



Food and Agriculture
Organization of the
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International
Plant Protection
Convention



IPPC Global Workshop on Systems Approaches

Santiago, Chile
1 – 4 December 2025

In partnership with:



Canada



Australian Government
Department of Agriculture,
Fisheries and Forestry

From theory to practice: how to distinguish dependent and independent measures and where to apply them from the field to the destination market

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A systems approach is effective when the production and supply chain is well understood



reduce pest pressure in the field



prevent reinfestation during post-harvest/transport



verify and correct if something has failed





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Dependent measures repeat the same defence; independent measures strengthen it



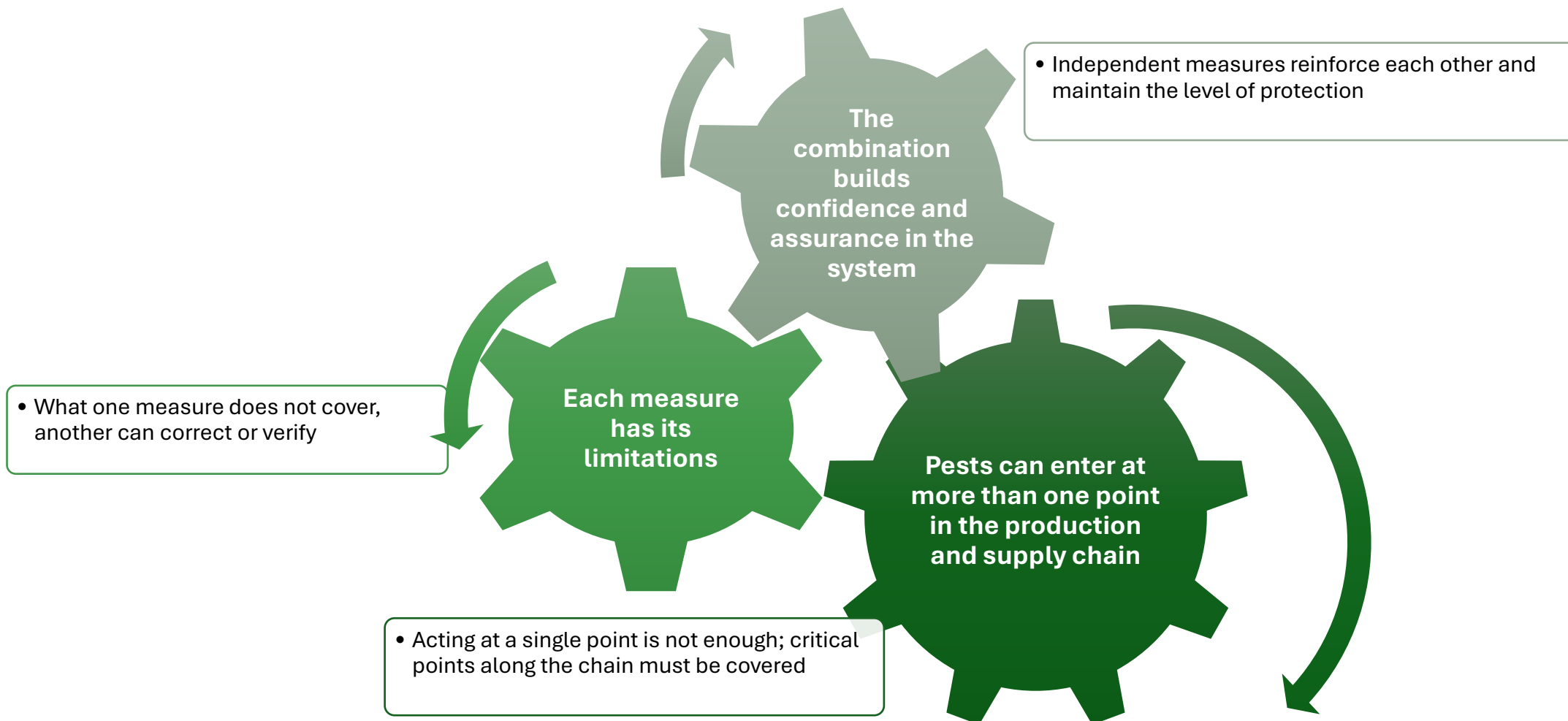
**Independent measures multiply risk reduction.
They act at different points or with different
mechanisms.
They can fail for different reasons**

**Heir failures are linked – they often fail for the
same reasons.
In practice, they behave almost like a single
measure.**





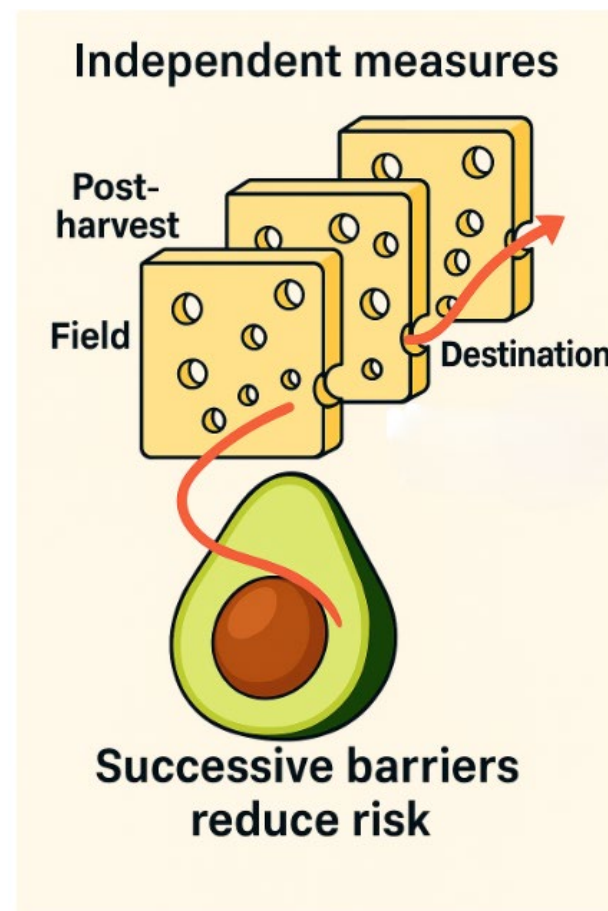
Why we need more than one measure





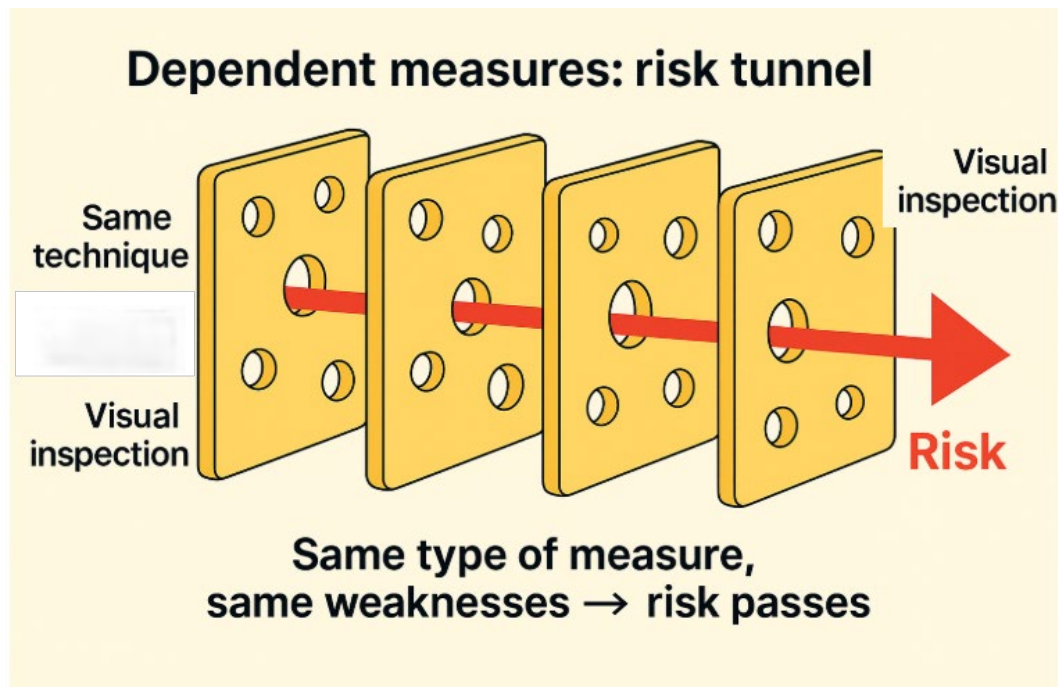
Independent measures: what one measure misses, the next one covers

- Each slice represents a phytosanitary measure (e.g. ALPP, treatment, inspection, safeguard measure such as secure packaging or sealed containers)
- No single measure is perfect: every measure has some probability of failure.
- “Holes” = limitations: natural variability, human error, conditions beyond our control.
- When measures act at different points and with different mechanisms, their weaknesses do not line up
- What one measure fails to catch, the next one can cover.





If two measures do the same thing, at the same point and through the same mechanism, their failures create a tunnel through which the risk can pass.



- The failures of the measures combine.
- This happens when measures act at the same step of the production chain (same point, same mechanism)
- **Example:**
 - two similar visual inspections (packinghouse and port)
- Although it may seem that we have two measures, in practice they behave almost as one, and the risk can permeate the entire system.



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How to determine whether two measures are independent Let's work through a practical example



Do they operate at different points in the production chain?

Phytosanitary treatment +
packaging safeguard

Different stage and different
mechanism

INDEPENDENT



Do they use different mechanisms?

Mass trapping + release of natural
enemies

Same stage in the production chain
and same function(population)

DEPENDENT



Do they fail for different reasons?

Double visual inspection (packing
house and port)

Same technique

DEPENDENT



If one fails, does the other still
provide protection?

Field surveillance + consignment
inspection

each measure can still detect the
pest if the other fails

INDEPENDENT



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Critical control points along the production chain



Field / Pre-harvest

- *pest management
- *trapping
- *Low prevalence
- *PFPP/ PFSP
- *pruning
- *sanitation



Harvest

- *Treatment
- *Culling
- *Sanitation
- *Ripeness
- *Time of harvest
- *Handling



Post-harvest

- *treatments
- *inspection and sorting
- *hygiene
- *facility certification
- *sampling
- *packaging method
- *safeguarding within the packing area



Transport y logistic

- sealed containers
- temperature control
- physical protection
- defined routes.



Point of Entry

- Treatment
- Inspection
- Sampling



Distribución

- internal movement restrictions
- traceability

Points along the chain where NPPOs can apply measures, reduce risk and monitor compliance(pre-border and post-border)we can apply measures



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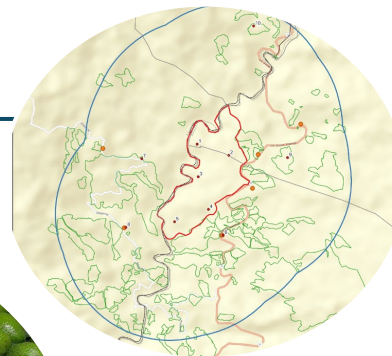


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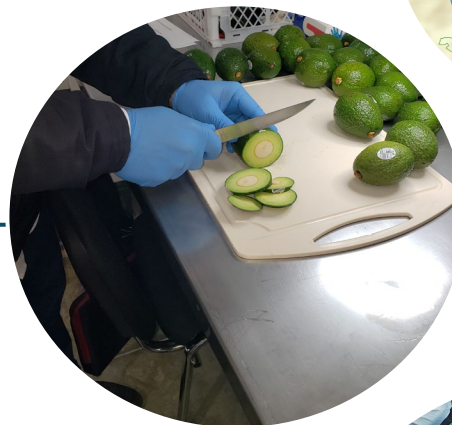
Examples of independent measures required by Chile for avocado imports



Avocado seed moth (*Stenoma catenifer*)



Official surveillance for *S. catenifer* /PFPP/PFPS (trapping, field surveys, diagnostics)



Official inspection and sampling (fruit cutting) at the packinghouse for export certification



Phytosanitary certification and lot traceability



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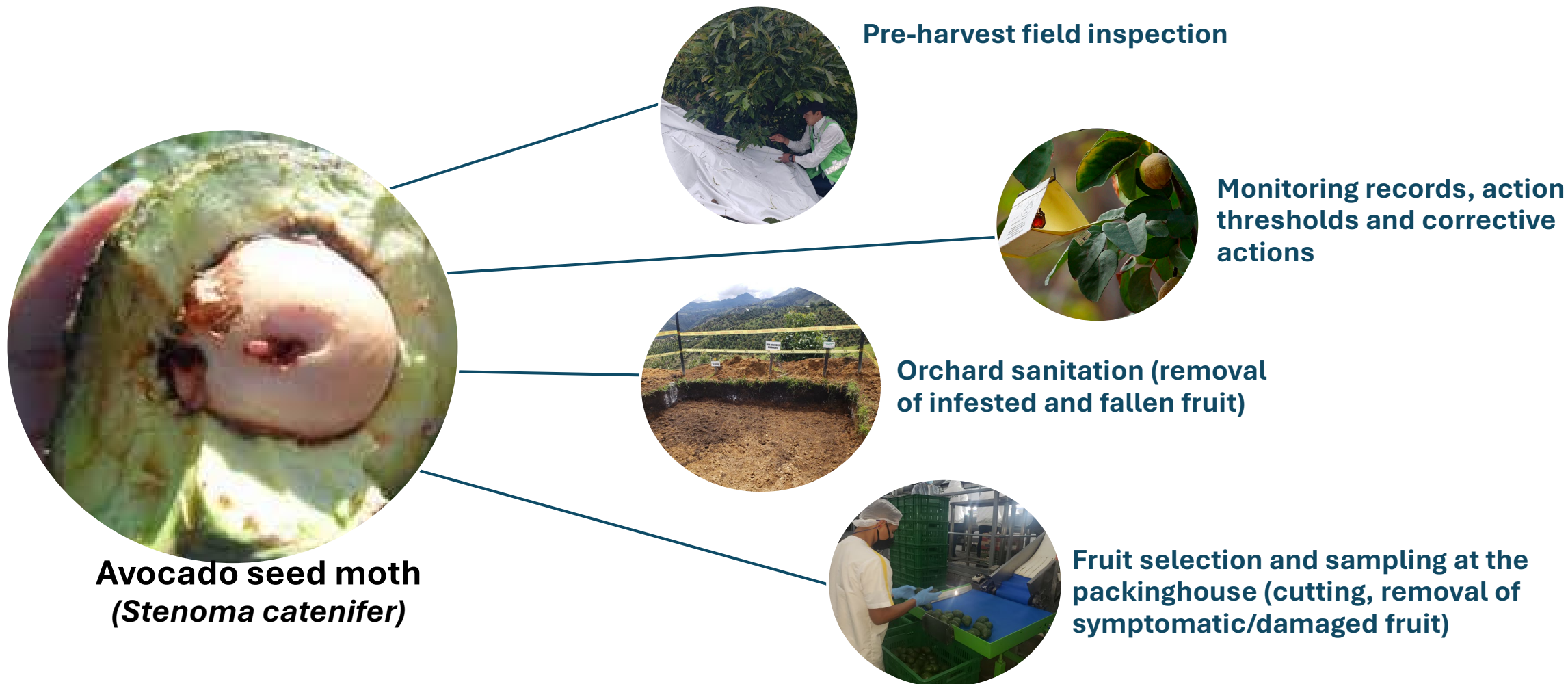


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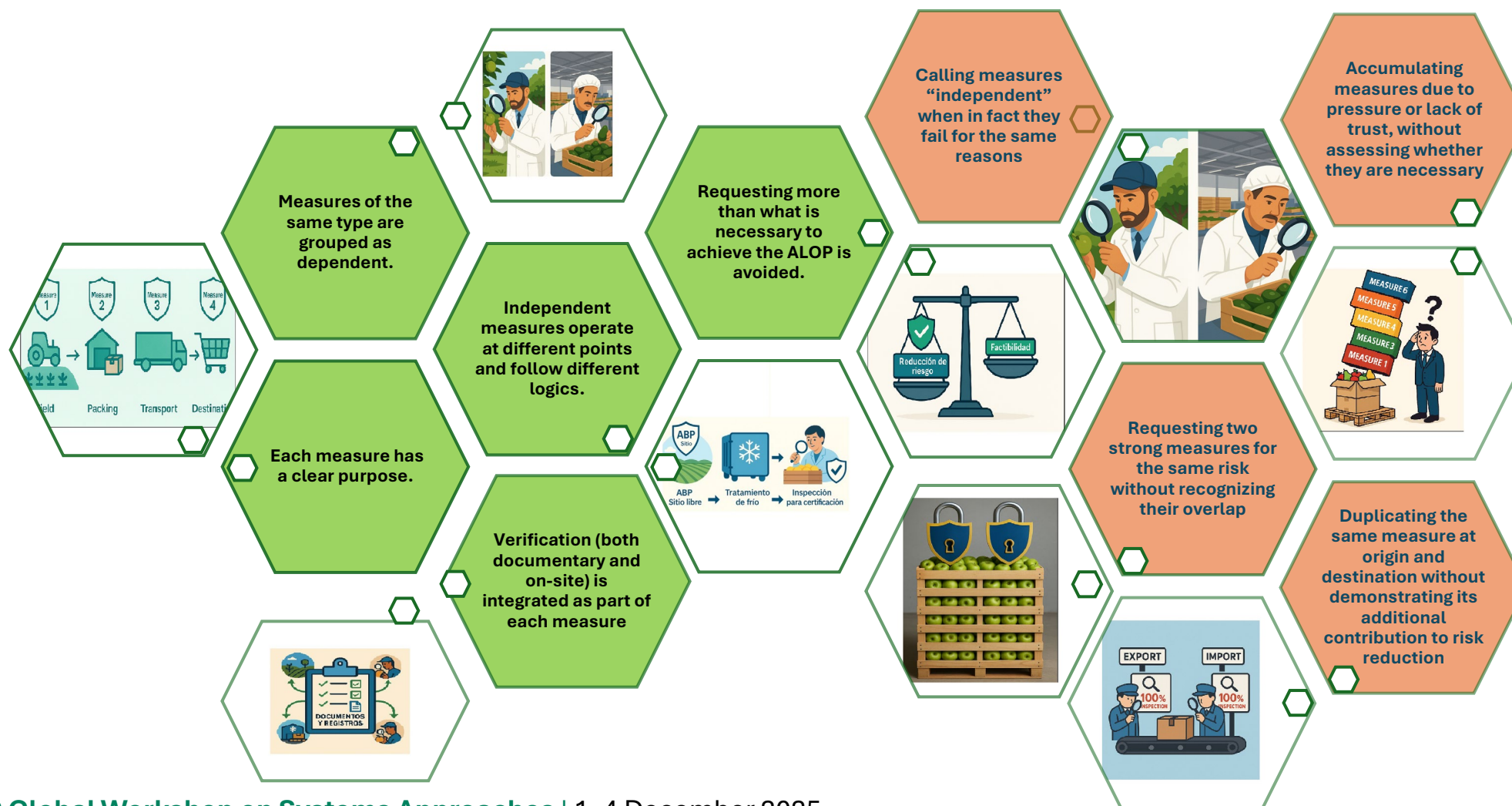
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Example of dependent measures for avocado seed moth





Good and poor practices in a Systems Approach





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Thank you