



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



**United States Department of Agriculture**

Animal and Plant Health Inspection Service

# Supporting organic trade by expanding the phytosanitary toolbox

Gabriel P. Hughes, Ph.D.

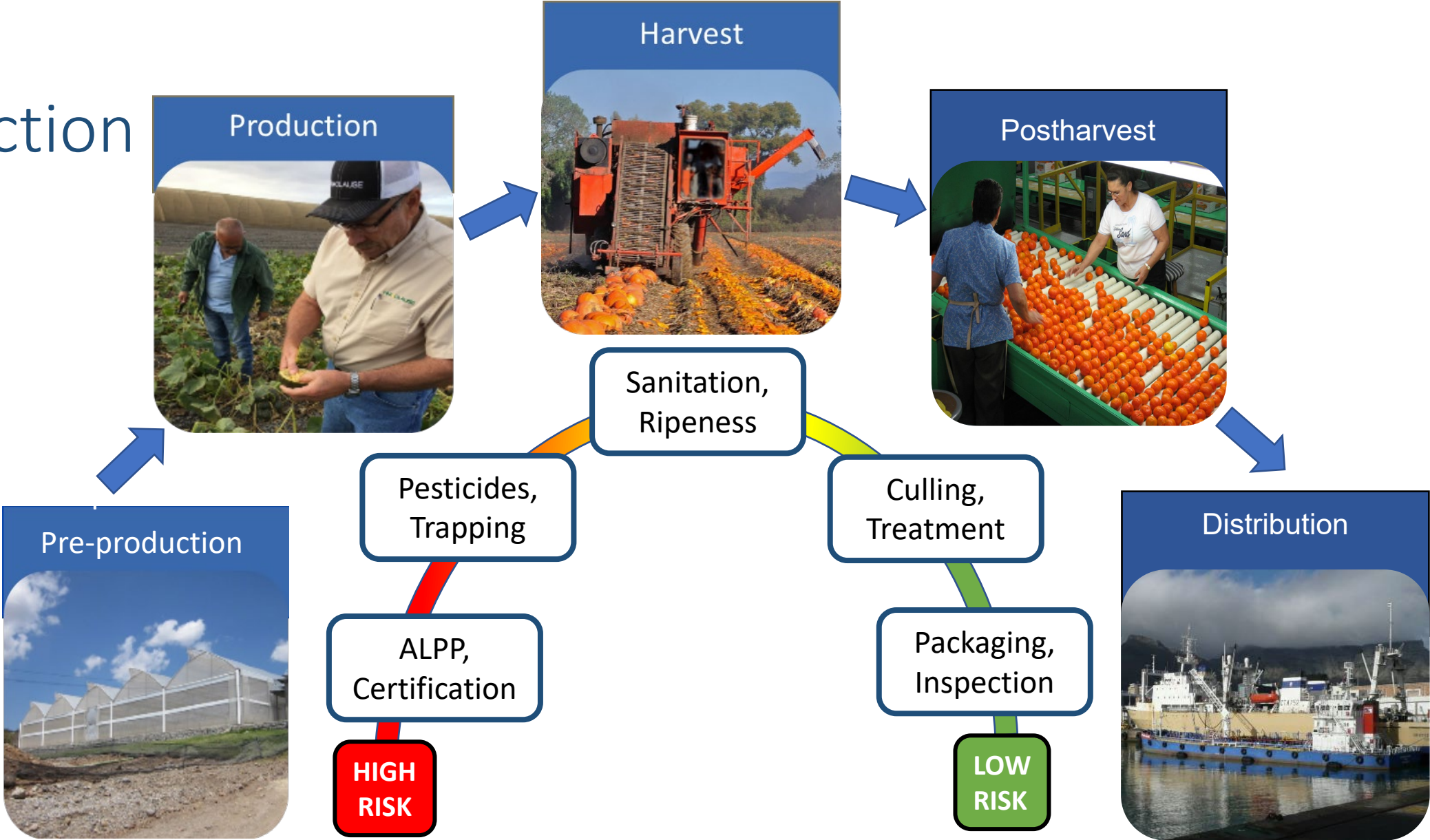
Risk Manager – Entomology

USDA-APHIS-PPQ

February 26, 2022



# Cumulative Risk Reduction



# Systems Approaches

## Definition (ISPM 5)

A pest risk management option that integrates different measures, at least two of which act independently, with cumulative effect

## Circumstances for use (ISPM 14)

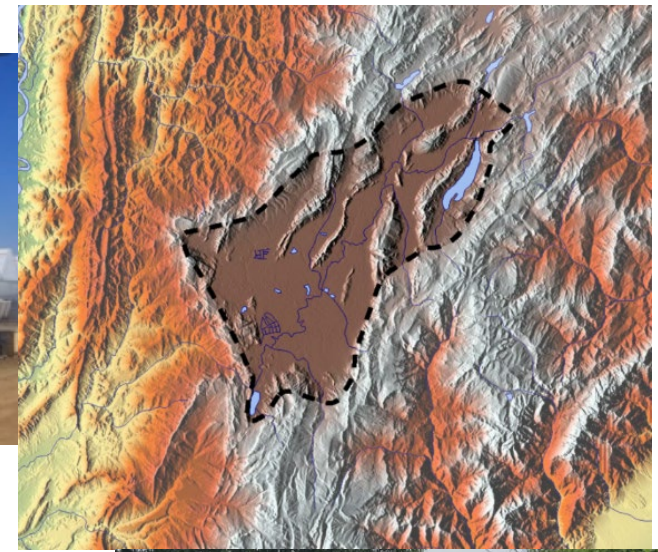
- Used when individual measures not available or restrictive
  - Measures can be monitored / corrected
  - Pest / pest-host relationship known
  - Prevalence of the pest(s) is known and can be monitored



# Preharvest Measures

- No other hosts in buffer / production area
- Elimination of mature or over ripe host fruits from production area
- Removal of shade trees within buffer / production area
- Only specific cultivars allowed (resistant or less susceptible)
- No harvest after specific date or trapping triggers

# Field Measures



- Pest free growing structure
- Limit altitude for growers and packing area to certain levels
- Quarantine road stations /signs
- Fruit bagging
- Registered or approved production sites





Example: Papaya  
from Central America

**Target Pest: Medfly**  
**(*Ceratitidis capitata*)**

Major Mitigations:

- Poor host
- Low prevalence (trapping)
- Specific cultivars
- Specific maturity stage
- Hot water dip



# Recent Examples of Systems Approaches used by APHIS

Chile blueberry (2020)

China citrus (2020)

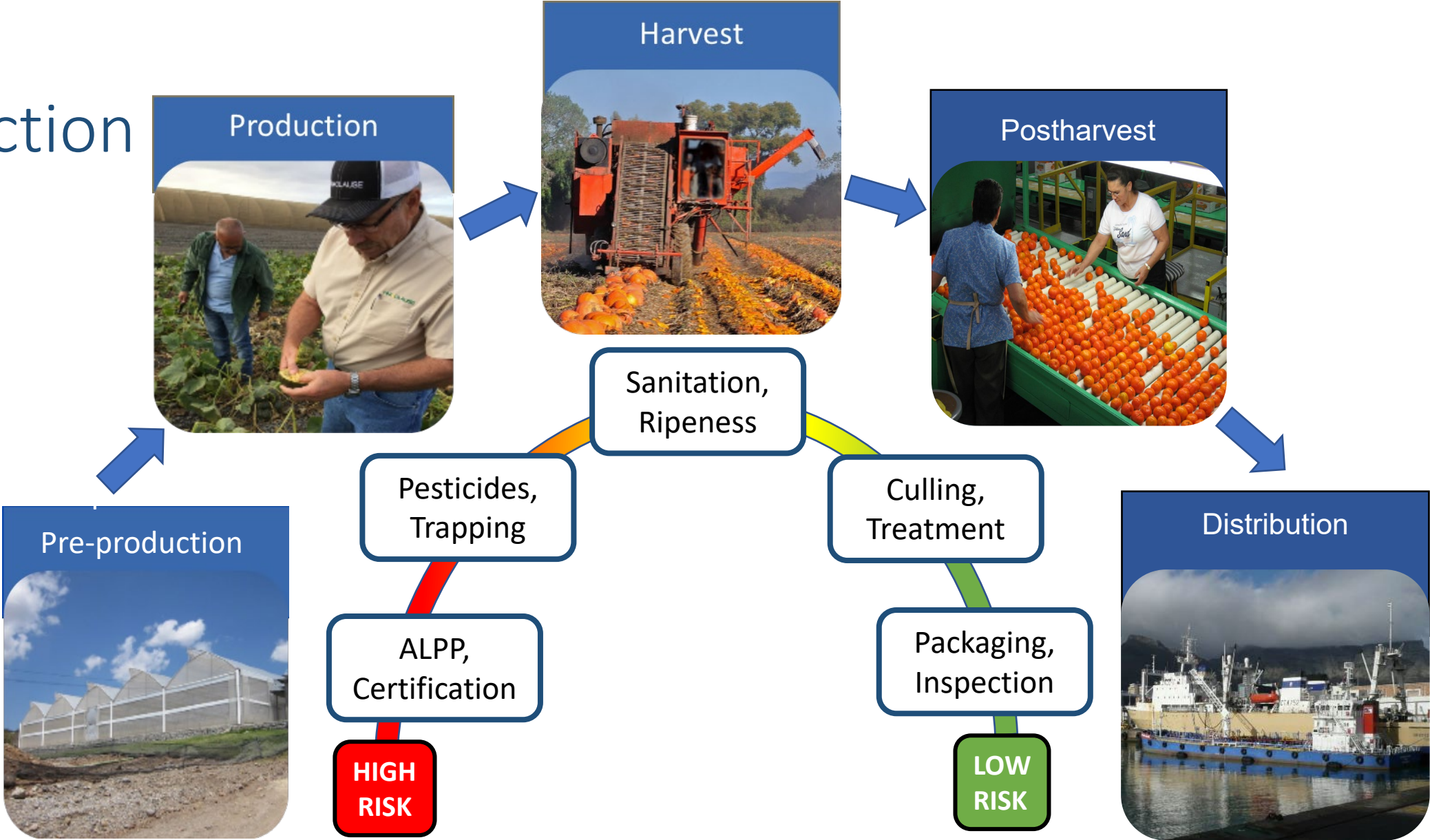
Colombia avocado (2017)

Colombia cape gooseberry (2014)

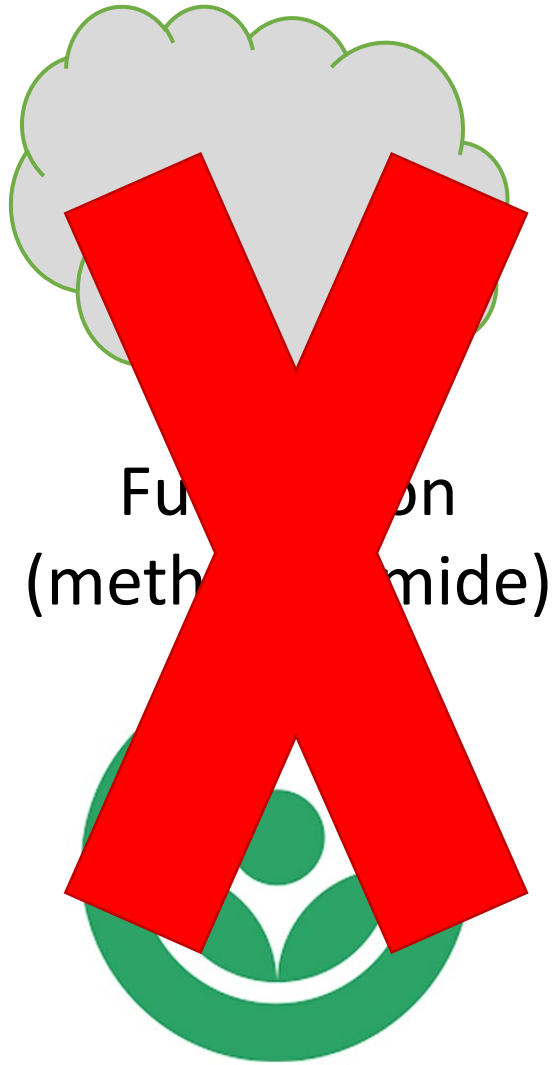
Peru avocado (2010)

Nicaragua pitahaya (2011)

# Cumulative Risk Reduction



# Treatments

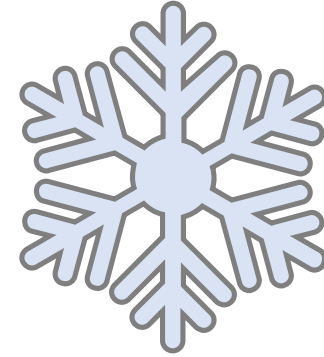


Fumigation  
(methyl bromide)

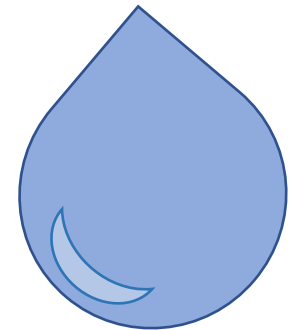
Irradiation

← Cannot be certified organic

Can be certified organic →



Cold



Heat, steam, and immersion



**United States Department of Agriculture**

Animal and Plant Health Inspection Service

Thank you!