USDA
United States Department of Agriculture

# Educating IPM Practitioners – Critical component of sustainable agricultural systems

***8th International***

***Integrated Pest Management Symposium***

Salt Palace Convention Center
Salt Lake City
Utah
March *25, 2015*

USDA
United States Department of Agriculture

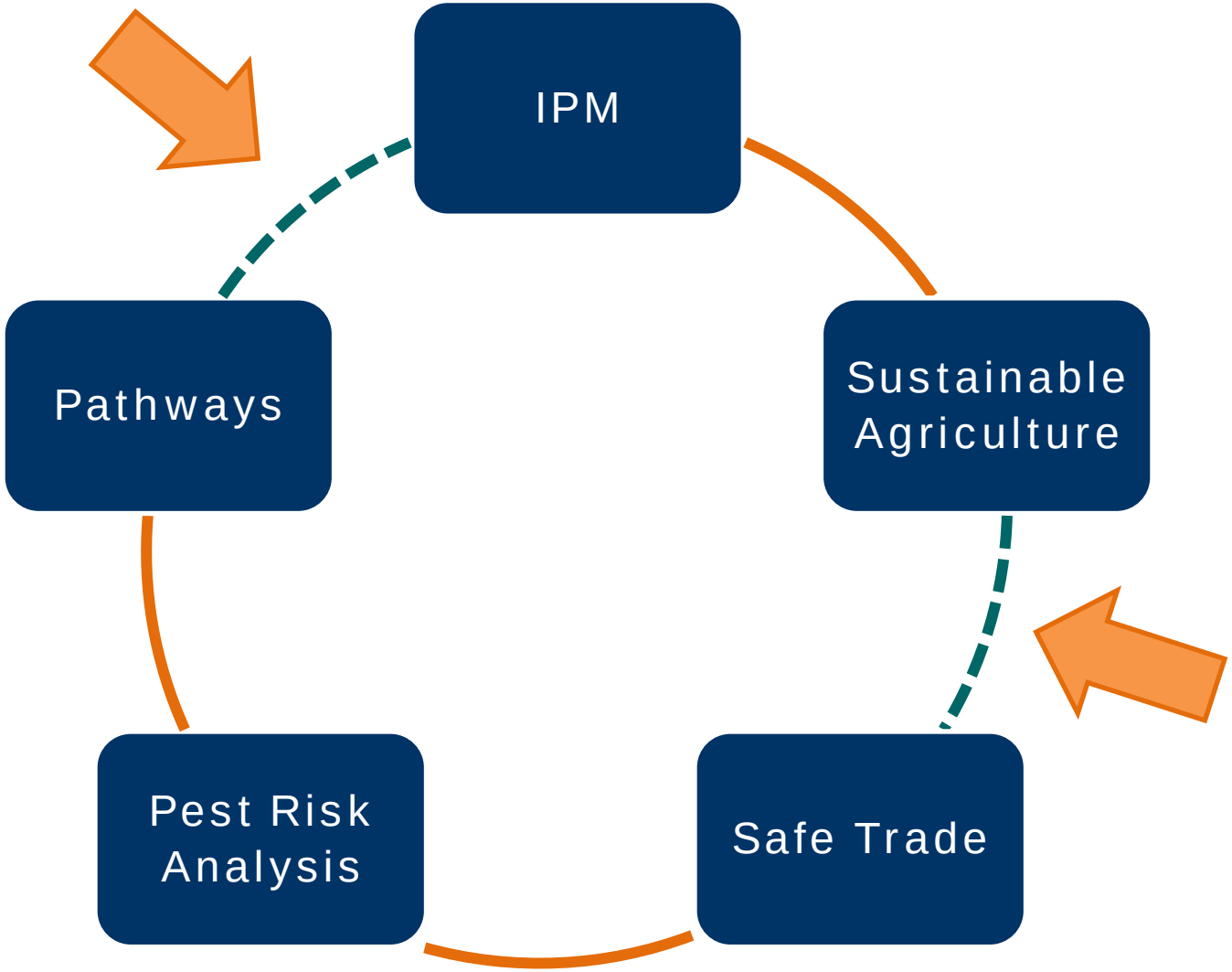
# IPM, Pest Risk Analysis and Safe Trade: Educational Challenges for Regulatory Professionals

***Stephanie Bloem***
USDA-APHIS-PPQ
Center for Plant Health Science and Technology
Plant Epidemiology and Risk Analysis Laboratory
Raleigh, NC

# IPM, Pest Risk Analysis and Safe Trade: Educational Challenges for Regulatory Professionals and IPM Practitioners

We all need to understand each other!

# Today's presentation

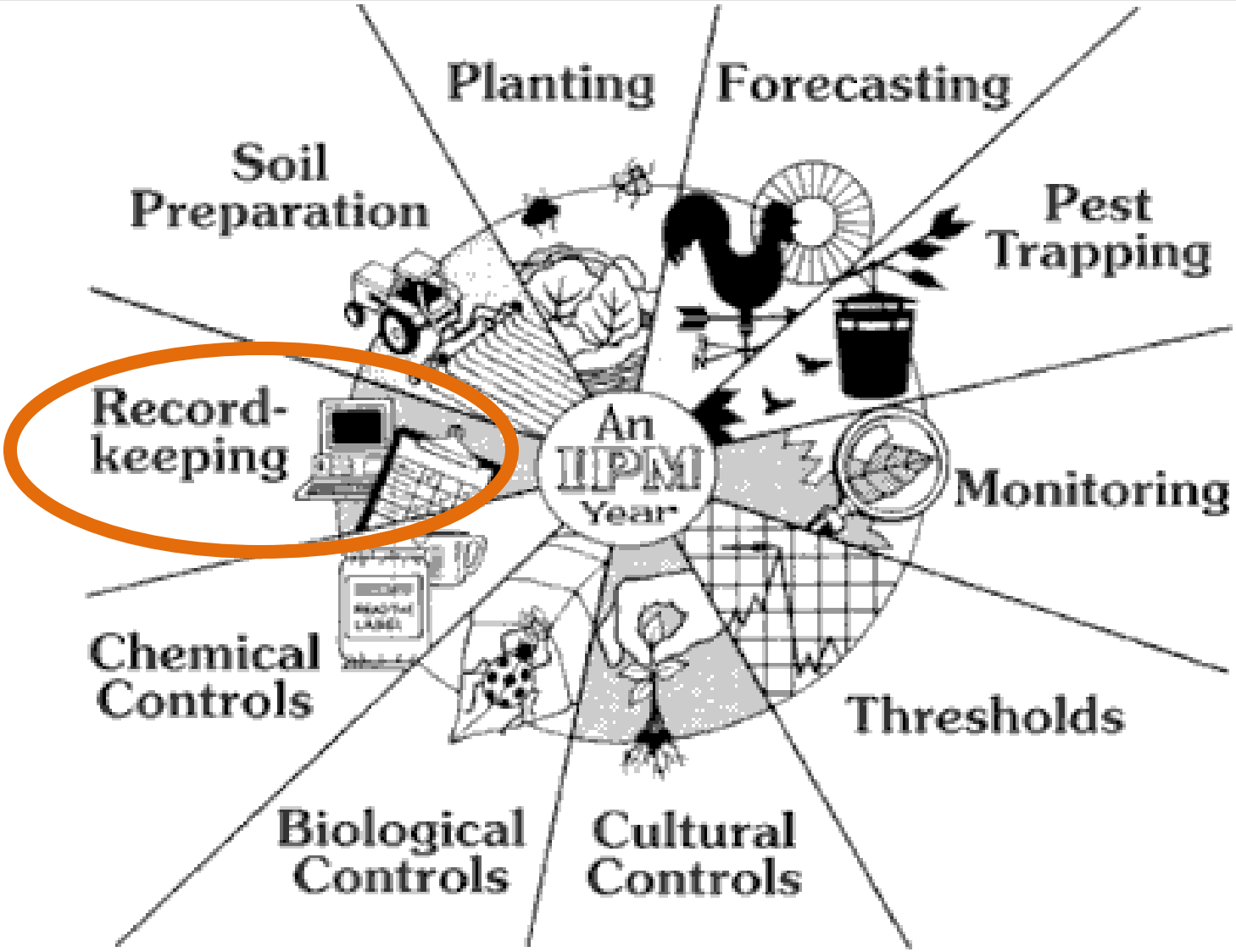


## *IPM practitioners …*

use an ecological approach to pest management which combines ..

- understanding the causes of pest outbreaks,
- manipulating the crop/orchard ecosystem for pest control,
- monitoring pest populations and their life cycles

to determine if and when the use of pesticides and other tactics is indicated/justified/needed




"IPM Year" graphic and text courtesy of Cornell University.

## *Sustainable agriculture ..*

"efficient production of **safe**, high quality agricultural products, in a way that **protects and improves**

- the natural **environment**
- the social and **economic conditions** of farmers, their employees and local communities, and

safeguards the health and welfare of all farmed species."

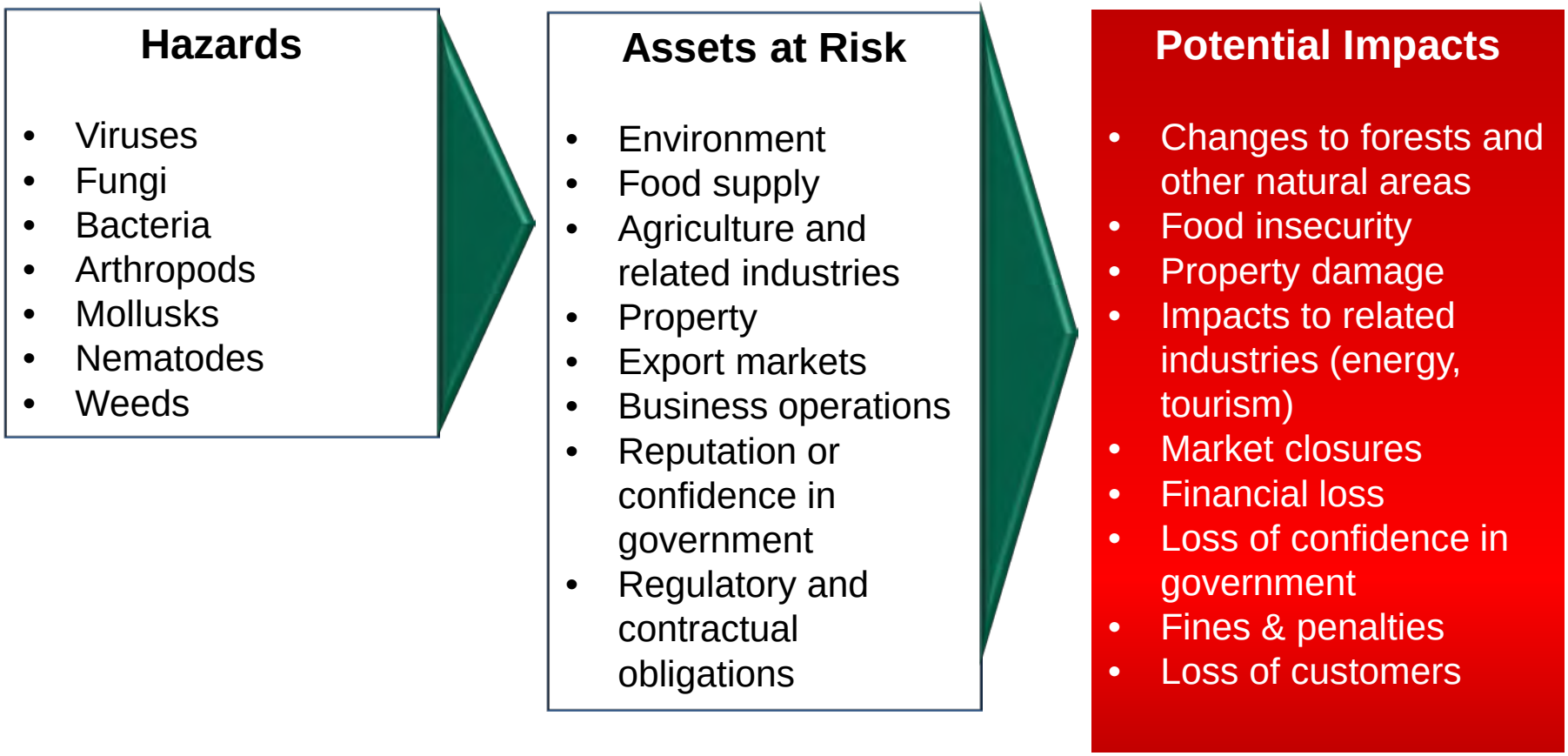

Diagram taken from - Sustainable Agriculture Initiative Platform

# International Trade

In plants and plant products …

+ Can bring economic benefits to growers/producers
+ Can help reduce food insecurity
- Can bring unwanted and devastating plant pests
- Can disrupt IPM systems

# Plant pests: What's the risk?



# APHIS-PPQ and Imports

- We regulate importation of plants and plant products under the authority of the Plant Protection Act
- We develop science-based documents that examine and evaluate the **risks** associated with plants and plant product imports
- The program safeguards U.S. agriculture and natural resources from the risks associated with the **entry, establishment, or spread** of plant pests

# APHIS-PPQ and Exports

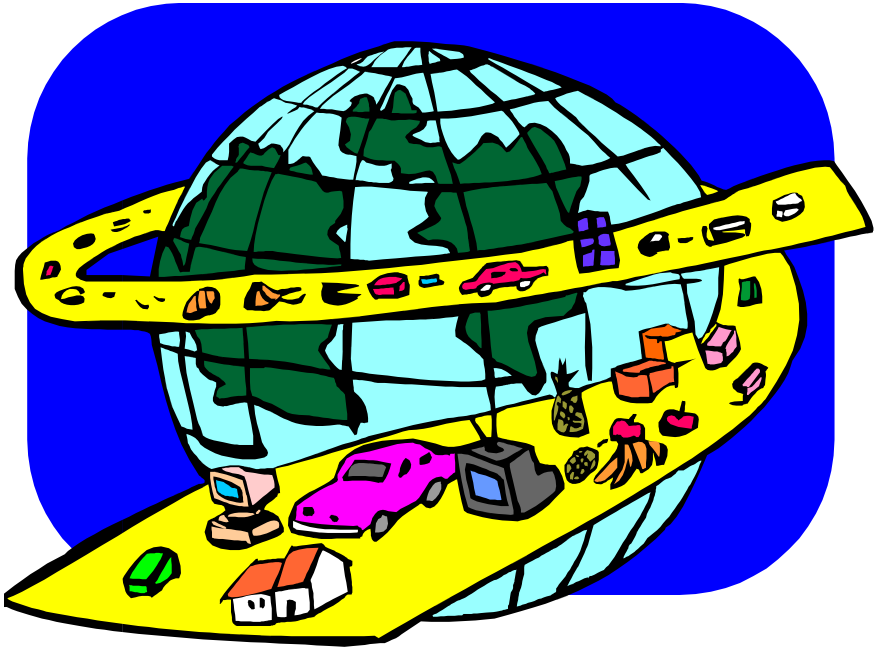
- We assist U.S. producers and trading partners in **opening** and **retaining markets** for plants and plant products
- Import permit – no analysis needed - PPQ provides trading country's import requirements
- Analysis needed - country may require a pest list, pre-harvest or field management practices or procedures, post-harvest procedures, mitigation options, and other supporting information

# Putting it all together ..

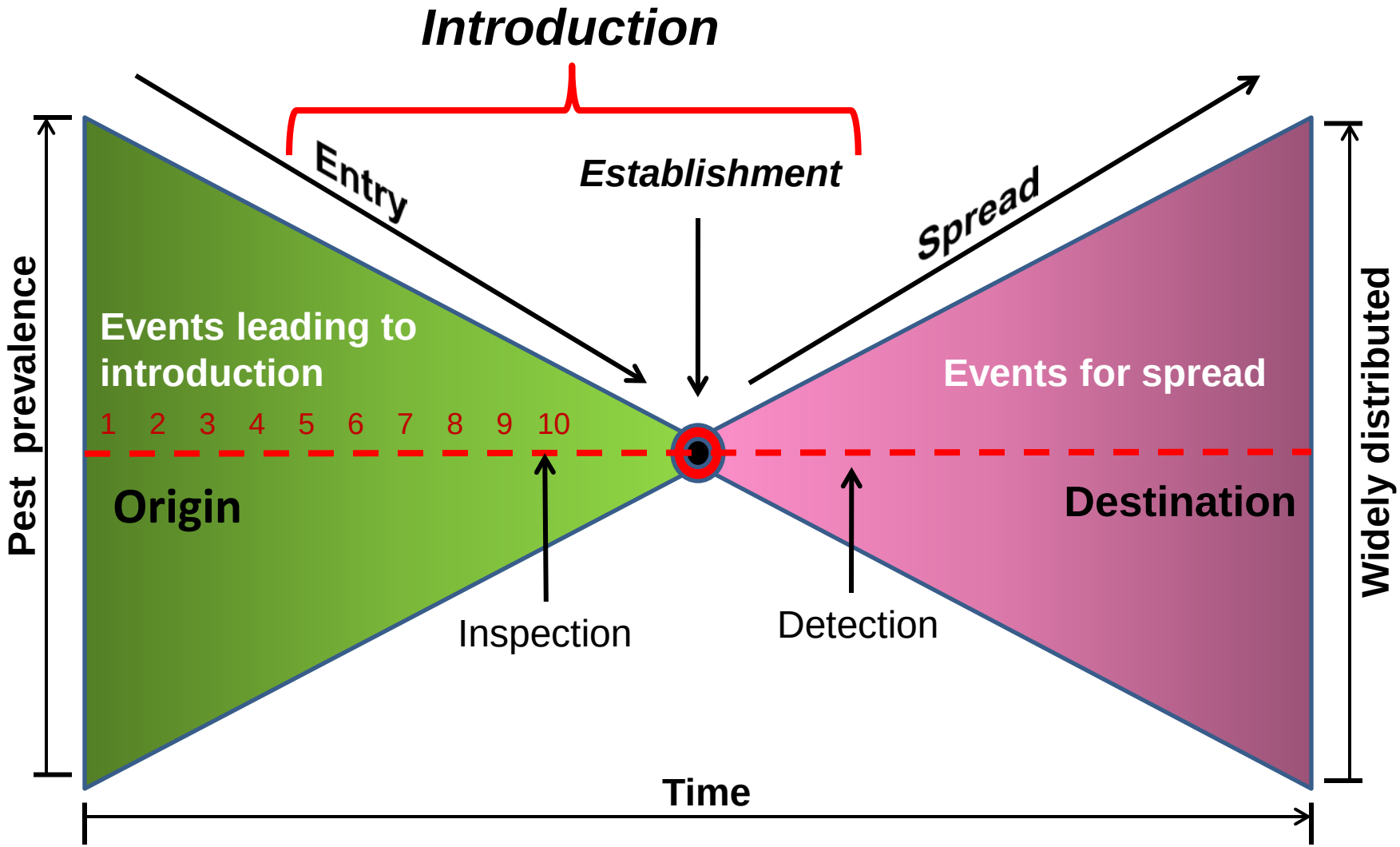
- Protection from the entry, establishment and spread of new harmful pests is essential for **food security**
- Facilitation of trade is important for **economic security**

# Putting it all together ..

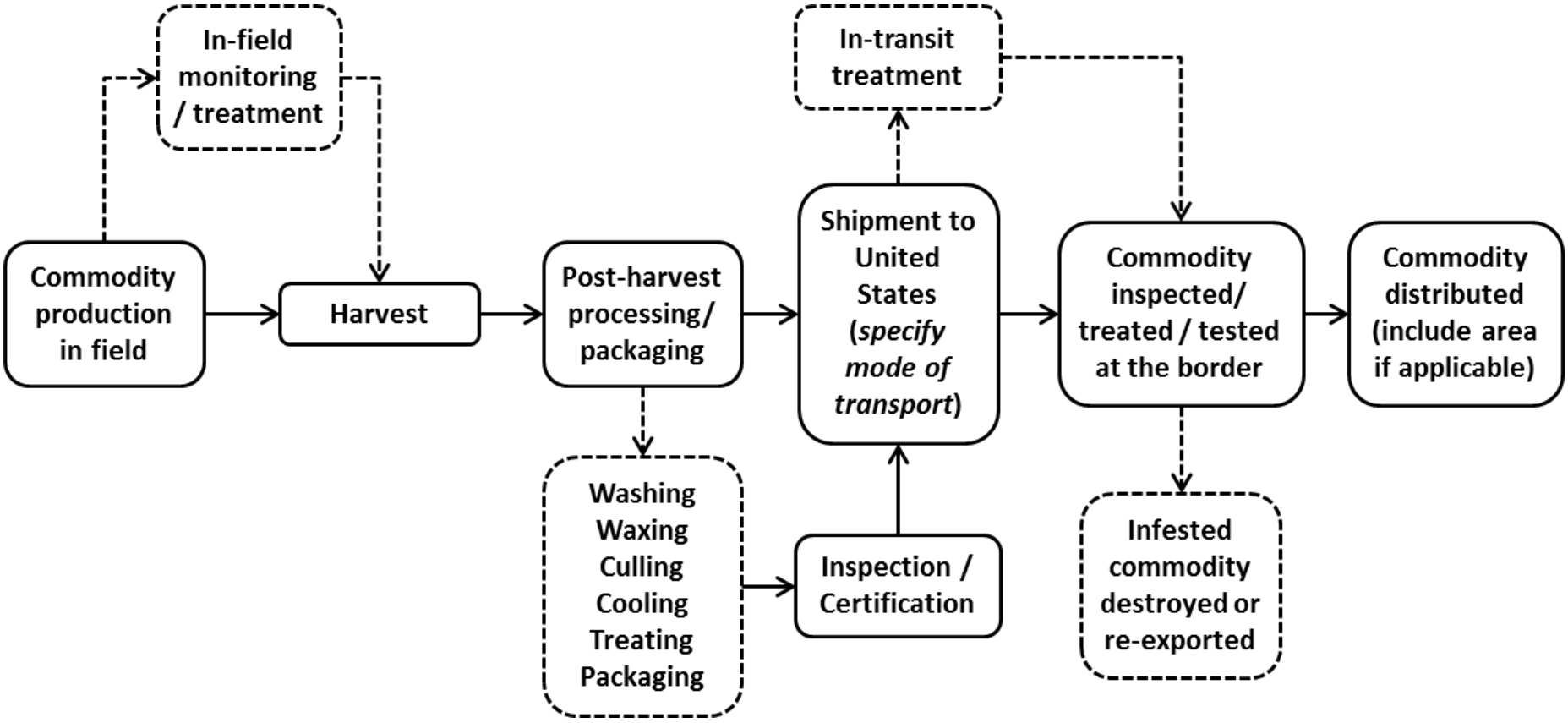
- **Safe trade** – protective measures are used to the extent justified by legitimate pest risk concerns (risk assessment)



# Assessing risks – pest pathway



# Pathway of pest entry



# Factors influencing likelihood of entry

- Commodity traits
- Pest biology and behavior
- Industry practices

Counter-clockwise from top: Pepper photo by Stephen Ausmus. Potato beetle photo by Scott Bauer. Squash photo by Lance Cheung. Flickr.com/photos/usdagov

# Probability of pest entry

Pest **association with the pathway at origin**

- Pest prevalence in source area
- Seasonality
- Cultural and management practices and harvest/post-harvest procedures at origin
- Occurrence of life stage that might/could be associated with commodities, containers, conveyances

# Probability of pest entry

## Pest **survival during storage or transport**

- Commercial procedures applied to consignments in country of origin
- Pest prevalence with consignment
- Speed and conditions of transport
- Duration of life cycle in relation to time in transport and/or storage
- Vulnerability of life-stages

# Probability of pest entry

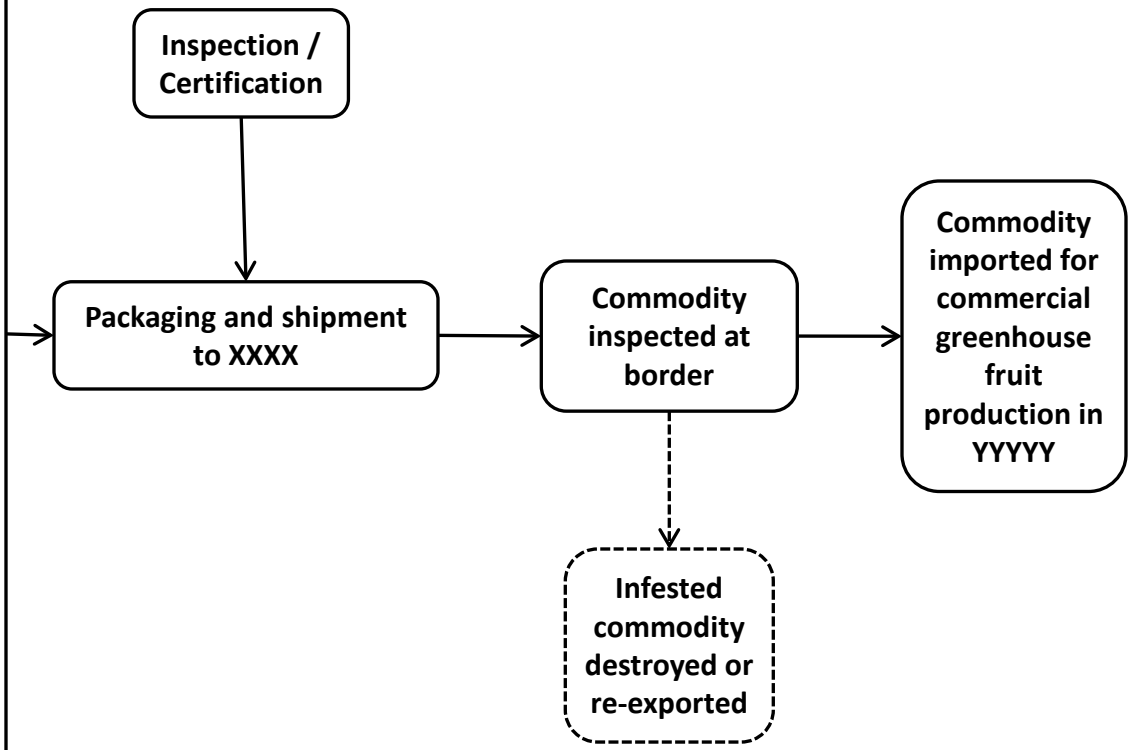
- Probability of pest **surviving existing pest management procedures**
- Probability of **transfer to a suitable host**
  - Time of year of trade
  - Intended use
  - Few or many destination points
  - Dispersal mechanisms, including vectors

# IPM practitioners

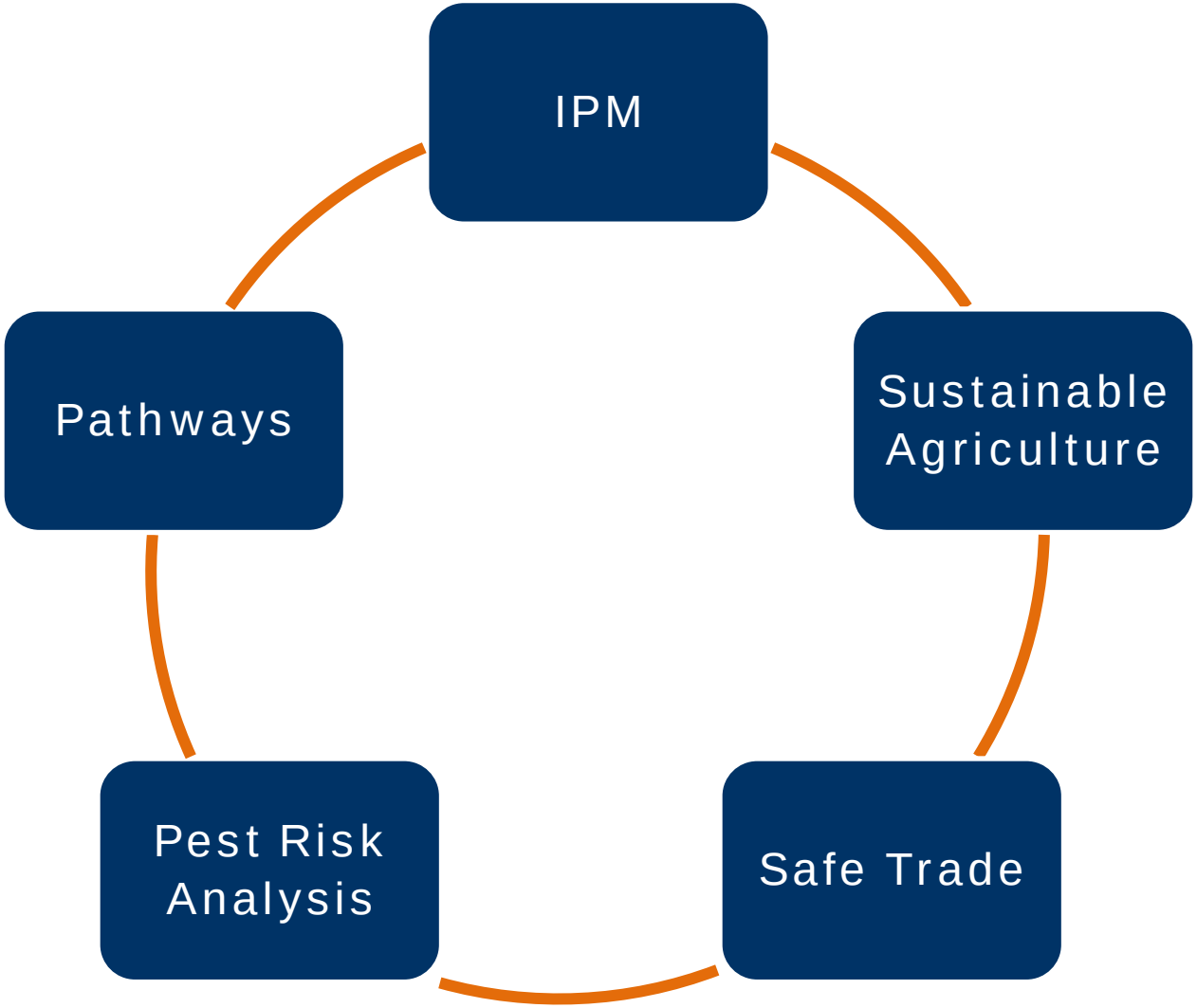
- **pest biology**
- **pest prevalence**
- **field /greenhouse management practices or procedures**
- **pre-harvest and post-harvest procedures**
- **mitigation options**
- **other supporting information**

**Tomato plantlet production inside exclusionary greenhouses (~30 days)**

- Double insect screening including over ventilation ports
- Workers enter through sanitation stations
- Spring or well water is disinfected with chlorine and UV light
- Plantlets started from surface disinfested certified seeds
- Planted in approved growing media
- Plantlets are grafted inside plastic covered tunnels
- Greenhouse surveillance (Yellow· sticky traps)
- Biological control



# Final thoughts



# By working together ..

- Through sharing of knowledge
  - Positive impact **food security and economic security**
- Ensure that **all trade (domestic as well as international) is safe trade**