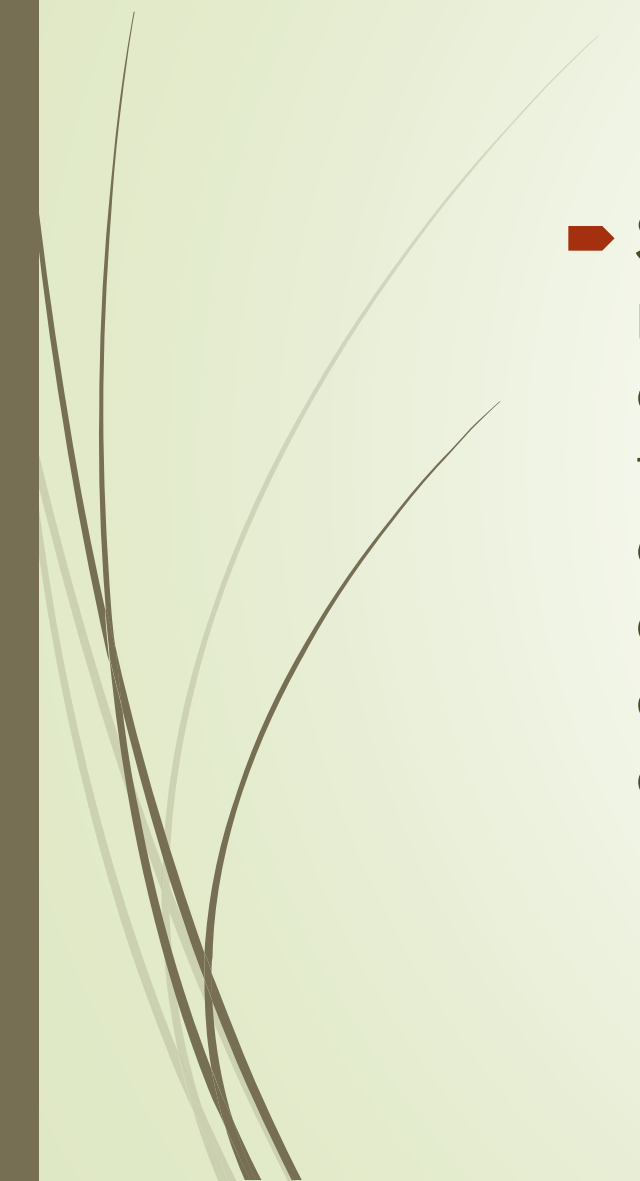


ISPM's involved with ALPP

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- ISPM 4 Pest Free Areas
 - ISPM 6 Surveillance
 - ISPM 8 Determination of Pest Status in an Area
 - ISPM 10 Pest Free Production Site
 - ISPM 14 Systems Approach
 - ISPM 22 Requirements for the establishment of areas of low pest prevalence
 - ISPM 29 Recognition of pest free areas and areas of low pest prevalence
 - ISPM 35 Systems Approach for fruit flies
 - Annex 1 to ISPM 35 Establishment of Areas of Low Pest Prevalence for Fruit Flies
 - ISPM 37 Determination of host status of fruit to fruit flies (Tephritidae).



Systems Approach

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- Systems approaches are groups of integrated pest risk management measures designed to provide importing countries with adequate phytosanitary security while facilitating trade in situations where direct postharvest commodity treatment is undesirable, not feasible or non-existent or imported products are marginal hosts of the quarantine pest produced in a low-pest prevalence area.



Systems Approach

The components of systems approaches may be grouped into a series of five categories of measures (Jang and Moffit 1994):

- (1) field or production measures,
- (2) preharvest measures,
- (3) postharvest measures,
- (4) inspection, and
- (5) shipping and distribution measures.



Systems Approach

- These measures may take various forms from traditional field and postharvest treatments to SIT, to less commonly used measures like pest free growing structures and restricted shipping seasons.
- Whatever measures are chosen, the successful design and implementation of systems approaches as phytosanitary measures requires close cooperation between the NPPOs of the importing and exporting countries.



Some examples...



Onion fly (*Delia antiqua*) ALPP

- Onion fly is present throughout the region, so eradication is not an option.
- It is more economical to mass-rear and release, than to eradicate, create a barrier and control new invasions.
- Because the onion flies do not disperse much beyond a particular field, it has proved feasible for this SIT service to be purchased on an individual grower basis.



Onion fly (*Delia antiqua*) ALPP

- Advantages: pesticide usage is reduced, and development of a pesticide-resistant strain is also much diminished.
- Sterile flies are released from May to September; around 10 000 hectares is treated annually, mainly onions for seed production.
- The SIT approach for onion fly also has been below, or is competitive with, the cost of chemicals.



Risk mitigation system for a complex of Tephritid fruit flies and mango seed weevil

- Mediterranean fruit fly (*Ceratitidis capitata*), West Indian fruit fly (*Anastrepha obliqua*), South American fruit fly (*Anastrepha fraterculus*) and mango seed weevil (*Sternochetus mangiferae*) on mango cultivated in Açú Valley (Rio Grande do Norte (RN) state) and San Francisco Valley (Pernambuco (PE) and Bahia (BA) states), Brazil.



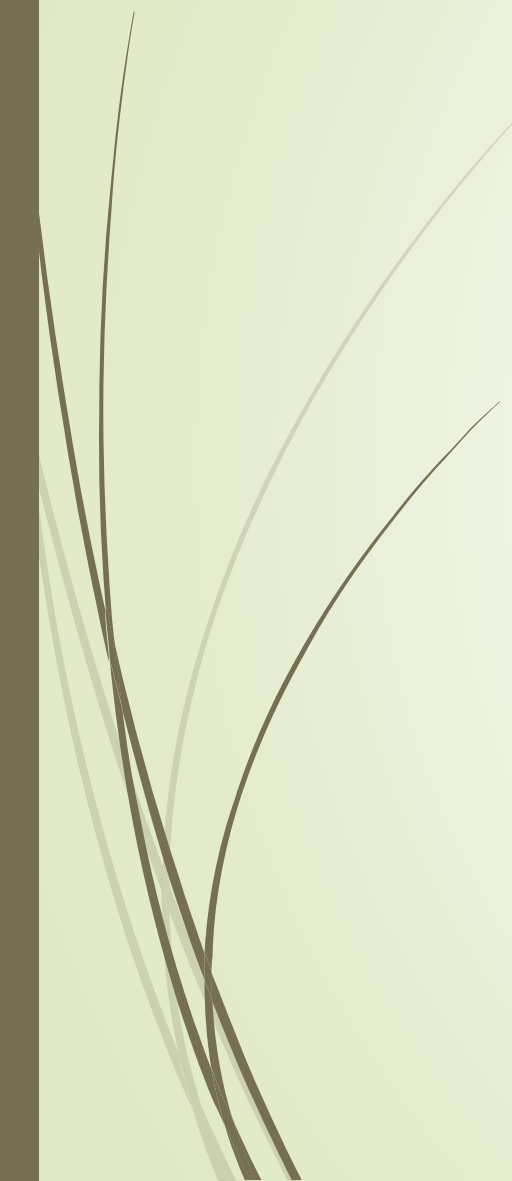
Risk mitigation system for a complex of Tephritid fruit flies and mango seed weevil


- Certification of production units
- Monitoring and sampling of each lot
- Fly/Trap/Day level below or equal to 1.0
- The combination of ALPP and following measures is a systems approach
- Packaging of fruits in a single warehouse
- Hot water Treatment with presence of inspectors



Risk mitigation system for a complex of Tephritid fruit flies and mango seed weevil

Challenges :

- keeping the stakeholders in constant vigilance to maintain low levels of the pests and to continue with the export programmes
 - maintaining fruit fly controls and improving them with the use of advanced technology.
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Sterile insect release for area-wide management of codling moth (*Cydia pomonella*) in British Columbia, Canada (Systems Approach)

- Codling moth is a destructive pest of apples and pears, rendering fruit unmarketable.
- Researchers worked over 20 years on developing a Sterile Insect Technique, and in 1994 a pilot programme started.

Sterile insect release for area-wide management of codling moth (*Cydia pomonella*) in British Columbia, Canada (Systems Approach)



- Eradication was not possible because the technique was not effective enough in urban area.
- The stated mission of the programme:
 - reduce the use of pesticides
 - support local fruit producers by providing a cost-effective, sustainable and transparent public programme that reduces the population of codling moth.

Sterile insect release for area-wide management of codling moth (*Cydia pomonella*) in British Columbia, Canada (Systems Approach)

- Results: reduction of pesticide use of 96% and reduction of wild populations of codling moth to 95%.
- With a cost benefit of 2.5 CAD for every CAD invested.



Hass avocado (*Persea americana*) from Mexico – non-host status to fruit fly pests and a systems approach

- To export Hass avocado (*Persea americana* Mell.) from Mexico to the United States of America (USA), the requisite was to demonstrate non-host status to three fruit fly species (*Anastrepha* spp.) and absence of three avocado seed weevils (*Conotrachelus* spp.) and the avocado branch borer (*Copturus aguacatae* Kissinger).



Hass avocado (*Persea americana*) from Mexico – non-host status to fruit fly pests and a systems approach

- Through a host status determination, the Hass avocado produced in Mexico was classified as a non-host of three fruit fly species of quarantine concern to the USA.
- Once the rule allowing import of avocado to the USA was published, a work plan was prepared to implement a systems approach where the non-host status remained the central pest mitigation measures.



Systems Approach for papaya from Central America

- The primary target pest is the Mediterranean fruit fly *Ceratitis capitata* (Wiedemann).


- Major components:

- poor host status of the commodity,
- low prevalence of the pest in export production areas,
- specific resistant cultivars of the Solo type,
- limiting export fruit to specific stages of maturity
- hot water dip treatment.



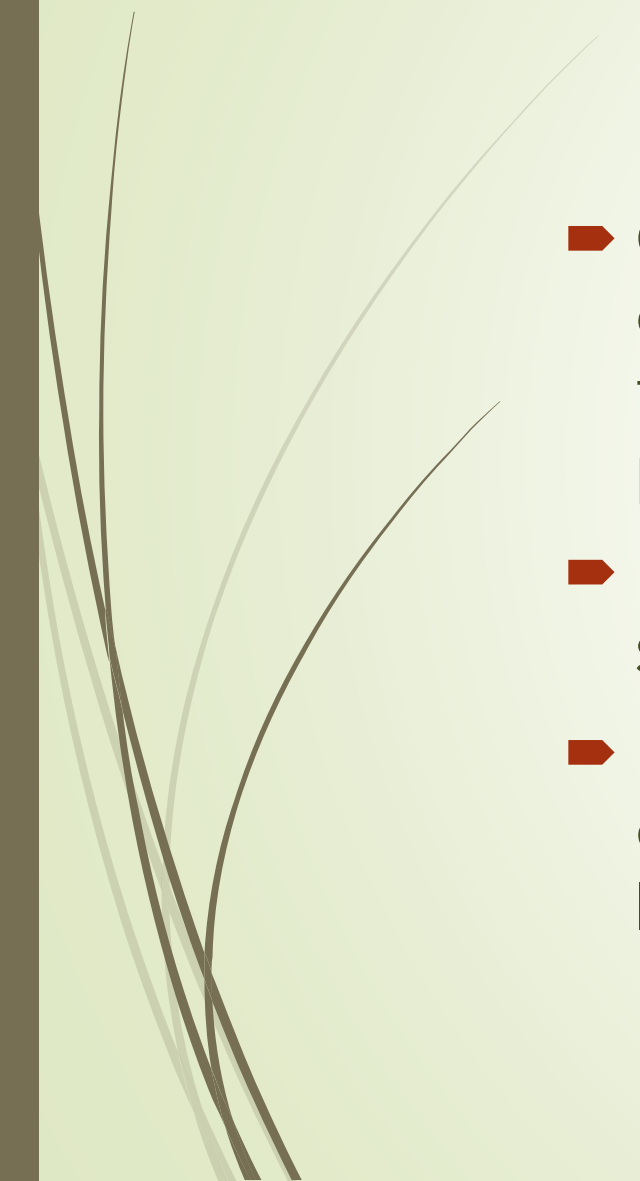


Systems Approach for papaya from Central America

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- ▶ Fruit fly trapping at a rate of one trap per hectare beginning at least one year prior to harvest and continuing through completion of harvest.
 - ▶ The traps are serviced weekly and if the capture rate exceeds seven Mediterranean fruit flies per trap per week ($F/T/D=1$), then remedial action must be taken to reduce the fly population
 - ▶ If catches exceed $F/T/D=2$, all exports are suspended.



Systems Approach for papaya from Central America

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- Cultural components include removal, burial or destruction of any culled, fallen or greater than half ripe fruit from the production area beginning at least 30 days prior to harvest.
 - Half ripe is defined as more than one quarter of the fruit surface having turned yellow.
 - Prior to packing, fruit is treated by hot water immersion at 49 °C for 20 minutes. When packed, papayas must be less than half ripe and free of injuries.



Some Conclusions

- ALPP and Systems approach offer possibilities to produce (and export) from areas that are not pest free.
- It does require research to develop methods and a lot of cooperation between NPPO's of exporting and importing countries.
- There are many examples regarding fruit flies, but much less for other pests and diseases.

Arigatou gozaimasu
Gracias
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Thank you
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